



Faculteit Sociale Wetenschappen

Departement Sociologie

Decent incomes and the affordability of essential goods and services in Europe

The added value of reference budgets

Proefschrift voorgelegd tot het behalen van de graad van doctor in de sociale wetenschappen
aan de Universiteit Antwerpen te verdedigen door

Tess Penne

Promotoren:

Prof Dr. Bea Cantillon

Dr. Tim Goedemé

Antwerpen, 2020

Doctoral Jury:

Prof. Dr. Bea Cantillon (Supervisor, University of Antwerp)

Dr. Tim Goedemé (Supervisor, University of Oxford; University of Antwerp)

Prof. Dr. Ive Marx (Chair, University of Antwerp)

Dr. Bérénice Storms (Thomas More (CEBUD); University of Antwerp)

Prof. Dr. Koen Decancq (University of Antwerp)

Prof. Dr. Bjorn Hvinden (Norwegian Social Research, NOVA)

Prof. Dr. Frank Vandenbroucke (University of Amsterdam; University of Antwerp)

Prof. Dr. Yuri Kazepov (University of Vienna)

ACKNOWLEDGEMENTS

This doctoral dissertation has not been a one woman's job. On the contrary, it has been the result of teamwork, many rich collaborations, fruitful exchanges and eye-opening confrontations. I am grateful for this. For all the opportunities and support I have received, for all the fascinating people I have encountered, and for all the positive energy that I have been surrounded by. I would like to use these first – which will probably be the most read – pages to give special thanks to some people in particular.

First of all, I owe many thanks to my supervisors Tim Goedemé and Bea Cantillon. Bea, thank you for giving me the opportunity and freedom to work in such an inspiring and stimulating environment. Your advice, feedback and thoughtful insights have shaped me as a researcher and assisted me throughout the PhD.

Tim, thank you in particular. I would never have started or completed this thesis without your analytical mind and guidance. You have taught me a lot, not only in the field of academic research and methods but also with respect to writing, presenting and self-confidence. Many times you have lifted my work to a higher level. And when I got lost again in the PhD 'woods', you never got tired of giving yet another supportive pep talk. Thank you for being such a great mentor and inspiration, and most of all for being a friend who never doubted my abilities.

I would also like to give special thanks to Bérénice Storms. Although you were formally not one of my supervisors, informally you obviously were. It has been an honour to be introduced to the world of reference budgets by the Belgian mother of reference budgets herself. From the very first moment – the job interview where it all began – we had a connection. Ever since, you have been a source of

inspiration, support, trust and creativity. No matter how busy your schedule, or how tough the fight against disease, you always had my back. You have that special gift of always giving people the feeling that they are worth taking all the time in the world for. That positive energy reflects on to others, including myself.

I am grateful to Ive Marx for being the chair of my doctoral committee, and for giving helpful and down-to-earth advice during the final stages of completing this thesis.

Also, I have a lot of appreciation for Koen Decancq, not only for agreeing to the role of jury member, but also for all the insightful conversations. Thank you for being the critical voice that makes me think twice and, at other times, the comforting voice that stops me from thinking too much.

I sincerely thank the other members of my doctoral jury, Prof. Bjorn Hvinden, Prof. Yuri Kazepov and Prof. Frank Vandenbroucke for taking time to read and reflect upon this dissertation. It is a great honour to have such principled scholars as members of my doctoral jury.

Importantly, reference budget research would not be possible if it were not for the large joint efforts and partnerships. I am indebted to all the contributors of the reference budgets data on which I have largely relied in this thesis. For the Belgian data, I owe thanks to the researchers at CEBUD, who are doing an amazing job in developing and updating reference budgets and their applications for Belgium. Special thanks to Ilse Cornelis and Leen Van Thielen for the collaborations in the third and fifth chapter of this thesis.

In the two European projects, I was lucky to be part of a great Antwerp coordinating team. I am very appreciative of the guidance and care from Bérénice, Tim and Karel Van den Bosch, and I loved working side by side with Sara

Stockman and Nathalie Schuerman. I owe you all a tremendous amount of gratitude.

For the development of the ImProvE reference budgets, I would like to thank the national teams with whom we collaborated with in Athens (Eleni Kanavitsa, Alexandros Karakitsios and Manos Matsaganis), Barcelona (Elena Carillo Alvarez and Irene Cussó Parcerisas), Budapest (Anikó Bernát, Marianna Kopasz, Bori Simonovits, and Péter Szivós), Helsinki (Lauri Mäkinen and Veli-Matti Ritakallio), and Milan (Marco Arlotti and Yuri Kazepov). I am particularly grateful to Irene, Elena and Lauri for the fruitful collaborations in the second and final chapters of this dissertation. Similarly, in the EU pilot project, we were fortunate to work together with a broad network of experts and researchers. A complete list can be found on the referencebudgets.eu website. Being part of these international projects has been a rich and unique experience. I am looking forward to the continued joint ventures in the EU Platform on Reference Budgets.

I sincerely thank the Flemish Research Foundation Flanders for giving me the financial support for this doctoral dissertation.

Further, I am indebted to my colleagues at the University who gave me administrative support, special thanks to Viviane, Ingrid, Ditte, Inge, Geertrui and Karen.

During spring 2018, I was lucky to be a research visitor at SOFI (University of Stockholm). I am grateful to Prof. Kenneth Nelson and Prof. Rense Nieuwenhuis for receiving me as a guest for two months. *Tack så mycket* to all the colleagues at SOFI, and in particular to Rense, Maria, Laure and Anna for making me feel at home and guiding me through my stay in the wonderful city of Stockholm.

The CSB is a one-of-a-kind workplace with amazing colleagues. Without them, I would never have been able to complete the PhD. Gerre, my opposite neighbour, you gave me so many interesting philosophical, historical and spiritual insights and taught me the peace and quiet of Westmalle. Thank you for all the times you encouraged me to keep going but also to stop when necessary, to go outside and to breath. I am thankful to my lovely office buddy Marjolijn and my reading and climate partners, Josefina and Petra, for their understanding and support and for sharing our political outrage and eagerness to do something about it. Thank you Daniela for being the most helpful neighbour when I just arrived at the CSB, and thank you Tine and Sarah M. for the support with HHoT and the joint effort in starting up the ‘USAB sociale stage’ together. Also special thanks to Shaun for proofreading this acknowledgements. Thank you Diego, Sarah K., Jarmila, Veerle, Dries, Zach, Eva, Johannes, Lukas, Mateo, Wim, Lorena, Ella, Johanna, Anna, Linus, Annemie and many others, for all the nice lunch breaks, joyful conference trips, interesting conversations and after-work fun. Last but not least, I want to thank the ladies who occupy a special place in my heart. First of all Julie V., my PhD sister a.k.a. my partner in crime, for sharing love, pain and chocolate with me. And of course my other girls, querida Bego, Julieke J., and also ex-colleagues Lindie, Lientje and Deetje, thanks for brightening up my work and world. You know that I will thank you all properly later since you are not getting rid of me anymore.

Finally, there are so many others outside the workplace to which I owe a lot of gratitude.

Ik wil graag eindigen met een kleine ode in mijn moedertaal aan mijn allerliefste familie en vrienden. Zij die mij goed kennen, weten dat ik van mensen hou, veel meer dan van doctoraten schrijven. Het zijn dan ook de bijzondere mensen rond mij die er voor hebben gezorgd dat ik dit doctoraat tot een goede einde heb gebracht.

Linde, Afra en Charlotte, mijn drie heldinnen, jullie zijn er altijd wanneer ik een hart onder de riem nodig heb, voeten op de grond, het bos door de bomen en de zon in mijn gezicht. Michke, Lynnies en Jutteke, jullie staan al aan mijn zijde sinds het flippo-driekwartbroeken-tijdperk, zoveel dank voor de vele heilige viervuldigheid avonturen en slappelach momenten. Ook een speciale bedankung aan Michke en haar Studio Wiggle om mij te helpen met de cover van dit doctoraat. Mijn liefste Conscious Crew, jullie geven mij steeds de nodige dosis positieve energie en shotjes strijdlust. Zonder ons gezamenlijk stoom afblazen en onze kleine acties voor rechtvaardigheid had ik mijn computer en bureaustoel al lang door de raam gezwierd. Maar dankzij de crew komt alles altijd goed. De Putaintjes, jullie maken mij trots dat ik een sociologe ben. Dank jullie voor enerzijds het klankbord en anderzijds de vurige discussies, maar vooral voor de ongelooflijke steun. Ook bedankt aan al mijn andere prachtige vriend(inn)en, de meisjes van Deruit, Charisje, Femie, Hannah, team Kia, Cleo, mijn LGU dancehall queens en kings, smugglers, partycrew'ers en andere pure zielen die mijn leven super interessant en hilarisch maken. Veel dank aan Marleen en alle kleurrijke vrouwen van de Kwekerijstraat om steeds weer het verschil te maken, jullie zijn mijn wekelijkse dinsdag in wereldsheid, relativering en solidariteit. En natuurlijk ook bedankt aan de fantastische familie El Achkar, jullie werden een tweede thuis waar ik mij altijd gesteund en welkom voel.

Een niet-in-woorden-te-vatten dankbaarheid gaat uit naar mijn ouders, zus en broer. Mama en papa, dank jullie voor alles. Mama bedankt voor het mededogen, de passie en de openheid. Papa bedankt voor het inzicht, de ambitie en de weerbaarheid. Robbe en Lore, bedankt voor het samenzijn, voor het samen delen, leren, klungelen, doorzetten, huilen, lachen en dromen. Altijd samen klein, samen groot. Ik ben een enorme geluksvogel die onvoorwaardelijke steun en ruimte kreeg om de vleugels te spreiden, te vallen en weer op te staan, terwijl er een liefdevol nest is waar ik altijd terecht kan. Dat is niet vanzelfsprekend, en het is daarom dat ik hier nu sta.

Ten slotte, Antoine, de liefde van mijn leven. Niemand die het schrijven van dit doctoraat van zo dicht heeft meegemaakt als hij. Hij was er altijd, ook als ik niet meer te genieten was. Bedankt schatje, voor de lekkere maaltijden wanneer ik laat thuis kwam en voor de spontane koffie leveringen op de bureau. Dank je om naar mijn hersenspinsels, presentaties en ellenlange betogen over onrechtvaardigheid te luisteren en mij het gevoel te geven dat het ergens op slaat, ook als dat totaal niet zo is. Bedankt om mij te confronteren, tegenwind te geven, om mij te zeggen dat het nergens op slaat, ook als dat – naar mijn bescheiden mening – wel zo is. Om mijn tranen van frustratie te drogen en mij aan het lachen te maken, om ten allen tijden te blijven zingen en mij aan te moedigen. Dank je om mij, na een lange uitputtende dag voor de klas, nog steeds energie te geven en om mij op gepaste tijden te doen vergeten dat er zoiets bestaat als een doctoraat. Habibi, jij bent mijn grootste inspiratie. Dank je voor de liefde.

Table of Contents

Acknowledgements	i
Introduction	1
Defining a minimum acceptable living standard	3
How to evaluate standards of living and measure poverty?	5
Reference budgets.....	9
Contributions and outline of the thesis	12
PART I. TOWARDS CROSS-NATIONALLY COMPARABLE REFERENCE BUDGETS IN EUROPE: THEORY AND METHODS	19
Chapter 1: Exploring common ground for defining adequate social participation in 24 EU capital cities.....	20
Introduction.....	21
Defining adequate social participation	24
Embedding social participation in the framework of human needs	28
Common ground across EU Member States for defining adequate social participation.....	34
Conclusions	50
Chapter 2: Food Reference Budgets as a potential policy tool to address food insecurity: lessons learned from a pilot study in 26 European countries.	55
Introduction.....	56
Materials and Methods	58
Results	66
Discussion.....	72
Conclusions	76

PART II. THE USE OF REFERENCE BUDGETS FOR THE DEVELOPMENT OF SOCIAL INDICATORS.....	79
Chapter 3: Measuring water affordability in developed economies. The added value of a needs-based approach.	80
Introduction.....	81
Literature review.....	83
A needs-based concept of minimally necessary water use.....	86
Methodological considerations regarding water affordability indicators	91
Empirical illustration	97
Discussion.....	104
Conclusions	107
Appendix: Sensitivity analysis	109
Chapter 4: Can low-income households afford a healthy diet? Insufficient income as a driver of food insecurity in Europe.....	112
Introduction.....	113
Food insecurity in Europe.....	116
Data and method	119
Prevalence of households with insufficient income to access a healthy diet.....	124
The lack of adequate minimum income protection	130
Discussion.....	132
Conclusions	135
Chapter 5: All we need is... Reference budgets as an EU policy indicator to assess the adequacy of minimum income protection.	136
Introduction.....	137
When is a minimum income adequate?.....	141

A hypothetical household method to simulate out-of-pocket costs and net incomes.....	145
The adequacy of minimum income protection: the case of Belgium	149
Discussion.....	160
Conclusions	163
Appendix.....	167
Chapter 6: To what extent do welfare states compensate for the cost of children?	
The joint impact of taxes, benefits and public goods and services.....	170
Introduction.....	171
Why welfare states compensate for the cost of a child.....	174
Identifying the cost of a child	176
Data and methods	178
The generosity of welfare states to families with children	182
Discussion and conclusions	191
Appendix.....	196
Chapter 7: What does it mean to live on the poverty threshold? Lessons from Reference Budget research.	202
Introduction.....	203
Why contextualise the AROP indicator?.....	206
The ImPRovE reference budgets: assumptions and method	209
Comparing reference budgets and the EU poverty threshold: wat can be learned?	214
Conclusions	226
Chapter 8: Can Reference Budgets be used as a poverty line?	229
Introduction.....	230
Some limitations of current poverty measures in Europe.....	232
Reference budgets and their added value	236

Reference budgets for specific hypothetical households.....	238
Comparable reference budgets for three large European cities	241
How the reference budgets relate to the at-risk-of-poverty threshold	244
Method: reference budgets as a poverty indicator.....	246
Results	257
Discussion: the limitations of reference budgets as a poverty indicator	263
Conclusions	269
Conclusion.....	274
The road to cross-nationally comparable reference budgets	275
What can we learn from reference budgets?.....	277
Limitations	282
Directions for future research	285
Policy implications	289
References	295
Nederlandstalige samenvatting.....	329

INTRODUCTION

“The ability to monitor progress is the first prerequisite for effective action.” – Anthony B. Atkinson

Poverty remains one of the main challenges of our times. Researchers point to inadequate levels of minimum income protection and stubbornly high levels of poverty that persist in current industrial welfare states (Cantillon et al. 2019). As a consequence, a significant number of people are prevented from realizing an adequate living standard and, hence, from meeting their basic human rights¹ (United Nations 1948). But what does a *decent* income or *an adequate* living standard entail?

In order to develop and monitor policies to alleviate poverty and improve standards of living, valid and high-quality indicators are essential. The social indicator movement goes back to the sixties. Across the globe, research on social indicators emerged to measure and compare social development and the impact of social policies within and across countries (Land and Michalos 2018). In Europe, especially since the ‘90s, the social dimension appeared higher on the agenda. With the Lisbon Strategy and the Open Method of Coordination, a common set of non-binding social indicators was installed to enhance social inclusion and social rights in the EU (Atkinson et al. 2002). The policy objective to alleviate poverty was at the heart of the Lisbon Treaty. This objective has been further expressed more concretely with the EU 2020 target to reduce the number of people in poverty and social exclusion by 20 million (Vandenbroucke 2017).

¹ “*Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control*” (Article 25, UDHR).

This dissertation studies the extent and measurement of welfare state adequacy and poverty in European welfare states. The mutual relation between the adequacy of incomes and the necessary expenses of households takes centre stage here. The thesis builds on *reference budgets (RBs)*, a wide-spread and long-standing research tradition that examines what households need to spend in order to attain a given living standard (Bradshaw 1993; Storms et al. 2014). More specifically, I make use of cross-nationally comparable RBs for adequate social participation to contribute to the measurement and understanding of the affordability of goods and services, adequacy of incomes and poverty in Europe.

The current portfolio of social indicators is a useful and multifaceted source for research (Cantillon et al. 2019; Atkinson et al. 2017). As I will argue in this thesis, however, it remains incomplete in linking decent incomes to essential needs for social participation on the one hand and to the affordability of goods and services on the other. In current studies and policy evaluations, income adequacy and poverty are generally evaluated with little empirical underpinning of what constitutes a decent income and how needs differ across households and countries. At the same time, conventional social indicators largely neglect the impact of publicly provided or subsidised goods and services that have an (increasingly) important impact upon the living standard of households (Aaberge et al. 2017; Verbist and Matsaganis 2014; Verbist 2017). In assessing the out-of-pocket costs that households face to access essential goods and services, RBs have the advantage of taking the impact of in-kind policy measures into account that are aimed at reducing these costs and improving affordability. For example, the essential private expenses that households have to make to provide their children with education, given the costs and accessibility of public education, is assessed and included in the level of RBs. This thesis demonstrates the added value of combining benchmarks of essential expenses (RBs) with data on household

income to derive social indicators. Accordingly, these indicators take the needs of households into account, as well as the extent to which cash and in-kind policies respond to these needs.

In what follows, I will briefly discuss the conceptual framework and the current research on evaluating living standards and measuring poverty in Europe. Subsequently, I will give an introduction to the tradition of reference budgets research and delineate this dissertations' contributions to that field. In conclusion, the setup and structure of my doctoral thesis will be outlined and the sum and substance of each chapter will be revealed.

Defining a minimum acceptable living standard

Throughout the history of poverty and welfare state research, different definitions of poverty have been proposed. In 1901, Rowntree defined poverty as "*having insufficient resources to achieve the minimal necessary to maintain a physical condition*" (p.86). For Townsend (1979), merely maintaining a physical condition does not suffice to escape poverty; people should also have the resources to participate in their society according to "*what is customary or at least widely encouraged or approved*" (p.31). Similar to Townsend, the European Union defines persons living in poverty as "*individuals or families whose resources are so small as to exclude them from the minimum acceptable way of life of the member state in which they live*" (Council of the European Communities 1975). Despite the wide range of perspectives and approaches to understanding poverty across Europe, it seems to be widely accepted that poverty centres around an enforced lack of resources, that it is a multidimensional and complex problem and that what is perceived as *minimally acceptable* can vary between societies as it is related to social participation (Decancq et al. 2014; Van den Bosch 2001).

In the literature, a common distinction is made between absolute versus relative definitions of poverty. As has been argued by Goedemé & Rottiers (2011), this distinction is not clear-cut and might confuse more than it clarifies. This becomes clear in reading Amartya Sen's (1985, p.169) argument that: "*Poverty is not just a matter of being relatively poorer than others in the society, but of not having some basic opportunities of material well-being – the failure to have certain minimum capabilities*". Sen defines poverty not in terms of income, but in terms of *capabilities*, i.e. the total set of possibilities available to a person. This allows for a distinction between an absolute set of minimum capabilities and the required resources that are relative to societal circumstance and personal abilities (Sen 1985, 1983). For instance, a person in bad health requires more resources to obtain the same set of capabilities than a person in good health. Similarly, when that person lives in a society with an accessible health care system, fewer resources are needed compared to a society with high socio-economic barriers to access health care.

Hence, the primary question is: how can we define a minimally acceptable standard of living or a set of basic capabilities and how can we take the variability in the societal context and personal features into account? This is essentially a normative matter and depends on common values, customs and a certain level of consensus in society on what constitutes a minimum acceptable way of life (Van den Bosch 2001; Goedemé and Rottiers 2011). Sen himself never developed such a list of basic capabilities, but others (e.g. Doyal and Gough 1991; Nussbaum 2001) made valuable attempts at defining a normative framework regarding what is needed to operationalise a minimally acceptable living standard.

This thesis makes use of RBs for adequate social participation which are built on a sound theoretical framework regarding social participation and human needs

(See Storms 2012). The RB approach can be seen as an attempt to answer the question ‘what is a minimally acceptable living standard in society?’ Moreover, by estimating the minimum economic resources specific household types need to obtain an adequate living standard, RBs reveal the link between a decent income that is relative to circumstances, and universal human needs or basic capabilities. In chapter 1, this theoretical framework is described more thoroughly and validated with the aim of developing an adequate income standard in a European context. Before expanding on the research tradition of RBs, I will first turn briefly to other approaches from the literature that have tried to translate the question of ‘what is minimally acceptable’ into indicators to evaluate the adequacy of living standards and identify the poor.

How to evaluate standards of living and measure poverty?

A wide variety of indicators exist to evaluate the adequacy of living standards and to measure poverty. Decancq et al. (2014) single out three important questions that need to be addressed. The first question is ‘poverty of what?’ Many scholars have translated ‘a lack of resources’ in terms of insufficient income. However, focusing too narrowly on income has been criticized (e.g. Stiglitz et al. 2009). Some authors argue that consumption is a more direct indication of a person’s actually achieved living standard since it is less volatile and takes savings and ownership into account (Ringen 1988; Meyer and Sullivan 2012). But measuring consumption also raises problems. Actual spending data neglects debts, conceals individual preferences and is less suitable for policymakers since it does not reflect the *opportunity* to reach a certain living standard (Notten and Guio 2019; Atkinson 2019).

Importantly, income and consumption measures usually do not take the value of in-kind benefits into account, neglecting variations in publicly provided or

subsidised goods and services. A growing number of studies attempt to include in-kind benefits when estimating poverty or evaluating social policies (Garfinkel et al. 2006; Verbist and Matsaganis 2014; Aaberge et al. 2017). The general approach by these studies is to impute the value of publicly provided or subsidised goods and services, and to add these amounts to standard measures of cash disposable household income, generating a measure of ‘extended income’(e.g. Verbist and Matsaganis 2014; Smeeding et al. 1993). In this approach, the allocation of in-kind benefits across households is generally based on the production cost, i.e. average government spending on specific age, income and gender groups. An important hurdle here is that public spending is largely determined by external factors such as demographic structure, thus concealing the differential impact across different types of households. For instance, public spending on care services is higher on average for children and the elderly than it is for persons at active-age. Focusing too narrowly on production costs, however, would disregard these groups’ *higher needs* for health care or education. Even though there have been attempts to redefine the income equivalence scale used (e.g. Aaberge et al. 2017; Paulus et al. 2010), more research is required on the needs of families in relation to their access to public services (see also Cantillon 2017). Though the extended income approach widens the scope beyond a strict interpretation of income, it remains one-dimensional and does not include non-cash resources such as health or security. Alternatively, several researchers are constructing multidimensional vectors to measure well-being and poverty beyond strictly monetary resources (Stiglitz et al. 2009; Decancq et al. 2019; Alkire and Foster 2011).

The second question is: ‘how can the poor be identified?’ This question is about the search for an appropriate benchmark or poverty line (cf. Decancq et al. 2014). The most common approach is to specify this threshold either in real terms (keeping the purchasing power of an income at the level of the threshold fixed), or

relative to average or median income levels in society. The third and last question Decancq et al. (2014) point out, is the question of how to aggregate poverty at the individual level to an overall poverty figure in society. Usually, a simple headcount is used that expresses the prevalence of poverty as a percentage in society. Alternatively, poverty measures can focus on the poorest of the poor, saying something about the *depth* or *severity* of poverty in the population.

Four methodologies are commonly distinguished to identify the poor. First, subjective methods are used to ask people directly what they perceive as an acceptable minimum income. However, subjective indicators are not always reliable in a comparative framework (Van den Bosch 2001). In his dissertation on subjective poverty lines, Van den Bosch concludes: *“As long as it is kept in mind that these income thresholds are not really comparable over time and across countries, and that they may even be misleading concerning the social distribution of poverty and low income, they could be used as rough indicators of the amount of income on which social perceptions of minimum income converge.”* (Van den Bosch 2001, p.415)

Secondly, most comparative welfare state scholars and policymakers study living standards, poverty and the impact of social policy based on statistical monetary measures. This method makes a distinction between absolute measures such as the 1.99 dollar-a-day threshold of the World Bank and relative measures that usually assess the threshold as a percentage of median or average income. The at-risk-of-poverty indicator, set at 60 per cent of the national median equivalent disposable household income (arop60), is the most commonly used benchmark to measure income poverty and to assess the adequacy of welfare states across and within EU countries (e.g. Cantillon et al. 2019; Atkinson et al. 2017). Despite its widespread use and advantages (see Atkinson et al. 2002) the indicator also has well-known

shortcomings such as it being arbitrary, purely income-based and overly relativistic (see e.g. Juhász 2006; Förster 2005; Ravallion and Chen 2011; Goedemé and Rottiers 2011).

Third, a growing group of researchers is developing multidimensional poverty lines. This can be done by constructing one indicator for each dimension and bringing these together in a portfolio of indicators, or more sophisticatedly, by constructing an aggregated index of individual well-being (see e.g. Decancq et al. 2019; Alkire and Foster 2011). At the European level, the multidimensional nature of poverty is addressed by combining different indicators (Atkinson et al. 2002). The at risk of poverty or social exclusion indicator (AROPE) blends three indicators: the at-risk-of-poverty rate, the severe material deprivation index and the number of people living in households with low work intensity. The severe material deprivation index is in itself an example of a multidimensional indicator (Guio 2005; Guio et al. 2009). A person is considered severely materially deprived if they live in a household that cannot afford 4 out of 9 items. This indicator reflects an absolute benchmark of necessities that allows for non-cash resources and durables to be taken into account. However, the material deprivation indicator has its limitations, such as the rather arbitrary selection of dimensions and weights used, the disregard of differences in individual and societal circumstances and its ambiguous relationship to policy measures (Notten and Guio 2019; Guio et al. 2009; Goedemé and Rottiers 2011).

Finally, a time-honoured research tradition to evaluate the adequacy of living standards is the budget method. Reference budgets (RBs) are illustrative priced baskets of goods and services that represent the cost of a given living standard (Bradshaw 1993; Storms et al. 2014). In this doctoral thesis, I build on RBs for adequate social participation that have been developed in a cross-nationally

comparable way in two European projects (see Goedemé et al. 2015a; Goedemé et al. 2015b). The dissertation aims to demonstrate their added value in contextualising, complementing and amplifying existing social indicators in Europe. In the next section, I will discuss the history and rationale of this approach.

Reference budgets

Reference budgets (RBs) constitute internationally widespread tools that generally illustrate what is needed to achieve a ‘subsistence minimum’ or ‘a level of social participation’ (Storms et al. 2014). The history of RBs dates back to the UK in the 17th century, where researchers were trying to assess the living standards of average workers, which were generally set at a level of physical survival (Deeming 2010; Fisher 2007). In 1901, a pioneering reference budget was developed by Benjamin Seebohm Rowntree in order to measure poverty in York (Rowntree 1901). Based on scientific information and interviews with working-class families, Rowntree priced a food budget sufficient for nutritional adequacy and added small amounts for clothing, housing and fuel. In the US and Canada, various RBs were also developed by different actors between 1801 and 1940, mainly aimed at improving the living standard of urban industrial workers (Fisher 2007). During this period, the RB approach was disseminated across the European continent. The first RBs were constructed independently from each other in France, Bulgaria and the Czech Republic (only nutrition) in the fifties, and mainly based on household budget survey data. Half a century later, they are still actively being used for policy purposes, for instance, to measure the extent of poverty in Bulgaria or to assess the adequacy of minimum income protection in the Czech Republic and France (Storms et al. 2014). In the sixties, seventies and eighties, several Eastern European countries adopted similar approaches to construct RBs. Generally, an

expert-based food basket was combined with expenditure-based baskets that included other physical needs, such as clothing and shelter (Storms et al. 2014).

A decade ago, a different approach was developed in Belgium by Bérénice Storms and colleagues (Storms 2012; Storms and Van den Bosch 2009) to construct RBs for adequate social participation. ‘Adequate social participation’ was defined as ‘being able to play the various social roles that one should be able to take and make as a member of society’, in other words; having the opportunity to contribute to society – e.g. as a child, a citizen, a member of an association and so forth (Storms 2012; Goedemé et al. 2015a). Building on a theoretical framework inspired by Doyal and Gough (1991), two universal basic needs, *health* and *autonomy* and a set of intermediate needs (or baskets) were identified: *adequate housing, food, clothing, health care, personal care, maintaining social relations, safety in childhood, rest and leisure, mobility and security*. Each basket contains concrete lists of essential goods and services that are defined based on a variety of information sources such as (inter)national guidelines, scientific knowledge and focus group discussions with citizens from various socio-economic backgrounds. The goods and services are priced through our own price survey of widespread accessible retailers. The RBs are repriced yearly to follow price evolutions and completely updated every five years to reflect changing social norms and expectations (see Storms et al. 2015). The last full update occurred in 2018². The Belgian RBs and their online applications have been widely used by civil society actors and courts for financial and debt counselling and in determining income support (Storms 2020). They have also proven their use in assessing the adequacy

² The yearly updates of RBs are carried out by researchers at CEBUD, Thomas More. I have contributed to the large update in 2013 and was responsible for the new round of the focus group discussions across Flanders.

of different types of social benefits (e.g. Storms et al. 2015; Storms and Bogaerts 2012).

Although most European countries have experience with developing RBs, their budgets are usually not comparable, as they are developed for different targeted living standards and use a wide variety of methods and information sources (for an overview see Storms et al. 2014). A first attempt towards cross-nationally comparable RBs has been undertaken by two European projects, funded by the European Commission and coordinated by the Herman Deleeck Centre for Social Policy (Goedemé et al. 2015a; Goedemé et al. 2015b). Together with Bérénice Storms, Tim Goedemé, Karel Van den Bosch and Sara Stockman, I was part of the coordinating team on both projects. The method is inspired by the Belgian approach developed by Storms et al. (2009; 2012) and starts from a common theoretical and methodological framework. To avoid arbitrary differences across countries as much as possible, we made use of a stepwise standardised and harmonised approach, with extensive coordination, well-defined specific household types, transparent premises and common procedures. Teams of national researchers and experts translated the common list of needs into country-specific priced baskets of goods and services, relying on a wide variety of information sources such as public regulations and guidelines, scientific knowledge and opinions of citizens in focus groups (Goedemé et al. 2015a; Goedemé et al. 2015b). In the ImPROvE project (2012-2016) complete RBs have been developed for four well-defined family types, living in six large cities, namely Antwerp, Helsinki, Barcelona, Milan, Athens and Budapest (Goedemé et al. 2015b). In the context of the EU pilot project (2013-2015), 26 EU Member States have developed comparable food baskets that illustrate what is minimally needed for a healthy diet for three different family types (Goedemé et al. 2015a) (see chapter 2 for a more in-depth discussion of the methodology and the resulting food baskets). Eight of

these countries also constructed baskets for adequate housing, personal care and health. Despite many challenges of robustness (addressed in the conclusion of this dissertation), both EU projects have made some first important steps towards enhancing substantive comparability (for a discussion, see Goedemé et al. 2015a).

RBs are, by nature and necessity, the result of teamwork. I had the honour of contributing to the development of cross-nationally comparable RBs in Europe, both in terms of design, data collection and analysis. This dissertation largely builds on this common effort and explores how RBs can be used for a comparative study of European welfare states, the impact of social policy and the measurement of poverty. In comparing these benchmarks of essential expenditures with the cash income available to private households across EU countries, the aim is to derive indicators that assess affordability, welfare state adequacy and poverty, whilst taking the availability and affordability of essential (subsidised) goods and services into account.

Contributions and outline of the thesis

My dissertation consists of two main parts: (1) the first part discusses the theoretical and methodological framework, and, (2) in the second part, RBs are used to contextualise and construct new policy indicators across a wide selection of European Welfare States. The chapters in the second part will consecutively address (1) the affordability of essential goods and services, (2) the adequacy of tax-benefit policies, and, (3) the measurement of poverty. I focus on the able-bodied working and non-working population at active age with or without children. Hypothetical household simulations of out-of-pocket costs and net incomes are used in chapters 4, 5 and 6, and applied to representative income data (EU-SILC) in chapters 3, 4, 7 and 8, thus building new indicators to measure

adequacy and affordability, demonstrating how both concepts are strongly interlinked.

In the first part of the thesis (chapters 1 and 2), the theoretical and methodological framework that was used to develop cross-nationally comparable reference budgets in the EU pilot project is discussed (Goedemé et al. 2015a). In order to develop a benchmark of ‘adequacy’ that is substantively comparable across EU member states, chapter 1 investigates whether people have a similar understanding of what constitutes an acceptable minimum income across Europe. The chapter builds further on the theoretical framework developed by Bérénice Storms (2012), starting from the concept of ‘adequate social participation’ and the theory of ‘human need’ (Doyal and Gough 1991). Collaborating with my supervisor Tim Goedemé and co-authors Otto Swedrup, Karel Van den Bosch and Bérénice Storms, we endeavoured to validate this theoretical framework in the light of existing formal and informal expectations across Europe. For the formal social expectations, we relied on EU guidelines and legal regulations, while the informal social expectations were assessed by analysing three focus group discussions in all participating EU capital cities. The chapter concludes that there is quite some common ground in terms of essential social positions and needs that should be fulfilled in order to participate adequately in society.

In chapter 2, Elena Carrillo-Álvarez, Hilde Boeckx, Bérénice Storms, Tim Goedemé and I illustrate how this theoretical framework for adequate social participation can be applied to develop a comparable monetary benchmark in the European Union. The chapter is based on the common method and results from the EU pilot project, where we have developed cross-country comparable food reference budgets in 26 European countries (Goedemé et al. 2015a). The main starting point for developing the food baskets was the national food-based dietary

guidelines (FBDGs). Guided by extensive coordination and standardized procedures, a national nutritionist translated these guidelines into concrete and acceptable food baskets in each country, supported by survey data and focus group discussions. Ultimately, the food baskets were priced at market prices following a common procedure. The resulting comparable food baskets can be used in addition to FBDGs for the promotion of healthy eating and the prevention of food insecurity, which is further illustrated in chapter 4.

In the second part of this dissertation, I show how (comparable) reference budgets can be used to (1) measure affordability, (2) evaluate the adequacy of tax-benefit policies and (3) measure poverty in Europe.

In chapters 3 and 4, RBs are used to develop needs-based indicators of affordability. ‘Affordability’ is defined as “households’ ability to afford a specific good or service without being forced to under-consume other essential goods and services”. Traditional indicators of affordability are usually based on actual household spending on a specific good or service relative to the households’ total expenditure or income, often as compared to a fixed cost-to-income ratio (e.g. Miniaci et al. 2008; J. Chen et al. 2010). These indicators neglect the interaction between adequate incomes and the necessary out-of-pocket costs households face, not only to access one specific good but also to access all other essential goods and services (see also Stone 2006; García-Valiñas et al. 2010b; Heylen and Haffner 2013). This dissertation demonstrates how RBs constitute useful tools in developing complementary indicators that assess affordability problems based on what households minimally need, without being determined by individual preferences or budget constraints.

In chapter 3, Josefina Vanhille, Tim Goedemé, Leen Van Thielen, Bérénice Storms and I propose an *indicator of water affordability* based on the minimal

amount of water necessary to participate adequately in society. This needs-based indicator is applied to a representative survey of households in Flanders (EU-SILC), to measure the proportion of households for whom the cost of essential water use exceeds a predetermined income threshold. We compare the results to current affordability indicators that rely on households' actual water expenses and find that both indicators identify partially different at-risk groups. Using both indicators in a complementary way can help set fair and just water tariffs that improve equal access to water for vulnerable groups, while at the same time promoting sustainable water usage.

In the fourth chapter, in collaboration with Tim Goedemé, I assess the affordability of a healthy diet for people living on a low income. We argue that current policies and (comparative) studies addressing food insecurity in Europe (e.g. O. Davis and Geiger 2017; Loopstra et al. 2015), rarely focus directly on the lack of sufficient income as a driver of food insecurity and unhealthy eating. The article makes use of the cross-nationally comparable food baskets developed for capital cities in 24 European countries³ (see chapter 2). Based on representative income survey data (EU-SILC), we estimate the proportion of people living in urban areas with insufficient income to access a healthy diet, before and after housing costs. Secondly, the cost of a healthy diet is also compared to the level of minimum incomes for specific household types. We showed that especially in poorer EU countries, such as Bulgaria, Romania and Greece, many people experience financial constraints to access healthy diets. However, also in several richer member states, social assistance recipients or minimum wage single-earners lack resources to access a healthy diet together with other essential goods and services.

³ In this paper we exclude Denmark and the Netherlands, as they used a different pricing method and are hence not fully comparable.

In chapters 5 and 6 of this thesis, the adequacy of tax-benefit policies is evaluated whilst taking the availability and affordability of publicly provided or subsidised goods and services into account. Spending on services such as health care and education generally constitutes half of social welfare spending (OECD 2014a), which has important distributional effects (Verbist and Matsaganis 2014). Moreover, in various countries, minimum income support is complemented by cost-reducing means-tested benefits such as housing subsidies and social tariffs for heating and energy (Frazer and Marlier 2016; Immervoll 2012). Nevertheless, these in-kind benefits are often neglected in traditional analyses of welfare state adequacy.

In chapter 5, Bérénice Storms, Ilse Cornelis and I argue that RBs are well suited to the construction of a needs-based EU policy indicator to monitor the right to an adequate minimum income protection, as is included in the European Pillar of Social Rights (EPSR). The EPSR takes a rights-based, normative and broad approach to adequate incomes, that goes beyond cash income by including labour market inclusion and access to affordable goods and services of good quality (see European Commission 2017). This paper proposes an indicator that combines the essential out-of-pocket costs that families face through RB research with the net-income they receive through the tax-benefit micro-simulation tool HHoT (Euromod) (see Hufkens et al. 2016a; Marchal et al. 2018b). The added value is illustrated through the case of Belgium (Storms and Van den Bosch 2009). We assess the adequacy of social assistance, unemployment insurance and the minimum wage for a wide range of household types in Flanders and look at changes over the last decade (2008-2017). The paper shows how the indicator is a useful policy tool that allows for a broad view on minimum income, including the impact of access to affordable goods and services, while not losing sight of work incentives.

Similar to the previous chapter, in chapter 6 Tine Hufkens, Tim Goedemé, Bérénice Storms and I use the combination of RBs and micro-simulations of tax and benefits (HHoT). This time, however, our analysis is specifically focused on the adequacy of tax- and benefit policies for families with children. Here too, the premise is that studies examining the adequacy of welfare states - in this case for families with children (e.g. Adema 2012; W.-H. Chen and Corak 2008; W. Van Lancker and Van Mechelen 2015) - fail to properly account for the out-of-pocket costs families face in accessing essential goods and services. This chapter makes use of cross-nationally comparable RBs for large cities in six European welfare states: Belgium, Finland, Greece, Hungary, Italy and Spain (see Goedemé et al. 2015b) to assess the needs-based costs of children between the age of 6 and 17, while taking publicly provided or subsidized services into account. As a result, we suggest the *child cost compensation indicator*, which compares these essential out-of-pocket costs with simulated child cash benefit packages. Though there is important cross-national variation, this indicator shows that the cost of children is not fully compensated anywhere and net incomes of low wage single-earner families with children are in many cases insufficient to participate adequately in society.

The last chapters of this dissertation study the use of RBs in the context of poverty measurement. In a joint effort with Tim Goedemé, Tine Hufkens, Bérénice Storms, Karel Van den Bosch and our partners from the ImPROvE project, chapter 7 illustrates how RBs can be used to contextualise the at-risk-of-poverty threshold. Using cross-nationally comparable reference budgets for seven large EU cities (Antwerp, Athens, Barcelona, Budapest, Helsinki, Luxembourg and Milan) (see Goedemé et al. 2015b), it becomes clear that an income at the at-risk-of-poverty threshold represents large cross-national differences in living standards across European welfare states. The budgets show that in the poorest EU Member States,

even adequate food and housing are barely affordable at the threshold level, whereas a decent living standard is much more within reach for those living on the threshold in the richer EU Member States.

In the eighth and final chapter, collaborating with Irene Cussó, Lauri Mäkinen, Tim Goedemé and Bérénice Storms, we take this a step further by demonstrating how RBs can be used to construct needs-based poverty thresholds, provided that the necessary adjustments are made. It has been established in previous chapters that RBs have some advantages compared to other social indicators, particularly because they illustrate the impact of the cost of (publicly subsidised or provided) goods and services. In this chapter, we make a first attempt to develop RB poverty thresholds for Antwerp, Barcelona and Helsinki. The exercise confirms that there are important challenges to address, including (1) the limited number of specific household types for which RBs are developed, (2) problems of robustness and comparability, and (3) the lack of important information in the EU-SILC microdata for our purposes. Keeping these limitations in mind, we use representative income data in EU-SILC to estimate the proportion of people with a disposable income below the RB thresholds for densely populated areas in Belgium, Finland and Spain. In chapter 7 and 8, we show how poverty profiles change when RBs are used, compared to traditional poverty measurements. Results suggest that the at-risk-of-poverty threshold and the accompanying modified OECD equivalence scale (OECD 2014b), underestimate particular groups' poverty risks, such as tenants renting on the private market and children, relative to that of other groups such as homeowners and elderly.

In the last chapter, I summarize my dissertation's main findings and limitations. I conclude with directions for further research and implications for social policy.

PART I. TOWARDS CROSS-NATIONALLY
COMPARABLE REFERENCE BUDGETS IN EUROPE:
THEORY AND METHODS

Chapter 1: Exploring common ground for defining adequate social participation in 24 EU capital cities

Published in a more concise version as Goedemé, T., Penne, T., Swedrup, O., Van den Bosch, K. and Storms, B. (2019). 'Is there common ground for defining a decent social minimum in Europe?' in T. Kotkas, I. Leijten and F. Pennings (Eds.) *The Battle against Poverty: Specifying and Securing a Social Minimum* (pp. 93-109), Oxford: Hart Publishers.⁴

Abstract

Without comparable benchmarks, the cross-national monitoring of the adequacy of minimum income schemes is impossible. However, it is not so straightforward to define what comparability means in this context, and how it should be operationalised. In this paper, we explore the possibility of a comparable benchmark for a minimum income starting from the concept of 'adequate social participation' in terms of the essential social positions that one should be able to take, and the needs that should be satisfied in order to adequately fulfil the social roles associated with these positions. A large-scale project that involved country teams in all EU Member States, enabled us to develop 'core lists' of social positions and intermediate needs and to validate these using two sources. Formal social expectations have been explored in terms of commitments of Member States to international guidelines and regulations; informal social expectations have subsequently been assessed in three focus group discussions in each of 24 EU capital cities. Overall, we conclude that there is quite some common ground with respect to what can be understood under the heading of adequate social participation. This provides support for efforts aimed at developing comparable benchmarks to assess the adequacy of social protection schemes.

⁴ We are very grateful to Toomas Kotkas, Frans Pennings, Ingrid Leijten and the participants of the Workshop on Specifying and Securing a Social Minimum in Oñati, Spain, 29-30 June 2017 for thoughtful comments and suggestions. In addition, we would like to thank all country teams that participated in the Pilot project for the development of a common methodology on reference budgets in Europe (see Goedemé et al. (2015a) for the full list of researchers involved in the project).

Introduction

In an era of disappointing poverty trends in Europe (e.g. Cantillon et al. 2019), there is an increasingly urgent call to strengthen the social dimension of the EU in order to secure a decent minimum income for all. There have been various soft law initiatives, such as the recently proclaimed European Pillar of Social Rights (See principle 14 in European Commission 2017), that assess a right to adequate minimum income protection. However, the right to a decent social minimum or an adequate minimum income risks remaining a hollow phrase in absence of a pan-European consensus on its normative content. Furthermore, monitoring the adequacy of minimum income schemes at the EU level requires the translation of this theoretical concept into a monetary benchmark that is comparable in a meaningful way across countries. In Europe, usually the at-risk-of-poverty threshold is used for this purpose. This threshold defines the adequacy benchmark as 60 per cent of national median equivalent disposable household income (Atkinson et al. 2002). This benchmark clearly varies with average living standards across countries, but it is not clear to what extent it refers to what can be considered an adequate minimum income. On the contrary, even though the indicator certainly has its merits, the at-risk-of-poverty indicator is rather arbitrary and assumes that the minimum resources required for a decent living standard are a fixed proportion of median incomes. Consequently, it appears to refer to different levels of adequacy or decency across countries (Goedemé et al. 2019a). So, its comparability is largely procedural. Is it possible to identify an alternative benchmark that is comparable also in a more substantive sense? At least, this would require that the concept of a ‘decent living standard’ could rely upon a common understanding across Europe. In this paper, we therefore explore whether such a common understanding is likely to exist. To do so, we focus on the closely related concept of adequate social participation, connect this with recent theories

of human needs and use results from a research project on the development of comparable reference budgets in the European Union.

A venerable and internationally widespread method to define a decent social minimum is the reference budget approach. In this research tradition, priced baskets of essential goods and services are constructed, reflecting a certain living standard, such as ‘minimum adequate’ or ‘participation level’ standards (Storms et al. 2014). One of the main advantages of the approach is that it gives a clear understanding of what is perceived as an acceptable living standard in society, based on different information sources, taking into account the institutional, cultural and social context. Although most European countries have experience with developing reference budgets, the budgets are usually not comparable, as they are developed for varying purposes using a variety of methods (Storms et al. 2014). If constructed in a comparable way, they could be used to assess to what extent the essential needs for adequate social participation vary across countries and how this relates to the commonly used at-risk-of-poverty indicator (cf. Goedemé et al. 2019a). Recently, important steps towards a comparative methodology have been taken in two related European projects (Goedemé et al. 2015a; Goedemé et al. 2015b), funded by the European Commission and coordinated by the Herman Deleeck Centre for Social Policy (University of Antwerp). This paper is largely based on the results coming from the ‘pilot project on the development of a methodology for comparable reference budgets in Europe’ (Goedemé et al. 2015a). In this project, we have developed a common method to construct comparable reference budgets that illustrate what families need for adequate social participation across Europe. Following this methodology, comparable baskets for a healthy diet were constructed in 26 EU Member States, as well as a basket for housing, health and personal care in 8 Member States (see Goedemé et al. 2015a; Van den Bosch et al. 2016; Carrillo-Álvarez et al. 2019b). In this paper, we focus

on the first step in the process: the search for a common theoretical and normative understanding of what an acceptable minimum means across Europe. Rather than focusing on ‘a decent living standard’, we focus on the somewhat more concrete concept of ‘adequate social participation’. The paper starts from a theoretical framework on human needs for social participation and, subsequently, explores whether this resonates sufficiently with formal and informal social expectations across EU capital cities.

The paper is structured as follows. First, we elaborate on the concept of adequate social participation. Subsequently, we discuss the theoretical framework that we take as a starting point for listing a number of essential needs that have to be fulfilled to enable social participation. In the next section, we rely on two different methods in order to assess empirically whether there is a common understanding of adequate social participation across Europe. We first assess ‘formal’ social norms as laid out by international conventions and European legal instruments pertaining to the domain of adequate social participation. Subsequently, we rely on focus group discussions in 24 EU capital cities, carried out in 2015, to explore whether citizens could arrive at a common understanding of ‘adequate social participation’. To the best of our knowledge, this was the first qualitative study to assess in a comparative setting simultaneously in many European countries what ‘adequate social participation’ means and which needs should be fulfilled to be able to participate adequately in society. We conclude that, at least at an abstract level, there seems to be sufficient common ground across EU capital cities for a shared understanding of what adequate social participation should imply. This suggests that it makes sense to continue this line of research and to try to operationalise the concept of adequate social participation in more concrete terms to create a comparable monetary benchmark of adequate incomes in the European Union.

Defining adequate social participation

In this paper we focus on the concept of adequate social participation, mainly because this concept has received quite some attention in national and international efforts to construct a comparable benchmark to assess the adequacy of income policies, and in particular reference budgets (for examples and a review, see Goedemé et al. 2015a; Goedemé et al. 2015b; Storms et al. 2014). We define adequate social participation as the ability of people to adequately play (take and make) the various social roles one should be able to play as a member of a particular society (cf. Storms 2012). This implies that the physical, psychological and social needs are fulfilled in order to take the different social positions in society in line with the dominant social expectations associated with them, as embodied by the institutions of the society in which one lives, and in such a way that it does not cause harm to one's possibilities to do so in the future. In addition, adequate social participation implies that people should be able to contribute to society not only by playing various social roles, but also by having the opportunity to redefine their social roles.

There is no standard definition of social participation (e.g. Fudge Schormans 2014). As is clear from above, the definition we propose includes more than 'participating in the life of the community' and is broader than many definitions of social participation (see Levasseur et al. 2010 for a survey of definitions of social participation). The link between social participation and social roles can also be found in definitions of social participation in terms of social engagement or social involvement and more generally in disability studies (e.g. Badley 2008; Berkman et al. 2000; Utz et al. 2002; Noreau et al. 2004; Glass et al. 2006). In our view, the main advantage of the definition of social participation in terms of social roles is its facilitating potential for translating an abstract concept of 'adequate

social participation' into a more concrete monetary benchmark that could capture the minimum financial resources required for a decent living standard. Furthermore, its broad and encompassing character aligns it better with the targeted living standard that is covered by many reference budgets in Europe (see the review in Storms et al. 2014). Finally, it is probably more in line with popular meanings of 'being a member of society'.

We would like to highlight briefly several important elements of this definition of adequate social participation. First, we define social roles as the social expectations attached to a position that someone in society takes (cf. 'scripts for social conduct' as in Biddle 1986; Platt 2001).⁵ For the purpose of identifying a concrete monetary benchmark, we focus on social positions defined in broad terms (e.g. being a mother, being an employee or being a citizen) which society recognises as those that its members should be able to play or should be given the opportunity to take at the minimum. Importantly, social positions should not be understood as a nearly fixed social status or structural position (cf. Scott 2001). In contrast, we focus on social positions that everyone should be able to take, regardless of their socio-economic status. Our focus on the minimum necessities for adequate role taking does not imply that our definition promotes conformity with dominant patterns of behaviour. Rather, it stresses the importance of having the opportunity to comply with dominant social expectations, and of having a real choice to deviate from the norm if one wants to, without being forced to deviate from the norm by lack of adequate financial resources.

Second, we define social expectations more broadly as commonly held expectations regarding what people (are able to) think, have and do, as embodied

⁵ Several texts that are more accessible are available (cf. Giddens 2001; de Swaan 2007; Marshall 1998).

by the institutions of a society. We use the concept of ‘institutions’ in a dual way (cf. Voss 2001): (1) institutions as socially constructed rules; and (2) institutions as relatively stable patterns of behaviour and interaction, which are often in close interaction with the latter socially constructed rules. Vrooman (2009b) elaborates at some length on the kinds and nature of institutions as socially constructed rules. As emphasised by Vrooman (2009b) one can make a distinction between formal rules (including meta-rules, rules for government production, third-party recognition, and formal private contracts), and informal rules (including values, social norms, conventions, and informal contracts) that regulate society. From this it follows that for studying the minimum resources required for adequate social participation, it is essential to study the institutional context in which people live, and how this affects the social expectations with which they are confronted. Therefore, in this paper we focus both on ‘formal’ and ‘informal’ social expectations for defining what an adequate minimum is.

Third, we recognise that society is not a fixed social entity. In fact, systems of political authority and cultural expectations may be multi-layered (cf. Mau and Verwiebe 2010), with some forms of political authority being worldwide, some European, some ‘national’ and others being rather regional or local. The same is true for dominant cultural expectations which may at the same time grow more distinct between local regions, while other expectations are becoming European, and even worldwide. Also, societies can be plural, that is, they can be deeply divided along cultural, religious, ethnic or other lines (e.g. Nagata 2001). In other words, when identifying what could be a decent minimum income, we suggest to pay attention to the dominant social expectations that relate to the place where people live, including their worldwide, European, national, regional and local aspects. Obviously, once a common benchmark has been developed, it may be

useful to study how social expectations and their associated necessities vary between subgroups in the population.

Fourth, in what follows we focus on the material needs of households, assuming that the political and institutional context is organised such that it respects and fosters essential freedoms and is conducive to adequate social participation. Given our focus on EU Member States, with functional democracies and a middle to high level of development, we assume that these ‘procedural’ or societal preconditions are in place (for a discussion of societal preconditions, see for instance Doyal and Gough 1991). Even so, there is (much) room for improvement, especially now that some EU member states have weakened the democratic character of their society and reduced the quality of publicly subsidised goods and services.

Finally, it is important to make clear that we fully recognise that any targeted living standard unavoidably has a degree of elusiveness, regardless of the exact terms in which one tries to define it. Even if it would be perfectly clear what is meant with adequate social participation and if everyone would understand it in the same way, we do not believe there is one particular threshold that could be identified. However, this does not necessarily preclude the possibility of estimating a lower bound on the minimum required financial resources for specific hypothetical households, an approach that is very common in reference budgets research (cf. Goedemé et al. 2015a). Still, we are convinced that having one Euro less or more than this lower bound would not mean a substantial change in one’s ability to participate adequately in society. In this sense, social participation and the associated required resources are fundamentally gradual, with important implications for identifying a specific monetary threshold (cf. Goedemé et al. 2015c).

Embedding social participation in the framework of human needs⁶

It is useful to embed our notion of adequate social participation into a broader theoretical framework on human needs. This provides a stronger basis for discussing the needs that should be fulfilled in order to be able to participate adequately in society. In addition, it provides more guidance to reflect upon the necessities for adequate social participation in terms of concrete goods and services as well as the relation between individual and household needs on the one hand, and the characteristics of the social environment (especially the availability, quality and accessibility of essential goods and services) on the other. In what follows, we build on different strands in the literature as represented by the works of Len Doyal and Ian Gough, Amartya Sen and Martha Nussbaum. Even though these normative frameworks cannot be fully reconciled, we consider it useful to bring some of the insights of these intellectual strands together.

In several papers Sen (e.g. 1987, 1982, 1993) convincingly argues that the living standard should not be understood in terms of utility (the pleasure we derive from something) or opulence (accumulated wealth) but in terms of capabilities: what a person can be or do. These capabilities can range from basic things such as being free from starvation, play and be healthy, to very complex, interrelated actions and emotions, including playing various social roles and having self-respect. Capabilities have to be distinguished from ‘functionings’. Capabilities refer to the total set of possibilities available to persons, while functionings refer to the subset of realised capabilities. Sen’s famous example of the difference between starving and fasting is helpful for explaining the distinction (e.g. Sen 1992). Both starving and fasting are functionings with a (broadly) similar result in terms of being hungry. Nonetheless, they greatly differ from each other in that people, who are

⁶ This section builds on Storms, Goedemé, Van den Bosch, and Devuyst (2013).

fasting, volunteer to eat less, while starving people do not have any choice at all. In other words, fasting people may have the capability of eating, but choose not to, whereas starving people do not have this capability. Therefore, in evaluating people's standard of living one should not rely on functionings, but on capabilities. In this spirit, when developing a benchmark for adequate social participation the focus should be on what people should be able to be and do, rather than on what they actually are or do.

Further, another strength of the capability approach is that it takes into account the variability in the relation between the means and actual opportunities (e.g. Sen 1992, 1990, 2005). People having the same or similar personal resources can have different abilities to achieve certain functionings, for a variety of reasons. Examples include physical or mental heterogeneities among persons (e.g. disability, disease-proneness), disparities in social capital (e.g. whether or not one can rely on informal care) or cultural capital (e.g. one's level of literacy), environmental differences (e.g. climatic or geographic), distinctive societal positions (e.g. related to labour market status) and unequal access to public goods and services (e.g. education). In other words, when developing a benchmark for adequate social participation, it is essential to take the individual situation and social context into account: not everyone requires the same level of financial resources (or even the same goods and services) to achieve the same living standard: this varies with personal and contextual characteristics and circumstances.

In order to determine the essential capabilities for adequate social participation, it would be helpful if one could rely on a list of 'basic capabilities', dealing with human needs and including those capabilities that are essential to live the kind of life that is 'worthy of the dignity of the human being' (Nussbaum 2001). While

Sen himself never proposed such a list, we believe that the list formulated by Martha Nussbaum (2001) and the hierarchical model of human needs developed by Len Doyal and Ian Gough (1991) are promising examples, which can be used in the operationalization of the minimum acceptable way of life⁷. To give people the ability to fully participate in society (Doyal & Gough) or to live a flourishing life (Nussbaum), both put forward the same ‘universal needs’ or ‘basic capabilities’ namely physical health (‘bodily integrity’) and autonomy of agency (‘practical reason’), which is closely matched to the need for meaningful social bonding (‘affiliation’). For the fulfilment of these basic capabilities, both propose a non-exhaustive list of intermediate needs or universal satisfier characteristics (‘central capabilities’) which contain those ‘inputs’ that, according to the best available knowledge, contribute to the realization of basic capabilities in all countries (Doyal and Gough 1991). An important difference between these theories is that Nussbaum’s list consists mainly of what she calls ‘combined capabilities’, which include also the suitable external conditions for the exercise of functions, while Doyal & Gough make a clear distinction between universal human needs and the requisite universal societal preconditions.

As mentioned previously, we think that this distinction between needs and social preconditions is very useful. First, it makes the relation between the social context in which individuals and households live and the financial resources that are required for adequate social participation more clear. Second, although we do not discuss this further in this paper, it can facilitate the elaboration of reference budgets and makes the process more transparent, which simplifies external evaluation. In addition, the society in which people live has its own social

⁷ Note that both texts were developed independently of each other. For a discussion of the similarities and differences, see in particular Gough (2014).

prerequisites in order to flourish well: ‘social institutions’ must be maintained. Examples of social institutions are the family, which takes care of procreation and the education of children, the economy, which handles the production and redistribution of scarce goods and services, and social security. In all of these institutions, people take positions (e.g. parent, employee, volunteer...) in which others expect something from them and in which they have the permission to act or to obtain something. These, socially defined and connected duties and rights associated with social positions, are ‘social roles’. With regard to social participation, it is important that people can adequately play their different social roles and are not excluded. Furthermore, they can also participate in the realisation of essential societal functions and in the process of institutional building (Barca 2009), which has an essentially recursive character (Giddens 1984). In other words, social participation, defined as ‘the ability of people to adequately fulfil their various social roles’, implies elements of belonging as well as contributing. Further, as mentioned in the previous section, our understanding of adequate social participation also includes the capability of redefining one’s social roles (i.e. ‘role making’). To conclude, given the clearer distinction between individual needs and societal preconditions, we chose to build further on Doyal and Gough’s (1991) Theory of Human Need.

We slightly modified Doyal and Gough’s original list of intermediate needs to adapt it to the current European context and our purpose of creating reference budgets that could provide a monetary benchmark for adequate social participation⁸. Of course, such a list of needs is not sacrosanct, and could be organised differently, but it has proven to serve usefully our purposes for

⁸ A brief literature review of the relevance of each of these intermediate needs can be found in Goedemé et al. (2015b; 2015a)

developing reference budgets. Also, it should be stressed that most of the elements covered by this list can also be recognised in other attempts to define the minimum for adequate social participation, a life in accordance with human dignity, a ‘flourishing life’, or ‘ends of development’ (cf. Alkire 2002; Nussbaum 2011).

Our proposed list includes the following needs: To live healthily and act autonomously, people need a **balanced diet**. Food and nutrition play a decisive role in the maintenance of good health and in the prevention of various diseases. Besides healthy food, people also need **suitable clothing**. Clothes serve different purposes in European societies, for instance, offering protection against the weather elements and providing individuals with a certain identity. Like food and clothing, **adequate personal hygiene** and accessible **healthcare** are essential intermediate needs that must be fulfilled if an individual is to participate in society. Proper hygiene serves two important purposes. Primarily, it contributes to maintaining a good health by combating infectious microorganisms, both at a personal level and in relation to individuals’ environment. Second, personal hygiene serves a psychological and social purpose. Without adequate personal hygiene, there is a danger of social exclusion due to a perceived failure to adhere to the social norm. A next intermediate need that must be met in order for people to be able to live healthy and autonomous lives is that of **adequate housing**. Each dwelling must fulfil three universal criteria such that the health of the occupants would not be jeopardised (Doyal and Gough 1991: 196-197). First, the dwelling must offer its occupants security and protection, both against the elements and against bearers of disease. Second, a dwelling must be conducive to a hygienic lifestyle. Third, it must be sufficiently spacious to allow the activities that are required for meeting the ‘intermediate’ needs, such as preparing and eating food, washing, maintaining social relations and rest and leisure.

Even though all ‘intermediate’ needs are related to both health and autonomy, while the first five needs are primarily relevant for health, the next five refer mainly to autonomy and are more culturally sensitive. To be able to act autonomously as adults, individuals must have experienced **security in childhood**. Doyal and Gough (1991: 204-207) outline four more or less universal psychosocial needs that must be fulfilled for children and youngsters anywhere in the world to experience adequate security in childhood. According to them, all children need love. They also require new experiences in order to be able to develop cognitively, emotionally and socially. Furthermore, all children need praise, recognition and positive feedback. Finally, all children need a gradual broadening of responsibilities (WHO 1982). Beside security in childhood, people must be able to maintain **meaningful social relationships**. After all, humans are social creatures and they have a fundamental need for social connectedness. It is through daily contacts with relatives, neighbours and friends that individuals are, from their childhood, familiarised with the ideas, values and norms of the culture and society in which they live. People are also social creatures out of need. Even if individuals are adequately supported by qualitatively satisfactory provisions, they are confronted daily with all kinds of practical problems or issues that can only be resolved if they possess the necessary knowledge and skills or are able to acquire them, or by calling on help from others. Other problems may require emotional or practical support. Although the maintenance of mutual relationships primarily requires cultural capital, people also need some minimal economic resources to meet each other. Turning from the social to the cognitive component of personal autonomy, an eighth intermediate need is related to the capability of **lifelong learning**. In modern societies, both employability and active citizenship are dependent upon having adequate social competences for taking part in and contributing to economic and social life. A next intermediate need that one has to

take account of in order to guarantee people full social participation is the need for **rest and leisure**. Rest allows the body and mind to recuperate and recover, while leisure contributes to physical, social, and emotional health (e.g. Coleman and Iso-Ahola 1993). Furthermore, to lead an autonomous life, people need a basic degree of economic and physical **security**. Finally, people need to be **mobile** to fulfil their various social roles adequately (e.g. to go to work, visit friends, or go shopping). As is true for the other intermediate needs, the minimal mobility requirements depend on the individual's living situation (e.g. health, employment) as well as on the structural societal conditions (e.g. availability of public transport).

Common ground across EU Member States for defining adequate social participation

In the previous section we have defined a list of essential human needs based on a theoretical framework on social participation. However, if the concept of 'adequate social participation' is to be used for meaningful comparative research, at the very least there should be some common understanding of what 'adequate social participation' is across EU Member States. This is not necessarily the case for the exact material conditions that should be fulfilled or the exact social expectations and activities associated with social participation, but there should be some common understanding at least at a more abstract level. Otherwise, the benchmark may comply with what we have called elsewhere 'procedural comparability' in the sense of being deduced on the basis of the same procedures, but not with what can be called 'substantive comparability', which requires that the benchmark is able to identify a similar social phenomenon in different social contexts (e.g. Goedemé et al. 2015b). If fundamentally different social positions and needs are associated with adequate social participation in different EU Member States, comparability risks being a hollow term. In what follows we

briefly illustrate the approach that we have followed, without claiming completeness.

Methodological considerations

We have validated commonalities across EU Member States on the basis of two sources: (1) formal social expectations have been assessed in terms of commitments of Member States to international conventions and European legal instruments; (2) informal social expectations have subsequently been assessed in three focus group discussions in each of the participating countries.

To assess formal social expectations, we turn to some relevant legal sources on a European level as a way of evaluating to what extent there is any formal common ground to be found. We are, as mentioned above, not claiming to do a full investigation into the different legal provisions highlighted below, but rather look at relevant legal sources in an explorative manner as a first step towards identifying a common ground. Obviously, formal social expectations can be stronger or weaker. For instance, some countries may sign up to international agreements, but fail to properly translate their promises into national legislation, concrete policies and law enforcement. Therefore, what we identify as common ground on the basis of a textual reading of international declarations or covenants should not be interpreted as ‘having exactly the same formal social expectations’. The starting point for this exercise was the list of needs derived from Doyal and Gough’s Theory of Human Need. In a first step we identified the relevant legal provisions which relate to our list of ‘intermediate needs’, as a way of pointing to the existence of a normative basis and thus some common ground between EU member states on these issues. Similarly, we have identified a formal common ground for a core list of social positions based on a reading of relevant EU legal

instruments. The connection between essential needs and the universe of social rights might be a bit more straightforward, merely judging from the exercise of assessing different social positions from the legal instruments chosen for this study.⁹ However, identifying a formal common list of social positions allows for a more concrete discussion on what is needed for social participation, which was used in the focus group discussions.

In order to get more insight into the informal social expectations in society, three focus groups were conducted in each of 24 EU capital cities¹⁰. We have opted for the focus group technique as it allows for gaining more insight into the well-considered views of citizens after some face-to-face discussion with others. This is important, given the rather abstract nature of the exercise and the type of 'common ground' that we try to identify (i.e. the outcome of a well-reasoned debate). Since needs are socially perceived, informed discussions between different people with different experiences are necessary to stimulate a public perspective on what families minimally need. To stimulate an informed discussion, the participants were informed about the formal social expectations identified in the previous phase of the project. Given the qualitative nature of the exercise, it should be clear that the results are not necessarily representative for the views of the population in each country or capital city: a larger random sample would be required to assess their representativeness. Moreover, the outcome of focus group discussions is very context specific and depends among others on the

⁹ Daniel Brinks, Varun Gauri and Kyle Shen discuss how 'the rights language can be read to express something presumably universal about human needs' (Brinks et al. 2015, p.290). They focus on social rights in constitutional texts among other things to review an increased use of social rights language. In their study, they also approach and characterize the legal instruments as empirical material to study if and to what extent social rights are mentioned in domestic constitutions.

¹⁰ Some country teams organised two rather than three focus groups. The EU countries not covered by this exercise are Estonia, Ireland, Slovakia and the United Kingdom.

role of the moderator, the recruitment procedure, the group composition and the specific group dynamics. Therefore, in order to maximise comparability, the process was harmonised through a clear focus group script, containing detailed instructions on recruitment, preparation, organisation, content and analysis. The national partners recruited for each focus group 5 to 11 participants of active age (30-50), through a questionnaire for recruitment, ensuring a mix of different family situations, and a variety of socio-economic backgrounds. We have deliberately chosen to include people with different backgrounds in order to increase the variation of opinions and validity of the outcomes. The recruitment of different socio-economic backgrounds was based on three variables: activity status, level of education and burden of housing costs as a proxy for income.

All country teams started from a common (translated) topic list and indicated a trained moderator to conduct the focus groups according to common guidelines. The duration of the focus groups was about three hours. Given that these focus group discussions took place in the context of a broader project which included not only an assessment of the ‘common ground’ for understanding the meaning of adequate social participation, but also the development of more concrete reference budgets (especially in relation to an adequate diet), only the first half of the session was devoted to discussing the theoretical framework (the assessment essential social positions and related needs) and the underlying assumptions we made (characteristics of the reference family). The second half was used to evaluate the acceptability, feasibility and completeness of the food basket and purchasing patterns. For the purposes of this paper, we rely on the first part of the discussions, which had an average duration of 90 minutes. Each focus group discussion was recorded and minutes were made by a reporter, who took notes of the various arguments, interaction processes and relevant paralinguistic information in a template sheet. The outcomes of the three focus groups were assembled and

analysed by all national partners using a pre-designed template following a micro-interlocutor analysis (cf. Onwuegbuzie et al. 2009). This type of analysis allows to focus on the group level as well as on the individual data while taking into account group dynamics. No extensive transcription of the conversation was required, but the analysis stayed as close as possible to the original data, making use of citations and conversation extracts. The main focus of the analysis was the nature, the origin and the construction of the arguments on what is acceptable and feasible within the given socio-cultural context. The report with the focus group analysis was reviewed by the coordinating team (more methodological details can be found in Chapter 3 of Goedemé et al., 2015a).

Formal social expectations

When studying economic and social rights, legal scholars have engaged with the literature on capabilities and human needs. The capability approach links in several ways to legal theory on socio-economic rights. For example, Bilchitz (2007) takes his starting point from the writings of Sen and Nussbaum when setting up a theoretical framework to analyse and discuss the justification and enforcement of socio-economic rights. Not surprisingly, the focus on needs is very much present in legal sources and practices relating to a social minimum¹¹. Several of the needs listed above are needs that can be considered at the foundation of economic and social rights. In what follows we explore to what extent the list of needs that we identified above resonates indeed with European legal instruments.

All 28 EU Member States have committed themselves to a number of international conventions and European legal instruments, which impose responsibilities on the

¹¹ Young (2008) presents different approaches to defining a minimum core, ‘giving content to economic and social rights’. One of the approaches described by Young is one that relies on ‘the basic needs of rights-holders as a sufficiently determinable standard for the minimum core.’

Member States to secure certain individual social rights for its citizens, residents as well as individuals present on the territory. In line with the ambition of finding common ground and the overall aim of identifying a social minimum, our attention has turned primarily towards legal sources providing protection for social rights within the European context.¹² In absence of a common standard within EU law guaranteeing a minimum protection of social rights, as we turn to the European Convention of Human Rights (hereafter ‘the ECHR’) as well as to the European Social Charter (hereafter ‘the ESC’), which were accepted by the Council of Europe (Świątkowski and Wujczyk 2018, p.11). The choice to focus on the ECHR and the Charter has been made in order to, as best as possible, find a common normative basis that would facilitate a comparative analysis. Since all 28 EU Member States are parties to the ECHR we have chosen to use it as a starting point. At present, the EU and its institutions are not directly bound by the ECHR since the EU has not acceded to the ECHR. The rights of the ECHR do apply in all member states, but are not legally binding for the EU and its institutions. Even though the European Court of Justice applies the ECHR and the case law of the European Court of Human Rights (hereafter ‘the ECtHR’), it does so indirectly (Council of Europe 2010).¹³ The (revised) ESC, on the other hand, is not ratified by all Member States. Nevertheless, it is still an important legal instrument within the social dimension of the EU and could be seen as an already agreed upon ‘normative platform’ in the area of social rights (Stendahl and Swedrup 2018).

¹² In this paper we use the term “social rights” when referring to rights in areas of welfare, such as social assistance, education, health care, housing and more. We also, when discussing the ECHR, refer to ‘core socio-economic rights’ as an interchangeable term to ‘social rights’. For a clarifying discussion on the terminology see Leijten (2018, p.14). A longer discussion on social rights, human rights and the welfare state can be found in King (2012, p.20).

¹³ Since the Treaty of Lisbon, into force since December 2009, not only EU Member States are committed to the European Convention, but also the European Union has committed to acceding to the European Convention on Human Rights. The EU is obliged under Article 6(2) of the Treaty of Lisbon to accede to the ECHR.

Although we build in this section on European legal instruments, it could be argued that the legal basis for economic and social rights, that in their substantive content aim to provide EU citizens their basic social needs, can be found in international law as well as EU law (see Stendahl and Swedrup 2016)¹⁴.

Many, if not all, of the essential needs listed above can, at least at a minimum level, be said to be protected under provisions made by the ECHR as well as the ESC. A number of the needs in the list clearly relate to core socio-economic rights protected under the ECHR. For instance, the need for **adequate housing** is recognised as the right to respect for the home in Article 8 of the ECHR, while Article 31 of the ESC states that the Parties (of the ESC) undertake to ‘promote housing of an adequate standard’(see also Stendahl and Swedrup 2016). Also the need for **accessible healthcare** figures rather prominently as the right to health care in Articles 2 and 3 of the ECHR, and Articles 11 and 13 of the ESC, providing the right to social and medical assistance. Clearly both adequate housing and access to health care are needs relating to core socio-economic rights which are recognized by the ECHR and the ESC (see also Świątkowski and Wujczyk 2018, p.13)¹⁵. In order to specify the content of these rights and further analyse to what extent the needs listed above can be seen as covered by the scope of these rights, case law of the ECtHR should be studied (Leijten 2018, p. 233 ff.).

Even though it is from a different order, and does not apply to all EU Member States, it is probably worthwhile mentioning that at the EU level there are also

¹⁴ This relating to EU citizens regardless of their geographical whereabouts and in the situation where social rights provided on a national level are not enough to provide some minimum core for all EU citizens. This would strengthen the choice to look closer at international conventions and European legal instruments when assessing a list of social positions.

¹⁵ Bilchitz (2002) writes about the ‘failure to interpret the right of access to adequate housing as including the idea of a minimum core obligation to provide for basic needs’, again showing the importance of understanding the connection between essential needs’ such as adequate housing’ and ‘adequate health care’ and the interpretation of socio-economic rights.

quite a few ‘soft law’ initiatives that support the idea of a common understanding of the necessities for adequate social participation (including Council decisions, resolutions by the European Parliament and policy documents by the European Commission). The most recent policy framework for enhancing a decent social minimum in the EU is the European Pillar of Social Rights (EPSR) proclaimed by the EU Council, the Commission and the Parliament on 17 November 2017. The EPSR provides a guiding framework directly aimed at fulfilling people’s essential needs and enhancing social rights for all EU citizens, including a set of 20 rights and principles in three parts: (1) equal opportunities and access to the labour market, (2) fair working conditions, and, (3) social protection and inclusion (European Commission 2017). The impact of the Pillar remains to be seen, but it spells out quite a few of the necessities that people need (in the wording used by the Pillar) to live a life in dignity and to participate fully in society. For instance, ‘everyone has the right to quality and inclusive **education**, training and **life-long learning** (...)’ (principle 1); ‘everyone has the right to timely access to affordable, preventive and curative **health care** of good quality’ (principle 16); ‘access to social **housing** or housing assistance of good quality shall be provided for those in need’ (principle 19); ‘Everyone has the right to access essential services of good quality including **water**, **sanitation**, **energy**, **transport**, financial services and digital communications (...)’ (principle 20) (cf. European Commission 2017). Further, the European Pillar of Social Rights supports the understanding that adequate social participation cannot be fulfilled by means of household income alone, but also requires a supportive institutional context providing accessible and affordable services of good quality.

In a next step, we are interested in developing a more concrete list of social positions (defined in broad terms) related to these needs, by using the same type of approach. In the process of assessing a list of core social positions, we decided

to also include the Charter of Fundamental Rights of the European Union ('the Charter') as a legal source in order to further elaborate on potential common ground. The Treaty of Lisbon ensured the entry into force of the Charter, originally drafted in 2000. Insofar the Charter and the Convention include the same rights, the meaning and scope of those rights would be the same as those laid down by the Convention (Article 52 §3 of the Charter). As we did for the identification of essential needs, we have also, but to a lesser extent, used the ESC to add to our understanding of core social positions.

As a starting point, the identification of a core list of social positions one should be able to take, and their related activities, goods and services should be such that they allow for a life in human dignity. As is stated by the Charter (Article 1) "Human dignity is inviolable. It must be respected and protected." In addition, institutions or social expectations that imply discrimination on any ground such as sex, race, colour, ethnic or social origin, genetic, features, language, religion or belief, political or any other opinion, membership of a national minority, property, birth, disability, age or sexual orientation should not affect the core list (cf. Articles 20-23 of the Charter). In other words, to give an example, even if dominant informal social expectations would be such that women would not work, if 'doing paid work' is on the core list, it should be there for both men and women. That being said, the core list of social positions that have been identified on the basis of the sources used, can be summarised as follows:

- Being a **child, father, mother, wife or husband**: Article 12 of the ECHR ('Right to marry'); Article 9 of the Charter ('Right to marry and to find a family')

- Being an **employee** or **self-employed**: Article 16 of the ECHR ('Freedom to conduct a business'); Article 15 of the Charter ('Freedom to choose an occupation and right to engage in work')
- Being a **member of associations** of various types, including in particular trade unions: Article 11 of the ECHR ('Freedom of assembly and association'); Article 12 of the Charter ('Freedom of assembly and of association')
- Being a **student**: Article 2 of the First Protocol, added to the ECHR in 1952 ('Right to education'); Article 14 of the Charter ('Right to education')
- Being an **active participant** in political elections, and especially a voter: Article 3 of the First Protocol, added to the ECHR in 1952 ('Right to free elections'); Articles 39 and 40 of the Charter ('Right to vote and stand as a candidate at elections to the European Parliament' & 'Right to vote and stand as candidate at municipal elections')
- Being a **citizen**, more broadly speaking (Various articles throughout the Charter)

This clarifies what kind of social positions people should be able to take as a member of society in order to be able to adequately participate in society. Even though people typically take on multiple social positions (e.g. one can be both a mother and an employee and a citizen), the social expectations with these positions do not fully overlap. Having a common list of essential social positions that people should be able to take has several advantages. First, it makes the meaning of a common understanding of adequate social participation more concrete. Second, when discussing what needs should be fulfilled, the focus is put more on the functions that the consumption of goods and services should help to realize, rather

than on the choice of the specific goods and services themselves. This increases the quality of the discussion on a decent minimum income and, in the case of developing reference budgets, the motivation behind the list of goods and services covered by the reference budgets, in line with their illustrative character. For the same reason they are very helpful for assessing the completeness and feasibility of reference budgets when trying to operationalise a benchmark of adequate social participation.

Discussions in focus groups

The abovementioned list of social positions served as input for the focus groups in order to facilitate the discussion on what people need for adequate social participation. In each capital city, the country teams conducted three focus groups where they tested to what extent this list of social positions resonated with the ‘well-considered views’ of citizens in the EU¹⁶. In a first step, the purposes of the exercise and the definition of adequate social participation were briefly explained. Secondly, participants were invited to list all social positions they considered relevant for adequate social participation for a specific reference household. In a third step this list was compared with the formally defined list above, and agreement was sought on a final list that would be appropriate for the capital city where the focus groups were organised. Next, this list was used to search for a common understanding of what the reference household types need at the minimum in order to be able to take these social positions and to fulfil the formal and informal expectations related to them. Similar to the list of social positions, we started with an open brainstorm, followed by a comparison with the predefined

¹⁶ ‘Well-considered’ in this context means: views expressed in a dialogue (discussion) with others, with some time for reflection and potential to revise one’s views at the end of the discussion.

list of needs, and ending with a concluding discussion on what are the needs of specific household types for adequate social participation in their society.

Overall, all focus groups expressed agreement with the list of social positions that was derived from legal provisions. In addition, most focus groups specified refinements of the general positions. In every focus group, the participants emphasized at least one **social role related to family** life, such as parent or child. For participants with children, the role of being a good parent was often said to be their most important function in life. Further, it is remarkable that nearly all focus groups agreed that everyone should be able to be an **employee**, and in the majority of the countries this was brought up spontaneously before showing the predefined list.

“Being a working-person is also a very important social position, since participants believe that through that, people feel useful for the society and of course paid work gives them the opportunity to have a decent income” (Focus group report, Athens –EL).

One social position that was not fully agreed upon was ‘being a member of a trade union’, especially in countries where trade union membership is very low. However, almost in every country ‘**being a member of an association**’ has been spontaneously identified as an essential social position or it was agreed upon when the list was shown. Especially for children, focus group members agreed upon the essential need to belong to a social network. Further, for children as well as for adults, the position of a **student** was in all countries considered essential, and the use of digital media was stressed as crucial in this regard. Finally, being a **voter** and **citizen** was brought up by nearly all focus groups as crucial social positions. In many focus groups, participants argued that a more politically or socially active

role should be stressed such as an active or engaged citizen, a volunteer, an activist or an opposition member.

There were also social positions that were considered essential in various focus groups, while not identified on the basis of our reading of the European Convention or the Charter:

- Being a friend and being a neighbour
- Caring roles (caregiver as an adult for the parents, homemaker, pet carer, patient), especially within the family context as caring and being cared for, but also as an insurance taker or a patient within health care institutions.
- Several educational positions such as a (social) media user/producer, an educator/teacher (also as a parent), a classmate and a member of a parent association.
- Positions within the domain of leisure were mentioned such as a consumer of culture, a traveller, a hobbyist and a sports (wo)man.
- Being a member of local communities such as municipalities, cities and apartment councils or of bigger entities such as Europe.
- The role of a consumer or customer. It was noted that consuming is an essential part of participation in modern society.
- Being a member of a religious group or some other kind of like-minded ideological group was seen as an essential social position for one's autonomy and identity.

It would be interesting to see whether in a new round of focus group discussions participants from all EU countries would support the inclusion of these additional positions to the list of essential positions. In any case, on this ground we can tentatively conclude that at least in these focus groups there was quite some

common understanding across EU capitals of a core group of social positions that people should be able to take in order to participate adequately in society.

After the discussions on essential social positions, the focus groups were asked which activities and goods and services should be provided at the minimum in order to fulfil these social positions adequately. Subsequently, these concrete items were grouped into larger categories of needs. Finally, the predefined list of essential needs was shown in all focus groups to check whether these categories were acceptable or if they should be adjusted and why. In other words, the main aim was not to draft a complete list of goods and services, but to use them as examples to derive inductively a list of more abstract needs that should be fulfilled. Again, we found that there was general agreement on the importance of all the needs listed above. The more physical needs for **food, clothing, adequate housing** and **personal and health care** were seen as self-evident without evoking much of discussion. As regards clothing, focus groups in some countries argued how this is related to various informal social expectations.

“Clothing needs to be appropriate for the season, but it also needs to be decent which is socially accepted – especially for the children. It can have disastrous consequences for their social life if people don’t dress well.” (Focus group report, Copenhagen - DK)

Also with regard to the need for **mobility** and **security** there seemed to be strong agreement in the focus groups across EU cities. It is worthwhile stressing that when discussing the need for security, participants stressed the need for financial security through insurances, income, pensions and bank accounts, but also entitlement to social rights, a social safety net of friends and relatives, access to services, legal protection and employment regulation were often mentioned as part of this need.

Besides the more physical needs, the focus groups across all countries emphasized also the importance of **social relations**, education, leisure time and employment, albeit with large socio-cultural differences between countries. The most important element with respect to social relations that came back across many discussion groups was the need for communication, especially through digital (social) media. However, this provoked also lots of discussion, for example regarding whether or not a smartphone or a personal computer are minimum necessities. The need for internet and a mobile phone were also considered essential in many cases for fulfilling the need for information. The participants often pointed out that everyone should be able to inform himself or herself through television, newspaper, the library and especially by making use of the internet. Moreover, the need for communication and information, in particular through the use of digital media, was according to some focus groups (in BE, EL, DE, DK, IT, FI, MT, PT) not represented well enough by the other categories of needs. Yet, only a few groups suggested creating a separate category. Also **rest and leisure** is seen as an essential need in nearly all countries. In various countries people with a relatively low income as well as people with higher socio-economic positions argued that they face problems of limited time to fulfil their needs for rest and leisure, to maintain social relations, and to combine work and family life. Especially for single parent families or for parents working full time, there is often lack of time to properly fulfil these needs. In this context, accessible and affordable child care was indicated as an important service to which people should have sufficient access.

In all countries, focus groups agreed with the need for a **safe childhood**. Education was especially highlighted, and in some countries, it was even appointed as a distinct need. The focus groups emphasized that in order to be a good parent one should be able to take care of children and provide them a safe, supportive

environment with affordable, accessible and good quality services such as education and child care, but also sport clubs or youth movements, (free) public transport, health care and infrastructure (e.g. playgrounds). For instance, when public schools lack quality or when the access is limited, people need more financial means to provide an adequate educational level for their children (e.g. through private alternatives).

“Participants considered as the most important issue in their social roles to provide a safe and "healthy" environment for their children. Unfortunately, they shared the notion that the quality of social services in Bulgaria is quite low and that they as parents have to seize the social functions from the state” (Focus group report, Sofia - BG)

In the majority of the countries the focus group participants argued that not only children but also adults should be able to engage in a process of **lifelong learning**. However, in a few focus groups, the concept of lifelong learning evoked some disagreement. When it was formulated in a less formalized sense, but rather as keeping up with progress in society or learning new things, most focus groups agreed that it should be an essential need. Finally, in all countries, focus groups highlighted the need for **decent work**. In the list of intermediate needs based on the Theory of Human Need, employment was not identified as a distinct intermediate need. However, there seemed to be general agreement in the focus groups across countries to identify access to decent work as a separate essential need in order to stress the importance of having a job for adequate social participation. Another additional category of essential needs that came back frequently in the focus group discussions across different countries, is the need for **active participation and involvement in society**. This was often related to the essential social position of being an active and entitled citizen (social rights and

freedoms) who needs political representation and involvement. These two additions to the list of essential needs merit more attention in the future.

The focus groups were also a useful instrument to point at important variations in the quality and accessibility of publicly provided or subsidised services across countries. Although the focus of this research was to remain on an abstract level, the interpretation of human needs elicited immediately stronger discussions at a more concrete level. For instance, in most countries, the focus group participants agreed that public transport and a bicycle are sufficient to fulfil the need for mobility in the city. In contrast, in some countries (ES, HR, IT, LT, LU, MT, RO) the participants argued that a car was necessary to be able to fulfil all essential social roles. Another example is the importance of accessible health care of good quality in order to fulfil the need for health care. Various focus groups emphasized that the accessibility and quality of health care services is problematic in their city (BG, CY, CZ, EL, HU, IT, LV, PL, RO).

Overall, the discussions in focus groups across the EU confirm there is quite some common ground with respect to what can be understood under the heading of adequate social participation in terms of essential social positions and needs that should be fulfilled. A new round of discussions would be required to assess to what extent the additions formulated in some countries would resonate with the views of those in other countries where these additions were not mentioned spontaneously.

Conclusions

Valid comparative assessments of the adequacy of the minimum income protection provided by European welfare states could boost efforts by policy makers to guarantee adequate incomes throughout the EU. Such assessments

require a monetary benchmark that is comparable across countries. The more such a benchmark relies on a common normative understanding of what ‘adequacy’ means, the more convincing it will be for evaluating the adequacy of minimum income standards across the EU. In this paper, we explored whether there is sufficient common ground for a shared normative understanding of what adequacy means in more concrete terms. To do so, we started from the concept of adequate social participation, which we defined as the ability of people to adequately play (take and make) the various social roles one should be able to play as a member of society. This notion of adequate social participation was further developed in dialogue with the Theory of Human Need and some insights from the capability theory. Essential needs that should be fulfilled for adequate social participation include access to adequate housing, clothing, an adequate diet, personal hygiene and health care, rest and leisure, the means for maintaining significant social relations, security in childhood, mobility, security and lifelong learning. Subsequently, we explored whether across Europe there is some common understanding of what adequate social participation means and what needs should be fulfilled in order to be able to participate adequately in society.

On the basis of a brief review of international standards as well as a series of over 65 focus group discussions in 24 EU capital cities, we concluded that at least at an abstract level, there is sufficient common ground for a European understanding of ‘adequate social participation’ and for defining the needs that should be fulfilled. More in particular, we found that many of these needs resonate well with ‘formal social expectations’ as embedded in the European Convention of Human Rights and the European Social Charter. However, not all of the needs for adequate social participation are mentioned by these international legal sources. Yet, with very few exceptions the focus groups supported the relevance of each of these needs for adequate social participation. Furthermore, several discussion groups found

that some needs were missing from the theoretical framework, including access to decent work and an active (political) participation and involvement in society. In addition, in quite a few countries it was stated that the importance of access to communication technologies and information should be emphasized more strongly. In addition, based on the European Convention and the Charter, we outlined a list of essential social positions that people should be able to take in the context of adequate social participation. Such a list helps to specify a common understanding of adequate social participation and to identify the required resources for adequately fulfilling the formal and informal social expectations associated with these positions (i.e. their social roles). Subsequently, we asked participants in discussion groups to reflect on what they consider essential social positions that people should be able to take as a member of their society. The results of these discussions suggest that there is quite some common understanding of what adequate social participation entails in these terms, even though several refinements and additions to the list of essential positions were suggested by some discussion groups.

Further research, including a new round of discussions and, preferably, involving sufficiently large random samples of respondents are required to assess to what extent these additional suggestions resonate with the well-considered views of citizens across Europe. In addition, also formal social expectations could be studied in a much more extensive form, for instance by also consulting other European legal sources, but also by exploring to what extent national legislation converges (and diverges) with regard to essential features of what can be considered adequate social participation. Such an analysis should go further than assessing which needs and social positions are essential, and analyse the formal expectations regarding the social roles that people should be able to play at a minimum as a member of society. For instance, what are the formal expectations

regarding parents and citizens? What are the implications of these expectations for the goods and services to which individuals and households must have access in order to be able to live up to these expectations? Such an analysis, especially if undertaken jointly by legal scholars and social scientists in a transdisciplinary research context, would be a next fruitful step in developing well-founded reference budgets with a strong empirical basis.

Even though we acknowledge variations in the extent to which essential goods and services are available, of sufficient quality and accessible across the European Union, it must be said that we did not pay much attention to the broader context, which is to varying degrees less or more conducive to adequate social participation. Our focus has primarily been on the necessities for ‘private’ consumption by households and persons. Obviously, a stimulating, safe and healthy environment as well as a democratic state and the rule of law are essential. However, we assumed these as given, to focus on those aspects that are more directly relevant for specifying a decent minimum income to which households and individuals should have access for adequate social participation in the society in which they live. In a context of climate change, environmental degradation and increased pressure on the democratic character of European polities, it would be worthwhile to pay more attention to the social context in which households live and the extent to which they foster a fulfilment of the needs for adequate social participation.

We consider the findings presented in this paper to be promising in view of developing a meaningful comparative benchmark for cross-national monitoring of income adequacy. First results of developing such a benchmark have already led to new insights (e.g. Carrillo-Álvarez et al. 2019b; Goedemé et al. 2019a), but clearly the development of comparable reference budgets is still in its infancy. A

more rigorous and more elaborate assessment of formal social expectations as well as a more extensive consultation of representative samples of citizens could further strengthen the conclusions of this paper.

Chapter 2: Food Reference Budgets as a potential policy tool to address food insecurity: lessons learned from a pilot study in 26 European countries.

Published as Carrillo-Álvarez, E., Penne, T., Boeckx, H., Storms, B., and Goedemé, T. (2019). 'Food reference budgets as a potential policy tool to address food insecurity: lessons learned from a pilot study in 26 European countries.' *International Journal of Environmental Research and Public Health*, 16(1), 32.¹⁷

Abstract

The aim of this article is to present the development of cross-country comparable food reference budgets in 26 European countries, and to discuss their usefulness as an addition to food-based dietary guidelines (FBDG) for tackling food insecurity in low-income groups. Reference budgets are illustrative priced baskets containing the minimum goods and services necessary for well-described types of families to have an adequate social participation. This study was conducted starting from national FBDG, which were translated into monthly food baskets. Next, these baskets were validated in terms of their acceptability and feasibility through focus group discussions, and finally they were priced. Along the paper, we show how that food reference budgets hold interesting contributions to the promotion of healthy eating and prevention of food insecurity in low-income contexts in at least four ways: (1) they show how a healthy diet can be achieved with limited economic resources, (2) they bring closer to the citizen a detailed example of how to put FBDG recommendations into practice, (3) they ensure that food security is achieved in an integral way, by comprising the biological but also psychological and social functions of food, and (4) providing routes for further (comparative) research into food insecurity.

¹⁷ We are grateful to two anonymous reviewers for the comments and suggestions and to all national experts who contributed to the development of the national food baskets. A complete list of the research teams involved in the Pilot Project can be found in Goedemé et al. 2015a.

Introduction

In a moment in which 18.8% of the global burden of disease has been attributed to unhealthy eating (Gakidou et al. 2017), and in the context of growing inequalities in many countries (Thomson et al. 2018; WHO 2017; OECD 2015; Nolan 2018; Milanovic 2016), policy-makers face the challenge of developing strategies that are sufficiently powerful to revert long-standing patterns of unhealthy eating.

While ecologic approaches and upstream actions have been argued to be indispensable to effectively tackle the situation, actions addressed to the individual are still timely (Roberto et al. 2015; Carrillo-Álvarez and Riera-Romaní 2017; Kumanyika et al. 2013). Food-Based Dietary Guidelines (FBDG) constitute the closest set of nutritional standards for the population and are primarily intended for consumer information and education. Starting from the available evidence on the most relevant diet-disease relationships for the targeted population, FBDG are science-based policy recommendations in the form of guidelines that describe dietary patterns that can facilitate the adherence to eating habits that maintain and promote health (EFSA 2010; WHO 1996).

Since there exists a strong link between diet and the most prevalent diseases in developed societies, the development and implementation of FBDG has the potential to substantially influence the burden of disease within its citizenship, to the extent that the quality of such tools may accentuate or blur diet-related health inequalities between and within countries (EFSA 2010; Sjöström and Stockley 2000; Roth and Knai 2003; WHO 2014b). As the EFSA explains in its ‘Scientific Opinion on establishing Food-Based Dietary Guidelines’ (EFSA 2010), the development of pan-European detailed and effective FBDG is not possible due to wide cross-country variations in nutritional priorities, which are the result of

differences in terms of nutrient intake (Pomerleau et al. 2003), eating habits and traditions (Naska et al. 2006) and diet-related health situation (WHO 2014b).

In 1996, the FAO and WHO published a set of recommendations on the development of FBDG that remains a point of reference for policy makers on the field (WHO 1996). In Europe, additionally, this work was taken further by the EURODIET project, which proposed an updated framework for the development of FBDG in the European Union (Gibney and Sandström 2000). Their main recommendations can be summarized in five points: (1) FBDG must start from recognized public health problems; (2) FBDG are prepared for a particular socio-economic context and must reflect the particularities of the territory with regard to food availability and consumption patterns; (3) FBDG should be updated systematically, ideally every 5 years, to adapt to the evolution of consumption patterns and food availability; (4) FBDG must reflect patterns of consumption, rather than numerical goals in terms of nutrients; and (5) they must be relatively consistent with prevailing patterns of consumption (otherwise they will hardly be accepted). A sixth point was added by Roth and Knai in a report issued in 2003 by the WHO Regional Office for Europe, concerning the need for government endorsement of FBDG to further articulate health policies coherent with dietary recommendations (Roth and Knai 2003). At that moment, only 25 of the 48 countries participating in the study reported having national, government-endorsed food-based dietary guidelines.

Fifteen years later, we conducted a similar research to the EURODIET project, in which the FBDG available in 26 EU Member States were analysed in the light of the previously mentioned guidelines (Carrillo-Álvarez et al. 2019a). Our findings were consistent with the conclusions of previous studies (Montagnese et al. 2015; Brown et al. 2011), indicating little advancement on the topic in the last two

decades. Among the different findings, we highlight the fact that none of the FBDG includes any specific recommendation for low-income groups, for which regular FBDG have been described as insufficient, as they do not address one of the main factors conditioning food decisions in this population: the cost of a diet (Drewnowski and Eichelsdoerfer 2010; Schönfeldt et al. 2013).

In this paper, we present food reference budgets (RBs) for 26 EU Member States, as a tool that can complement regular FBDG to better orientate the dietary intake of low-income groups. RBs are defined as illustrative priced baskets of goods and services that represent the minimum necessary resources for well-described types of families that allow for an adequate diet. In this context, not only the biological function of food is taken into account, but also the social, hedonistic and gastronomic role that food has in current societies (Poulain 2017). While food reference budgets have been published for individual countries (Chrysostomou et al. 2017; Carrillo-Álvarez et al. 2016), to the best of our knowledge, this is the first attempt to document and illustrate in a comparative perspective the cost of a healthy diet in the European Union.

The aim of this article is to discuss the development of cross-country comparable food reference budgets in 26 European countries, as well as their added-value for FBDG for tackling food insecurity in low-income groups.

Materials and Methods

The research that we describe here is part of the pilot project for the development of a common methodology on Reference Budgets in Europe. The pilot project was funded by the European Commission's DG Employment, Social Affairs and Inclusion to develop a common methodology to construct high-quality comparable reference budgets in all EU Member States (Goedemé et al. 2015a) (participating

countries: AT, Austria; BE, Belgium; BG, Bulgaria; CY, Cyprus; CZ, Czech Republic; DE, Germany; DK, Denmark; EE, Estonia; EL, Greece; ES, Spain; FI, Finland; FR, France; HR, Croatia; HU, Hungary; IT, Italy; LT, Lithuania; LU, Luxembourg, LV, Latvia; MT, Malta; NL, Netherlands; PL, Poland; PT, Portugal; RO, Romania; SE, Sweden; SK, Slovakia; SI, Slovenia). For the purpose of this project, a common method was developed, along with food baskets for 26 EU Member States that illustrate what families need to access a diet that allows for adequate social participation. Being able to participate adequately means that people would have the essentials to play their various social roles in a particular society (Goedemé et al. 2015a). This is why, in the concrete context of food, we started from a broader perspective on the functions of food, beyond the necessities of a healthy diet, strictly speaking. The research was carried out by 26 country teams and coordinated by the Herman Deleeck Centre for Social Policy at the University of Antwerp together with three domain coordinators. The geographical coverage is the European Union, except for Ireland and the United Kingdom. Each country team collaborated with a nutritionist and started from the existing national FBDG. The choice to start from FBDG rather than, for instance, common nutritional guidelines from the WHO, was motivated by the fact that FBDG represent the country-specific recommendations on what people need to eat to achieve and/or maintain a good health, while at the same time respecting the cross-national differences in food habits and health priorities. The underlying assumption is that the overall objective of FBDG is the same across countries: facilitating a healthy diet, based on relevant insights from the scientific literature, while respecting local conditions. Finally, each country team organised three focus group discussions in order to test the completeness and acceptability of the food baskets. The items in the food basket were priced in accessible and affordable shops in the capital city.

For the construction of the food baskets we focused primarily on the required budget that should enable people to consume a healthy diet. Although we also considered the other functions of food (e.g., psychological and social) and the necessities for a minimum level physical activity, as recommended in many FBDG, in this paper we report only on the part related to having access to a healthy diet. The main reason is that the nature of collecting robust budgets for the other functions of food and physical activity required more time and resources than were available in our project. As a result, the budgets for the other functions of food and physical activity are not sufficiently robust and comparable. Obviously, in order to be able to afford a healthy diet, one should also have access to kitchen equipment, clean water, and energy to cook. However, due to the specific requirements to estimate their cost, also these are not considered here (see (Goedemé et al. 2015a) for a discussion of kitchen equipment and energy costs).

Given the large variation in needs between individuals and households, and our objective to construct cross-country comparable baskets that represent what is needed at the minimum, in all countries the food baskets were developed for household types with the same specific characteristics:

- a single man [35–45-years-old]
- a single woman [35–45-years-old]
- a couple [man, woman; 35–45-years-old]
- a single woman [35–45-years-old] + 2 children [primary school boy, 10-years-old + secondary school girl, 14-years-old].
- a couple [35–45-years-old] + 2 children [primary school boy, 10-years-old + secondary school girl, 14-years-old].

Furthermore, for assessing and pricing the concrete lists of items, the following assumptions were made:

- The household types are assumed to live in the capital city of each participant country. This point is particularly relevant in terms of the pricing of the items and the frequency in which people rely on the production of food for own consumption.
- All meals are prepared and eaten at home. All food is acquired, prepared and consumed in the most economical way possible. This means families are well-informed about prices and are able to shop in the most economic retailers that are accessible with public transport. However, we do not assume that people can always buy all their ingredients in the cheapest available supermarket. Hence, we allowed for a certain freedom of choice to shop within a range of cheap retailers.
- All household members are in good health and do not have specific dietary requirements. The reason for this assumption is not so much that this is the most common health condition, but rather that the cost of a diet varies depending on the kind and severity of health problems, each having different implications for the needs of the person affected.
- The ingredients should give families access to healthy, tasty and well varied meals. The food basket should be acceptable for citizens with different background characteristics provided that the healthy aspect is not compromised.
- Finally, we assume that the budget for food is allocated to each household member in accordance with her/his needs.

By making these assumptions, we focus on the minimum below which a healthy diet in accordance with the FBDG is not possible. In real-life situations, though, more resources will usually be needed because resources are not always spent in the most economical way, people could be confronted with diseases or special

needs, people might lack the necessary capacities or information to buy and prepare healthy food at economical prices, and some household members may consume a share of the food budget that is not in proportion to their needs. The procedure that the various country teams followed was structured in five standardized steps or milestones.

- (1) For the first milestone, the national experts provided a clear description of the scientific basis (DRV)s of the national FBDG, the results of the last food consumption survey and the model of health education in their country.
- (2) In the following step, in cooperation with a nutritionist, country teams translated the FBDG into a concrete list of food items, including the necessary amounts for each hypothetical household.
- (3) For the third milestone, three different focus groups were organized in the capital city. Several focus group trainings were organized and instructions were developed by the coordinating team to make sure that the focus groups were conducted and analysed in a standardized way (cf. Annex 1 in (Goedemé et al. 2015a)). The national partners recruited for each focus group 5–11 participants of active age (30–50), through a questionnaire for recruitment ensuring a mix of different family situations, and a variety of socio-economic backgrounds. Involving people with different backgrounds increases the variation of opinions, the quality of discussions (in terms of argumentation) and validity of the outcome (Deeming 2010; Devuyst et al. 2014; Vranken 2010). The recruitment of different socio-economic backgrounds was measured based on three variables: activity status, level of education and burden of housing costs as a proxy for income. Because of the limited number of focus groups, it was difficult to make sure ethnic minorities were equally involved. Therefore, this pilot project aimed in the first place at capturing the dominant cultural patterns

through FG discussions, acknowledging that more research is necessary to reveal the cultural variety within cities.

Each focus group followed a predefined topic list, with an estimated time of three hours. The first half of the discussion was devoted to evaluating the broader theoretical framework (the assessment of needs and essential social roles) and the underlying assumptions we made (characteristics of the reference family), and the second half was used to discuss the acceptability, feasibility and completeness of the food basket, the kitchen equipment and the other non-physical functions of food – as well as the related purchasing patterns. For the purpose of this article, we only make use of the second part of the focus group discussions, which had an average duration of approximately 90 minutes. To facilitate the discussion, an illustrative weekly menu was developed by the nutritionist, in accordance with the proposed food basket.

The results were analysed by the country teams in accordance with a common template of analysis. Each focus group was recorded, and, during the discussion, an assistant wrote down the various arguments in a structured template. For each topic a final column was completed with the overall conclusions and general remarks on interaction processes, proxemics and paralinguistic information. In literature they call this a micro-interlocutor analysis (Onwuegbuzie et al. 2009), which allows to focus on the group as well as on the individual data while taking into account group dynamics. The purpose of the focus groups was not to decide on specific quantities but rather to assess the nature, the origin and the construction of the arguments regarding why items are needed or not and what is acceptable and feasible within a given socio-cultural context.

(4) Next, the food baskets had to be adapted in function of feasibility and acceptability, based on the arguments put forward during focus group discussions. This was done in accordance with a common decision procedure

that country teams had to follow to ensure that the healthy character of the diet was respected and to facilitate the consistency and robustness of the results across countries (cf. Annex 2 in (Goedemé et al. 2015a)).

(5) The last milestone consisted of estimating the minimum feasible cost of the food basket. Again, several common assumptions were made. First of all, the food budget should represent the minimum resources that people need to get access to all essential food items. Further, people should have a minimum acceptable degree of freedom in the choice of shops and products. Thirdly, market prices are used, unless other purchasing patterns are common practice, but no sales prices are used. Another important guideline was that economies of scale in buying and preparing food should be taken into account. For the choice of shops to buy food, the national teams had to choose a few retailers or markets which were suggested by the participants in the focus groups. The retailers had to meet the following criteria: (1) they offer a wide variety of food items of acceptable quality at low prices, (2) the shops are well spread over the city, (3) the shops are well accessible by public transport. Being well spread over the country was another criterion that could be considered, as this could facilitate the future pricing of reference budgets developed for other regions.

All countries priced the food baskets between March and April 2015 (exceptions are the food baskets for Luxembourg, Denmark and Slovakia which were priced in December 2014, July 2015 and October 2015, respectively). Prices were collected on the basis of a small-scale survey, carried out by researchers from each country team, making use of a standardised excel sheet (with the exception of Luxembourg, where the country team had access to the official price survey). To price pre-packaged food, the lowest price of suitable products had to be chosen. With regard to fresh food and food categories which contain a large variety of products, country teams had to follow a specific predefined pricing

procedure, such that a weighted price could be estimated which takes into account the available range of relevant products. The food categories for which a weighted price procedure had to be used are the following: fresh fruit, canned fruit, fruit puree, frozen fruit, dried fruit, fresh vegetables, frozen prepared & unprepared vegetables, canned vegetables, fresh fish, frozen fish, canned fish, lean meat, fat meat, charcuterie and cheese.

For instance, the cost of fresh fruit is based on a weighted average of all fresh fruit available in the shop, taking from each type of fruit the cheapest alternative of sufficient quality (e.g., the cheapest apple, the cheapest pear, etc.). The cheapest products are weighted 5/7, whereas the average weight of the more expensive items is given a weight of 2/7, while discarding the 10% most expensive fruits. This procedure aims to meet the dual objective of identifying the minimum cost to prepare healthy menus that still offer sufficient variation (see Annex 3 in (Goedemé et al. 2015a) for the detailed instructions for assessing the cost of the food basket).

The applied pricing procedure was explicitly designed to balance standardisation, sensitivity to the local context, cross-national variations in purchasing patterns and considerations of acceptability. At the same time, it is clear that the procedure is open for improvement. More in particular, the number of shops frequented was generally low and the price survey typically shows a snapshot of the prices at one particular moment in time, collected by a single observer. A much more extensive price survey would be very useful and facilitate representativeness and reliability. In this context, building on the official price survey, especially for assessing the cost of food, could result in a significant improvement of the quality of the pricing procedure.

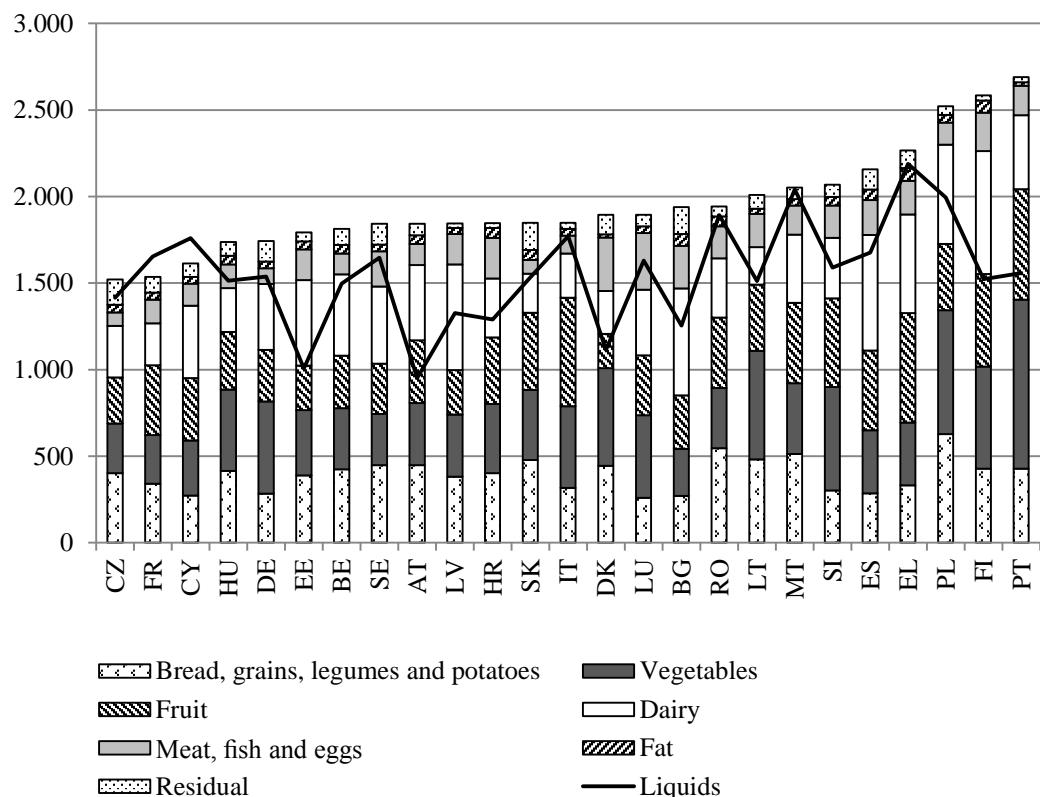
Results

The Contents of the Food Basket

What Constitutes a Healthy Diet?

Although there is little difference in the main food groups included in the country-specific FBDG, the type of foods and the recommended amounts within these main food groups differ substantially across countries (EFSA 2010). These differences follow a clear geographical pattern which may be understood to be mainly a reflection of cultural background and food availability. For instance, in Eastern and Southern European countries the recommended quantities for protein-based foods such as meat or fish are higher compared to Western Europe. Nonetheless, the cross-national variation in FBDG can not only be explained by the differences in cultural habits. Also other factors play a role, including variations in health priorities and the availability of food products between EU member states, as well as the fact that the FBDGs have been updated at different points in time, by different institutions and aimed at different kind of age groups. Furthermore, the interpretation of international recommendations differs across EU Member States, which is reflected in differences in concrete guidelines. Figure 1 shows the content of the national healthy food baskets for a single woman expressed in daily food amounts (mg, and mL for liquids).

Figure 1. Daily food (mg/mL) amounts for a single woman, healthy food basket, 2015.



Note: Country abbreviations: AT, Austria; BE, Belgium; BG, Bulgaria; CY, Cyprus; CZ, Czech Republic; DE, Germany; DK, Denmark; EE, Estonia; EL, Greece; ES, Spain; FI, Finland; FR, France; HR, Croatia; HU, Hungary; IT, Italy; LT, Lithuania; LU, Luxembourg; LV, Latvia; MT, Malta; NL, Netherlands; PL, Poland; PT, Portugal; RO, Romania; SE, Sweden; SK, Slovakia; SI, Slovenia.

The amounts included in the graph refer to the quantity of food in the healthy food baskets that were developed by the country teams, taking account of the edible portions and typical wastes. Net amounts of fresh fruits, vegetables, potatoes, fish, fatter meat and eggs as recommended in the FBDG were increased with a waste percentage of respectively 22%, 28%, 10%, 30%, 20% and 12%. All countries

have used the same edible portions, following guidelines that have originally been developed for Belgium (Gezondheidsraad 2005). An exception is Portugal, where –slightly different- national criteria were applied.

With regard to the amount of vegetables and fruits, country teams included on average between 300–400 g per day for each group. As explained above, the source of variation in the amounts relates to various factors, such as cultural differences (e.g., inclusion of vegetarian meals) or to differences in FBDG, e.g., some countries differentiate between fruit and vegetables while others formulate a joint recommendation. The amount of dairy products varies more across countries, ranging from 215 g in Latvia to 710 g in Finland. Also, for the group of meat, fish and eggs, variations fluctuate between less than 100 g per day (CZ, DE) to 339 g per day (LU). These variations reflect not only differences in guidelines but also, for instance, cultural differences in the composition of the meals. Countries with higher amounts usually include a portion of these foods in two of their meals per day, while others only include them for one daily meal. For the liquids group, the large variation is partly due to whether or not countries included wine and beer, and by the varying amounts of coffee and tea across countries. Water was the basic beverage in all countries and products like fruit juices or sodas were not included in this group, as they are not recommended on a regular basis. Milk was placed in the dairy group.

For some food groups, the variation can also be explained by the differences in the type of foods. For example, the food group grains includes foods such as bread, rice, pasta, pulses and potatoes. Nutritionally these items are considered as exchangeable, but the size of the portion in a daily meal varies considerably (e.g., for an adult: 70–100 g rice compared to 150–250 g potatoes). The fat group mainly includes cooking oil/fat. The Mediterranean countries nuts were also included in

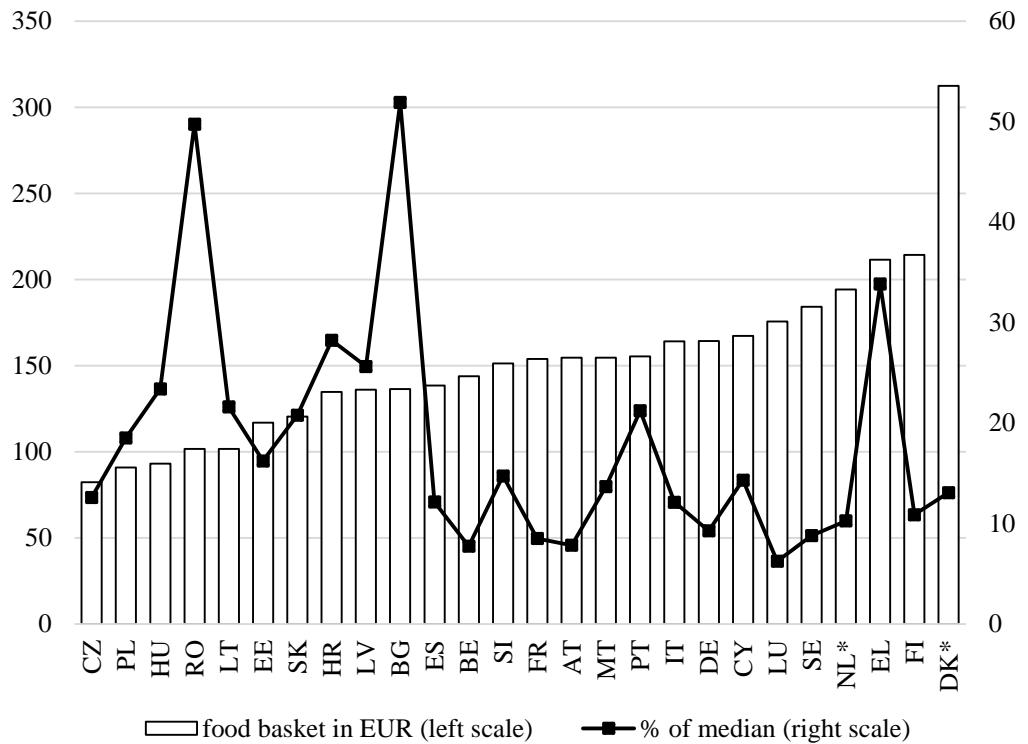
this group following some national guidelines. The type of fat included varies across countries. In Mediterranean countries the main source of recommended fat is olive oil and nuts, while in most of the other countries, butter and other spreadable fats are the most common type of fat. Hence, it is important to bear in mind that comparing food group amounts among the different countries does not necessarily provide information about the nutritional value of the baskets, since food items belonging to the same food group may have a different nutritional composition and/or different portion size.

The residual group is the food group with the highest variations, with amounts ranging from 25 g to 155 g. These differences are likely to be a consequence of the lack of guidelines with regard to these kind of products. All the countries include some salt, sugar and spices, but also sauces (such as mayonnaise and ketchup), dressings and sweets, especially for children, albeit with large variations.

The Cost of the Food Baskets

In this section, we present the results of the food baskets, priced in the capital cities in March-April 2015. Figure 2 shows the total food baskets for a single woman in EUR/month. The baskets represent the budget a single person needs to have a healthy diet.

Figure 2. Total food baskets for a single woman in EUR / month (left axis) and as a percentage of the national median equivalent disposable household income (right axis).



Note: Results refer to the capital city of each country. Prices 2015. *Pricing procedure for DK and NL is not fully comparable. Source: Goedemé et al. (2015a) and Eurostat online database (median income).

When we compare the total food baskets, we observe large variations between EU Member States. The highest price can be found in Denmark, while the lowest cost can be observed for the Czech Republic. In Denmark a single woman needs about three times as much (312 EUR) for eating healthily as compared to a single woman in the Czech Republic (82 EUR). Even if we leave out Denmark (in which the pricing procedure was somewhat different), the difference between the most

expensive food basket (Finland) and the cheapest one remains quite large. This substantial variation between countries is mainly a combination of differences in dietary guidelines on the one hand and price differences on the other hand.

At the same time, it is well known that the level of average household incomes varies a lot between EU Member States. In the context of food security, it is therefore relevant to consider the cost of a healthy diet also in relation to the level of incomes. Therefore, Figure 2 also depicts the food basket for a single person as a percentage of the median equivalent disposable household income in each country, as measured in the EU survey on Income and Living Conditions (EU-SILC) of 2016 (the source of the data on disposable household incomes is the Eurostat online database, last accessed 7 December 2018). This representative household survey collects on a yearly basis information on household incomes (including taxes, social contributions and benefits) in the previous calendar year (Atkinson et al. 2017). We express the budgets as a percentage of the median disposable income (after taxes and transfers), adjusted for household size. This reveals a very different pattern of the relative cost of the food basket: it is lowest in Luxembourg (about 6% of the median income) and the highest in Romania (50%) and Bulgaria (52%), implying that in the latter countries, at the median income, households in the capital city would have to spend half of their income on food in order to have a diet in accordance with their national FBDG. Also, in Greece the relative cost of the food basket is remarkably high. Obviously, the implications for variations in food security require a much more in-depth analysis, with a focus on households with the lowest incomes, but this falls outside the scope of the present paper. In any case, this preliminary analysis shows that the cost of a healthy diet is a non-negligent factor to better understand patterns of food insecurity across the European Union.

Discussion

In the text above, we have described the process of development and the content of the Food Reference Budgets for 26 European countries, as constructed in the framework of the European Commission's DG Employment, Social Affairs and Inclusion funded Pilot Project for the development of a common methodology on Reference Budgets in Europe. We follow a normative perspective, and use guidelines and expert opinions to establish what is needed for an adequate diet (Goedemé et al. 2015a). However, such an exercise is only helpful for health promotion if the resulting food baskets are sufficiently acceptable and feasible. Therefore, focus group discussions played a central role for assessing the acceptability and feasibility baskets.

The process of building food reference budgets is confronted with several limitations. First, there are a number of unavoidable arbitrary choices that condition the final budgets, such as the decision of not including promotions or discounts, the assumption that people are sufficiently informed and skilled to follow a healthy diet, or have enough time to do so. While we are aware that skills and capability to shop and cook healthily as well as time availability are important constraints towards a healthy eating (Leng et al. 2017; Sobal and Bisogni 2009), and that some studies describe that these aspects are even more critical in vulnerable groups (Antentas and Vivas 2014; Darmon and Drewnowski 2008; Tiwari et al. 2017), the decision to develop RBs for these types of family was consistent with the need of having a common and clear family type to facilitate the robustness of the results and the focus on the minimum required resources for an adequate diet. It would be worthwhile to expend the results of this pilot project to household types based on other assumptions regarding time constraints and competences, to reveal the importance of these personal factors in having access

to a healthy diet. At the same time, we are convinced that the current food budgets, with their specific assumptions, can already be used in tailored nutrition education programs, as has been done in some countries (Cornelis and Vandervoort 2013; Muro et al. 2018). Second, although the Supplementary materials contain the budgets for additional household types, the budgets have been developed for a limited number of types only and cannot be extrapolated to the entire population. Moreover, since food RBs start from FBDG, in their current form they only represent the official healthy way of eating, while they leave out a myriad of other possible ways of following a healthy diet. In this sense, future research should be able to take into account a greater variation of reference situations in terms of age, cultural background, personal choices and health conditions. Fourth, the pricing procedure that was applied could be further improved to increase representativeness and reliability by working with a larger, random sample of food products. Fifth, due to their detailed character, the budgets risk to be used in a prescriptive way. Given previously mentioned limitations, food reference budgets do not pretend to define what people should eat, but to illustrate a way in which an adequate diet can be achieved, and how much that would cost at the minimum. Finally, when using the food budgets for comparative research, researchers should be aware of the limits to their comparability that we have highlighted above. In particular, it should be clear that the healthy food basket is comparable only in the sense that it reflects everywhere the state of affairs of FBDG in 2015. We are well aware that the extent to which the FBDG are an adequate cultural and scientific reflection of what a healthy diet should be in different national contexts can be criticised (Carrillo-Álvarez et al. 2019a).

Notwithstanding these limitations, we are convinced that food reference budgets hold interesting contributions to the promotion of healthy eating and prevention of food insecurity in low-income contexts in at least four ways: First, because they

show how a healthy diet can be achieved with limited economic resources, they constitute not only a guideline in terms of budgeting, but also offer policy-makers more insight into the cost of a healthy diet and how this may be a hurdle to achieve a healthy eating pattern.

Second, food reference budgets also bring closer to the citizen a detailed example of how to put general recommendations (as the ones contained in FBDG) into practice. Several studies show that the main motivators in the choice of food differ depending on the socioeconomic and educational level. We know that even though the price is a great determinant of the intake, culinary skills and food knowledge is also a determining factor among low-income people (Antentas and Vivas 2014; Darmon and Drewnowski 2008). FBDG are designed to be easy to interpret and to translate into physical dishes and food preparations. However, in a moment in which most population is losing culinary referents and less and less familiar with cooking (Sainz García et al. 2016), much people do not have the necessary knowledge to translate dietary recommendations into daily eating practices (this is what the nutritionist on each country team did). Hence, a guide that shows how to cook a healthy diet with very few resources is most useful.

Third, if, when ensuring food security, we really aim at promoting a bio-psychosocial understanding of the person, healthy eating promotion must compulsorily include foods to share, foods to enjoy and foods to celebrate. This is something the focus groups laid bare. In all countries, FG participants stressed how food is not only about being in a good health, but it is an essential part of cultural and social life. Eating and drinking is playing a crucial role for social activities and gatherings with family, friends and colleagues in all different cultural contexts. The people in FGs emphasize the importance of cooking and dining together but also of eating out in order to maintain social relations and to socialize. Food can

be a means to show care and respect, to create hospitality and to create a feeling of belonging. Further, the FG participants often mentioned the role of food in the preservation of traditions and in the expression of a certain cultural, religious or personal identity. These foods and activities are not essential for a healthy diet, nevertheless, they are seen as important to participate adequately in society. As mentioned above, in this project, the inclusion of these items was not done in a very standardized and cross-nationally comparable way, which is why we did not report their estimated levels. Nevertheless, we should acknowledge the importance of these functions in order to create more acceptable and complete food baskets that allow for adequate social participation in the different EU countries. Ultimately this is the only pathway to work toward narrowing diet-related health inequalities in a comprehensive and empowering manner. Therefore, it would be worthwhile to spend more time and resources on collecting high quality information on this aspect of an adequate diet.

Finally, it is worthwhile pointing out that although there is quite some variation between countries in the cost of a healthy diet, this variation is much smaller than the variation in median disposable household incomes we find in the EU. For instance, while the cost of a healthy diet is about 214 EUR per month in Finland as compared to just 102 EUR per month in Romania, its median equivalent disposable household income in EUR is about ten times higher. As a result, it is clear that people living in countries with a relatively low median disposable will have a much harder time spending sufficient income to ensure a healthy diet. Furthermore, the ranking in the cost of a healthy diet differs from the ranking of countries in terms of their median disposable household income. For instance, even though Romania clearly is the EU country with the lowest median household incomes, the cost of a healthy diet in Bucharest is clearly higher than the cost of a healthy diet in, for instance, the Czech Republic, which in terms of household

incomes is considerably less poor. This has clear implications for policies, especially at the EU level, but it also shows the potential of the food reference budgets for further research into better understanding patterns of food insecurity across the EU.

Conclusions

In this paper, food reference budgets are presented and their potential utility as a complement for FBDG in low-income contexts is discussed. These reference budgets are built upon cross-nationally comparable food baskets which reflect the minimum cost for a healthy diet, taking national food patterns and recommendations into account by starting from national FBDG. Food baskets were constructed for the capital city in 26 countries, including all EU Member States except Ireland and the United Kingdom. In Denmark and the Netherlands, the procedure that was applied was not fully comparable. The figures show that even though cross-national differences in the minimum cost of a healthy diet are large, they vary much less than net disposable median incomes. We are convinced that the part of the food baskets which relates to having a healthy diet is comparable across countries in the sense that it reflects dominant institutionalized expectations regarding what constitutes a healthy diet, as embedded in national FBDG, and so will be useful for further comparative research.

The procedure we set up for developing and pricing the cost of a healthy diet has been conceived to optimise the balance between the following objectives: (1) It should allow for a healthy diet in line with recommendations in the applicable food-based dietary guidelines; (2) It should be the most economical option possible, while allowing some room for choice; and (3) It should be acceptable, tasty and feasible for the wider public, that is, it should be in line with local food habits. This setup seemed to work well and led to reasonable outcomes. However,

further efforts should be undertaken to develop strategies to also collect comparable information on the cost of other functions of food, kitchen equipment and national recommendations regarding physical activity.

We are strongly convinced that the food reference budgets offer a useful tool for the promotion of healthy eating and prevention of food insecurity in low-income contexts in at least four ways: (1) help with budgeting for a healthy diet and making the financial hurdles for realising a healthy diet visible to policy makers; (2) educational illustration of how to cook in accordance with national food recommendations as embedded in the FBDGs; (3) showing that also other functions of food matter, apart from having access to a healthy diet; (4) providing routes for further (comparative) research into food insecurity.

While the results of this pilot project have proven to be very useful, we have also pointed to several limitations that indicate the potential for further improvement. Overcoming these limitations is strongly dependent on having access to better data, including price data and comparable food consumption surveys in all EU Member States. Also, to make the food baskets more comparable in the sense of the minimum necessary for an adequate diet, it would be welcome to have up-to-date high quality FBDGs everywhere.

Supplementary Materials: The complete food baskets for each country are available online.

PART II. THE USE OF REFERENCE BUDGETS FOR THE DEVELOPMENT OF SOCIAL INDICATORS

Chapter 3: Measuring water affordability in developed economies. The added value of a needs-based approach.

Published as Vanhille, J., Goedemé, T., Penne, T., Van Thielen, L. and Storms, B. (2018). 'Measuring water affordability in developed economies. The added value of a needs-based approach.' *Journal of Environmental Management*, 217, 611-620.¹⁸

Abstract

In developed countries, water affordability problems remain up on the agenda as the increasing financial costs of water services can impede the realisation of an equal access to water. More than ever, public authorities that define water tariffs face the challenge of reconciling environmental and cost recovery objectives with equity and financial accessibility for all. Indicators of water affordability can be helpful in this regard. Conventional affordability indicators often rely on the actual amount that households spend on water use. In contrast, we propose a needs-based indicator that measures the risk of being unable to afford the amount of water necessary to fulfil essential needs, i.e. needs that should be fulfilled for adequate participation in society. In this paper we set forth the methodological choices inherent to constructing a needs-based affordability indicator. Using a micro-dataset on household in Flanders (Belgium), we compare its results with the outcomes of a more common actual expenses-indicator. The paper illustrates how the constructed needs-based indicator can complement existing affordability indicators, and its capacity to reveal important risk groups.

¹⁸ We thank Ellen Wailly for her helpful advice and Pascale Geulleaume for her attentive examination of the final text. We have received useful feedback from the participants of a seminar at the University of Antwerp (February 2016) on an early version of this paper, and gratefully acknowledge three anonymous reviewers for their comments and suggestions.

Introduction

Equal access to drinking water and sanitation of good quality is explicitly recognized as a human right by the United Nations (2010). In this context, the importance of an affordable and fair water tariff, including for socioeconomically disadvantaged groups, was emphasised¹⁹ (United Nations 2003). In developed countries, a non-negligible group of households experiences limited access to drinking water and sanitation due to affordability problems rather than infrastructural inaccessibility. This manifests itself through self-restraint or, more visibly, as arrears, debts, and discontinued supply (e.g. García-Valiñas et al. 2010b; OECD 2003; Mack and Wrase 2017).

Guarding the affordability objective in water pricing policy is not straightforward. On the one hand water is identified as an economical and scarce good whose price should reflect ‘full cost recovery’. On the other hand, adequate water-related services (safe drinking water provision and adequate wastewater treatment) are proven to be beneficial for the well-being and health of society as a whole. The latter classification of water as a ‘merit good’, advocates for a certain price regulation or government subsidization, ensuring affordable access to basic water services for all (OECD 2003; Opschoor 2006). Thus, (semi-) public water regulators face the exercise of designing water tariff structures that reconcile environmental and cost recovery objectives with equity principles, avoiding real affordability problems while maintaining sufficiently strong incentives for rational water use. In order to evaluate the equity effects of different sorts of water tariffs, a sound definition and measure of ‘affordability’ is essential.

¹⁹ “Any payment for water services has to be based on the principle of equity, ensuring that these services, whether privately or publicly provided, are affordable for all, including socially disadvantaged groups.” (United Nations, 2003; paragraph 27)

Notwithstanding extensive research on water affordability both in developing and developed countries, most empirical studies focus on actual consumption patterns while lacking a theoretical concept of how much water use is deemed necessary to fulfil essential needs in a given societal context. With this article we want to contribute to the knowledge and measurement of water affordability by proposing a needs-based indicator that is based on reference budgets. While a normative, explicit account of what constitutes a minimally necessary consumption level exists in areas such as housing, energy and food (Boardman 2010; Haffner and Heylen 2011; Wong et al. 2011), few studies on water affordability have engaged with this exercise. Reference budgets are priced baskets of goods and services that illustrate the minimum needs of specific household types to attain adequate living standards (cf. Goedemé et al. 2015a). The reference budget method, often used in research on the affordability of essential goods and services, defines 'affordability' as households' ability to afford a specific good or service without being forced to under-consume other essential goods and services (e.g. Carruthers et al. 2005; Haffner and Heylen 2011; Hulchanski 1995; Moore 2012; Stone 2006; Whitehead 1991). We contend that this indicator is an essential complement to the usual indicators based on observed expenditure patterns and demonstrate its added-value with an empirical assessment of water affordability in Flanders. Although a relatively rich region in Europe, water affordability is prominently present on the policy agenda due to the steady and continued rise in the number of households with payment problems or for whom these problems have led to being cut-off from the water supply network (SERV 2014; VMM 2016).

In what follows, we discuss the literature and argue for a needs-based approach to complement conventional expense-indicators. After delineating the reference budget methodology applied to water use in Flanders, we describe the

methodological choices inherent to constructing a needs-based affordability indicator. Subsequently, we compare the results of an affordability indicator based on a needs-based cost concept with the outcomes of an actual expenses-indicator in the Flemish context. This allows us to illustrate how a needs-based cost indicator can complement existing affordability indicators, and can reveal different risk groups. In the final sections we briefly summarise the strengths and weaknesses of our approach, and conclude.

Literature review

Water affordability is generally defined as ‘the ability to pay for water consumption required to fulfil all basic needs’ (Miniaci et al. 2008; Smets 2008). This definition is exclusively concerned with the water needed for the fulfilment of basic needs. At the same time, the ability to pay is also determined by the structure and components of the water bill (e.g. inclusion of wastewater services, existence of social tariffs), financial capacities of households, the cost of other essential goods and services and the social context. Despite the general emphasis on necessities, most empirical studies do not start from a needs-based concept of ‘essential water usage’. While a range of indicators for measuring affordability have been developed for varying contexts (Hutton 2012; Mack and Wrage 2017), estimating the percentage of households for which expenses on water as a share of total household income or expenditure exceed a pre-defined threshold, came to be the conventional way to assess affordability risk (Smets 2008, 2009; OECD 2003; García-Valiñas et al. 2010b, 2010a; Lee 2011; Miniaci et al. 2008).

However, actual water expenses do not necessarily reflect household needs. Indeed, high water expenses can be the result of ‘excessive’ use such as a private pool, or reflect uneconomical or inefficient use, for instance due to old-fashioned suboptimal water infrastructure (OECD 2003). Likewise, low water expenses

could be the result of consuming less than needed due to budget constraints. The latter indicates a ‘hidden’ problem of affordability that cannot be revealed when using actual consumption in the affordability equation.

To avoid that affluent households with high water consumption appear in the affordability statistics, one could restrict the sample to the bottom of the income distribution (e.g. Smets 2008), or evaluate whether income after water expenses falls below the poverty threshold (e.g. Miniaci et al. 2008). In contrast, we contend that focusing on the affordability of a pre-defined level of water expenses that allows to fulfil a predetermined set of needs, instead of actual expenses, offers an important complementary approach. In doing so, one could automatically and simultaneously filter out above-minimal use, while revealing potential problems of ‘under-consumption’ of water. This would help to get more insight into the extent and the risks of water affordability within different population groups. A similar suggestion was made by García-Valiñas et al. (2010b, 2010a), who rightly pointed out that it implies a judgment of what should be defined as necessary water consumption - a complex exercise that varies with context and household characteristics and for which no appropriate methodology has been agreed upon yet (Chenoweth 2008). The exercise of judging what should be defined as necessary water consumption is thereby often cast aside. Instead, studies that do adopt a concept of minimally necessary instead of actual water use have opted for taking (a) the universal standard of 100 litres per person per day developed by Howard and Bartram (2003) for water infrastructure allowing optimal access (García-Valiñas et al. 2010b) or (b) deriving from an assumed demand function the portion of water use that is statistically estimated to be inelastic, and therefore argued to be corresponding to the quantity required to fulfil basic needs (García-Valiñas et al. 2010a; Sebri 2015).

In contrast, our approach is precisely to assess the quantity of water, minimally needed to live decently in the Flemish societal context (see § 3). This requires many and explicit assumptions, especially regarding the household's ability to use water economically. Such an approach risks to be conceived ad-hoc or overly paternalistic. Reference budgets should therefore be based as much as possible on observable social norms, i.e. (inter)national legal standards and guidelines, complemented by scientific and experientially grounded knowledge. In the construction process, sufficient room should be allowed to develop various options where valid alternatives exist, emphasizing the illustrative (non-paternalistic) character of reference budgets (cf. Goedemé et al. 2015a).

Empirical analyses with normative underpinnings concerning what constitutes an adequate minimum are more prevalent in research on energy affordability (Boardman 2010; Hills 2012; Sefton 2002), housing (Haffner and Heylen 2011) and nutritious food (Wong et al. 2011; Wodon 1997). These studies suggest that need-based standards offer interesting possibilities in pinpointing households facing affordability problems, enabling a more multifaceted approach to measure affordability problems. For water use, less than a handful of studies have tried to delineate needs-based estimates. Gleick (1996) estimates the necessary water use for domestic purposes at 50 litres per person per day, with minimum amounts for drinking (3 litres), sanitation (20 litres), bathing (15 litres) and food preparation (10 litres) in the case of 'typical' circumstances. Gleick (1996) explicitly aims to estimate a "universal" basic amount for physical survival, irrespective of location, climate context and living conditions.²⁰ Howard and Bartram (2003), on the other

²⁰ "While the amount of water required to maintain survival depends on surrounding environmental conditions and personal physiological characteristics, the overall variability of needs is quite small." (Gleick 1996; p. 83)

hand, emphasise that the necessary amount of water usage depends on the available water infrastructure. In a society with “optimal access conditions”²¹ they estimate an essential domestic water use of 100 litres per person per day, yet without further refinement for varying context or household characteristics. A number of other studies estimate per capita quantities of minimally necessary water required to run a modern society (Falkenmark 1986) or for human health, economic and social development (Chenoweth 2008) – thereby going beyond household needs as envisaged here.

Although drinking water and sanitation are necessary to fulfil the universal needs of health and autonomy everywhere (cf. Doyal and Gough 1991), we argue in line with Chenoweth (2008), García-Valiñas et al. (2010a, 2010b), Sebri (2015) and others that the amount of water needed at the minimum to fulfil these needs does differ across geographical areas (climate, environment), cultures (varying social norms on hygiene, existing infrastructure), and household characteristics (demographic profile, employment status, health situation). The next section details how we draw on reference budget research to determine the minimally necessary water use for Flemish households.

A needs-based concept of minimally necessary water use

The methodology to operationalize the concept of minimally necessary water use is drawn from Belgian reference budget research. These reference budgets illustrate what people need minimally to participate adequately in society. Adequate social participation is defined as the ability of people to adequately fulfil the various social roles one should be able to play as a member of society (cf.

²¹ Optimal access conditions imply that water supply is continuous and available through (multiple) tap(s) in the dwelling (Howard and Bartram 2003; p. 22)

Goedemé et al. 2015a).²² Starting from a theoretical framework inspired by the Theory of Human Need (Doyal and Gough 1991), two universal (health and autonomy) and ten intermediate needs or baskets are identified, which are further concretised into priced lists of necessary goods and services using a variety of information sources (cf. Goedemé et al. 2015b). Water, one of the essential goods, is part of the basket representing the need for food, clothing and housing. In contrast to Gleick (1996) and Howard & Bartram (2003), a minimal necessary water budget for domestic use is identified for specific household types, which allows us to take account of economies of scale at the household level. Our exercise requires to make several assumptions:

- 1) Given the developed country context, we assume that households have access to water services and good quality tap water.
- 2) We assume that tap water at home fulfils 100% of the estimated minimally necessary water needs for adequate social participation. This implies not taking into account (a) possible daily water use outside the home (e.g. at work, in the sports club, when visiting friends) and (b) possible use of rainwater for domestic purposes such as toilet flushing or laundry²³. Both assumptions are made to reflect a situation in which households are compared on equal terms, and to avoid assumptions that cannot be reasonably assumed for all households (rainwater infrastructure, an

²² Please note that this concept is somewhat broader than what some would consider ‘basic needs’.

²³ The latest figures indicate that rainwater accounts for 12% of the total water consumption of Flemish households. (De Nocker et al. 2017). Nowadays, the installation of a water tank is mandatory for new buildings. Nevertheless, a significant number of households do not have access to appropriate infrastructure with sufficient capacity (VMM 2014). Moreover, the investment costs for infrastructure are likely to be a barrier for households with below-average income levels, especially when renting accommodation. Obviously, if the exercise would be repeated in the future or for a region where such infrastructure is more commonly available, the minimum necessary amount of tap water may be lower.

outside-the-home job, etc.). If the affordability of the water budget would depend on being able to consume part of it elsewhere or being able to use rainwater, affordability problems are arguably still a risk.

- 3) We assume that all household members are healthy and well-informed. In other words, we estimate minimal water use for ‘standard’ families, without special needs.
- 4) We assume the household has the capacity to use water economically, without sacrifices that could undermine their social participation (cf. Gilg and Barr 2006). This assumption includes e.g. turning water off while brushing teeth, taking showers instead of baths and running full washing machines.

It is important to stress that these assumptions do not always correspond with the situation and characteristics of real families, especially not in the context of socioeconomically disadvantaged groups (cf. section 6). However, it is even harder to identify in some robust way what the minimally essential volume of water consumption should be with different assumptions (e.g. in case of non-economical water consumption). Sensitivity tests could be carried out with stricter or more relaxed assumptions.

Similar to Howard and Bartram (2003), we make a distinction between three functions of essential water use: *consumption*, *hygiene* and *other usage* such as home maintenance. These are translated in minimal frequencies based on existing (inter)national guidelines and recommendations regarding economical water use. When normative guidelines are lacking, data on actual consumption patterns are used which are adjusted downwards when more economical use is feasible. To make sure that the minimum budget accurately reflects the context in Flanders, we

started whenever possible from local guidelines and recommendations, and complemented these with international recommendations.

To determine minimally necessary water use for human *consumption*, we started from recommendations of the Belgian ‘Superior Health Council’ (2016). The concrete amount is adjusted to the Flemish context based on available applied research, which takes account of available technologies, actual consumption patterns and practical considerations, aiming for efficient water use at minimal cost (VMM 2017; Ecohuis 2016). The minimal amount of water needed for *personal hygiene* is assessed through (1) medical and ecological recommendations regarding the duration of daily showers, combined with the most efficient water use (e.g. assuming economical showerheads) (2) data on actual water consumption of Dutch households (van Thiel 2014)²⁴ for shaving, washing (sink) and brushing teeth, which was corrected if more economical use was considered feasible, (3) empirical evidence on the average frequency of toilet use for people in a good health (Friedler et al. 1996; Gilg and Barr 2006; Randolph and Troy 2008), assuming economical flush buttons (PraktischDuurzaam 2015), (4) the minimally required water use to clean the dwelling in an efficient way and, (5) data on the average water use of economical washing machines and their actual number of water cycles, adjusted for efficient use (Kruschwitz et al. 2014; Pakula and Stamminger 2010). Finally, we add a small amount of water for *other functions*.

²⁴ At the time of writing, no similar research for Flanders was available. Patterns of water use in the Netherlands can be expected to be a rather good proxy for those in Flanders with regard to the items included in the water budget.

Table 1. Average amount of minimally necessary water use per day in Flanders.

Function	Calculations	Single person daily amount	Couple with 2 children daily amount	Ratio of the amounts for a 4p. family and a single person
Drinking	1.35 litres p.p.p.d.	1.35 litres 0.36 US gal	5.40 litres 1.44 US gal	4.00
Preparing food	1.4 litres p.p.p.d.	1.40 litres 0.37 US gal	5.60 litres 1.48 US gal	4.00
Dishes	12.8 litres/cycle + 2 litres per extra household member	12.80 litres 3.38 US gal	18.80 litres 4.97 US gal	1.47
Shower	5 min/shower: 8 litres/minute >12 years: 1/day <12 years: 1/two days*	40.00 litres 10.57 US gal	140.00 litres 36.98 US gal	3.50
Washing, shaving, brushing teeth	4.2 litres p.p.p.d.	4.20 litres 1.11 US gal	16.80 litres 4.44 US gal	4.00
Toilet	3 litres for toilet n°1 (*5) + 6 litres for toilet n°2 (*2)	27.00 litres 7.13 US gal	108.00 litres 28.53 US gal	4.00
Cleaning	27 litres/week + 1 litres/day per extra child	3.80 litres 1.00 US gal	5.80 litres 1.53 US gal	1.53
Washing clothes	1.5 cycles/week + 0.5 for each extra household member 42.5 litres per cycle	9.08 litres 2.39 US gal	18.16 litres 4.77 US gal	2.00
Other	4 litres p.p.p.d.	4.00 litres 1.06 US gal	16.00 litres 4.23 US gal	4.00
Total per day		103.00 litres 27.20 US gal	333.00 litres 87.97 US gal	3.23

Note: p.p.p.d. = per person per day. *In order to prevent dry skin and eczema, it is recommended that children do not shower daily (Kind en Gezin 2017).

The total necessary water usage for a single person in Flanders is estimated at 103 litres a day, close to the estimate by Howard and Bartram (2003) in case of ‘optimal access conditions’. This amount increases when more members are added to the household, but not proportionally due to economies of scale (e.g. for preparing food, dishes, cleaning and washing clothes). Hence, a couple without children needs about 185 litres a day (rather than 206 litres), while a couple with two children (8 and 15 years old) needs about 333 litres. The largest share of this budget (81% to 86%) is required for personal hygiene, followed by personal consumption (9% à 15%) and other usage (4% à 5%). Obviously, these amounts should not be considered absolute, as they required additional judgment on our side. Nonetheless, we are convinced that they broadly reflect what could be considered an acceptable minimum for Flanders. Furthermore, small changes in the quantities are unlikely to affect the main conclusions that can be drawn from our proposed needs-based indicator. Furthermore, as emphasised below, for empirical applications it is important to carry out sensitivity checks.

Methodological considerations regarding water affordability indicators

As argued in Section 2, the conventional *ex ante* “risk” indicators usually compare the financial capacity of the household with the water cost²⁵. When the ratio water cost vs financial capacity of the household exceeds a certain threshold (e.g. 1%, 3% or 5%), the household is estimated to be at risk of facing affordability problems. In other words, affordability indicators typically consist of three

²⁵ The *ex-ante* / *ex-post* distinction is frequently used to categorize affordability indicators. *Ex post* water affordability indicators can be constructed by means of administrative data on delayed payments, debts and the amount and duration of disconnections. This type of information is often produced by water suppliers (e.g. VMM 2014). However, in order to detect risks of affordability before acute problems of arrears and debts manifest themselves, it is necessary to construct *ex ante* indicators that aim to capture the risk of affordability *before* actual payment problems arise. The latter are the focus of this paper.

parameters, which we review in turn in this section: the cost concept (4.1), the financial capacity concept (4.2) and the threshold value (4.3). Subsequently, we anticipate the strengths and weaknesses of the two indicators used in the empirical illustration (the default indicator based on actual expenditures- and our needs-based indicator) (3.4). In the final part, we briefly discuss the data used for the empirical illustration (3.5).

Cost concept

While the theoretical concept of water costs can include all costs related to water consumption (also indirect costs related to accessing water, such as time and equipment, cf. Hutton, 2012), this is often impossible to quantify due to data constraints. Most studies reviewed in the previous sections approach water costs as direct expenditures for water-related services, i.e. the amount billed.²⁶ In line with this practice, we construct a cost concept corresponding to what each household would pay for the normatively determined volume of water (cf. Section 3) that should cover all basic household needs.

For Flanders, the water bill components are (1) the cost of the production and distribution of drinking water – including a fixed charge and a volumetric fee per m³; (2) the cost of the wastewater sewerage and treatment – consisting of a municipal and a regional volumetric fee; and (3) a VAT-tax of 6% applied on components (1) and (2).

While this general tariff structure is applied throughout Flanders, the rate of the fees varies across the 9 area-based water supply companies (these determine the fixed charge and the volumetric fee for drinking water) and across the 308

²⁶ In the referenced studies this is often - in line with OECD recommendations (OECD 2009) – the combined costs of drinking water and wastewater services.

municipalities (that determine the municipal wastewater sewerage and treatment volumetric fee). The difference between the least and the most expensive water municipality (for an average volume of water consumption) amounted to 63% in 2015 (authors' calculations). Between these extremes, most households in Flanders pay a relatively comparable water bill: the difference between a municipality at the 10th percentile and one at the 90th percentile in terms of water costs, amounted to a more modest 18%.

Assessing the financial capacity of households

In order to assess the risk of affordability problems, the cost of water should be compared with the household's financial resources. In the literature on affordability risks, studies differ in their choice of indicator for financial capacity, depending among others on data availability (Hutton 2012). Usually, the financial capacity of households is measured with an indicator of their total gross or net income, before or after housing costs, or by looking at total household expenditures. For the purpose of our exercise, we start from disposable household income, which includes benefits and allowances, as well as deductions of taxes and social contributions (but not housing costs), following the dominant practice in most (inter)national research on poverty and inequality in developed countries (e.g. OECD; Eurostat ...).

The choice of a threshold value

The main difficulty for constructing a water affordability indicator is defining a realistic threshold that identifies the risk of affordability problems in societies with a large variation in resources and needs across households. Fankhauser & Tepic (2007) review the existing thresholds adopted by governments and international institutions for what is considered an acceptable level of utility expenditures,

covering water, electricity and heating. Lacking consensus on how to determine an appropriate threshold value, led to the adoption of mostly ad hoc rules on this matter. While thresholds commonly used in Latin America, (Central) Asia and Africa (Smets 2008, 2009; Banerjee and Morella 2011; Lee 2011; Hutton 2012), put water and sanitation expenditures at around 5% of household income, the threshold of 3% is the most common value to assess a risk of water affordability problems in developed economies (e.g. Fankhauser and Tepic 2007; Reynaud 2008; Sawkins and Dickie 2005; Vanhille 2015), with the exception of the US, where a 4.5% threshold is applied (Mack and Wrase 2017). Households spending more than 3% of their resources on water, are considered to have a problem of water affordability. This threshold is also used by the government of the UK and international organisations such as the UNDP, even though both institutions use a different underpinning for this choice²⁷. Some authors argue that this 3% threshold is too high in the context of developed countries (e.g. Miniaci et al. 2008). In contrast, these authors propose to use the median share that is actually spent on water by households in poverty²⁸ as threshold value (resulting in a threshold of 1.8%). They argue that “lacking a specific measure of the minimum basket of utility services in physical terms, this seems to be the most reasonable alternative available” (Miniaci et al. 2008, p.213).

Also in the Belgian context a 3% threshold is rather high, especially without further conceptual underpinning. In comparison with Italy in 2005 (year of the Miniaci et al., 2008 study), in 2015, the median of Flemish households with an

²⁷ UNDP (2006) justifies the use of the 3% threshold as a “rule of thumb”, and refers among others to the UK practice. The UK government grounds the 3% in the empirical observation that households belonging to the lowest three income deciles (the 30% poorest households) spent on average 3% of their income on water charges in the period 1993-2001 (Fitch and Price 2002).

²⁸ Defined as households with an equivalent disposable household income below 60% of the median in Italy.

income below the at-risk-of-poverty threshold spent a slightly lower percentage of its disposable income on water: 1.4% (own calculations on EU-SILC, cf. below). In contrast to Miniaci et al. (2008), for Flanders we do have a minimum basket of water services in physical terms: the needs-based concept of minimally necessary water use presented above. In addition, we have an indication of the minimum cost of the other essential goods and services, as identified by the reference budgets for adequate social participation developed for Flanders (cf. Storms et al. forthcoming). The share of the water budget in the total reference budgets offers a good indication of a valid threshold: if a larger share of household income is spent on the needs-based budget, the household is probably unable to afford the other essential goods and services covered by the reference budgets.

Not surprisingly, the share of the water budget in the total reference budgets depends on the households' circumstances, and in particular the housing budget. It ranges from 1.2% (single person with two older children) to 1.6% (couple with two young children) for families renting on the private market and from 1.6% (single or couple with one child) to 2% (single) for families paying reduced social housing rent.

Although it is possible in principle to use these shares to define household-specific thresholds, these thresholds make the empirical exercise rather complex (note that the needs-based cost concept already varies by household composition). Therefore, for the empirical illustration we prefer working with two threshold values, applied to all household situations: 1.4% (the weighted average share based on the reference budget method, applicable for households renting on the private market) and 3.0% (allowing international comparisons). The application of two threshold values helps to illustrate the sensitivity of the results to the choice of the threshold, and to gain more insight into the 'depth' or 'severity' of the

affordability risk: spending or having to spend more than 3.0% of disposable income on water clearly indicates a more severe affordability risk than crossing the 1.4% threshold.

'Actual expenses' versus 'needs-based' indicator

Incorporating all findings, we can compose a needs-based indicator of water affordability, which defines an affordability problem as having a disposable household income that is too low to spend maximum 1.4% or 3.0% of the income on the needs-based water budget²⁹. We will compare our indicator with a conventional actual expenses indicator that defines an affordability problem as spending more than 1.4% or 3.0% of the disposable household income on actual water consumption.

Neither of these indicators fully captures water affordability. The actual expenses indicator includes households with relatively high water consumption that could be reduced without jeopardising needs for adequate social participation; while the needs-based indicator includes households that might benefit from more efficient infrastructure (e.g. using rainwater for sanitation) and therefore do not have an affordability risk. Also, both indicators may be missing some households: the actual expenses indicator omits households underspending on water because of budget constraints; the needs-based indicator omits those with specific needs (e.g. bathing needs because of disability, specific job requiring more frequent washing cycles) or lacking efficient infrastructure (e.g. without economical showerhead, leaking installations, apartments with shared water bills). Therefore, we regard

²⁹ In other words, the needs-based indicator effectively coincides with a low-income indicator, of which the threshold is equal to the household-specific water budget divided by 0.014, respectively by 0.03.

both indicators as complementary, which together provide a more complete picture of water affordability problems.

Data

Data requirements to construct the needs-based indicator are threefold: (1) a needs-based water budget, detailing the estimated minimally necessary water use for different household types (cf. above); (2) a representative households sample with information on basic demographic characteristics and disposable household incomes; (3) a model to simulate the water tariff structure and its parameters, in order to calculate the hypothetical needs-based water bill for each dataset's household. For the empirical illustration, we make use of the Flemish component of the survey on Income and Living Conditions (EU-SILC), which contains detailed information at the micro level for a representative sample of about 3000 households on their demographic characteristics, income and water expenses,. We refer to our accompanying Data In Brief contribution (Goedemé and Vanhille 2018) for more information on this dataset and how we treated it to satisfy the above criteria.

Given local variations in the exact tariff of water (cf. section 4.1) and lack of information regarding the municipality of respondents in the dataset, we have assumed that each household faces the 'average' tariff in Flanders in our model for simulating the needs-based water bill. A sensitivity analysis documented in the supplementary material reports the results under alternative assumptions.

Empirical illustration

The two indicators compared in this empirical illustration differ only in their concept of the water cost. The measurement of the financial capacity of households and the threshold values of the affordability indicators remain unchanged. Thus,

households will be identified as having a risk of water affordability problems when (A) they spend more than 1.4% (3.0%) of their net disposable household income on water; (B) the needs-based water budget (adapted to the household size and composition) exceeds 1.4% (3.0%) of their net disposable household income. We emphasize that these indicators measure *a risk* of affordability problems, since the heterogeneity of the population cannot be fully captured (see above).

Table 2 presents the percentage of individuals that live in a household at risk of water affordability problems, according to the two different indicators (needs-based and actual expenses) (2) and the two thresholds (indicating the “depth” of the affordability risk).

Table 2. The percentage (with 95% confidence interval) of individuals living in a household at risk of water affordability problems by two dimensions (indicator and threshold), EU-SILC 2015

Indicator	3.0% threshold estimate (95% C.I.)	1.4% threshold estimate (95% C.I.)
Actual expenses > threshold	6.1% (4.8%-7.8%)	18.7% (16.8%-20.8%)
Needs-based costs > threshold	1.4% (0.9%-2.1%)	21.5% (19.6%-23.5%)
Intersection of (1) and (2)	0.6% (0.3%-1.0%)	10.8% (9.3%-12.5%)

Note: Figure based on authors’ calculations on SILC 2015 data. The reported 95% confidence intervals take the sample design into account as much as possible (cf. Goedemé 2013).

The population groups identified as “at risk of affordability problems” (hereafter: at risk) can thus be split up into different risk groups:

1. A group at risk because of spending a large share (3.0% / 1.4%) of income on water consumption: 6.1% / 18.7% of the total population.
2. A group at risk because budget constraints prevent them to afford a minimum necessary consumption of water without limiting the consumption of other essential goods and services: 1.4% / 21.5%
3. A group that spends a large share of income on water consumption, even though it probably cannot do so without endangering an adequate consumption level of other essential goods and services: 0.6% / 10.8%.

These estimates reveal that water affordability problems are a significant risk for a sizable group of Flemish population. Despite their relatively high incomes on average, the group of households at risk of affordability problems is of comparable size as in other European countries with microdata-based estimates available.³⁰

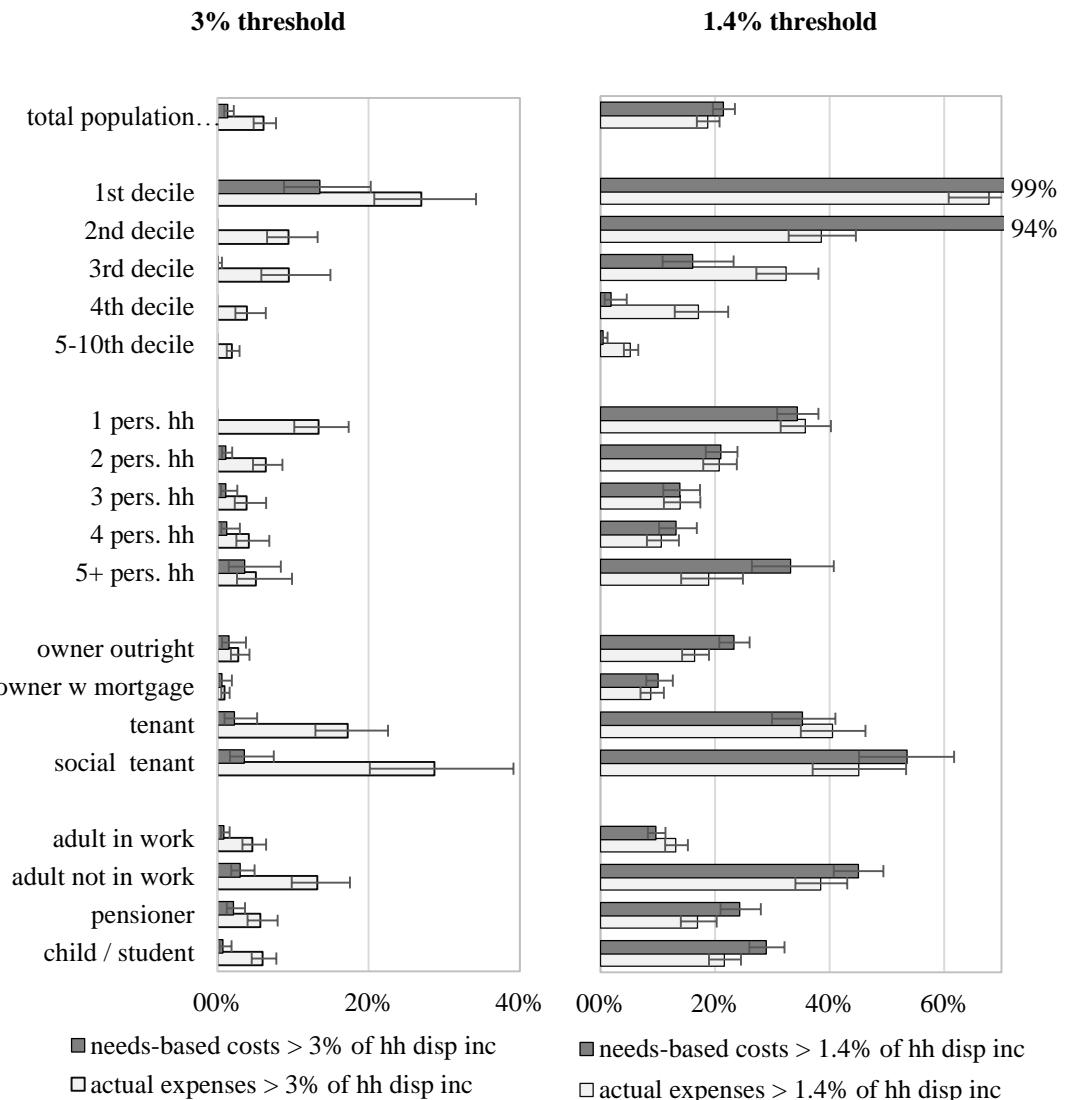
Comparing our estimates for both the 1.4% and 3% thresholds gives an indication of the “depth” of the affordability risk: for the actual expenses, about one third of those identified to spend more than 1.4% of their income on water, also spend more than 3.0% (about 6% of the population). The needs-based budget almost never exceeds the 3% of income threshold (only for 1.4% of the population).

³⁰ For the 6% of Flemish population that we estimate to be at risk according to the actual expenses indicator with 3.0% threshold, we can compare with France (4.3% of the population at risk in 2001 as estimated by Reynaud 2008) and Great-Britain (9% of the population for 2002-2003; Sawkins and Dickie 2005). However, comparability is hampered because the concept measuring the financial capacity of the household differs significantly (for the UK, this is disposable income after fixed housing costs are deducted). For the actual expenses indicator with lower threshold value we can broadly compare the 13% of Italian households at risk in 2005 (1.8% threshold) (Miniaci et al. 2008) to our 2015 estimate of 19% for the Flemish population (1.4% threshold). Again, the point estimates are not strictly comparable because of the difference in the threshold value and financial capacity concept (total expenditures for Italy vs. disposable income for Flanders).

The overlapping population identified by both indicators amounts to about half of the households identified by each indicator in the case of the 1.4% threshold. The population group exclusively identified by only one of both indicators is also interesting: these would be left out in an analysis choosing one indicator over the other. For about 8% of the Flemish population, water expenditures exceed 1.4% of disposable income, contrary to the needs-based budget: this confirms that for a significant group of households, actual water use seems to be above-minimal. This can indicate different factors, both behavioural (e.g. longer showers) and infrastructural (e.g. uneconomical taps, toilets, leaks). Analogously, for about 10.7% of the Flemish population, the actual water bill does not exceed the 1.4% threshold while the needs-based budget does. This points to the potential existence of a sizeable group of “underspenders” in the bottom deciles of the income distribution, which consumes less water than considered the essential minimum.

More insight into which groups are more prone to unaffordability risks can be gained from Figure 1, presenting the risk rates split out over various demographic and socio-economic background variables. In the left-hand panel, the bars depict the share of Flemish households for whom the needs-based water budget or the actual expenses exceed 3.0% of disposable income. In the right-hand panel, this is repeated for the 1.4% threshold.

Figure 1. The percentage of individuals living in a household at risk of water affordability by household characteristics, comparing the needs-based with the actual expenses indicators using two different thresholds, Flanders, 2015.

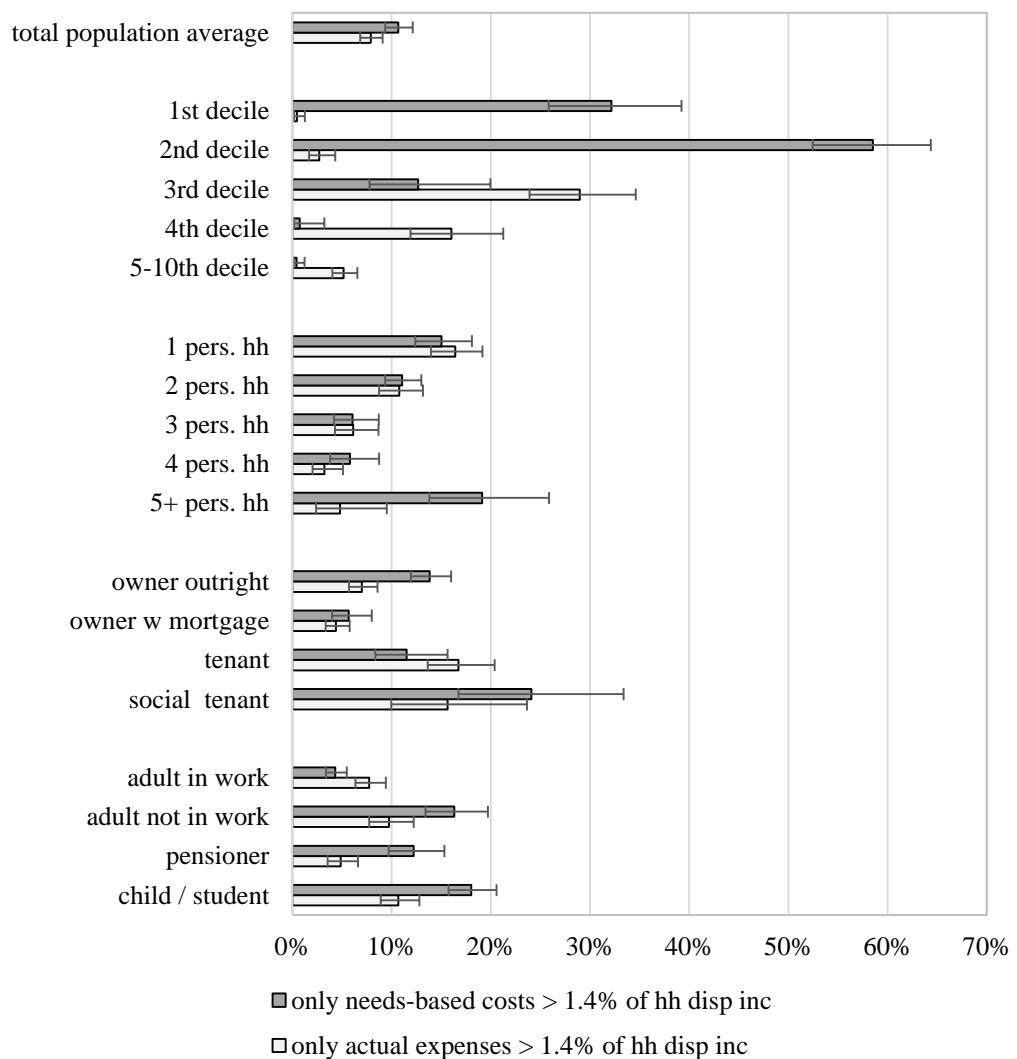


Note: Authors' calculations on the SILC 2015 data. Capped lines depict the 95% confidence intervals, taking the sample design into account as much as possible (cf. Goedemé 2013).

The population categories with an above-average risk include: the low(est) income groups (more pronounced in the needs-based indicator), jobless adults, pensioners, and social tenants (according to both indicators). Interesting patterns highlighting differences between both indicators relate mainly to affordability risk by income: while the needs-based indicator quickly drops to almost zero higher up the income distribution, the proportion of households with water bills that exceed 1.4 resp. 3.0% of their disposable income remains sizeable - 5.4% (1.9%) in the upper income deciles. High water bills due to high consumption volumes thus appear to occur relatively frequently, to the extent that the bill regularly rises above 3.0% of household income, even for households higher up in the income distribution. This includes households for whom the validity of the label “affordability problem” is questionable (cf. Introduction).

It is interesting to elucidate the risk of facing a water affordability problem considering only one of both indicators. Figure 2 shows that low-income households (first two deciles) are overwhelmingly more at risk of affordability problems according to the needs-based indicator, while not actually being billed this amount. Large families with children, pensioners and jobless adults, are more likely to underspend in comparison to their needs-based budget. Conversely, those spending more than the threshold value without exceeding their needs-based budget, are more likely situated in income decile three or higher, to be working (remarkably, as they spend less time at home), and to be private tenants. Finally, persons staying more at home during the day (adults not in work and pensioners) face a higher risk of crossing the 1.4% threshold for the needs-based indicator compared to other groups, while actually spending less than that percentage on water.

Figure 2. The risk of facing a water affordability problem according to only one of both indicators, 1.4% threshold, Flanders, 2015



Note: Authors' calculations on the SILC 2015 data. Capped lines depict the 95% confidence intervals, taking as much as possible the sample design into account (cf. Goedemé 2013).

Discussion

This brief illustration demonstrates the empirical added-value of a needs-based indicator, alongside an actual expenses indicator. It draws attention to the group of “underspenders”: households that are likely to face a water affordability problem, despite relatively low observed water expenses. The results show that this group is of significant size and thereby relevant to policy-makers, especially when designing ‘social’ water pricing policy aiming to address affordability issues. In Flanders, eligibility rules for social tariffs are narrowly defined, while the price reduction is significant. Monitoring affordability risks with both needs-based and actual consumption indicators can reveal a more nuanced picture of the groups at risk – so that eligibility rules and price reductions can be adjusted accordingly. Therefore, we are convinced that more in-depth water affordability evaluations too will benefit from combining expenditure-based indicators with a needs-based indicator. Moreover, the indicators can also be used to simulate effects of alternative tariff structures on water affordability, especially so for the needs-based indicator. It simply implies the recalculation of the water cost budget under alternative assumptions regarding the tariffs that households (would) face. For the actual expenses indicator such an exercise would require access not only to their expenses, but also the volume of water consumed, and a behavioural model that incorporates the price elasticity of water use.

Nonetheless, the approach we developed and applied is subject to a number of methodological and conceptual limitations, implying that the estimates need to be interpreted taking a certain margin of error into account.

- (1) Because we use representative survey data, the accuracy of both actual and needs-based indicators depends on the quality of the data. As it is typically very difficult to accurately and representatively sample the "tails" of the

income distribution, we expect our estimates for both indicators to be affected downwardly by the probable underrepresentation of vulnerable groups such as homeless people or people not speaking the local language. Using an alternative data source such as administrative data could partly alleviate this problem, as these in principle cover the full population of legal Belgian residents. These data however have their own shortcomings, such as the difficulty to compile actual, sociological households or to construct a comparable concept for net disposable income.

(2) The impact of the assumptions made for our needs-based indicator (cf. section 3) are significant as well as difficult to quantify. We opted to assume that all water is tap water, used at home. However, part of the water use will also take place when outdoors, be it for work or leisure. In addition, we ignore alternative sources of water, while in reality it is estimated to account for 12% of water use in Flanders (De Nocker et al. 2017). However, this is not always used for domestic purposes (rather for outside use such as gardening)³¹. More fundamentally, we argue that the question about whether these assumptions hold in individual cases is not of primary concern. With the needs-based cost concept, we assess whether the minimum would be affordable, irrespective of the characteristics of the actual dwelling. Furthermore, the indicator is meant to assess the overall impact of (changes in) tariff structures, rather than to evaluate whether or not a particular household is confronted with an affordability problem. In these cases, a biased estimate is only problematic insofar it can be expected

³¹ It is reassuring that we do not find evidence of overestimating the needs-based water indicator because of this reason. The risk profile of the groups who would be most affected by these assumptions, i.e. adults in work and homeowners respectively, is broadly similar according to both indicators.

that the bias would be different when the tariff structure changes or with (relatively mild) population changes over time.

(3) A more challenging source of inaccuracies in the needs-based water budget, are the assumptions that households are well-informed, healthy, have a separate water meter, and are able to use water efficiently (implying adequate infrastructures without leaks, economical showerheads, efficient washing machines ...). When adequate infrastructures are lacking, expected to occur more often in low-quality housing or occupied by poor households, the cost of minimum adequate water consumption can be higher. Collecting more and better data, should make possible to carry out a more fine-grained analysis that could, for instance, take account of the actual availability and distribution of efficient water infrastructure in the house.

More fundamentally, the usefulness of water affordability indicators depends to some extent on one's views regarding the most appropriate policy instruments to ensure adequate access to water. In developed welfare states water affordability could be seen as a concern for social policy, rather than water policy. In this view, water policy should define tariffs primarily reflecting economic and environmental concerns. In contrast, it is the responsibility of tax-benefit regulations and employment policy to ensure that households have access to adequate incomes sufficient enough to cover (among others) the cost of essential water consumption. In this view, policy makers just need valid indicators of adequate incomes, rather than indicators focused specifically on the affordability of specific goods or services such as water.

In reality, though, minimum incomes are often not adequate (e.g. Marx and Nelson 2013), while households under financial stress may also (have to) spend their

resources in ways leaving them with insufficient resources for consuming an adequate amount of water. As a result, water regulators can have legitimate concerns about ensuring minimum access for vulnerable households, providing legitimacy to the use of water affordability indicators. Water affordability indicators can be very helpful to assess the potential impact of changes to (social) tariff structures. Still, water regulators should be aware that, by focusing on the affordability of one specific good, these indicators risk downplaying the importance of the affordability of other essential goods and services, which co-determine the affordability of water.

Conclusions

In developed countries, the right to drinking water is compromised for certain population groups because of affordability problems. The increasing pressure on limited natural resources adds importance to water pricing policies that ensure equity principles. In this paper, we emphasize the necessity for an appropriate measure of water affordability, which takes account of household needs.

Conventionally, water affordability risks are measured by the proportion of people with water expenditures above a certain percentage (generally 3% in OECD-countries) of their total disposable income. Despite agreement on the relevance of monitoring the affordability of being able to fulfil essential needs, the absence of a solid methodology mostly leads to using actual expenses or statistical estimates as a proxy in empirical operationalisations. This implies including households with a preference for high water consumption as “at risk of facing affordability problems” and omitting households who cut back on their essential water consumption due to budget constraints. This paper proposes a needs-based indicator, sensitive to the societal context and characteristics of households to measure the risk of being unable to afford the minimum amount of water required

for fulfilling needs for adequate social participation. We define this minimum amount of water use, through reference budget research illustrating the cost of essential goods and services that specific household types need at the minimum to adequately participate in society. In the empirical illustration, we apply actual expenses and needs-based indicators to a representative sample of Flemish households, using both a 1.4% and a 3.0% threshold to gain more insight into the ‘depth’ or ‘severity’ of the affordability risk.

A comparison of the needs-based indicator with a more common expenditure-based indicator has shown that both indicators identify partially different socio-economic groups in Flanders. While we believe it remains relevant to monitor actual expenses, the needs-based indicator reveals that focusing solely on actual water use implies missing a significant, precarious group of about 10% of the Flemish population, with very low water bills, reflecting self-restriction to below-minimal levels because of limited means. We argue that these households face an affordability risk because the cost of minimally necessary water use exceeds 1.4% or 3.0% respectively of their disposable income. They should therefore be considered when designing policy measures geared at alleviating affordability risks. We conclude that for in-depth evaluations of water affordability, the two indicators can best be used in a complementary approach.

Appendix: Sensitivity analysis

As briefly mentioned in Section 4.1, the variation in the tariffs for water between different water companies and different municipalities in Flanders should be marked. Depending on which water company (water companies are area-based) is supplying the drinking water and in which municipality the household lives and is therefore charging the fee for wastewater sewerage and treatment, Flemish households will pay a more or less expensive water bill for consuming the same volume of water. Water company area and municipality are unfortunately variables that we cannot observe or derive from the available data. In order to test the sensitivity of our results to the assumption that everyone pays the “average” Flemish price, we carried out two sensitivity analyses. Table A.1 reports results from a first sensitivity analysis that tests the difference in results for both the needs-based and the actual expenses water affordability indicator, under the assumption that all households live in the 20th percentile region in terms of water costs - thereby facing a cheap water bill according to the Flemish norm. The second sensitivity analysis reports the outcomes on water affordability under the assumption that all households live in the 80th percentile region – thus facing a relatively expensive water bill (Table A.2). We can assume that these form the lower and upper boundaries of the actual size of potential water affordability problems in Flanders.

A water bill in a municipality ranked at the 80th percentile in terms of water costs is about 14% higher than in a municipality at the 20th percentile (for the same average volume of water used). In the resulting figures for the affordability indicators, the estimated proportion of individuals living in a household facing an affordability risk changes between +/- 1% (0.1 percentage points) up to +/- 18% (or 4 percentage points) in comparison to the results reported in section 5 on the

basis of the assumption of an average Flemish tariff. Given that in our exercise only the needs-based costs are simulated while actual expenses are observed, only the needs-based affordability indicator shifts when a different tariff structure is assumed, while distributional patterns and risk profiles remain more or less stable. This shows that the purpose of this exercise is not to estimate with precision the extent to which needs-based affordability problems occur in Flanders, but rather to show that, no matter against which threshold one measures, assessing affordability on the basis of needs-based costs draws a different picture of the problem than an exercise based on actual water costs.

Table A.1. The percentage (with 95% confidence interval) of individuals living in a household experiencing a risk of water affordability problems by two dimensions (indicator and threshold), EU-SILC 2015 - Estimates for a water region at the 20th percentile in terms of cost of water and comparison with estimates for a water region at the average water costs.

Indicator	3.0% threshold estimate (95% C.I.)	Relative (absolute) change in comparison with average	1.4% threshold estimate (95% C.I.)	Relative (absolute) change in comparison with average
Actual expenses > threshold	6.1% (4.8%-7.8%)	(none)	18.7% (16.8%-20.8%)	(none)
Needs-based costs > threshold	1.1% (0.7%-1.8%)	-19% (-0.3pp)	17.6% (15.8%-19.5%)	-18% (-4pp)
Intersection of (1) and (2)	0.4% (0.2%-0.9%)	-22% (-0.1pp)	9.7% (8.2%-11.3%)	-11% (-1pp)

Note: Authors' calculations on the SILC 2015 data. 95% confidence intervals calculated taking the sample design into account as much as possible (cf. Goedemé, 2013)

Table A.2. The percentage (with 95% confidence interval) of individuals living in a household experiencing a risk of water affordability problems by two dimensions (indicator and threshold), EU-SILC 2015 - Estimates for a water region at the 80th percentile in terms of cost of water and comparison with estimates for a water region at the average water costs.

Indicator	3.0% threshold estimate (95% C.I.)	Relative and (absolute) change in comparison with average	1.4% threshold estimate (95% C.I.)	Relative and (absolute) change in comparison with average
Actual expenses > threshold	6.1% (4.8%-7.8%)	(none)	18.7% (16.8%-20.8%)	(none)
Needs-based costs > threshold	1.7% (1.1%-2.5%)	+23% (+0.3pp)	25.1% (23.1%-27.2%)	+17% (+3.6pp)
Intersection of (1) and (2)	0.6% (0.3%-1.1%)	+10% (+0.1pp)	12.4% (10.8%-14.1%)	+14%(+1.6pp)

Note: Authors' calculations on the SILC 2015 data. 95% confidence intervals calculated taking the sample design into account as much as possible (cf. Goedemé, 2013)

Chapter 4: Can low-income households afford a healthy diet? Insufficient income as a driver of food insecurity in Europe.

Published in a more extended version as Penne, T. and Goedemé, T. (2019). 'Putting inadequate incomes at the heart of food insecurity. A study of the financial constraints to access a healthy diet in Europe.' *CSB Working Paper No. 19.10*, Antwerp: Herman Deleeck Centre for Social Policy, University of Antwerp.³²

Submitted to *Food Policy*

Abstract

In Europe, food insecurity is still a serious concern for individual and public health. Although progress has been made in reducing undernourishment, other types of malnutrition such as obesity and overweight are on the rise. Unfortunately, indicators of food insecurity seldom focus directly on the lack of sufficient income as a driver of food insecurity and unhealthy eating. Therefore, in this paper, we try to assess the role of inadequate incomes and minimum income policies in having access to a healthy diet. We make use of estimates of the minimum cost of a healthy diet in 24 European countries, in accordance with national food-based dietary guidelines. We use these unique data to (1) estimate the proportion of people living in urban areas with insufficient income to access a healthy diet, before and after housing costs, based on representative income survey data (EU-SILC), and, (2) compare the cost of a healthy diet with the level of minimum income schemes for specific household types using microsimulation techniques. We find that in 16 out of 24 countries at least 10% of the population in (sub)urban areas risks being confronted with income-related food insecurity. Especially in Eastern and Southern Europe a large share of the (sub)urban population is lacking the economic resources needed to have access to a healthy diet. Our findings show that policies directed at tackling food insecurity should be embedded in broader economic and social policies that facilitate the structural realisation of an adequate income, and that limit the cost of other essential goods and services, and in particular the cost of housing.

³² The authors are grateful to Johanna Greiss for the comments and suggestions. We would also like to thank participants of the 26th FISS conference in Sigtuna for their feedback to an earlier version of this paper. The data used in this paper have been produced by a broad network of experts, listed on the referencebudgets.eu website. We are grateful to all of them for their input collaboration.

Introduction

Food insecurity is a global and urgent problem and studies have found a rising trend, also in some high-income countries (FAO 2018; O. Davis and Geiger 2017). Although food insecurity is commonly defined as “not having access to safe, nutritious and sufficient food due to a lack of money or other resources” (FAO 2018, p.27), current studies generally fail to reveal the key role of adequate income for avoiding food insecurity. Therefore, in this paper, we address food insecurity and its relation to income adequacy in Europe. Although all EU Member States provide minimum income support for people at active age, poverty remains high and minimum income schemes are proven to be largely, and in some countries increasingly, inadequate (Cantillon et al. 2019). Against this background, the increasing number of people relying on food assistance across Europe (Galli et al. 2018; Caraher and Cavicchi 2014; Gentilini 2013) could be an indication that more and more people cannot afford adequate food intake.

In industrial welfare states the problem of food insecurity is not so much an issue of undernourishment, but rather of lacking access to healthy and adequate nutrition (FAO 2018; WHO 2014a; Perez-Escamilla et al. 2018). Energy-dense but nutrient-poor diets cause a rising trend of obesity and related non-communicable diseases such as diabetes and cancer and can even coexist with forms of undernutrition, the so-called double burden of malnutrition (Gakidou et al. 2017; Roberto et al. 2015; Lock et al. 2005; FAO 2018; WHO 2014a). The reasons for malnutrition are diverse, and do not all refer to food insecurity, including factors such as marketing, attitudes, socio-cultural pressures and physiological issues (Bublitz et al. 2019; Leng et al. 2017). However, unhealthy eating patterns and diet-related health problems have a clear socio-economic gradient and are especially prevalent among the poor (Robertson et al. 2007; Forster et al. 2018; Perez-Escamilla et al. 2018; Vereecken et al. 2005; Nikolić et al. 2014). Nevertheless, the problem of unhealthy diets is often addressed as an individual problem caused by a lack of information

and competences (Perez-Escamilla et al. 2018). Various policies focus on better food education (providing information and limiting advertisement of unhealthy products) and financial incentives, such as a so-called ‘sugar tax’. Indeed, the number of health-related taxes on food seem to be on the rise (Teng et al. 2019; Backholer et al. 2017). Depending on their design, they do not necessarily adversely affect low-income households (Nordström and Thunström 2011). However, it can be expected that their impact on low-income households will be limited if the overall cost of a healthy diet remains too high in comparison with their income.

At the same time, another increasingly popular policy response to food insecurity in the European Union (EU) is food assistance, generally through supporting food banks organised by the voluntary sector (Caraher and Cavicchi 2014; Greiss et al. 2019). Several scholars have criticized this individualized and charity-based approach arguing in favour of a rights-based framework, which recognises the need for adequate economic resources to ensure access to a healthy diet (Dowler and O’Connor 2012; Riches and Silvasti 2014; Pollard and Booth 2019). Such an approach requires empirical underpinning which takes into account the needs of households, the prices they face, the economic resources they have available and the societal and personal conditions they are confronted with (Burchi and De Muro 2016). However, there is a lack of (comparable) data and empirical evidence revealing the size and structural determinants of food insecurity to guide policy makers in Europe (Pollard and Booth 2019; O. Davis and Geiger 2017). Current studies on food insecurity in affluent countries (e.g. O. Davis and Geiger 2017; Loopstra et al. 2015; Depa et al. 2018; Galli et al. 2018) have two main limitations: (1) they generally lack a conceptualisation of what is minimally needed to obtain a healthy and acceptable diet, and, (2) they fail to reveal the role of adequate incomes and social security policies in having access to a healthy diet.

With this paper we provide new evidence on the role of adequate income in the ability to access a healthy diet across Europe, focusing on urban and semi-urban

areas. Although scholars have inquired the effect of diet costs on dietary habits (e.g. Aggarwal et al. 2011; Pechey and Monsivais 2016), only a few national studies (e.g. in Australia (Ward et al. 2013) and in the UK (O'Connell et al. 2019), studied the relation between the cost of healthy food and household income. To the best of our knowledge, we are the first to do this in a cross-nationally comparable way. This study makes use of a data set of comparable food baskets representing a healthy diet for a large number of European countries (Carrillo-Álvarez et al. 2019b), and compares this to disposable household incomes using both representative survey data and hypothetical household simulations. The paper provides a conservative measurement of people with an income, before and after housing costs, below the cost of a healthy diet. Even though our measurement of food insecurity can be improved when more data become available, we consider this a valuable first attempt to estimate a lower bound of the size and distribution of income-related food insecurity in Europe. Finally, by comparing the cost of a healthy food basket with the level of minimum income protection across Europe, we show how many welfare states fail to protect the right to an adequate diet for the most vulnerable.

The paper is structured as follows. First, we briefly discuss some of the main insights from the literature on food insecurity in Europe. Secondly, we elaborate on the methodology we employ in this paper to assess the level and distribution of income-related food insecurity. In the results section, we estimate the number and profile of people in (semi-)urban areas in Europe with an income that does not allow to access a healthy diet in accordance with the national food-based dietary guidelines. In a second step, we compare the cost of a healthy diet with minimum income protection levels in Europe. We end with a discussion on limitations and policy implications after which we conclude.

Food insecurity in Europe

Access to an adequate diet is an essential part of the right to an adequate living standard and a life in human dignity (Article 11 in the International Covenant on Economic, Social and Cultural Rights). General Comment 12 of the UN Committee on Economic, Social and Cultural Rights (CESCR 1999) emphasizes that, in order to maintain and enhance a good health, not only sufficient, but also *adequate*, socially and culturally acceptable, nutritious and quality food must be *available* and *sustainable* for everyone in the long term. Importantly, the right includes the importance of economic and physical *accessibility* to a healthy diet, in particular for vulnerable groups (CESCR 1999). Similarly, scholars and advocacy organisations generally recognise four main dimensions of food insecurity (FAO 2018; Barrett 2010; Bublitz et al. 2019): *availability* (i.e. adequate food supply of good quality), *accessibility* (i.e. the nutritious food choices open to person(s), given their income, prevailing prices, and formal or informal safety net arrangements), *utilization* (i.e. whether persons are able to prepare and consume a healthy diet, given the societal and individual context) and *stability* (securing the other three dimensions on the long-term). Riches and Silvasti (2014) also stress the importance of food *sovereignty* as an essential part of food security, i.e. the ability to acquire food in socially acceptable ways.

Over time, the availability of food has largely improved in developed countries, but this has not been sufficient to ensure access to a healthy diet (Barrett 2010). *Accessibility* in this sense, depends not only on income and prices, but also on the societal and individual context and on the full set of assets available to a person (see Burchi and De Muro 2016). However, in urbanised contexts in affluent welfare states, the most important factors that determine access to healthy food are the household's financial resources, the price of food and the cost of other essential goods and services (in other areas this is often defined as 'affordability' see e.g. Vanhille et al. 2018). Research in various developed countries has revealed that

healthy, well-varied and quality food products have a relatively higher cost compared to energy-dense and nutrient-poor food products (e.g. Darmon and Drewnowski 2015; Schröder et al. 2006; Barosh et al. 2014). This has an important impact on food choices, especially for people with a limited income (Steenhuis et al. 2011; Pechey and Monsivais 2016; Aggarwal et al. 2011). Given the many essential and fixed costs (e.g. housing costs) households face to fulfil their needs (See e.g. Goedemé et al. 2015b), food expenses are a relatively flexible budget category that is often cut down (Riches and Silvasti 2014; Kirkpatrick and Tarasuk 2007). However, there is a lack of studies that adequately measure whether people have sufficient resources to access a healthy diet and how this differs between households and across countries. In what follows, we briefly discuss the three most important indicators of food insecurity in Europe: the food deprivation measure, the subjective experience scale and indicators of food bank usage.

One of the three key indicators to measure progress in the fight against poverty and social exclusion at European level is the severe material deprivation index, with one dimension referring to food insecurity: “the inability to afford a meal with meat, chicken, fish (or vegetarian equivalent) every second day”. According to this measure, about 8% of EU (EU-28) citizens is defined as ‘food deprived’ (Eurostat, 2019 based on EU-SILC data for 2018). Although this gives an indication of the problem and trend of food insecurity across European welfare states (e.g. O. Davis and Geiger 2017; Loopstra et al. 2015), “[A] meal with meat, chicken, fish (or vegetarian equivalent) every second day” is a poor proxy of a healthy diet as defined in dietary recommendations across EU member states (Carrillo-Álvarez et al. 2019a), given that access to fruit, vegetables and whole grains are a more prominent problem (WHO 2014a; Nikolić et al. 2014). Another group of comparative studies (e.g. Jones 2017; Depa et al. 2018) makes use of the subjective ‘Food Insecurity Experience Scale’ (FIES) developed by the FAO (Ballard et al. 2014). The scale includes eight questions that focus on experiences of financial access to sufficient

and adequate food. According to this measure, in Europe 16% of the population experiences mild food insecurity, while 6.3% and 3.5% is identified as moderate, respectively severe, food insecure (Jones 2017).

Both the food deprivation measure and the FIES face problems of comparability since concepts such as ‘affordability’ and ‘nutritious’, ‘enough’ or ‘healthy’ food do not have a uniform interpretation among the public, differing across economic and socio-cultural contexts (O. Davis and Geiger 2017). Moreover, given that these indicators do not reflect the actual resources people have and the out-of-pocket costs they need to pay to access a healthy diet, they are less useful to guide policies targeted at increasing the accessibility of a healthy diet.

A third common way of getting more insight in the level and profile of the people who are food insecure, is relying on food assistance data (Galli et al. 2018; Caraher and Cavicchi 2014). The 2018 annual report of the Federation of European Food Banks (FEBA) indicates that 9.3 Million people are supported through 421 Food Banks across 24 EU countries (FEBA 2018). Importantly, this is a rather conservative estimate since there is a large variation of food assistance initiatives operating without the support of the European Commission (Galli et al. 2018). The changing profile of food bank beneficiaries indicates that food insecurity is becoming more of a wide-spread problem across the population including single parent households, working poor and young people (Commission 2019; Gentilini 2013; Depa et al. 2018). However, data on food aid remain scarce and are generally not cross-nationally comparable. Moreover, it remains an indirect and incomplete measure. The rising trend of food assistance across Europe can be driven by many factors which are not all related to the size of the problem, including supply-side changes (increase in policy support, food donations, number and access of food banks), and demand-side changes (e.g. increased public acceptability of food aid). Also at a single point in time, not all households that make use of food banks are necessarily food insecure and vice versa, not all food insecure households will turn

to food banks, due to stigma or other coping strategies such as adhering to inadequate and unhealthy diets (O. Davis and Geiger 2017; Riches and Silvasti 2014; Lambie-Mumford 2019).

A useful method to assess the cost and availability of food needed to maintain a good health, is the reference budget method. Compared to the previously mentioned indicators, reference food baskets have the advantage of providing a context-specific benchmark of what people minimally need to eat healthily. Several national or local studies developed healthy food baskets to measure the cost of a healthy diet e.g. in Scotland (Dawson et al. 2008), Australia (Ward et al. 2013) and the UK (Ginn et al. 2016; O'Connell et al. 2019). However, in order to better understand food insecurity and the extent to which households have access to nutritious food, information about the households' disposable incomes, and ideally also about their other essential costs, need to be brought into the picture.

Data and method

In this section we consecutively (1) explain how we estimated the minimum cost of a healthy diet; (2) discuss the three indicators of income-related food insecurity that we use; (3) elaborate on how we implemented these indicators in representative samples of the population; (4) and explain how we estimated the level of minimum income protection in each country.

Estimating the cost of a healthy diet

In this paper, we make use of 24 food baskets³³ developed in the 'pilot project for the development of a common methodology on reference budgets in Europe' (Goedemé et al. 2015a; Carrillo-Álvarez et al. 2019b). In this project, country teams

³³ In the project, food baskets have been developed for 26 EU Member States. However, in this paper, we exclude Denmark and the Netherlands since they used a somewhat different method and, hence, are not fully comparable.

developed food baskets that should allow people to eat a healthy diet, in accordance with the national food-based dietary guidelines. These dietary guidelines are science-based recommendations to promote healthy eating while taking into account the member states' cultural and health context (EFSA NDA EFSA 2010). Each country team collaborated with a nutritionist to translate the guidelines into a concrete list of food items. The completeness and acceptability of the food baskets was evaluated in three focus groups in each country. All items were priced in March/April 2015 in a well-spread, accessible shop in the capital city following a standardized pricing procedure (For more information on the method, see Goedemé et al. 2015a; Carrillo-Álvarez et al. 2019b).

Reference food budgets were developed for the following set of hypothetical household types: a single-person household (male / female), a single parent household with two children and a couple with two children. The adults are assumed to be at working age (about 40 years old) and the children are a boy in primary education (about 10 years old) and a girl in secondary education (about 14 years old). To estimate a lower bound on the cost of a healthy diet, it is assumed that all household members are in good health, well-informed about prices and have the necessary competences to purchase economically and prepare their meals at home. For the purpose of measuring income-related food insecurity, we want to make sure that the level of the food baskets represents a reference bottom line under which it is nearly impossible or at least very difficult to access a healthy diet in accordance with the national food-based dietary guidelines. Hence, the version of the food baskets that we use in this study is restricted to the lowest food prices collected in the price survey carried out by the country teams. Furthermore, we only include food products and no other essentials, such as the kitchen equipment for storing, preparing, serving, consuming and conserving food. Similarly, food items and related products that are needed to fulfil other functions besides a healthy diet (e.g. social, or psychological functions of food), are not taken into account.

The level of the food baskets varies from about 80 EUR per month for a single person living in Budapest or Warschau to about 750 EUR per month for a couple with two children living in Stockholm. The differences across EU Member States are due to price differences, and to a lesser extent to institutional and cultural differences, reflected in the food-based dietary guidelines and expressed by opinions in focus group discussions (See Carrillo-Álvarez et al. 2019b).

Three measures of income-related food insecurity

We estimate three income-based indicators of food insecurity, which vary by the extent to which they take other human needs into account.

The first indicator is the most restrictive one. It simply compares people's disposable household income to the cost of a healthy diet for that household. Persons living in a household with an income below the cost of a healthy diet are considered food insecure. Obviously, this is a very conservative estimate, as households have also other essential expenses to make. At the same time there might be some measurement error, given our focus on the bottom of the distribution (cf. Van Kerm 2007). From a substantive point of view, it is important to keep in mind that we measure income, while some people might be low on income, but have considerable savings or other assets. Yet, there can be little doubt that for the largest share of those with an income below the cost of a healthy diet, achieving a healthy diet is as good as impossible.

Focusing just on the cost of a healthy diet risks to result in a strong underestimation of the number of people confronted with income-related food insecurity. The biggest household expenditure category in many countries is housing. Housing is a relatively fixed cost, while food expenses are more flexible (Riches and Silvasti 2014). Further, at least for Canada, Kirkpatrick and Tarasuk (2007) found that high housing costs are negatively correlated with the adequacy of food spending of low income households. Therefore, the second indicator we use assesses whether

disposable income after deducting housing costs (including rent, mortgage repayments, maintenance costs and utilities) exceeds the cost of a healthy diet.

Quite obviously, this is still a very restrictive measure of food insecurity, as persons also have other needs to fulfil, including clothing, health care, mobility, social relations, education, etc. (cf. Doyal and Gough 1991). For a given disposable income, the higher the cost of these additional expenses, the higher the risk of being food insecure. To allow for these additional essential expenses, our third indicator of food insecurity assesses whether disposable income after housing costs exceeds twice the cost of a healthy diet. This is a very rough approximation based on Goedemé et al. (2015b) who estimated the minimum cost of participating adequately in society, including the cost of housing, food, clothing, health care, personal care, rest and leisure, education, maintaining social relations and mobility in six large European cities (Antwerp, Athens, Barcelona, Budapest, Helsinki and Milan). For these cities, the minimum cost of accessing these goods and services, excluding housing, amounted to between 2.1 and 3.5 times the minimum cost of a healthy diet, with somewhat higher rates for single-person households as compared to multi-person households. Therefore, it is safe to say that also this third indicator is still a conservative measure of the degree of income-related food insecurity.

Implementation in the sample

We estimate the incidence and distribution of food insecurity on the basis of EU-SILC 2016 data. The EU Statistics on Income and Living Conditions (EU-SILC) is a yearly household survey, which contains detailed and comparable information on disposable household incomes for representative samples of the population living in private households in each country (See Atkinson et al. (2017) for an introduction to the survey data). We compute 95% confidence intervals that take account of the complex sample design that is used in most EU-SILC countries (cf. Goedemé 2013). For the purposes of this paper, we make use of EU-SILC 2016, which

contains information on disposable income in 2015, the year for which we have data on the cost of a healthy diet.

To estimate the cost of a healthy diet for each household in the data, we start from the minimum cost of food for a single adult (average man-woman), and the average cost for a child between the age of 7 and 17 (as available from the food baskets). Given that young children need less food in order to be healthy, we assume that the cost of a healthy diet for children below the age of 7 is half of that for children above that age. This corresponds to the results of more detailed food basket calculations for Belgium (Storms et al. 2015), Finland (Lehtinen and Aalto 2014) and Spain (Carrillo-Alvaréz et al. 2019). Disposable household income includes all potential sources of income (from wages, self-employment income, capital income, alimony, regular gifts from family or friends, social benefits, tax refunds), after deducting taxes and social security contributions, for all household members.

When estimating the number and profile of people confronted with income-related food insecurity, we restrict ourselves to densely and intermediately populated areas, and exclude rural areas (i.e. areas classified as *thinly* populated areas, defined as “grid cells outside urban clusters”)³⁴. This limitation is necessary because the original price survey for the cost of a healthy diet was carried out in the capital city, and in some countries prices vary considerably between regions (See Janský and Kolcunová 2017). Also, there may be more widespread practices of producing food for own consumption as well as informal exchanges of food products in rural than in urban areas. Densely and intermediately populated areas account for between 45 (Lithuania) and 100 per cent (Malta) of the population in the countries under study. In other words, the results presented below cannot simply be generalised to the

³⁴ Unfortunately, for Germany and Slovenia the variable on degree of urbanisation is not available, so we include the total population.

entire population of each country, and the representativeness differs across countries.

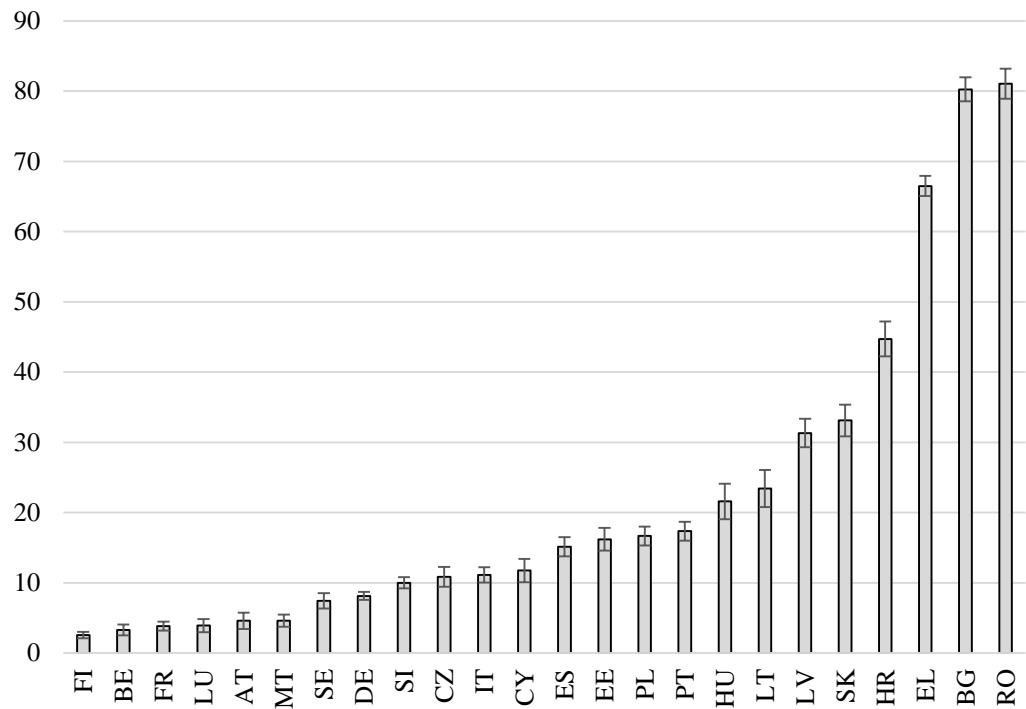
Simulating minimum income benefits

In addition, we compare the cost of the food basket with the disposable income that welfare states provide as a last safety net. To do so, we start from the household types that were used to estimate the minimum cost of a healthy diet, and simulate minimum income support with the Hypothetical Household Tool (HHoT) (Marchal et al. 2018b). HHoT is a flexible tool that is part of the European tax-benefit microsimulation model EUROMOD (cf. Sutherland and Figari 2013). It allows the user to specify a large variation of hypothetical households for which the net income, given a pre-specified gross income, can be simulated. We simulate the net incomes for social assistance recipients and single earners working full-time on a minimum wage for the year 2015, taking into account social assistance benefits, and additional relevant housing benefits and child benefits (For an overview, see Marchal et al. 2018b). In the case of couples, we assume that the second partner is inactive.

Prevalence of households with insufficient income to access a healthy diet

In Figure 1, we show the percentage of people for whom disposable household income after deducting housing costs amounts to less than twice the cost of a healthy diet (cf. indicator 3). Measured in this way, food insecurity ranges from 2.5 % in Finland to about 80% in Bulgaria and Romania. In 16 out of 24 countries at least 10 per cent of the population in (sub)urban areas risks to be confronted with food insecurity due to insufficient income. Note that the risk of having no access to a healthy diet will be probably underestimated for single person households.

Figure 1. Percentage of people living in a household with disposable income (after housing costs) below twice the cost of a healthy diet for their household, densely and intermediately populated areas.

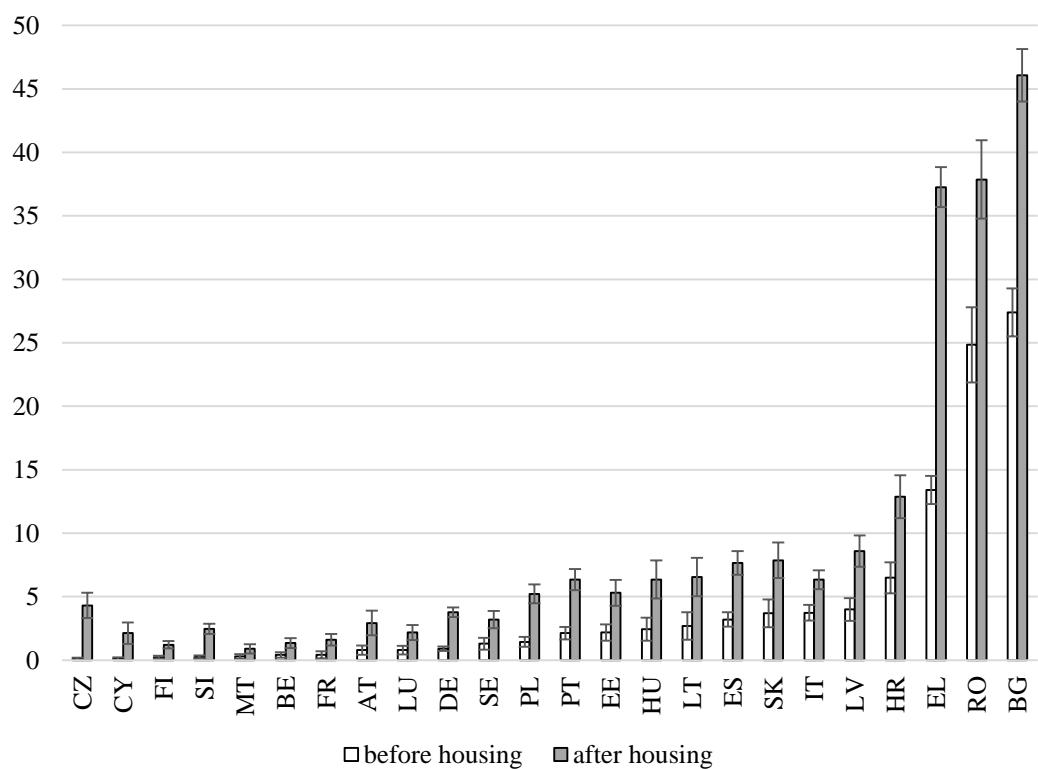


Source: EU-SILC 2016, ver1, own calculations.

To get a better understanding of the degree of inadequacy of incomes to access a healthy diet, in the figure below we we assess how many people live in a household with an income (before and after deducting housing costs) below the cost of a healthy diet. Quite obviously, this results in a (rather extreme) lower bound on the number of people confronted with income-related food insecurity. We take this approach to underscore the fact that even with such a restrictive approach, it is clear that food insecurity in quite a few countries is largely a story of lacking sufficient economic resources. Especially in Greece, Romania and Bulgaria, the level of extreme food insecurity as defined here is high, reaching respectively 13%, 25% and 27% of the population in densely and intermediately populated areas, without

taking into account housing costs. In contrast, in the richest member states, as well as some Mediterranean countries (MT and CY) and the Czech Republic very few households would have to spend their entire income on food to have access to a healthy diet. However, when looking at net income after paying for housing costs, which is often a fixed and large cost for households, the picture deteriorates significantly in all countries. This shows how food insecurity is affected in important respects by the cost of other essential goods and services, of which housing is in many countries (among) the most important.

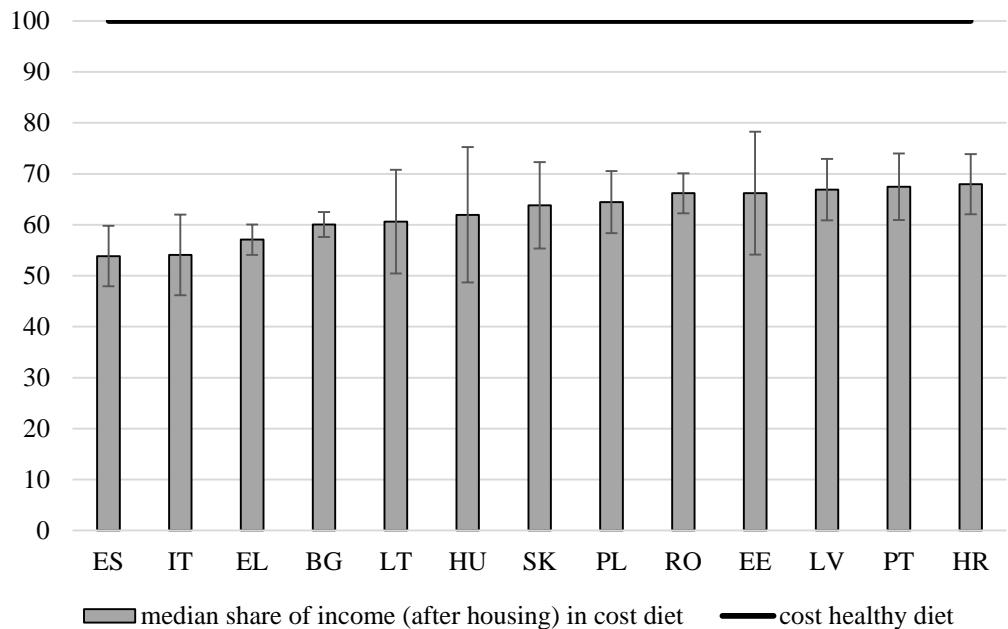
Figure 2. Percentage of people living in a household with a net disposable income (before and after housing costs) below the cost of a healthy diet for their household, densely and intermediately populated areas.



Source: EU-SILC 2016, ver1, own calculations.

In what follows, we zoom in more closely on the latter group, namely the people living in a household with a net income (after housing costs) below the minimum cost of a healthy diet (cf. the grey bars in Figure 2). Given data problems at the bottom of the income distribution (See Van Kerm 2007) and in order to have a sufficiently large sample, we include only the countries where the population with an income (after housing costs) below the cost of a healthy diet is higher than 5%. Figure 3 shows the median gap between the net disposable income (after housing costs) and the cost of a healthy diet for persons we have identified as food insecure. In the Figure, we see that the median income (after housing costs) reaches about 50 to 70% of the cost of a healthy diet. In other words, the gap to access a healthy diet is quite large (30 to 50%) for those confronted with this severe form of income-related food insecurity. It is remarkable that the gap is the largest in Spain and Italy, countries with a relatively low share of the population with an after-housing-cost income below the cost of a healthy diet.

Figure 3. Median share of the total net disposable income (after housing costs) and the cost of a healthy diet for people with an income (after housing costs) below the cost of a healthy diet, densely and intermediately populated areas.



Source: EU-SILC 2016, ver1, own calculations.

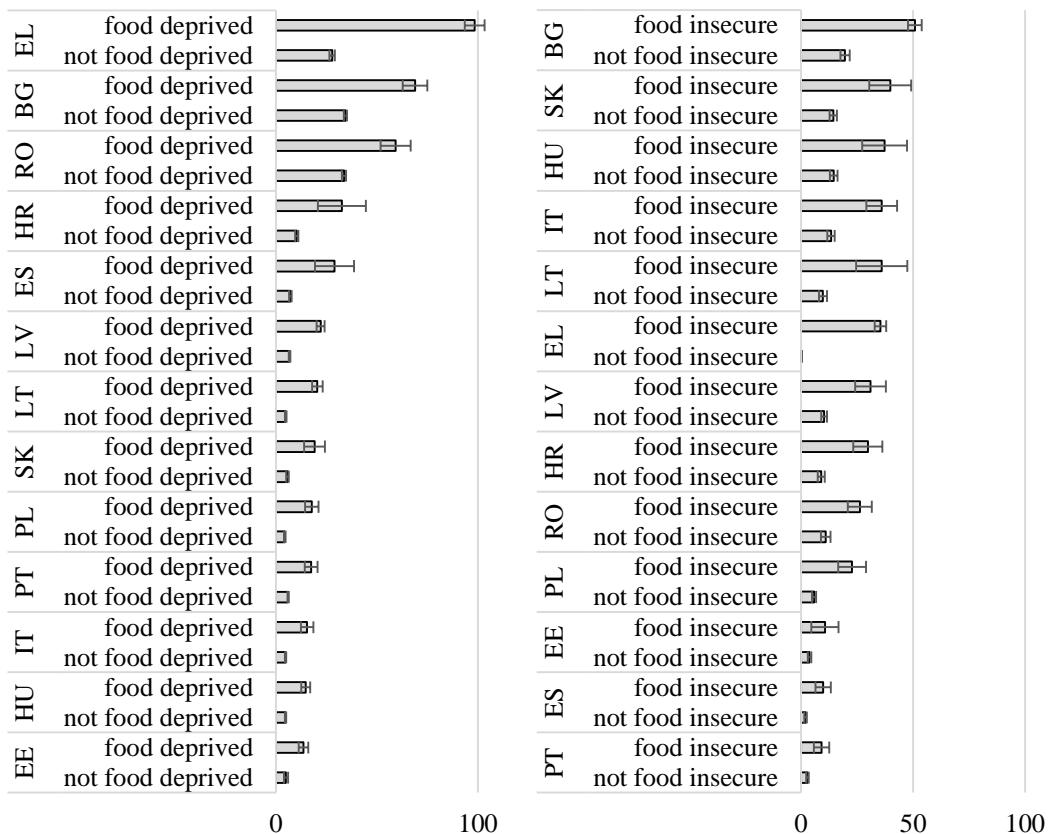
Note: Only including countries with at least 5% of the population in urban areas living in a HH with a net income (after housing) below the cost of a healthy diet.

Finally, it is interesting to see that income-related food insecurity is not fully captured by the commonly used indicator of food deprivation. Figure 4 shows, at the left hand side, the percentage of income-related food insecurity, measured as having an after-housing-cost income below the cost of a healthy diet, in the group of people identified as food deprived compared with the group who is not. Clearly, food deprivation (as stating that you cannot afford meat, fish or vegetarian alternative every second day) is correlated with income-related food insecurity. However, in several countries the deprivation indicator fails to capture a significant share of the population with an income (after housing costs) below the level of a

healthy diet. This is especially the case of Romania, Bulgaria and Greece. This underlines the added-value of our approach.

In the right hand side of the figure, we depict the level of food deprivation among those that we identify as income-related food insecure or not. It shows that, having an income below the cost of a healthy diet is associated with a high incidence of food deprivation as commonly measured, relative to having an income above that threshold. Second, clearly, our indicator of income-related food insecurity also misses part of the population who feel financial constraints for assessing important food items, confirming that we estimated a lower bound on the number of people without sufficient resources to access a healthy diet.

Figure 4. Percentage income-related food insecurity by food deprivation vs. percentage food deprivation by income-related food insecurity, densely and intermediately populated areas.



Source: EU-SILC 2016, ver1, own calculations.

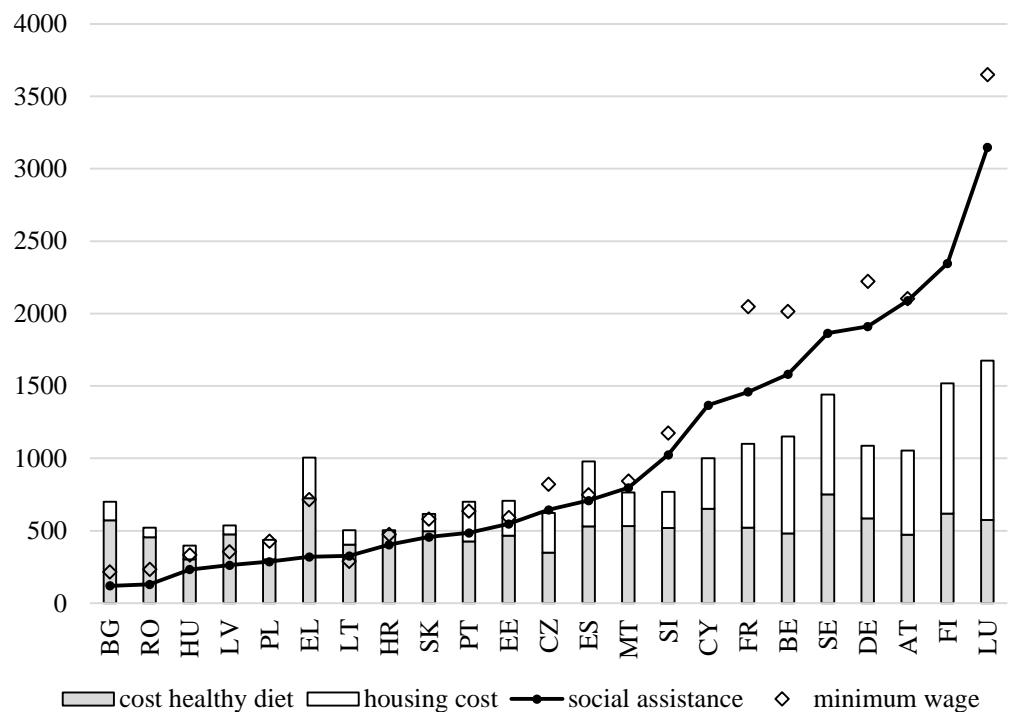
Note: 'food deprived' = persons who cannot afford a meal with meat, chicken, fish (or vegetarian equivalent) every second day, 'food insecure' = persons living in HH with a net disposable income (after housing costs) below the cost of a healthy diet in urban areas. Only including countries with at least 5% of the population in urban areas living in a HH with a net income (after housing) below the cost of a healthy diet.

The lack of adequate minimum income protection

Do welfare states guarantee adequate income protection for accessing a healthy diet? To answer this question, we compare the minimum cost of a healthy diet to the level of minimum income protection in the different EU Member States. Figure

5 shows the monthly net income from social assistance or one full-time minimum wage of a couple with two children (the partner is assumed to be inactive). The net incomes are simulated taking into account all relevant benefits and taxes (Marchal et al., 2018). The lower part of the bars represents the cost of a healthy diet, while the upper part of the bars illustrates the median housing cost for private tenants (HHoT-MIPI database, based on actual rent in EU-SILC). Obviously, the latter does not represent the same quality of housing across countries and the representativeness varies largely depending on the number of private tenants in each country. Nevertheless, the figure demonstrates clearly the inadequacy of minimum income protection schemes in quite a few European countries. In most Eastern and Southern member states (except CZ, SI, MT & CY), social assistance recipients have insufficient resources to access a healthy diet and rent a dwelling. Moreover, even in some wealthier member states such as France, Belgium and Sweden, the social assistance income after housing costs, is lower than twice the cost of a healthy diet (cf. indicator 3). Hence, minimum incomes will in many cases not allow to access the essential goods and services that are needed for adequate social participation, such as health care, clothing, education, social activities and transportation. Also for couples with two children with one partner working on a minimum wage, we see that there are many Eastern European countries, as well as Greece and Spain, where the net income is not (or barely) sufficient to pay for housing and food. In sum, families on minimum income protection, including those with one partner at work, bear a high risk of having no access to a healthy diet.

Figure 5. The net income for a couple with two children (10,14y) with social assistance benefits or a full-time minimum wage, compared to their minimum cost of a healthy diet and the cost of rented housing, EUR/month



Source: Food baskets from EU pilot project on Reference budgets (Goedemé et al. 2015a); simulated net minimum incomes and median housing costs for private tenants from the MIPI-HHoT database (Euromod). The median housing costs for private tenants are based on actual rent in EU-SILC. For Bulgaria, Lithuania and Romania median housing costs for the whole population were used due to few observations (Marchal et al. 2018b).

Note: Prices and incomes year 2015. Results refer to the capital city of each country. No minimum income data available for IT, no statutory minimum wage in CY, FI, SE.

Discussion

There are several limitations to this study. First of all, the estimations of the cost of food are done for a limited number of household types, living in urban areas. Hence, the results cannot easily be generalised to the population as a whole. To allocate a more precise food budget to all households in the survey, the cost of a healthy diet

should ideally be calculated for households with small children, students and people in old-age as well. Since the food baskets are priced in the capital cities, we do not take into account the large variation in food prices, purchasing patterns and (home) food production within countries. Because of potentially large differences between urban and rural areas in some countries, thinly populated areas are excluded from the analysis. Secondly, the study measures food insecurity at one point in time, while food prices and incomes might fluctuate frequently. For future research, a longitudinal study would be beneficial to understand changes in income-related food insecurity over time. Thirdly, national food-based dietary guidelines represent only one ‘official’ way of healthy eating, often deviating from actual daily-life consumption patterns. Moreover, the quality of the guidelines differs across countries (Carrillo-Álvarez et al. 2019a; EFSA NDA EFSA 2010). Nevertheless, they offer a useful starting point and can be seen as an important policy tool for influencing providers and consumers. Fourthly, this paper only focuses on the cost of a healthy diet, while not taking into account the cost of kitchen equipment to conserve, prepare and consume the food. Furthermore, food is not only about being in a good health but it is also an important part of social and cultural life (e.g. Ginn et al. 2016; O’Connell et al. 2019). A more generous food insecurity measure could take that on board. Fifth, we take other essential needs into account in a rather crude way. While this results in a conservative estimation of food insecurity, with more data on the cost of essential goods and services across Europe it would be possible to considerably fine-tune this indicator to the situation in each country.

Finally, although economic access to a healthy diet is crucial, it is not sufficient to avoid food insecurity (Barrett 2010; Burchi and De Muro 2016). Resources should be used properly, depending on the socio-cultural acceptability of the food, the individual capacities and the societal circumstances. As part of the project in which we estimated the minimum cost of a healthy diet (Goedemé et al., 2015a), we co-organised two to three focus group discussions (FGs) in each Member State. In

these focus groups, citizens with varying socio-economic status reflected critically on the acceptability of the food baskets and the underlying assumptions. In order to construct a minimal budget that should enable people to eat healthily, we made the assumption that (1) people have the capacity to cook daily healthy meals, and, (2) people are able to shop economically, meaning that they are well-informed about prices and that the cheapest retailers are accessible to them. Although the content of the food basket was generally accepted, focus groups in all countries argued that preparing and shopping healthy food with a limited budget is not always feasible due to constraints such as a lack of time and energy. This is especially so for full-time working parents and single parent families. Several other studies have concluded that, in particular for vulnerable groups, dietary guidelines are not always easy to interpret, there is a lack of comprehensive information and not everyone has sufficient skills, time and energy to prepare healthy meals (Roberto et al. 2015; Tiwari et al. 2017). The focus group participants argued that a good kitchen equipment (freezer, microwave ...) to work with left-overs, healthy lunches at school or work and supportive family members can increase the feasibility to cook on a regular basis. Similarly, several studies have argued that the social environment, including parents, schools, the work environment and the media, can have a mediating effect on creating a context where healthy eating is stimulated and supported (Vereecken et al. 2005; Brambila-Macias et al. 2011).

Policy implications

A potential danger of studying food insecurity is that it is perceived as being isolated from the problem of poverty and inequality, and their structural determinants. With this paper, we hope to have shown that a healthy diet for all can only be realised if food policies are embedded in economic and social policies that address the structural inadequacy of income and the cost of other essential goods and services (such as housing) that many households face. In other words, although providing

better information on the health effects of food and financial incentives to make healthier choices are important, their impact will always be limited by the severe financial constraints that some people face. Also, the trend towards providing more food assistance through food banks (Greiss et al. 2019) is unlikely to address the scale of income-related food insecurity that we identified in this paper. While food banks may help to increase access to food for some households, it does not solve the underlying more structural cause of food insecurity which, for many households, is a lack of adequate income. This requires a different set of policy responses aimed at realising the right to an adequate living standard through adequate minimum income protection and employment policies on the one hand and accessible goods and services on the other hand. In some countries, such as Romania and Bulgaria, income-related food insecurity seem to be so widespread, that a much more ambitious programme of wage growth and redistribution is required to tackle food insecurity.

Conclusions

In this paper we make use of cross-nationally comparable estimations of the cost of a healthy diet in 24 European cities and compare these with net disposable household incomes before and after housing costs. We show that especially in Eastern and Southern European countries, and in particular in Bulgaria, Romania and Greece, a large share of the (sub)urban population lacks sufficient income to access a healthy diet. Clearly, financial constraints for accessing a healthy diet are not distributed equally across Europe. However, when including the affordability of other essential goods and services, in particular of housing, income-related food insecurity seems to be a considerable problem in a wider selection of EU countries. Also in many richer EU member states, people receiving minimum income protection have insufficient means to access a healthy diet and other essential needs.

Chapter 5: All we need is... Reference budgets as an EU policy indicator to assess the adequacy of minimum income protection.

Published as Penne, T., Cornelis, I. and Storms, B. (2020). 'All we need is... Reference budgets as an EU policy indicator to assess the adequacy of minimum income protection.' *Social Indicators Research*, 147, 991–1013.³⁵

Abstract

The right to adequate minimum income protection is one of the key principles included in the European Pillar of Social Rights (EPSR). The EPSR takes a right-based and normative approach, aiming specifically at fulfilling people's essential needs, not only by guaranteeing sufficiently high income levels, but also by promoting labour market inclusion and access to affordable goods and services of good quality. This paper takes the EPSR as a starting point to propose a needs-based indicator that assesses the adequacy of minimum income protection including these three dimensions in a comprehensive way. We argue that Reference Budgets (RBs), priced baskets of goods and services that represent an adequate living standard, are well-suited to construct such an indicator. To illustrate this empirically, we use RBs for adequate social participation in Belgium which have been constructed for the first time in 2008 and have been regularly updated since then. Through a combination of hypothetical household simulations of essential out-of-pocket costs and designated tax-benefits for families living on different minimum income schemes, we are able to assess the adequacy of minimum income protection for a range of household types over the period 2008-2017. The paper shows that the proposed indicator is a useful policy tool for both ex-ante and ex-post evaluations of the adequacy of social policy measures in light of the social protection and inclusion rights included in the Pillar.

³⁵ The authors are grateful to Tim Goedemé, Bea Cantillon and two anonymous reviewers for the comments and suggestions. We would also like to thank participants of the 25th FISS conference in Sigtuna for their feedback to an earlier version of this paper. The yearly update of reference budgets in Belgium is carried out by researchers at the Centre for Budget Advice and Research, Thomas More. The Hypothetical Household Tool (HHoT) has been jointly developed by the University of Essex and the University of Antwerp as an application of the EUROMOD software.

Introduction

For a long time, adequate minimum income protection has been at the center of EU social policy (Zeitlin and Vanhercke 2018; Vandenbroucke et al. 2013; Marx and Nelson 2013), being one of the most important tools for preventing and combatting poverty in Europe (e.g. K. Nelson 2013; Cantillon et al. 2019). The EU Council Recommendation (1992) was a first step to urge Member States to recognize the basic right to an adequate minimum income protection, defined as ‘sufficient resources and social assistance to live in a manner compatible with human dignity’. In the years 2000, the Lisbon Summit introduced a shift from passive social protection to work-oriented active investment (Vandenbroucke and Vleminckx 2011). Besides adequate incomes, social inclusion policies appeared more prominent on the agenda. The ‘Active Inclusion’ Recommendation (European Commission 2008) stressed the right to an adequate minimum income, but added the importance of labour market integration and access to services (Zeitlin and Vanhercke 2018; Frazer and Marlier 2016). This trend has been continued and strengthened with the EU2020 strategy, focusing on adequate social protection and social inclusion, including ‘access to resources, rights and services needed for participation in society’ (European ISG 2015).

The most recent policy framework, bringing together all these elements, is the European Pillar of Social Rights (European Commission 2017). The EPSR is directly aimed at fulfilling people’s essential needs, enfolded a set of 20 rights and principles in three chapters: (1) equal opportunities and access to the labour market, (2) fair working conditions, and, (3) social protection and inclusion (European Commission 2017). In the EPSR, and particularly in the third chapter, an adequate income that ensures a life in dignity is a key commitment. It includes the right to an adequate minimum wage (principle 6), adequate social protection (principle 12) and adequate unemployment benefits (principle 13). An adequate minimum income protection is approached broadly, emphasizing the importance of labour market

participation and access to goods and services of good quality (European Commission 2017). This is particularly reflected in principle 14: *“Everyone lacking sufficient resources has the right to adequate minimum income benefits ensuring a life in dignity at all stages of life, and effective access to enabling goods and services. For those who can work, minimum income benefits should be combined with incentives to (re)integrate into the labour market.”* (European Commission 2017) In addition, several other rights in the EPSR refer to access to affordable goods and services of good quality. For instance: the right to quality and inclusive education, training and life-long learning (principle 1), the right to affordable early childhood education and care of good quality (principle 11), the right to timely access to affordable, preventive and curative health care of good quality (principle 16), access to social housing or housing assistance of good quality (principle 19) and the right to access essential services of good quality, including water, sanitation, energy, transport, financial services and digital communications (principle 20).

This paper aims to propose an indicator which assesses the adequacy of minimum income protection, including the impact of access to affordable goods and services, while not losing sight of work incentives. Currently, EU policy makers, and social policy researchers (e.g. K. Nelson 2013; Van Mechelen and Marchal 2013), use mainly income-based indicators to assess the adequacy of minimum incomes. With the Lisbon Strategy, the Open Method of Coordination was installed as a soft governance framework with a common set of social indicators to measure social progress in the different Member States (Atkinson et al. 2002). The same social indicators were largely adopted by the EU2020 strategy and the ‘Social Scoreboard’ used to monitor performances related to the EPSR. The most important indicator to assess the adequacy of minimum income protection is the at-risk-of-poverty threshold (arop60), set at 60 per cent of the national median equivalent disposable household income. Despite its advantages, such as its statistical comparability to measure income poverty across time and countries, the arop60 indicator might be

problematic for the purpose of assessing income adequacy. First, there is no evidence on the extent to which an income at the level of the arop60 enables to live a life in human dignity nor if it represents the same living standard across time and countries (Goedemé et al. 2019a; Fahey 2007; Babones et al. 2016). A study of Goedemé et al. (2019a) has shown that the arop60 generally approaches an adequate living standard in richer member states, while the level is far from a decent income in poorer member states. Second, the arop60 indicator is purely income-based, while the extent to which essential goods and services are accessible determines largely whether minimum incomes are sufficient to live a life in dignity. In particular, since publicly provided or subsidised goods and services account for about half of social expenditures in European welfare states with non-negligible distributive effects (e.g. Verbist and Matsaganis 2014; Aaberge et al. 2017). In order to indicate member states' efforts to ensure access to essential goods and services, the Scoreboard includes additional indicators such as the level of government spending on health and education. However, these macro indicators are largely determined by external factors such as demographic structure and fail to properly take into account families' needs with regard to their use of public services (Aaberge et al. 2017). For example, when the proportion of elderly and families with children in the population increases, government spending on health care and education will be driven upward. Moreover, in various countries, minimum income support is complemented by cost reducing means-tested benefits -whether or not linked to the scheme- such as housing subsidies, social tariffs for heating and energy, reduced health care costs, free school meals and education-related allowances (Frazer and Marlier 2016; Immervoll 2012). However, little is known on the actual impact of these in-kind benefits on income adequacy and active inclusion.

This paper argues that current indicators to monitor the adequacy of minimum income lack a clear operationalization of what a *life in human dignity* entails, and,

do not sufficiently correspond to the broad view on adequacy outlined in the EPSR. Cantillon et al. (2017) suggested an input indicator to assess adequacy of minimum income support in a broader sense, including protection for work-rich households and incentives to work, but without taking into account access to services. Some authors (e.g. Marchal and Van Mechelen 2017; Immervoll 2012) have partly included the latter by looking at access to active labour market support, health or childcare services, but these attempts generally lack an empirical and theoretical underpinning of all the expenses households need to make in order to live a life in dignity. The paper shows that Reference Budgets (RBs) offer such an operationalization of an acceptable living standard by defining what people need at the minimum in order to participate adequately in society, taking into account the institutional, cultural and social context (e.g. Goedemé et al. 2015b; Carrillo-Álvarez et al. 2019b; Goedemé et al. 2015a). Doing this, RBs assess the out-of-pocket costs that specific household types face to access essential goods and services, taking into account the impact of public provisions or subsidies and cost-reducing measures (e.g. Penne et al. 2018). This makes them suitable to contextualise and construct policy indicators to monitor the adequacy of minimum income protection (See also Deeming 2017) for jobless households as well as for minimum wage workers, going beyond cash-income, while taking into account differences in social contexts. RBs are developed in nearly all EU Member States for a wide variety of purposes using different methodologies (for a review, see Storms et al. 2014). In several local and national contexts, they have been used to assess the adequacy of minimum income protection (see e.g. A. H. Davis, Donald et al. 2018; Saunders and Bedford 2017). For the purpose of this paper, we use RBs for adequate social participation in Belgium for the year 2017. In Belgium, RBs have been developed since 2008 for a range of different household types (Storms 2012; Storms et al. 2015). Through a combination of hypothetical household simulations of essential out-of-pocket costs and designated tax-benefits for families

living on different minimum income schemes, we are able to assess the adequacy of minimum incomes in Belgium in 2017 and assess changes over time by comparing with the year 2008.

The paper is structured as follows: In the first paragraph, we give some theoretical background on the meaning of income adequacy and the importance of taking into account the individual and societal context. Secondly, we describe the methods and data used to construct reference budgets and to simulate the net disposable minimum incomes for different household types using the microsimulation model Euromod. Subsequently, we use the case of Belgium to illustrate how RBs can be used to evaluate the adequacy of social protection touching upon the different dimensions of the Pillar's framework: cash benefits, access to affordable services and how the latter could affect financial work incentives. We end with a discussion of the strengths and weaknesses of our indicator and conclude.

When is a minimum income adequate?

With minimum income protection we refer to the minimum level of income guaranteed to all able-bodied people at active age (whether in or out of work). At the moment, all EU Member States provide some kind of minimum income protection for non-working people at active age. This is generally provided through social assistance schemes or unemployment benefits, topped up with other (means-tested) benefits (Immervoll 2012; Marchal 2017). When evaluating the adequacy of minimum incomes, it is useful to include also income protection for work-rich households, since many countries show increasing levels of in-work poverty (Gábos et al. 2019). Minimum wages³⁶, often supplemented with social-assistance top-ups and other in-work benefits, are an important tool for ensuring an adequate minimum income for those at work. Moreover, minimum wages can cause a tense relation

³⁶ In 5 of 28 EU Member States (Austria, Denmark, Finland, Italy and Sweden) there is no statutory minimum wage, but minimum wages are established in collective agreements (Eurofound 2018).

with the social floor because of their impact on work incentives (Collado et al. 2019; Cantillon et al. 2017).

In the last decades, the adequacy of minimum income protection has gained growing attention of welfare state scholars (e.g. K. Nelson 2013; Van Mechelen and Marchal 2013; Cantillon et al. 2019; A. H. Davis, Donald et al. 2018), pointing at increasingly inadequate social benefits (and minimum wages) across European Member States. However, there is no consensus on what level of income corresponds to an adequate living standard and how this differs across households and countries. A frequently used key concept in the development of fundamental rights to guarantee a decent living standard at the (inter)national, regional and local level is the concept of *human dignity*. It is also the leading tenet behind Articles 14, 15 and 17 of the European Pillar of Social Rights (European Commission 2017). However, despite its frequent use, scholars from various disciplines and traditions have been giving different meanings to the concept (McCradden 2013; Rao 2007). As a result, human dignity remains an indeterminate, abstract and vague concept (Morales 2018; Düwell et al. 2014). Nevertheless, the concept of human dignity is about the realization of socio-economic rights (Eide 1989; Moons 2016) which not only refer to the protection of individual needs, but also to the promotion of social cohesion (Casas 2005). Moons (2016), who explores the concept of human dignity in his dissertation, introduces the term '*social dignity*', to emphasize our interconnected nature. In this sense, a life in dignity is about being able to develop and to participate as a full member of society. In quite some national and international efforts to assess the adequacy of income policies, and in particular reference budget research (See Storms et al. 2014), the concept of 'adequate social participation' is used as a benchmark for a decent living standard. Although social participation also remains elusive to some extent (See Levasseur et al. 2010), it is easier to translate into a concrete benchmark including individual needs as well as social cohesion.

Various attempts have been made (e.g. Doyal and Gough 1991; Nussbaum 2001) to define a normative framework of what is needed to *live a life in human dignity* or to *fully participate in society*. By starting with a universal conception of the good, and by relying on both experiential and codified knowledge, these authors developed a non-exhaustive list of universal and intermediate needs (or basic and central capabilities) that can be translated to a specific cultural context (Gough 2014). Importantly, in order to fulfill these needs, certain individual and societal preconditions need to be realized (Doyal and Gough 1991; Storms 2012; Sen 1983). Due to differences in circumstances, people with similar financial resources are not necessarily able to attain the same living standard (Sen 1983). If a person is in a bad physical or mental health, is low-skilled, has limited competences or a lack of social capital, this person needs a higher level of income in order to be able to live a life in dignity (Hargittai 2010; Zaidi and Burchardt 2005).

Not only individual characteristics, but also the societal context determines whether an income is adequate or not. Studies have shown that public provision or subsidization of essential goods or services (such as health care and education) positively affect living standards at the bottom of the income distribution (Aaberge et al. 2017; Verbist and Matsaganis 2014). However, these studies do generally not take into account differences in the accessibility of these goods and services. In another set of literature, accessibility is defined as a multi-dimensional concept enfolding five commonly used criteria: availability, (spatial) accessibility, affordability, usefulness and comprehensibility (See e.g. Roose and De Bie 2003; Vandenbroeck and Lazzari 2014). *Availability* concerns the supply of the service relative to people's needs (depending on e.g. waiting lists and eligibility conditions), the *(spatial) accessibility* is the extent to which a services can be physically reached, *affordability* refers to the costs people face -related to their ability to pay- to access the service, *usefulness* can be defined as the support and added value people experience when making use of the service and

comprehensibility as the openness, transparent and informative character of the service. In some studies, the two latter categories are excluded and partly covered by the criteria of *acceptability*, which is seen as the (miss)match between attitudes of the client and the provider (e.g. Wallace and MacEntee 2012). Additionally, the dimension of *quality* is often included when assessing access to care services (See also the quality of life survey of Eurofound 2017) such as health care (Peters et al. 2008) and ECEC (Gambaro and Stewart 2014).

Importantly, people in poverty experience often more personal and societal barriers for being able to live a decent life (for a more in-depth discussion see Penne et al. 2016). For instance, studies have found that living on a low income is significantly related to (self-reported) health problems (Hernández-Quevedo et al. 2006; Eurofound 2017) and competences (Hargittai 2010; Mullainathan and Shafir 2013). At the same time, other research has revealed socioeconomic inequalities in the accessibility of essential goods and services (e.g. Van Doorslaer et al. 2006; W. Van Lancker 2013). Common barriers for minimum income recipients to access services are financial obstacles, lack of availability, poor quality (e.g. capacity, resources), stigmatization, lack of information and digitalization (Frazer and Marlier 2016). Studies have shown that, despite the large variation across EU member states, there is a lot of room for improvement in the access to quality services for low income groups (Marchal and Van Mechelen 2017; Frazer and Marlier 2016; Eurofound 2017).

Hence, a measure that evaluates the adequacy of living standards should go beyond cash income, and should take into account the individual and societal circumstances. Nevertheless, in absence of a clear conceptualization of what it means to live a life in human dignity, minimum income benchmarks are usually based on a fixed proportion of median income, often related to current measures of poverty (e.g. Immervoll 2012; Figari et al. 2013; K. Nelson 2013). The EU Parliament (2010) has defined an adequate income as an income at least reaching

the level of the at-risk-of-poverty threshold in the Member State concerned. Doing this, policy makers and researchers generally take a rather arbitrary and purely income-based approach to an adequate minimum income. In the next section, we propose and describe a policy indicator based on hypothetical household simulations of both out-of-pocket costs (RBs) and net incomes (micro simulation), in order to get more insight into the adequacy of minimum income protection and its inherent and mutual relation with the accessibility of goods and services. We illustrate this with the case of Belgium.

A hypothetical household method to simulate out-of-pocket costs and net incomes

In this article, we use Belgian reference budgets for social participation to assess whether minimum incomes are sufficiently high to ensure people a life in dignity. Hence, we translate the rather vague concept of human dignity, to the concept of ‘adequate social participation’. We define ‘social participation’ as the ability of people to play the various social roles that one should be able to play as a member of a particular society (Storms 2012), whereby social roles should be interpreted as social expectations attached to positions (e.g. being a mother, being an employee, being a citizen,...) that people take in society (cf. Giddens 2001: 28-29; de Swaan 2007). These social positions should not be understood as a nearly fixed social status nor as a promotion of conformity with dominant patterns of behaviour. Rather, it stresses the importance of having the opportunity to comply with dominant social expectations, and having a choice to deviate from the norm if one wants to instead of due to a lack of resources (Goedemé et al. 2015a). Our definition of social participation is broader than many other definitions (See Levasseur et al. 2010) and combines, as we described above, personal development with social cohesion.

The reference budgets we use for the purpose of this paper, are based on a theoretical framework (Storms 2012) inspired by the *theory of human need* (Doyal and Gough 1991) which discusses a list of ten intermediate needs that should be fulfilled for adequate social participation: adequate housing, food, clothing, health and personal care, maintaining social relations, safety in childhood, rest and leisure, mobility and security. These needs are translated into concrete baskets containing lists of essential goods and services (see Appendix Table 1 for a list of broad categories of included goods and services in the Belgium context) based on various information sources such as (inter)national guidelines, expert knowledge and focus group discussions with citizens from various socioeconomic backgrounds (Cf. Goedemé et al. 2015b; Carrillo-Álvarez et al. 2019b; Goedemé et al. 2015a). The latter are used to validate the theoretical framework and assumptions, to define essential goods and services and to assess the acceptability and feasibility of the budgets within the current societal and institutional context. The baskets are priced at minimum but acceptable prices in well spread retailers. In order to guarantee realistic prices, the pricing strategy, including the choice of retailers, is checked in focus groups. Participants were asked to consider whether the stores are accessible and acceptable and whether it is possible to find similar items at the low prices we include. Everything was priced at the lowest prices, but allowing for some variation. For instance, food has been purchased at the lowest prices in the cheapest supermarket but the total budget has been multiplied by 10%, to ensure that people are able to buy their food in a supermarket within reach. Due to the variability in rental prices on the private housing market, housing costs of private tenants are defined by calculating the median price of dwellings corresponding to a list of quality criteria based on the *Vlaamse woonsurvey 2013* (Winters et al. 2015)³⁷.

³⁷ The following quality criteria have been used: (1) a good external (safe condition of walls, windows, electricity and roof) and internal (respecting safety and health, without chemical risks and moisture problems) physical condition of the building; (2) minimal comfort of the dwelling: presence of a toilet and bathroom, no leaks and no moisture; (3) occupancy of the dwelling: assessed

Since 2008, the RBs are yearly adjusted to price changes by means of a price survey and every five years an update takes place to evaluate if the content of the reference budgets still reflects what people minimally need in contemporary society (Storms et al. 2015). The last full update occurred in 2013³⁸.

As we have argued above, the resources that people minimally need, depend on the characteristics of households as well as on their living circumstances. Therefore, RBs are constructed for well-defined household types, living in a specific social and institutional context. In this paper, we make use of RBs for 12 different household types without or with 1 or 2 children, living in the Flemish region of Belgium. The adults are able-bodied and at active age (about 40 years old). The children are of 4, 8 or 15 years old, corresponding with pre-primary, primary and secondary school age in Belgium. Importantly, it is assumed that all family members are in a good health, self-reliant, well-informed and have access to common publicly provided or subsidized goods and services (Cf. Storms et al. 2015; Goedemé et al. 2015b; Penne et al. 2016; Penne et al. 2018). In 2017, a single woman at active age who rents her dwelling at the private market needs 1,272 EUR/month in order to participate adequately in society. A couple in a similar situation would need 380 EUR/month extra to reach the same standard of living. If children are added to the household, the budget of a single person increases with 23% to 42% depending on the age of the children, up to 2,646 EUR/month for a jobless couple with two older children (8 and 15 years old). We also include the differential costs that families need to make if one adult is working³⁹. The reference budgets for single earner couple

by one bedroom for the adult(s) and 1 bedroom per 2 children (unless they are older than 12 years and of a different sex, in that case an extra bedroom is required). The median rent price is chosen to guarantee a certain freedom of choice taking into account the limitations of the private tenant market.

³⁸ Recently a new full update has taken place for the year 2018. For the purpose of this study, we could not include data for the year 2018 yet, due to unfinished validation and missing data on income components.

³⁹ This includes some additional clothing, a budget to maintain relations with colleagues, less energy or water costs at home, in some cases a budget for child care, and an extra visit to the GP (to prove absence from work with a medical certificate) (see Storms et al. 2015).

families exceed the budgets of work poor households with about 2% to 4%. In order to illustrate the cost of child care, we only include child care costs for working single parent families. In that case, the RBs increase on average with 10%. However, there are many situations where child care would be desirable or necessary even if (one of) the parents are (is) unemployed. Taking this into account would increase the budgets for these families significantly.

To assess the adequacy of minimum incomes, reference budgets should be compared with the net disposable income of families. In Belgium, for those at work, minimum income protection consists of minimum wages supplemented with in-work benefits. For the jobless, minimum income schemes are part of a complex social security system⁴⁰. First, the classic social insurance system provides a substitution income for the unemployed depending on previous labour market situation, family situation and duration in unemployment (regressive in time). Secondly, for those without professional income, there is social assistance support as a ‘last resort’. Finally, there are supplementary benefits to bear social charges such as family allowances and sickness benefits.

In order to simulate taxes and benefits, we make use of the Hypothetical Household Tool (HHoT) which is part of the European tax-benefit microsimulation model EUROMOD (cf. Sutherland and Figari 2013). The flexibility of the tool allows the user to specify a large variation of hypothetical households for which the net income, given a pre-specified gross income, can be simulated (Hufkens et al. 2016a; Marchal et al. 2018b). In this paper we evaluate the adequacy of the following net minimum income schemes for the abovementioned hypothetical households living in Flanders: a social assistance income, a minimum income from unemployment

⁴⁰ For more information on the social security system in Belgium, see Federal Public Service Social Security (2017). “Social Security. Everything you always wanted to know (in Belgium)”, available at socialsecurity.belgium.be/en/publications/everything-you-have-always-wanted-know-about-social-security

insurance and a minimum income from employment. In couples, we assume that the partner is inactive. For the single earner families we assume that one adult (>20 years) works full time on a minimum wage with 12 months of work experience. Minimum unemployment benefits can only be simulated partly in Euromod, hence gross amounts are imputed⁴¹, assuming an unemployment duration of 12 months, and a previous full time work experience of 12 months. The simulation tool takes into account all compulsory taxes and social security contributions, and all child-specific benefits families are entitled to. Since study- and school allowances are traditionally not included in Euromod, they are added, based on own calculations⁴².

The adequacy of minimum income protection: the case of Belgium

In this section, we use the case of Belgium to show how RBs are an effective policy tool for assessing minimum income adequacy including the three dimensions of Principle 14 in the EPSR (European Commission 2017): 1) ensuring a life in dignity at all stages of life, (2) effective access to enabling goods and services, and, (3) financial incentives to (re)integrate into the labour market.

Ensuring a life in dignity at all stages of life

In Figure 1 we assess the adequacy of minimum income schemes for 12 hypothetical household types by comparing the level of their net income to the level of their reference budgets (illustrating the minimal out-of-pocket costs to fulfil needs to participate adequately in society). The hypothetical families all live in the Flemish region of Belgium, rent a dwelling on the private market and have one income from either social assistance, minimum unemployment insurance, or from working full time on a minimum wage. The net income takes into account all taxes,

⁴¹ Gross minimum unemployment benefits are derived from the KOWESZ database.

⁴² The amounts and terms and conditions of school and study allowances in the Flemish region of Belgium are available online at <https://www.studietoelagen.be/voorwaarden-en-bedragen>

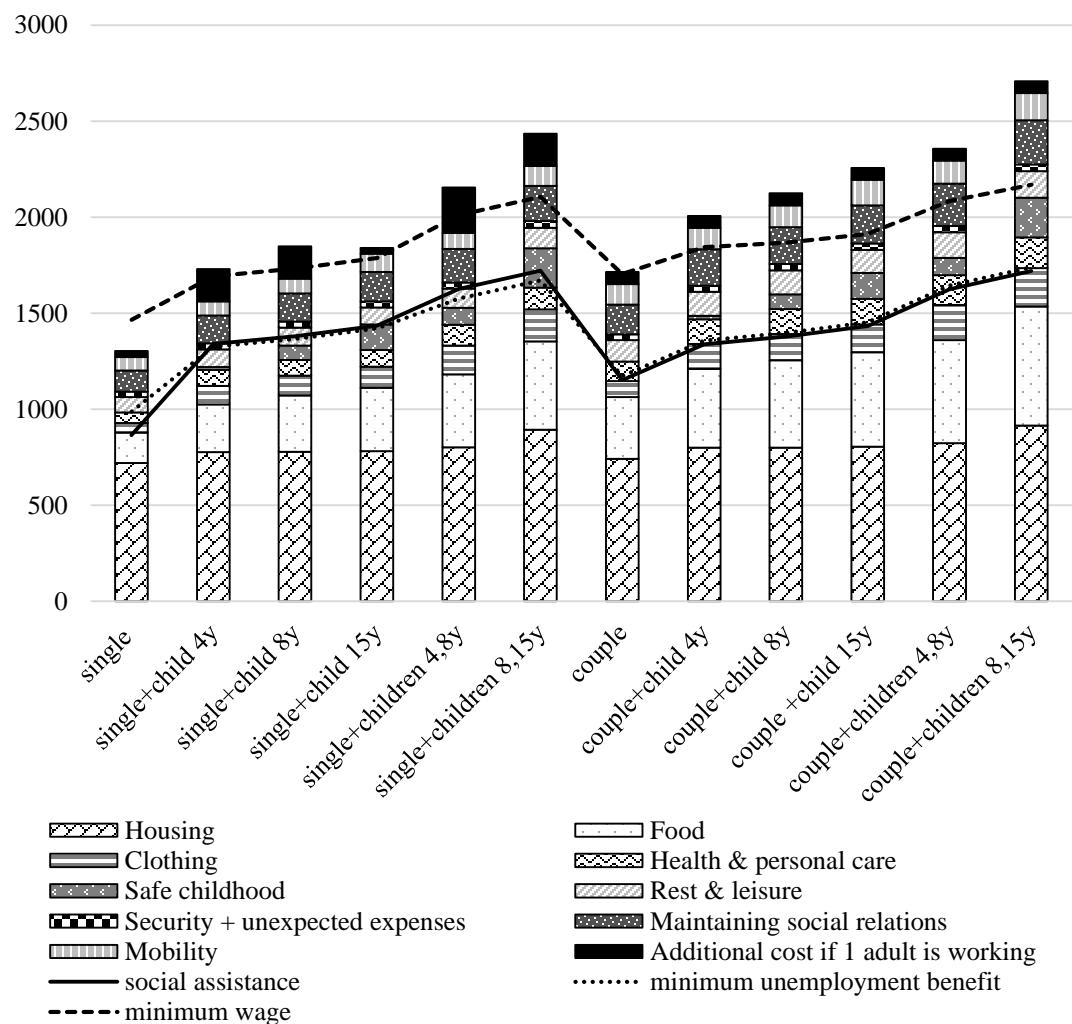
social security contributions, and allocated benefits such as child allowances. The comparison with the reference budgets shows clearly that social assistance or unemployment incomes do not enable families to participate adequately in society. The deficit is the largest for couples with older children living on social assistance where the net income only reaches 65% of what they need at the minimum. This means that, after having paid their fixed costs, these families have barely enough left to buy food. With a social assistance income covering about 85% of the necessary costs, single parent families with small children are able to fulfil their physical needs, but there is nothing left to spend for recreational activities or social relations. Incomes from minimum unemployment benefits reach a similar level compared to social assistance incomes. Similar to various other EU countries where both systems operate (See Immervoll 2012), the long term unemployment insurance for people with previous low earnings is quite close to the level of social assistance.

Despite the fact that net incomes for single earner families with a full time minimum wage are higher compared to the social floor for jobless, the figure below reveals that incomes are generally still inadequate if these families rent a dwelling at the private market. This corresponds with other research (e.g. Cantillon et al. 2017), arguing that a single minimum wage is in many EU countries not sufficient to stay out of poverty. For a couple with two older children the minimum wage covers only 80% of their essential needs. Only for families without children, one minimum wage seems to be narrowly enough to participate adequately in society. However, when these families would need a car for traveling to work, the reference budgets would increase with about 265 EUR per month⁴³, meaning that the minimum wage would be inadequate for all family types. Moreover, note that we did only include child care costs for single parent families at work. When other families need paid

⁴³ We have calculated the cost of a small second hand car (10 000 km/year).

child care, the adequacy of their minimum income support will deteriorate significantly.

Figure 1. The adequacy of minimum income schemes for families who rent their dwelling at the private tenant market, EUR/month, Belgium (Flanders), 2017.



Source: Reference budgets 2017 (CEBUD), net minimum incomes are simulated using HHoT 2017 (Euromod H1.0+)

In general, the indicator shows that minimum income support is more adequate for single parent families compared to couples with children. This can be explained by

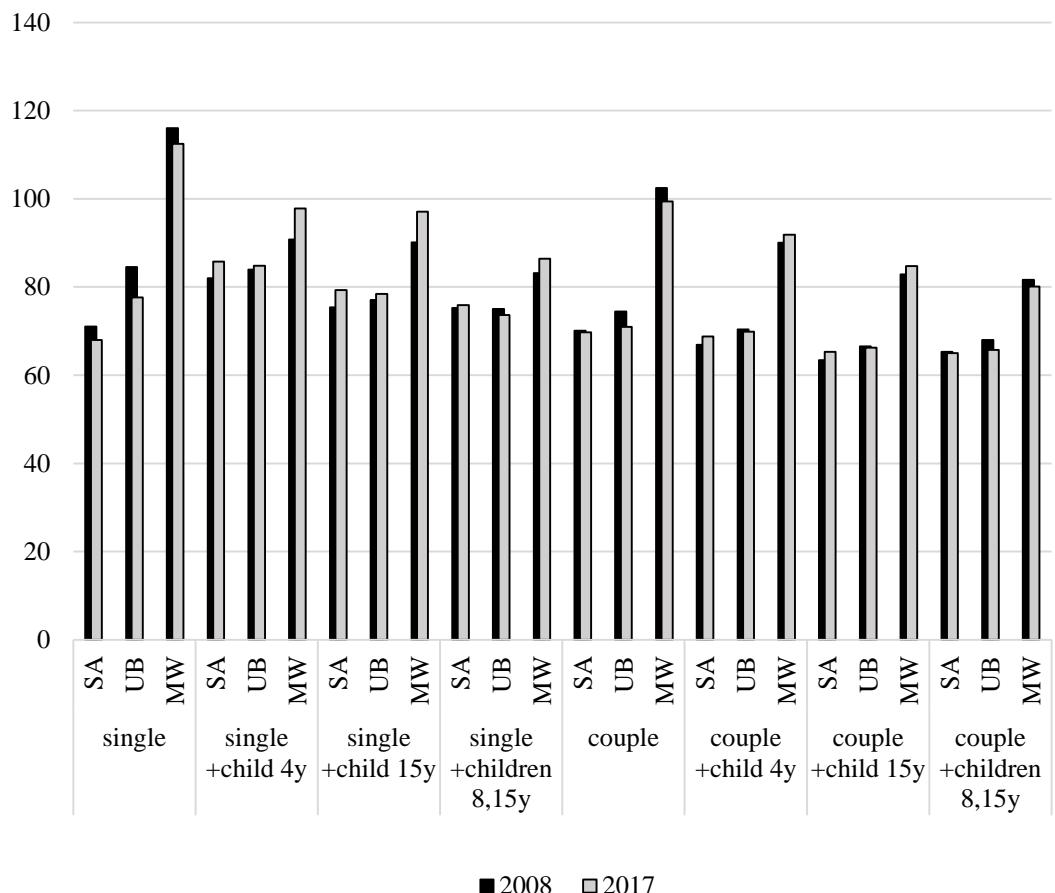
the fact that both single parent families are entitled to the same (or only slightly different) amounts of minimum income benefits, and to higher levels of child allowances (supplement for single parents) while couple families include an additional adult in the family. Because age-specific child allowances do not suffice to cover for the significant increasing needs and associated costs of older children, the adequacy of minimum income protection for families with children deteriorates as children grow older (See also Penne et al. 2018).

How did the adequacy of minimum income protection evolve in the last decade? If we look at the evolution of the reference budgets between 2008 and 2017, it is clear that the cost of accessing minimal priced goods and services has increased beyond the average consumer price changes captured in the Harmonized Consumer Price Index (22% on average for essential minimal priced goods and services versus 16% on average prices between 2008 and 2017)⁴⁴. This can be largely explained by the sharp increase in rent prices of small dwellings between 2008 and 2013 (see Storms et al. 2015). Between 2013 and 2017 the reference budgets increased with another 5%, following average price evolutions⁴⁵. Some costs have shown a larger increase such as energy, health care and public transport, while other costs, such as the cost of food, have slightly decreased or followed the average price index.

⁴⁴ All items HICP (2015 = 100), annual average index, retrieved from Eurostat on September 4, 2018.

⁴⁵ This can be partly explained because rent prices, which are an important part of the total budget, were adjusted following the Harmonised Consumer Price Index between 2013 and 2017. Future updates including the new results of the 'Vlaamse Woononderzoek 2019', might show significantly different results.

Figure 2. The evolution of the adequacy of minimum income protection expressed as % of the reference budgets (private tenants), 2008-2017.



Source: Reference budgets 2008 and 2017 (CEBUD), minimum incomes for 2008 and 2017 are simulated using HHoT (Euromod H1.0+).

Note: SA = social assistance, UB = minimum unemployment benefit, MW = minimum wage.

In Figure 2, we express the net income of families living with an income from social assistance, an unemployment benefit or a minimum wage as a percentage of their reference budget (for private tenants) in 2008 and 2017. The figure shows us that the evolution of adequacy varies across household types, with the largest improvements visible for single parents working on a minimum wage. Due to ‘making work pay’ measures, such as the decrease in taxes, the net income of single

earners increased with 18 to 26%. The changes in the tax system (and in the child benefit system) had a stronger effect on singles and single parents (24 to 26%) than for couples without or with children (18 to 21%). We can see that adequacy remained unchanged or even deteriorated for families with a minimum income from unemployment (except for a single with one child), due to the limited increase of gross minimum unemployment benefits (19%). Furthermore, the cost of (older) children has increased more than the evolution of child benefits (13 to 15%), which have not been adjusted to the evolution in price index (See Decoster et al. 2019), and school- and study allowances (19%). As a result, for couples with two children the situation declined in all minimum income schemes. Also for families without children, the increase of net income was insufficient to cover the increase in necessary costs, in particular rent prices. We can conclude that, after 10 years of policy efforts (See also Decoster et al. 2019), minimum income protection is still inadequate for most families renting their dwelling at the private housing market.

Access to enabling goods and services

The adequacy of minimum income support is not only determined by the level of net income, but also by the accessibility of essential goods and services. Policy makers can influence this in two main ways: (1) by providing or subsidizing goods and services and improve overall access regardless of households' financial situations or, (2) by introducing means-tested cost reductions and improve accessibility specifically for vulnerable groups. The first set of policies is partly reflected in the level of the reference budgets, since it includes the minimum out-of-pocket costs for education, public transport and health care services, among others. Importantly, by calculating costs at the level of different household types while keeping household characteristics constant (see above), we circumvent the issue of variation of needs across households, which is inevitably related to the affordability of goods and services (e.g. Aaberge et al. 2017). Of course, as

indicated above, besides affordability, there are several aspects determining whether a good or service is accessible such as the availability, spatial accessibility and quality (e.g. Roose and De Bie 2003; Vandenbroeck and Lazzari 2014; Peters et al. 2008). However, these other dimensions of accessibility are beyond the scope of this paper. In this section, we focus on the second set of policy measures and assess the impact of targeted in-kind benefits on the adequacy of minimum income protection.

In the past few years, the Federal, Flemish and local governments as well as different profit and non-profit civil society organisations have introduced a range of cost-reducing benefits for low-income families. However, this landscape of means-tested social tariffs and allowances has become rather complex, with a wide variation of providers. Moreover, many of these cost-reductions are not allocated automatically, and are subject to different kinds of (income) eligibility criteria. In what follows, we calculate the impact of these in-kind benefits on the level of resources families need at the minimum to participate in society, by assuming full take up. The table below shows an overview of the benefits we have taken into account. Inevitably this exercise requires some important assumptions: (1) the families are well informed about the subsidies to which they are entitled, (2) the family members can invest the necessary time and energy to address different providers to apply for their social rights in the required form, and, (3) the providers of these benefits are accessible for all. It is important to note that in many cases these assumptions are not realistic and that non-take up of means-tested social benefits frequently occurs, due to a variety of factors such as administrative barriers, perceived complexity, lack of information and related stigma (e.g. Van Mechelen and Janssens 2017).

Table 1. Overview of means-tested cost-reducing benefits included in the study.

Cost-reducing benefit	Provider	Main conditions
Social rent	Social housing company	Income threshold
Rent allowance	Flemish government	4 years waiting list social housing, below certain rent limit and income threshold
Fuel allowance	Non-profit organisation	Income threshold
Social correction Flemish energy tax	Flemish government	Specific social security categories, below certain energy limit (*)
Social tariff electricity & gas	Energy distributors	Specific social security categories (*)
Discount economical devices	Network operator	Specific social security categories (*)
Reduction water bill	Drinking water distributors	Specific social security categories (*)
Increased Reimbursement Health care	Health insurance service	Income threshold or specific social security categories
Reduction public transport	Public transport company	Increased reimbursement or specific social security categories
Social tariff internet & phone	Telecommunication provider	Specific social security categories (*)
Exemption/reduction Province tax	Province	Social assistance/ increased reimbursement

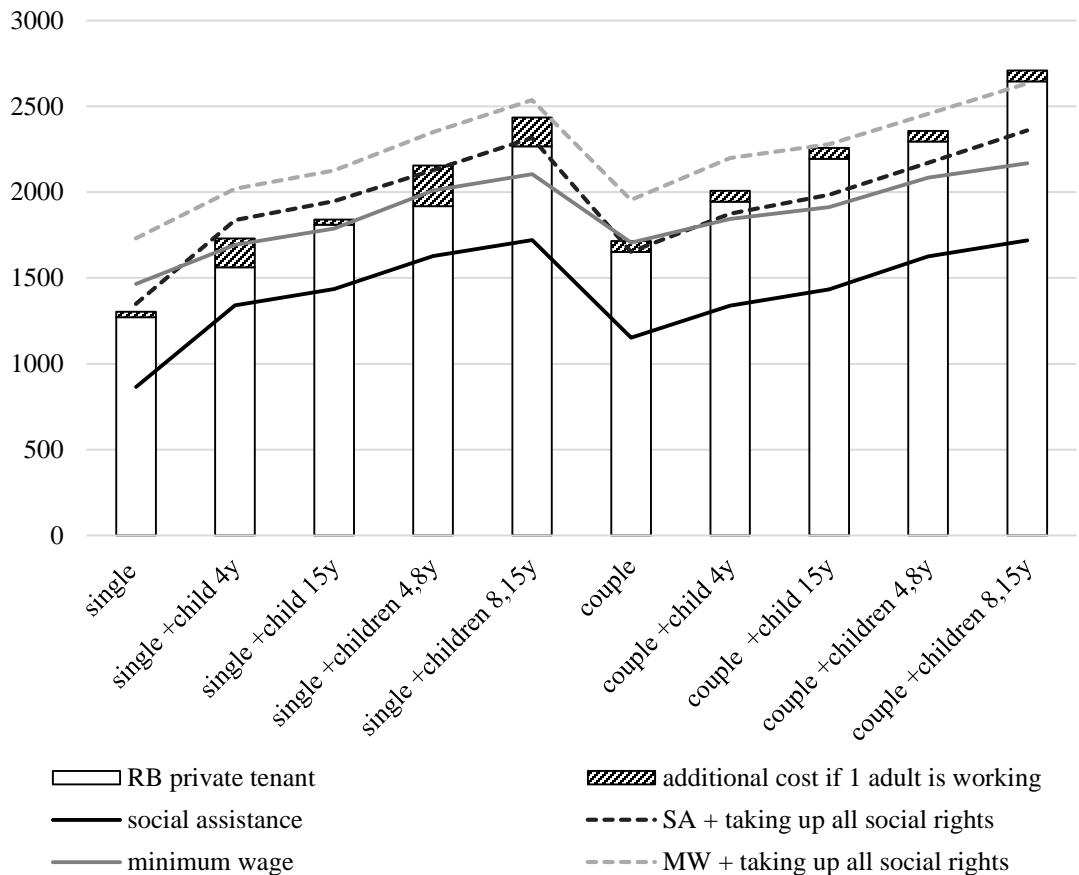
Note: The table with cost-reducing benefits is non-exhaustive. In reality, families in Flanders can have access to additional (rather small) cost reductions from local governments or organisations. Due to the limited coverage and the large regional variation they are not included in this exercise. (*) Minimum wage workers are not eligible to these benefits since they are only assigned to certain categories of social security (e.g. social assistance).

Figure 3 below shows how the adequacy of minimum income protection increases if families take-up all their monthly social rights. If families with an income from social assistance make use of all the cost-reducing benefits (except the rent

subsidies), and you add this in cash to their monthly social assistance net income, it increases with 103 euro (12%) for a single person to 177 euro (10%) for a couple with two older children. But it is especially the effect of social housing that makes a substantial difference: depending on household income and family size, social rent⁴⁶ increases the monthly budgetary space with 381 euro (44%) to 462 euro (27%) compared to families renting on the private market. If we assume that families take up all their social rights (adding up cost-reducing benefits + social rent), the net income of single social assistance recipients without or with children (the dotted black line in Figure 3), is just enough to allow for adequate social participation. Nevertheless, social assistance levels (and minimum unemployment benefits) remain largely inadequate for couples with children. Importantly, access to social housing is limited in Flanders, covering only 6.7 % of the housing market compared to 20.4% private tenants and 70.5 % owners (Winters et al. 2015). After four years on the waiting list for social housing, low-income families renting a modest dwelling on the private market are entitled to a rent allowance. For social assistance recipients who receive the rent allowance, their budget increases with 138 euro for a single to 184 euro for a couple with two older children (not included in the figure below).

⁴⁶The price of social rent is calculated based on administrative data applying the legal framework of the Flemish government, taking into account net taxable income, family size and patrimony value.

Figure 3. The adequacy of minimum income schemes assessed by the reference budgets, including the impact of social rent and other cost-reducing benefits, EUR/month, 2017.



Source: Own calculations based on reference budgets 2017 (CEBUD), net minimum incomes are simulated using HHoT 2017 (Euromod H1.0+).

Note: 'SA/MW + taking up all social rights' illustrates the level of net income for households living on social assistance or one minimum wage, adding as a cash benefit the cost-reduction of renting a dwelling at the social housing market, and taking up all cost-reducing benefits they are entitled to.

Financial incentives to (re)integrate into the labour market

The third dimension of the right to an adequate minimum income in the Pillar states that "for those who can work, minimum income benefits should be combined with incentives to (re)integrate into the labour market". Above, Figure 3 shows that in

the case of Belgium, there is a significant gap between net incomes from minimum wages and net incomes from social assistance, ensuring financial incentives to work (cf. Cantillon et al. 2017). If we express these net minimum incomes as a percentage of the reference budgets, a net minimum wage is about 43 to 65 percent points more adequate compared to a net income from social assistance. However, when children are added to the working household, a minimum wage becomes insufficient for adequate social participation. For a family with children, relative to their reference budget, a minimum income from work is about 20 to 30 percent points higher than an income from social assistance. This wedge decreases to only 10 percent points if we take into account the cost of child care for single parent families at work.

If we now assume that single earners with a minimum wage take up all social rights (cost-reducing benefits + social rent) to which they are entitled (the grey dotted line in Figure 3), the adequacy of a minimum income from work would increase with 249 euro (15%) to 464 euro (21%) per month. This is mainly due to the impact of social housing which does not exclude employed families, although social rent prices are slightly higher since they are calculated based on taxable income. Figure 3 illustrates the effect of means-tested benefits in kind on financial work incentives by showing how the two dotted lines (the net incomes including all social rights) came closer to each other compared to the solid lines (the net incomes without cost-reducing benefits and private rent). If we would express the net incomes including all social rights as a percentage of the RBs, the gap between minimum wage and social assistance reduces to 25 percent points for a single without children to no gap at all for single parents with small children (taking into account the cost of childcare). If a social assistance recipient without children, who pays social rent and takes-up all social rights, starts working full-time on a minimum wage, costs can increase up to 219 euro per month. This is due to the fact that work-rich households are not eligible to the cost-reducing benefits attached to social security categories and, for the other benefits, the net income of a single minimum wage earner is above

income thresholds. If they have children, minimum wage workers fall below most of (equivalised) income thresholds, which make them still entitled to the fuel allowance and the Increased Reimbursement for health care. However, take-up of these social rights is likely to be lower for people in employment, since assignment is not automatic and often goes through public welfare offices. Importantly, this is not only a matter of work incentives, since social assistance recipients are also entitled to more cost-reducing benefits compared to persons in unemployment or other insurance categories.

Discussion

In this paper we propose reference budgets combined with hypothetical household simulations of net incomes, as an indicator to support implementation of the right to an adequate minimum income protection included in the EPSR. The Indicators Sub-Group (ISG), has agreed on a common set of methodological criteria for the development of EU social indicators of good quality (European ISG 2015). Social indicators should be (1) valid and have a clear and accepted normative interpretation, (2) robust and statistically validated, (3) sufficiently cross-nationally comparable, (4) building on available data, timely and susceptible to revision, and, (5) responsive to policy interventions but not subject to manipulation. (Atkinson et al. 2002) Before we head to the conclusions, this section discusses some strengths and weaknesses of our proposed indicator in the light of these quality criteria.

We start with the drawbacks. First, with respect to the *validity* of the indicator, reference budgets never represent an exact income threshold. The priced baskets of goods and services that people need at the minimum for adequate social participation are always illustrative. Therefore, maximum transparency must be pursued when developing RBs, which allows them to be integrated in a country's social debate of what is minimally needed to participate adequately in society. Secondly, the indicator faces problems of *robustness*, since there is a lack of quality

(comparable) data on social expectations, accessibility of goods and services, purchasing patterns, prices and life spans. Focus group discussions including people with different socioeconomic backgrounds can help to reveal important insights but should be used carefully since they do not provide representative information. To improve robustness, reference budgets are developed for a limited number of household types with specific assumptions. However, this means that they cannot be generalised to a benchmark for the population as such (see Penne et al. 2016). As we have argued above, especially people living on low incomes encounter more health problems and barriers to access quality services (e.g. Hernández-Quevedo et al. 2006; Mullainathan and Shafir 2013; W. Van Lancker 2013). Hence, if the RB-indicator is used as a tool for policy makers or field workers to test income adequacy, a first crucial step should be to check if the individual competences and societal conditions are applicable. Informed by data on the institutional context, actual consumption patterns and real-life population characteristics, an appropriate equivalence scale could be developed to extrapolate the indicator to the wider public (see Penne et al. 2016; Goedemé et al. 2019a).

However, outlining the common quality criteria shows also the clear advantage of RBs in contrast to existing social indicators, notably the at-risk-of-poverty indicator. Firstly, an important strength is the *internal validity* of the indicator, since RBs provide an empirically based, transparent, concrete and acceptable benchmark that represents an adequate minimum income level. They have a clear normative interpretation of what is needed to adequately participate in society in the different EU Member States, corresponding to the Pillars' specific objective of fulfilling people's essential needs. This is done by building on a sound theoretical framework of human needs and social participation, embedded in the institutional and social context by making use of governmental guidelines, conventions and scientific knowledge combined with the opinions of random citizens in focus groups. By transparently documenting all methodological choices, regularly updating them to

changes in society and involving various stakeholders, RBs have the potential of becoming a widely accepted instrument of consensus-building.

Secondly, our indicator has a clear *advantage for policy makers* in assessing both *ex ante* the social impact of specific measures, as well as in monitoring *ex post* changes in social policy. By taking a hypothetical household approach to policy evaluations we are able to capture ‘pure policy intentions’. In contrast to indicators of government spending, the results are not blurred by demographic changes, or differences in rates of take-up and compliance. Moreover, the indicator allows to estimate the combination of a whole set of –interacting- policy measures, including all relevant taxes and cash benefits, as well as in-kind benefits. Importantly, compared to other research (e.g. K. Nelson 2013; Cantillon et al. 2017; Van Mechelen and Marchal 2013) and to other indicators of the Social Scoreboard assessing the adequacy of minimum income protection, reference budgets have the advantage of revealing the essential out-of-pocket costs families face, taking into account both publicly provided or subsidized goods and services as well as cost-reducing benefits. Hence, our indicator is not only responsive to changes in the level and design of the benefits, but also to changes in the affordability of essential goods and services such as reducing health care or housing costs. Moreover, by comparing various household types, it is possible to identify unmet household needs and groups that could be targeted. For instance, in Belgium minimum income protection is generally less adequate for couples and for families with older children, since it does not take proper account of the needs of an additional adult or growing child in the household. As in most European welfare states, the tax-benefit system reflects rather the result of a policy compromise interacting with the prevailing socio-economic context than differences in household needs (Penne et al. 2018).

Finally, the RB indicator provides opportunities for maximising *substantive comparability* (capturing the same level of living standard in different social contexts), of a minimum income benchmark at EU level. Recently, two related EU

funded projects (Goedemé et al. 2015a; Goedemé et al. 2015b) made some considerable progress in the construction of cross-national comparable reference budgets in Europe. This paves the way for EU policy makers to extend the use of RBs as policy indicators to monitor implementation of the Pillar in a cross-nationally comparable way. Due to a lack of data and the to some extent elusiveness of the concept of social participation, complete substantive comparability remains a distant objective. Nevertheless, both EU projects have tried to meet the abovementioned challenges of robustness and comparability by developing a common theoretical and methodological framework, starting as much as possible from existing public guidelines, applying a step-wise well-coordinated and harmonised procedure, making use of well-defined household types and relying on a wide range of information sources and a strong network of national researchers, experts and stakeholders. Elsewhere it is shown that the at-risk-of-poverty indicator is comparable in a procedural way, but does not reflect the same level of living standard across countries (see Goedemé et al. 2019a). Hence, reference budgets could be a tool to enhance substantive comparability by representing a context-specific benchmark that illustrates what an adequate minimum income means in the different Member States.

Conclusions

In order to rebalance economic rights and social rights in the EU, there is an increasingly urgent call for an EU binding framework on minimum income protection, while at the same time taking into account the large heterogeneity across Member States (Vandenbroucke et al. 2013). The launch of the European Pillar of Social rights is a step towards a more right-based social Europe, aimed at fulfilling people's essential needs through adequate minimum incomes, labour market inclusion and access to affordable goods and services of good quality (European Commission 2017). Although the Commission assigns a very ambitious role to the

EPSR, as a non-binding soft law instrument the content remains vague, leaving the responsibility for its implementation to policy-makers at the national and local level (Rasnača 2017). Hence, without a translation of the Pillar's rights into a set of good quality indicators and support of all key stakeholders, promises might not be fulfilled. Although the Social Scoreboard is an important tool, we argue that the existing indicators lack a clear normative interpretation of what an adequate income means in the different Member States. At the same time, the indicators are not sufficiently responsive to policy interventions that affect income adequacy indirectly such as the accessibility of essential goods and services.

In this paper, we have proposed a needs-based indicator that combines hypothetical household simulations of essential out-of-pocket costs through reference budget research and of tax-benefits through the micro-simulation tool HHoT (Euromod). The added value of the indicator is illustrated empirically by applying it to the case of Belgium, for a range of household types, living in the Flemish region. Adequacy is assessed for the year 2017 and evaluated over the last decade (compared to 2008) for three different minimum income schemes: a social assistance income, a minimum income from unemployment insurance and a minimum income from employment. The paper shows how the indicator is a useful policy tool that allows for a broad view on minimum income including work incentives and access to affordable goods and services. For the case of Belgium, we found that minimum income schemes are generally insufficient to participate adequately in society. In other studies it is shown that this is the case for most EU Member States (e.g. Goedemé et al. 2019a; Penne et al. 2018). Although net minimum wages are in most cases inadequate as well, financial work incentives are maintained through a wedge with net social assistance levels. Furthermore, the indicator shows that reducing out-of-pocket costs to access essential goods and services can support cash benefits to ensure adequate social participation. In our case study, especially a reduction of the housing costs through social rent, has a positive effect on the adequacy of

minimum incomes. On the other hand, cost-reducing benefits are often fragmented, insufficient to compensate for low cash benefit and subject to strict (income) conditions or attached to social assistance excluding working- or other insurance categories. Hence, out-of-pocket costs can increase significantly if social assistance beneficiaries are integrated into the labour market, which might have a negative impact on work incentives. However, this effect is probably overestimated if we take account of the levels of non-take-up of means-tested and not automatically assigned benefits (Van Mechelen and Janssens 2017). Moreover, this study focuses on the affordability of goods and services while largely ignoring other aspects that determine access such as the availability and the quality of the good or service (e.g. Peters et al. 2008). For instance, in Flanders there is a limited supply of social housing with long waiting lists for families in need (Winters et al. 2015). Hence, similar to the conclusion of Vandenbroucke and Vleminckx (2011), we argue that investment in accessible goods and services could be a successful complementary strategy in the fight against poverty, but only if benefits are equally distributed and balanced with adequate social protection levels, while at the same time taking into account labour market activation of the low-skilled.

Social policy researchers have emphasize the need for EU policy *input indicators* that evaluate policy packages, without compromising subsidiarity (Cantillon et al. 2017). In this paper, we show how reference budgets, and even more if they would be developed in a cross-nationally comparable way, are an opportunity to develop a more binding and comprehensive EU policy framework on adequate minimum income protection (see also Deeming 2017). They are a useful tool to build a common understanding of what an adequate minimum income means, while at the same time being sensitive to the Member States' context. Furthermore, their detailed construction allows for cross-national learning with regards to the accessibility of essential (publicly subsidised) goods and services such as healthy food, housing, health care and education, as being emphasized by various rights in

the EPSR. In sum, despite its limitations, we are convinced that the indicator proposed in this paper can contribute significantly to the monitoring and implementation of the right to an adequate minimum income protection expressed in the EPSR, aiming at a life in human dignity for all.

Appendix

Table A.1. Categories of essential goods and services included in the Belgian reference budgets

Housing	rent, utility costs, taxes median rent for quality dwelling (<i>Vlaamse woonSurvey</i>) repair and maintenance
Food	liquids bread, grains, potatoes fruit & vegetables meat, fish, eggs, diary fats & residual kitchen equipment physical activity
Clothing	coats & sweaters shirts & tops pants/dresses sport clothes underwear & socks accessories shoes maintenance, repair & storage
Health care	consult GP (every day diseases, minor traumata) consult dentist sun glasses and -lotion family medicine chest (common medicines, plasters & bandages) medical prevention (vaccines) contraception health insurances
Personal care	hand, mouth & body hygiene

hair care
cosmetics and perfume
intimate hygiene women/girls
shaving
toiletry bag
basic bathroom equipment (e.g. towels, toilet paper)

Rest and leisure	bed with necessities fold-out sofa accessories (bedside table, lamp) domestic leisure (e.g. TV, radio) access to library non-organised leisure (pub, cultural activities) organised leisure (membership association) babysit yearly domestic holiday small free-to-spend budget on non-necessity (to enable self-control)
Maintaining social relations	visits of family and friends (+ extra dinnerware & chairs) take away food/ eating out computer with internet printer and camera mobile phone (for adults) celebrations, cards and presents obligations as a citizen (e.g. ID, province tax) some accessories for cheerfulness at home

Safe childhood	day trip mobile phone (teenagers) birthday party (< 12 years) youth association toys cultural activities pocket money direct education costs (general discipline in public school) child care (only included for working single parents)
Mobility	bicycle (+ equipment and repair) public transport inside city (annual bus pass) public transport outside city on occasions (Train pass for 10 rides) budget to use a shared car once a month (Cambio)
Security	financial security (banking) insurances and basic prevention
Unexpected expenses	small monthly budget to save in order to replace durables

Chapter 6: To what extent do welfare states compensate for the cost of children? The joint impact of taxes, benefits and public goods and services

Published as Penne, T., Hufkens, T, Goedemé, T and Storms, B. (2020). 'To what extent do welfare states compensate for the cost of children? The joint impact of taxes, benefits and public goods and services' in *Journal of European Social Policy*, 30(1), 79-94.⁴⁷

Abstract

In order to alleviate child poverty, European welfare states have shifted their focus increasingly towards child-centred investment strategies. However, studies examining the generosity of welfare states to families with children fail to take proper account of the out-of-pocket costs families face to access goods and services. This paper aims to contribute by: (1) assessing the needs and costs of children by making use of cross-nationally comparable reference budgets, while taking into account publicly-provided or subsidized services, (2) simulating the cash benefits and taxes that affect households with children, by making use of the new Hypothetical Household Tool (HHoT), and, (3) propose a new indicator that compares the essential out-of-pocket costs for children between 6 and 18 years old with the simulated cash benefit packages: the child cost compensation indicator. The use of the indicator is empirically illustrated by comparing six EU member states: Belgium, Finland, Greece, Hungary, Italy and Spain. The paper shows that cash transfers generally compensate less than 60 per cent of the cost of children. Although in most countries support for families is higher at the lower end of the income distribution, the net income of low wage single earner families is in many cases insufficient to participate adequately in society.

⁴⁷ The authors are grateful to Gerlinde Verbist, Zachary Parolin and two anonymous reviewers for the comments and suggestions. We would also like to thank participants of the 24th FISS conference in Sigtuna and the 15th ESPAnet conference in Lisbon for their feedback to earlier versions of this paper. The ImPRovE reference budgets were developed in collaboration with national teams in Athens (Eleni Kanavitsa, Alexandros Karakitsios and Manos Matsaganis), Barcelona (Elena Carillo Alvarez and Irene Cussó Parcerisas), Budapest (Anikó Bernát, Marianna Kopasz, Bori Simonovits, and Péter Szivós), Helsinki (Lauri Mäkinen and Veli-Matti Ritakallio), and Milan (Marco Arlotti and Yuri Kazepov). The Hypothetical Household Tool (HHoT) has been jointly developed by the University of Essex and the University of Antwerp as an application of the EUROMOD software.

Introduction

Within the spirit of the social investment turn, welfare state efforts to support families with children have amplified and diversified, increasing the use of tax advantages and child-centred services (Daly and Ferragina 2018; Ferrarini et al. 2012; Vandenbroucke and Vleminckx 2011). Despite these common trends, there are large cross-national differences in how and to which extent families with children are supported (Adema 2012; Thévenon 2011; Gauthier 2002; Fagnani and Math 2008). This is generally the result of a political compromise, taking into account common deservingness notions, but also considerations regarding financial work incentives, budgetary concerns and objectives such as child well-being, gender equity, fertility, female labour market participation, or support of a male bread-winner model (e.g. Adema 2012; Thévenon 2011). Besides minimizing the loss of welfare compared to childless families, family policies are also (increasingly) used as a tool for reducing (child) poverty (Daly and Ferragina 2018; Ferrarini et al. 2012). Studies have shown that family policies can indeed contribute significantly to the reduction of poverty for families with children (e.g. Van Mechelen and Bradshaw 2013; W.-H. Chen and Corak 2008; Bradshaw 2013; Immervoll et al. 2001). Child support has also proven to be an important instrument to combat in-work poverty among families with children, which is especially prevalent among single parent and single earner couple families (Maldonado and Nieuwenhuis 2015; Marchal et al. 2018a). Therefore, in this paper we address the question to which extent cash and in-kind welfare state efforts compensate for the additional needs of families with children and facilitate access to essential goods and services, compared to childless families. Given their increased poverty risks, we focus on single parents and single earner couples at the lower end of the earnings distribution.

Even though there is a growing body of literature on welfare state generosity towards families with children, studies often focus one-sidedly on transfers in cash

(e.g. W.-H. Chen and Corak 2008; Immervoll et al. 2001; W. Van Lancker and Van Mechelen 2015) or on government expenditure (e.g. Adema 2012; Bäckman and Ferrarini 2010), disregarding the actual costs households face when accessing essential goods and services. A few studies partly take into account out-of-pocket costs for families with children for some services such as child care and health care (e.g. Bradshaw and Finch 2002) or assess the distributive impact including cash and in-kind benefits (e.g. Förster and Verbist 2012), taking account of the heterogeneity in the impact of government expenditures. However, these studies typically lack an adequate empirical and cross-nationally comparable underpinning regarding the total needs-based costs that families face. This study seeks to address this gap by proposing a new indicator which assesses to what extent welfare states compensate for the essential costs of children, while taking account of the impact of publicly subsidized goods and services. We look at differences in the compensation for the cost of children in specific household types across the income distribution.

To do so, we start from a ‘needs-based approach’ for estimating the cost of children in an empirical way. More in particular, we build on cross-nationally comparable reference budgets, i.e. priced baskets of goods and services that illustrate what households need at the minimum in order to participate adequately in society (cf. Goedemé et al. 2015b; Goedemé et al. 2015a), to derive the minimum cost of raising a child. In order to assess in a comparable way how welfare states distribute cash resources for a broad range of family situations we make use of the new Hypothetical Household Tool (HHoT) in EUROMOD. We focus on families with children that are between 6 and 18 years old, an age group that is often neglected, even though the private direct cost of a child (Thévenon 2009; Storms and Bogaerts 2012) as well as public expenditures (OECD 2013) generally increase with the age of children.

In this article we focus on six welfare states for which we have comparable reference budgets: Belgium, Finland, Greece, Hungary, Italy and Spain.

Comparative research (Bradshaw and Finch 2002; Fagnani and Math 2008; Thévenon 2011; Van de Ven et al. 2017) has shown that, with the exception of the ‘liberal regime’, these countries cover well the variation in levels of GDP and in the design of and spending on family policies that can be found in Europe: (1) Finland, a Nordic welfare state focusing on universal dual earner support with generous service-oriented family policies (e.g. Gupta et al. 2008), (2) Belgium, often classified as a continental welfare state, also with generous family policies, but a stronger emphasis on cash benefits and tax advantages corresponding to family size (e.g. Storms and Bogaerts 2012; Ghysels and Van Lancker 2011), (3) Hungary, belonging to the diverse and rapidly changing group of Eastern European welfare states, with a limited provision of services, but relatively high spending on universal cash benefits (e.g. Salanauskaite and Verbist 2013; Cerami 2006), and, finally, (4) Greece, Italy and Spain, three Southern EU welfare states, with the state taking a rather subsidiary role (‘familialism’) relying mainly on tax policy measures (e.g. Karamessini 2008; Matsaganis et al. 2005).

In this article, we contend that the new indicator that we propose, the child cost compensation indicator, offers a useful addition to the literature on the generosity and distributive impact of the welfare state. In particular, the indicator allows to go beyond cash and expenditure-based evaluations of welfare state generosity to families with children. Furthermore, the indicator does not assess family-oriented policies in isolation but looks at how the tax-benefit system as a whole, including the interactions between various policies, affect the income position of households with children as compared to similar households without children. By making use of hypothetical household simulations, the intention is not to make representative conclusions for the population. However, it allows us to make abstraction of the socio-demographic composition of each population, so that the institutional architecture of welfare state generosity is captured in its pure form. As we try to illustrate for six different institutional contexts, this helps to uncover new insights

into how welfare states shape the economic well-being of families with children by distinct patterns of taxation, social benefits and benefits in-kind.

In what follows, we start with a theoretical consideration on the cost of a child, including both a normative and a methodological perspective. Subsequently, we explain how we derived the cost of children from reference budgets and we describe the use of the Hypothetical Household Tool (HHoT) in EUROMOD. The results are subdivided into three sections. In the first part we discuss the essential costs of children, paying particular attention to heavily subsidized services such as education, health care and (public) transport. In the second part, we identify the child cash benefit packages that exist in each country under study. In the third part, we bring all this information together into the child cost compensation indicator, a new indicator of welfare state generosity to families with children. We conclude with a brief discussion of the main findings and limitations of this study.

Why welfare states compensate for the cost of a child

Childrearing costs money. This means that, with an equal level of income, families with children will be able to consume less per capita compared to childless families. Moreover, parents often experience a potential loss of income due to the need to provide parental care. On the other hand, children yield private benefits. One can assume that parents decide to have children when these benefits are expected to be larger than the private costs (Bradbury 2008; Pollak and Wales 1979; Wolf et al. 2011). Hence, why should the cost of a child be compensated? There are two main arguments for policy makers to (at least partly) compensate for the cost of childrearing.

Firstly, having children, raising them well and investing in their capacities is not only beneficial for the household to whom the children belong, but also yield positive externalities for society as a whole. As future adults they will participate in the labour market, produce goods and services, and pay taxes (Wolf et al. 2011;

Folbre 2008). In order to maximise these positive externalities, society benefits from creating a family-friendly environment and investing in children's human capital (Esping-Andersen 2008). Accordingly, a public subsidy for families with children is legitimate. However, it does not necessarily follow that (1) the cost of having and raising children should be fully compensated; (2) the cost of children should be compensated equally across households.

Secondly, if we take the perspective of the children themselves, there is also a social justice argument to be considered. Several studies have shown that low-income families have less financial and social capital to invest in their children compared to higher income groups (e.g. Esping-Andersen 2008; Woessmann 2004). This negatively affects the children's current and future opportunities, and contributes to reproducing inequalities (e.g. Corak 2006; Griggs and Walker 2008). Hence, from a children's equity perspective, not only should society support households in raising children, there should also be increased levels of support for low-income households to combat child poverty and reduce the gap in background-related life-chances.

In practice, indeed, all contemporary welfare states support families with children, implementing a wide variety of policies, often combining vertical and horizontal redistribution (e.g. Adema 2012; Daly and Ferragina 2018; Kamerman and Kahn 1978). The question of this paper is whether these welfare state efforts are sufficient to compensate for the cost of children, and in particular for vulnerable households. According to Verbist and Van Lancker (2016), child benefit systems show a strong correlation between vertical and horizontal equity objectives: countries that succeed in minimizing the welfare loss of childrearing tend to succeed in a larger child poverty reduction as well. This is related to the fact that children are overrepresented in low income families, which implies that child benefits, not only through the logic of targeting but also by default tend to lead to vertical redistribution. Several other studies have shown that family benefits contribute

significantly to the reduction of poverty among children (e.g. Bradshaw 2013; W.-H. Chen and Corak 2008; Immervoll et al. 2001; Van Mechelen and Bradshaw 2013). Publicly provided and subsidised services also have redistributive effects, although generally less compared to cash benefits, especially if they are not accessible for all socio-economic groups in society (Ghysels and Van Lancker 2011; Förster and Verbist 2012; Marical et al. 2008; Vandenbroucke and Vleminckx 2011). However, the design of family policies, for instance prioritising good-quality child care services or rather high level cash benefits, may affect child poverty also through potential effects on (female) labour market participation or wage demand (Bäckman and Ferrarini 2010; Maldonado and Nieuwenhuis 2015; Whiteford and Adema 2007). Broadly speaking, scholars agree that good performances are generally found in countries with a balanced and generous system with mutually reinforcing family support measures, combining a universal system with a targeted approach to low income families (Van Mechelen and Bradshaw 2013; W. Van Lancker and Van Mechelen 2015). Although these studies have shown the impact of child benefit policies on reducing child poverty, enhancing labour market participation and equity, they do not inform us on the extent to which welfare states actually compensate for the cost of children across the income distribution. Before explaining our needs-based approach to assess the level of child cost compensation, the next section discusses briefly the literature on how the cost of a child can be identified.

Identifying the cost of a child

In the literature, there are different approaches to define and measure the cost of a child. The cost of children is generally defined as the marginal cost households face when a child is added to the household. Besides the direct cost, parents experience an indirect cost due to the reduced labour market participation and adult time (e.g. Bradbury 2008; Koulovatianos et al. 2009). However, this so-called opportunity

cost is beyond the scope of this paper, given our focus on how welfare states facilitate access to essential goods and services for families with children. Taking opportunity costs into consideration (which vary strongly across families and income groups), would conceal rather than reveal important cross-national variations in the cost of accessing essential goods and services and how welfare states compensate for this through cash transfers. This paper focuses on the direct cost of children, but even then, the measurement remains a disputed question (Browning 1992; Deaton and Muellbauer 1986; Thévenon 2009). For instance, which proportion of shared goods should be attributed to children and what is the role of economies of scale? Moreover, the cost of children depends on many factors such as the age, gender and rank of children, the household income, the societal context, the health situation and intra-household dynamics (Bargain and Donni 2012; Storms and Bogaerts 2012; Thévenon 2009).

For the purpose of evaluating the generosity of tax-benefit policies, and measuring poverty across households, researchers and policy makers adhere often to a rather arbitrarily chosen equivalence scale. Equivalence scales measure relative needs between households of different sizes and composition (Buhmann et al. 1988). The modified OECD scale, which is widely used in European studies, assigns a weight of 1 to the first adult household member, 0.5 for each additional adult member, and 0.3 for each child below the age of 14 years. According to this scale, in order to attain a similar living standard, a single parent with one child should be able to spend 30% more than a single adult. However, household needs vary in more complex ways than suggested by the modified OECD equivalence scale and depend for instance on tenure status, the health situation and the accessibility of services (Goedemé et al. 2019a; Paulus et al. 2010). Moreover, economies of scale vary across the income distribution as well as between countries (e.g. Brandolini 2007).

In contrast, there has been a substantial amount of research trying to assess the cost of a child in a more empirical way. Broadly speaking, two methods stand out: the

indirect and the direct method. The indirect method relies on actual household expenditure patterns. In order to assess the additional cost of children, one typically compares the level of food expenses (or other basic goods), the consumption of adult-specific goods such as alcohol, or, in a more general approach, the parents' utility function of a household with children to a similar household without children (Bargain and Donni 2012; Deaton and Muellbauer 1986; for an alternative approach based on indifference curves, see Chiappori 2016). In contrast, the direct method is concerned with the 'needs question' (Browning 1992): what goods and services do children minimally need to satisfy their basic needs, and how much does it cost for households? This normative perspective is the dominant approach in reference budgets research (Sarlo 2013; Saunders 1999; Storms and Bogaerts 2012), which is not driven by budget constraints as is the case with actual expenditure data. Following this approach, the cost of children is computed by subtracting the reference budget of a hypothetical household without children from the budget of a similar household type with children. The difference reflects the child-related costs as well as the cost of shared household items that can be attributed to children in a specific household situation and context (Oldfield and Bradshaw 2011).

Data and methods

In this paper, we apply the direct method to derive what children cost at the minimum in order to participate adequately in society. In what follows we provide further details on the cross-nationally comparable reference budgets that we use. Subsequently we explain how we estimate the cash benefit packages for households with children as compared to households without children.

The estimation of the cost of children: reference budgets

In this paper, we look at the cost of children from what we call a 'needs-based approach'. In other words, the cost of children is estimated starting from a

normative and empirical assessment of the cost of goods and services that can be considered necessities. The outcome consists of so-called ‘reference budgets’ (RBs). We start from the first attempt to create cross-nationally comparable reference budgets that illustrate which goods and services hypothetical households need at the minimum to participate adequately in society (Goedemé et al. 2015b). More in particular, the RBs have been developed for six European cities (Antwerp, Athens, Barcelona, Budapest, Helsinki, and Milan) on the basis of a common theoretical and methodological framework (Goedemé et al. 2015b). In order to participate adequately in society, ten ‘intermediate needs’ are identified (cf. Doyal and Gough 1991): adequate food, clothing, housing, personal care and health care, safety in childhood, mobility, rest and leisure and maintaining social relations⁴⁸. These are translated into detailed lists of goods and services and adapted to the local context by national teams based on a variety of information sources including (inter)national guidelines, scientific literature, focus group discussions and survey data (Goedemé et al. 2015a; Goedemé et al. 2015b). All items were priced during the first half of 2014 in well-spread retailers following a common procedure. Importantly, we collected out-of-pocket costs for households in terms of the disposable income that is required (net income after income taxes and social contributions), taking account of reimbursements that people can receive. The cost of a dwelling was estimated at the 30th percentile of the housing cost distribution of dwellings that met some minimum quality criteria (for more details on the method see Van den Bosch et al. 2016)⁴⁹. Given that the budgets were developed for large cities, the cost of a car was not included.

⁴⁸ Some needs are not fully covered by the reference budgets presented in this paper, notably security and life-long learning.

⁴⁹ The reference costs of housing are estimated for the year 2012 and refer to a broader region than the city for which the simulations are done. Prices are adjusted to 2014 using specific price indices for ‘actual rentals’ and ‘electricity, gas and other fuels’.

As expected, the resources one needs at the minimum differ largely across households depending on the socio-economic context and the characteristics of the household members. Therefore, the RBs are developed for a limited number of well-defined household types: a single person or couple without children; a single person or couple with one child; a single person or couple with two children. The adults are assumed to be at working age. The children are assumed to be 6-11 years old (boy) or 12-17 years old (girl)⁵⁰. The cost of childcare is not included due to the large variation in care instruments and in their formal and informal use within countries, which depends largely on the family's living situation such as the age of children, labour market opportunities, cultural and social norms and the availability of private and public childcare provisions (Janta 2014). Furthermore, we also assume that all household members are well-informed, self-reliant, in good health and make use of public services if they have access to them. Hence, the resulting budget should be seen as a reference bottom line above which many families will need additional resources to participate adequately in society (Goedemé et al. 2015b). A drawback of making use of a limited set of hypothetical households is that they cannot be considered representative for the population as a whole. Furthermore, the prevalence of these household types varies from one country to another. Yet, the main advantage of using exactly the same set of household types to compare across countries, is that it shows how welfare states operate, without the confounding effect of different population compositions across countries, allowing for a pure comparison of the design of welfare state policies for the household types under consideration.

By subtracting the budget of a family without children from the budget of a family with children, the cost of children of different ages can be calculated, taking into account both child-specific costs and shared household costs. Moreover, comparing

⁵⁰ Reference budgets for a girl of 14 years old are not available for Helsinki.

different household types while adhering to similar ‘preferences’ (e.g. in terms of a healthy lifestyle, use of public transport, types of products bought) allows us to identify economies of scale. By looking at the effective cost for private households to access essential goods and services, welfare state generosity in terms of benefits in kind is automatically taken into account.

The estimation of cash benefits for families with children: HHoT

In order to simulate taxes and benefits that apply to a specific gross wage, we make use of the Hypothetical Household Tool (HHoT). HHoT is a new instrument that is part of the European tax-benefit microsimulation model EUROMOD (cf. Sutherland and Figari 2013). The flexibility of the tool allows the user to specify a large variation of hypothetical households for which the net income, given a pre-specified gross income, can be simulated (Hufkens et al. 2016a). The characteristics of the hypothetical households are the same as those used for constructing the reference budgets. We specify the gross income for single parents and single earner couples in the case of (1) earning 40% of a single average wage, (2) earning a single average wage or (3) earning 150% of a single average wage. The average wage of a full time worker in each country is extracted from the OECD’s online database (OECD 2016). For the countries under study, 40% of the average wage represents a low wage⁵¹. While keeping the gross wage constant, we subtract the net income of a family without children from the net income of a similar family with children. This allows us to identify the total cash (dis)advantage provided by the state related to having children, the so-called net “child-contingent” payments (cf. Figari et al. 2011). We call this the child cash benefit package.

⁵¹ In Belgium the minimum wage is about 40% of the average wage, in Greece and Hungary about 35% and in Spain about 20%. In Italy and Finland there is no statutory minimum wage (Eurofound 2016).

In each country, the child cash benefit package is simulated for the year 2014 and consists of several income components, including gross income, personal income taxes and social contributions for employees, family benefits, social assistance top-ups and housing benefits. In Greece, Italy and Spain there are no national social assistance benefit schemes, but both in Italy and Spain eligible households can be covered by regional social assistance. Only for Spain, this regional information is included in EUROMOD and, in this paper, social assistance is simulated for Catalonia. Housing allowances are, for our specific household types in the year 2014, only simulated in Hungary⁵² where home maintenance support is allocated to households with an income under a certain threshold. The total disposable income of the household refers to the sum of all income components, subtracting taxes and social contributions. Importantly, the cash components covered are limited to those simulated in EUROMOD. Therefore, study allowances and tax deductions for the use of services (e.g. the use of childcare), are not included, even though they can make a significant difference.

The generosity of welfare states to families with children

In this section we take a hypothetical household approach in order to assess the generosity of six different welfare states to families with children. We start with discussing the essential costs of children in primary and secondary school as derived from reference budget research. Secondly, more insight is given into the level and determinants of the simulated child cash benefit packages. Finally, at the end of this section, we propose an indicator that can contribute to assess welfare state generosity to families with children: the child cost compensation indicator.

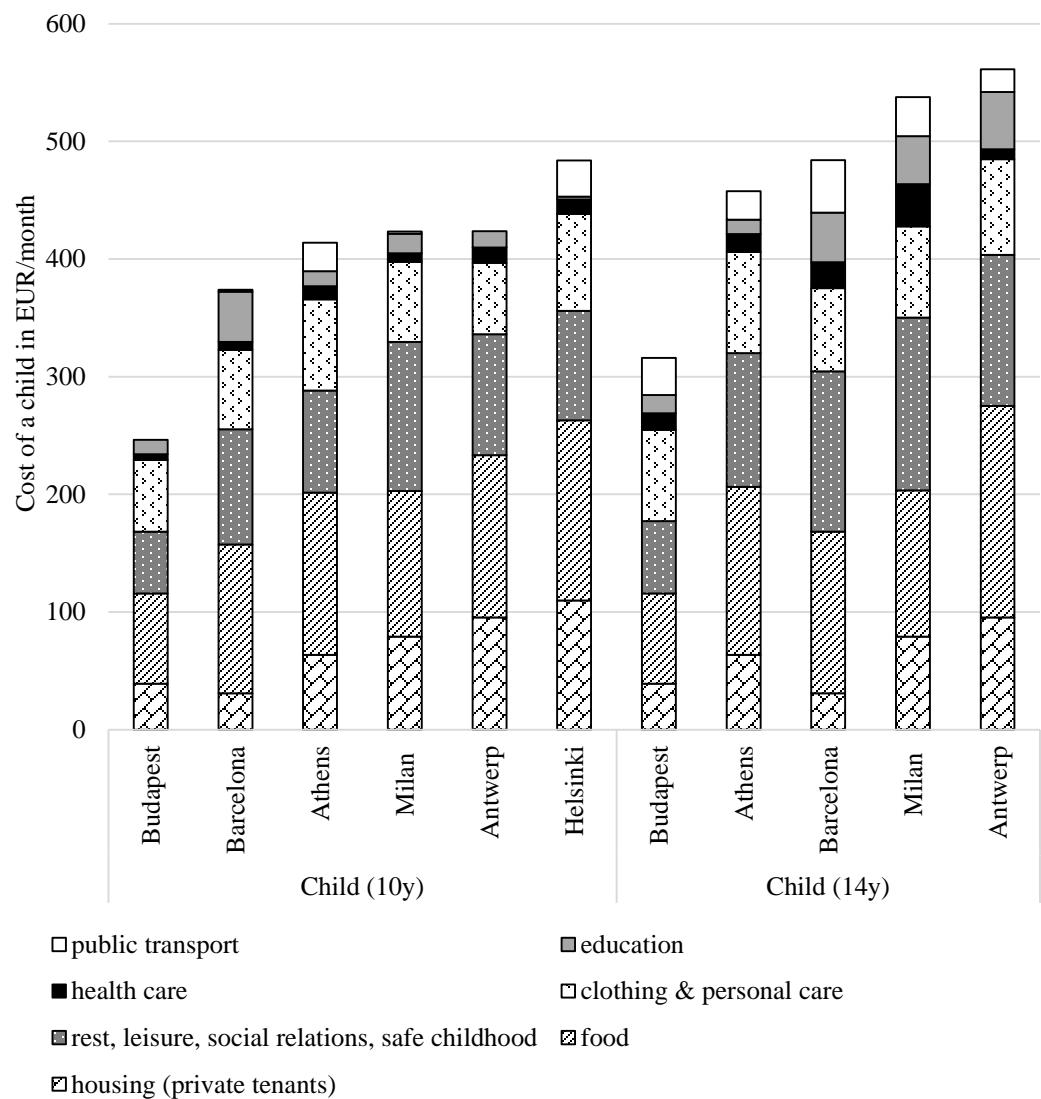
⁵² In the other countries, for the year under study housing allowances are not simulated because of a lack of information in Euromod due to the complexity (FI), the regional variation (IT & ES) or the specific targeting and limited scope of the allowance (BE, EL).

The cost of children

Figure 1 illustrates what a child of about 10 or 14 years old costs at the minimum in order to be able to participate adequately in six large EU cities⁵³. Food, housing and safety in childhood account for the largest part of the total budget (see Appendix Table. 1 for a list of categories included in the different baskets). It is worth stressing that the relative out-of-pocket costs of what are generally regarded essential services to be subsidized by the state (education, health care and transport) are rather low. In line with other studies (Bradbury 2008; Storms and Bogaerts 2012; Thévenon 2009), it can be observed that the cost of a child generally increases with age. As we did not include costs related to childcare or after school care, the cost of children of 10 years old will be higher when families make use of care services, which would probably also increase differences across countries. For families with two children, economies of scale can reduce certain costs such as costs related to housing. However, economies of scale are rather limited at the level of what is minimally necessary for adequate social participation (Penne et al. 2016).

⁵³ Given that the value in EUR of the reference budgets represents a similar consumption pattern across the six cities, the EUR values represent the real differences in out-of-pocket costs for having a living standard in accordance with the reference budgets. Therefore, converting them in international currency with purchasing power parities, would bias the comparison in the sense that the outcome would show the difference in purchasing power with an income at the level of the reference budgets if households would have an average consumption pattern rather than the one represented in the reference budgets.

Figure 1. The essential cost of a child of 10 or 14 years old, renting a dwelling at the private market, EUR per month, 2014.



Source: own calculations using ImPROvE budgets 2014 (Goedemé et al. 2015b).

Note: For Budapest, the exchange rate used is 300 HUF to the euro. Data on a child of 14 years old are missing for Finland.

When comparing the cost of children across the six cities we find important differences. The cost of a child at both ages is the lowest in Budapest while it is the

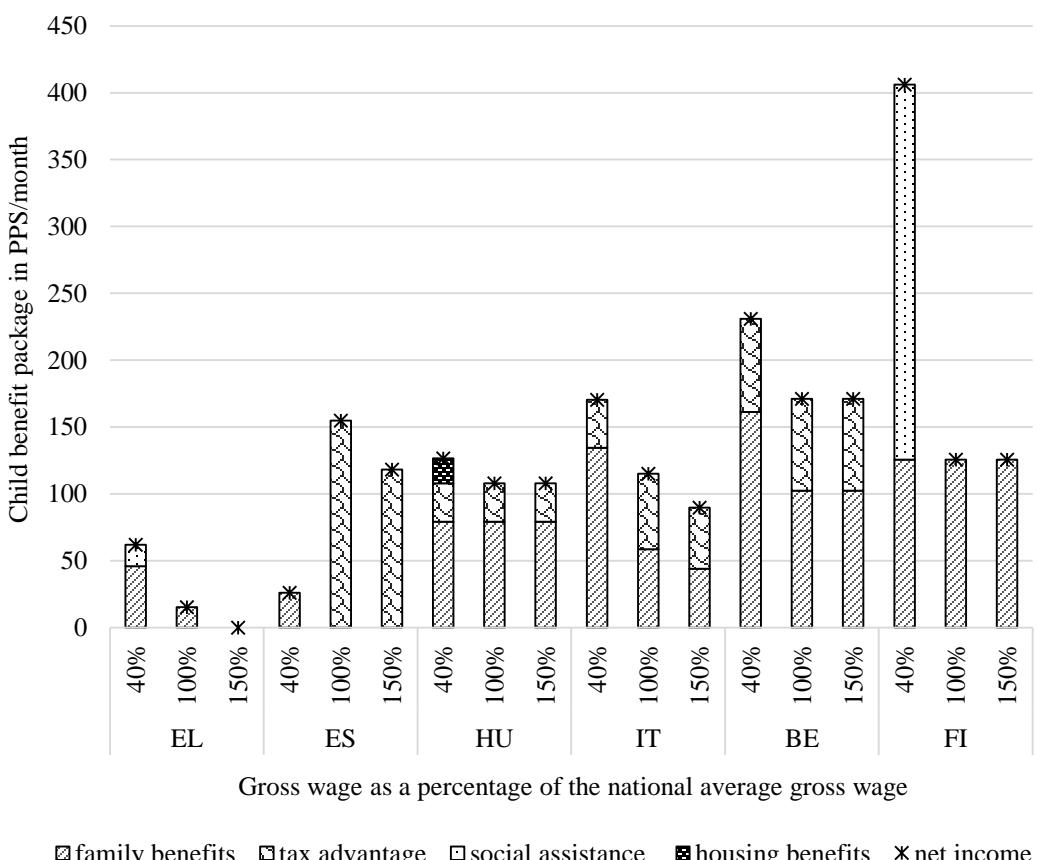
highest in Helsinki and in Antwerp. These differences can be mainly explained by variations in the availability and price of goods and services and, to a smaller extent, by variations in the geographical, institutional and socio-cultural context. For instance, the differences in climate have an impact on the choice of specific clothing items, and the differences in socio-cultural habits have an impact on the choice of social activities. Regarding the institutional context, the extent to which essential services are publicly provided or subsidized influences the cross-national differences in out-of-pocket costs. For instance, the low cost of health care for teenagers in Antwerp is partly due to state subsidies for goods and services such as a dental visit and birth control (girls <21y). Another example is the high cost of essential school material and taxes for primary education in Barcelona versus the very low cost in Helsinki.

The level and determinants of child cash benefit packages

The child cash benefit package corresponds to the specific cash advantages for families with children compared to similar childless families. In all countries, the level of this package is conditioned by different factors such as household composition and gross income. Figure 2 illustrates how the level of the cash benefit package for children varies with income (earning 40, 100 and 150% of the average national gross wage) in each country. Taxes and benefits are simulated for single parent households, renting a dwelling on the private market, expressed in Purchasing Power Standards to allow for cross-national comparisons (i.e., corrected for price differences across countries). At 40% of the average wage, the child cash benefit package is the highest in Finland and the lowest in Spain. In most countries, the package is higher for low income families, which is often due to the higher family benefits they receive. In Finland, family benefits do not vary across the income distribution, but families with an income at 40% of the average wage receive a large social assistance top-up. In Greece, the simulated social assistance

top-ups refer to a lump sum which was exceptionally allocated to families with a low income in the year 2014. In Spain, families are no longer entitled to family benefits above 40% of average gross wage, but higher up the income distribution they receive significant tax advantages.

Figure 2. The child cash benefit package at 40%, 100% and 150% of the average gross wage, for a child (10y), living in a single parent family, renting a dwelling at the private market, expressed in PPS per month, 2014.



Source: own calculations using HHoT/EUROMOD 2014. Purchasing power parities for final household consumption expenditure extracted from the Eurostat on-line database. Average wages refer to the national average gross wage of a full time worker, extracted from the OECD database.

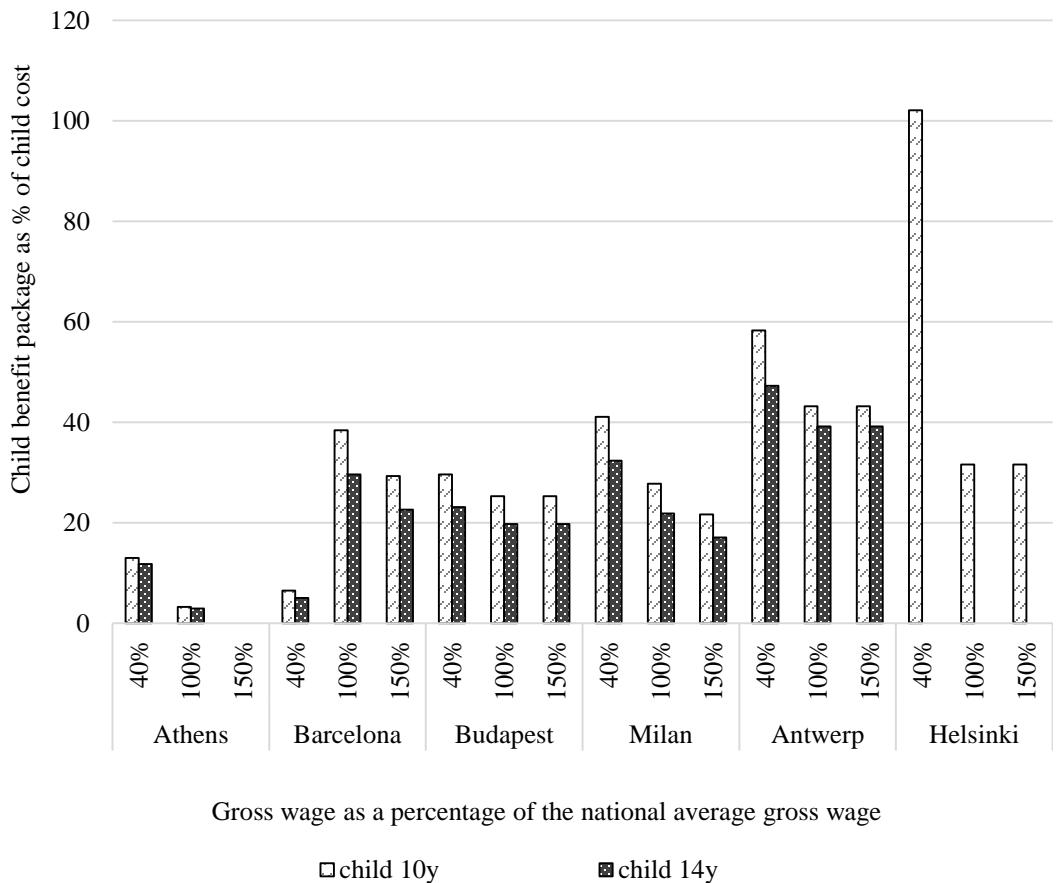
Besides gross income, housing costs, marital status and the number and the age of children determine the level of the child cash benefit package. In the case of outright owners, the results remain largely the same, apart from the social assistance top-up in Finland which is not allocated to outright owners because of the lower life expenses (i.e. housing costs) which are included in the means-test (for more information see Honkanen et al. 2017). For a single earner couple family, the child benefit package is usually lower compared to a single parent family due to differences in taxes and social assistance top-ups and specific benefits targeted at single parents in Belgium, Finland and Hungary. The child benefit package increases with the number of children, although usually not in a proportional way due to the different treatment of the second child within the tax-benefit system (e.g. higher family benefits in Belgium and Hungary) and interactions with the social assistance scheme. Between the age of 6 and 18 years old there is no variation in the child benefit package in the selected countries, except for Belgium where child benefits increase with the age. In sum, the level of the cash benefits assigned to families with children varies largely across and within countries. Given that these factors operate differently across countries, one should be careful with generalising the findings of just a few situations to the entire population.

A new indicator of welfare state generosity

In this section we propose an indicator that can provide a better understanding of welfare state generosity to families with children, bringing together cash and in-kind benefits, while taking account of the needs-based cost of children: the child cost compensation indicator. Figure 3 illustrates this indicator, which expresses the child benefit package (cf. Figure 2, in EUR instead of PPS) for a child in a single parent family as a percentage of the essential cost of one child (about 10 or 14 years old, cf. Figure 1) in six cities. The figure shows that the essential cost of a child is nowhere fully compensated except for low wage workers in Helsinki. In the other

countries, the child benefit packages are compensating between 0 and 60% of the cost of a child with large differences as well within as across countries. For low wage workers, the child cost compensation is the lowest in Barcelona and Athens (5 resp. 13%) and the highest in Antwerp and Helsinki (58 resp. 100%). In general, the child cost compensation decreases with income (except for Barcelona) and with the age of the child. The latter can be explained by the higher costs as children grow older, while the benefits generally do not vary. For a single earner couple family, costs are generally compensated to a lesser extent since they receive less child-specific advantages. For outright owners, the child cost compensation is slightly higher in most countries, which is mainly due to the lower housing costs (For details, see Appendix 2).

Figure 3. The child cost compensation indicator. The child cash benefit package at several wage levels expressed as a percentage of the essential cost of a child of 10 and 14 years, in a single parent family, private tenant, 2014.



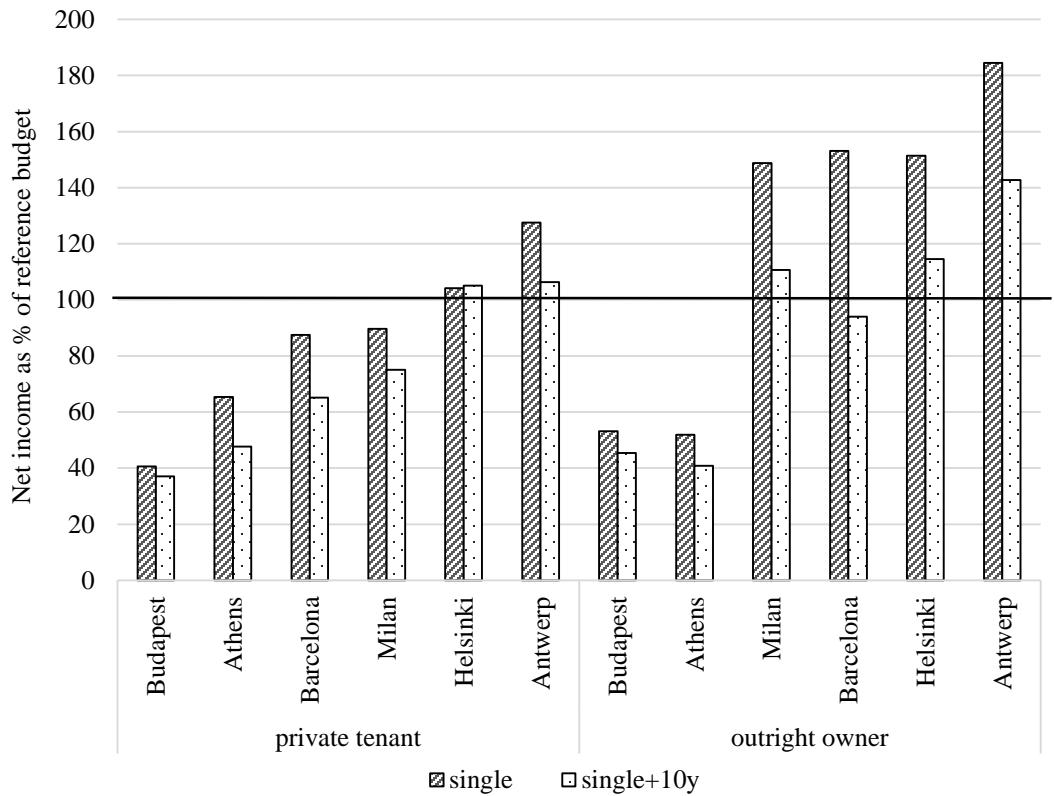
Source: own calculations using HHoT/EUROMOD 2014 & ImPROvE budgets 2014 (Goedemé et al. 2015b)

Note: The indicator is based on a comparison in Euros, both in the numerator and the denominator. Data on a child of 14 years old are missing for Finland.

It is noteworthy that in most cities (except for Barcelona), the welfare state is working harder to compensate the cost of children at the lower end of the income distribution. In Figure 4 we evaluate how this translates into the adequacy of low (or minimum) wages for single parent families with children compared to childless

families. To assess adequacy, we express the net income as a percentage of the reference budgets. Figure 4 illustrates the adequacy of the income of a single person with and without a child, working full time at a low wage. The figure indicates that earning 40% of the average wage, for singles with or without children renting a dwelling at the private market, is nearly everywhere insufficient to participate adequately in society. Only in Helsinki and Antwerp, resources seem to be adequate. The lower housing costs for outright owners obviously result in a higher level of adequacy. Nevertheless, for single parents with children in Budapest, Athens and Barcelona incomes remain largely inadequate regardless of the tenure status. Importantly, we observe that the net incomes of families with children are everywhere (except for private tenants in Helsinki) less adequate compared to families without children. This warrants further in-depth political debate about reducing the cost of children or increasing the cash advantages towards families with children, especially for families living on a very low income.

Figure 4. The adequacy of the net income of a single without a child and a single parent with a child (10y), working full time at 40% of the average wage, private tenants vs. outright owners, 2014.



Source: own calculations using HHoT/EUROMOD 2014 & ImPROvE budgets 2014 (Goedemé et al. 2015b).

Discussion and conclusions

In this paper we have assessed the generosity of six welfare states to families with children compared to similar families without children. We argue that purely cash-based evaluations of the generosity of welfare states miss an important dimension, which cannot be adequately assessed by looking at government expenditures only. Hypothetical household simulations of both essential out-of-pocket costs and tax-benefits can help to fill this gap. Reference budgets offer a tool to estimate the

minimum out-of-pocket costs of allowing children to participate adequately in society, including the cost for accessing publicly provided or subsidized services.

The Hypothetical Household Tool in EUROMOD allows to estimate how tax-benefit rules affect the net income of a family when children are added to the household, keeping everything else constant. By integrating both types of information, we propose a new indicator, the child cost compensation indicator, which aims to contribute to a better understanding of welfare state generosity to families with children.

We know from previous studies (e.g. Van Mechelen and Bradshaw 2013) that child-specific policies can contribute significantly to the reduction of poverty, but little is known on the extent to which these policies effectively compensate for cost of children across the income distribution. First of all, the child cost compensation indicator shows that, in all selected cities, the essential direct cost of a child in a single parent or single earner couple family is compensated only partially, generally less than 60%. Only for low-wage workers paying private rent in Helsinki, and receiving a social assistance top-up, the child-related cost for accessing essential goods and services is fully covered by the child cash benefit package. Although there are large cross-national variations, it is clear that a family with and without a child are generally not equally well off in terms of the disposable income that is needed for adequate social participation, while assuming the same labour supply and gross wage. This raises the question about how this compares to reasonable horizontal equity objectives. Secondly, regarding vertical equity, the paper reveals that, although family policies work stronger at the lower end of the income distribution (except for Barcelona), the income of single parents and single earner couples with children working on a low wage, is in many cases, especially in the case of private tenants, insufficient to participate adequately in society. By taking a needs-based approach, the indicator shows that subsidizing essential goods and services, and in particular reducing housing costs, can improve the adequacy of

incomes. Finally, the paper indicates that the costs of families with older children are generally less compensated. This is an issue that should receive more attention when analysing welfare state generosity to families with children.

The results of the paper are not necessarily contradicting previous cross-national comparisons of welfare state generosity towards families with children. Yet, they refine our insights into two main issues: (1) the ranking of welfare states in supporting families with children, and, (2) the conjunction of cash and in-kind benefits in supporting families with children. As indicated by previous studies (Bradshaw and Finch 2002; Thévenon 2011), Antwerp and Helsinki are taking a high-support road to compensate families with children, followed by Budapest and Milan, while Barcelona and Athens show rather limited support. In the latter cities, the low child cost compensation seems to be in line with the ‘South European familialism hypothesis’ (e.g. Karamessini 2008). Moreover, by relying more on tax advantages, low-income families in Barcelona benefit less compared to high income families. However, our results for Milan do not follow the Southern Welfare state model, showing a relatively high child cost compensation for low wage earners. Yet, families with children are still less well-off compared to childless families in terms of fulfilling their needs for adequate social participation. Secondly, in line with previous studies (Förster and Verbist 2012; Vandenbroucke and Vleminckx 2011), we see no conflict between cash and in-kind benefits, although they are not always going hand in hand either. In the high-support-cities, Antwerp and Helsinki, generous family benefits are accompanied by a relatively generous subsidization of child-specific services, while in the cities with the lowest support, Barcelona and Athens, families with children receive not only lower cash support, but families seem to face also relatively higher costs in order to access essential services. However, in Milan, and to a lesser extent in Budapest, relatively generous family-specific cash support to low wage earners is combined with a relatively high cost of publicly provided services.

The paper also reveals that differences in child cost compensation do not always correspond to levels of public spending on families as a percentage of GDP (cf. Table 3 in Appendix), which is often used as a proxy for welfare state generosity (e.g. Adema 2012; Thévenon 2011). For instance, governments in Finland and Belgium spend both a high amount on families with children, but Finland (Helsinki) succeeds better in compensating the cost of children at the bottom. Likewise, Italy and Spain show similar public spending levels, but through low-income targeting, disadvantaged children are better supported in Italy (Milan). Given that the level of public spending on families with children depends on many other factors (including, for instance, the demographic structure of the population and the relative level of wages in the public sector), our indicator offers a more direct estimate of how generous welfare states are towards families with children in their design. It allows for showing not only the overall level of support on average, but also how it is distributed between different family situations. Further, the cross-country patterns that the child cost compensation indicator shows may be an invitation to rethink our understanding of cross-national variations in public spending on families with children and their effectiveness in reducing poverty and inequality.

Our approach has several limitations. The most important limitation is that we can only estimate the child-specific costs and policies for a limited number of hypothetical situations, focusing solely on working –single earner couple and single parent– families renting on the private market or being an outright homeowner, and living in specific cities. These situations cannot be taken to be representative for the population as a whole. For instance, according to the EU-SILC survey, renting a dwelling at the private market, is much more common in some countries (e.g. Belgium) than in others (e.g. Hungary). Similarly, single parent families with children cover a relatively small group of the population (below 10%), with the largest share in Belgium and the lowest in Greece. Also, the share of single earner couple families typically differs largely across countries, being much more

represented in the Southern European Countries and Hungary than in Finland and Belgium (OECD 2013). Still, as we have tried to show, by combining the results for different family types, it is possible to get a more complete picture of how welfare states operate and it would be interesting to see whether future studies that cover a broader range of household situations would be able to replicate our findings. Another limitation of our study is that we estimated the cost of children in particular cities. We are well aware that in some countries significant regional price variations (in particular related to housing), as well as regional policies do exist which are not taken into account by the tax-benefit simulations. Moreover, when focusing on the access costs of education, health care, and public transport we only take into account the minimum out-of-pocket cost, while disregarding other important differences across regions in the quality and availability of the services. The availability of regional price data in particular would be very beneficial for expanding the scope of the study and facilitate extrapolation to the national level. Despite these limitations, the hypothetical household approach has the advantage of clarity: it is a pure institutional approach in the sense that we compare how the same hypothetical households would fare in the six cities in accordance with policy intentions. The results are not blurred by different compositions of the population in each of these countries, or different rates of take-up and compliance. Obviously, an assessment based on representative survey data would offer a very valuable complement to our study (e.g. Verbist and Van Lancker 2016), but implies the necessity to estimate the cost of children for a much broader range of situations. We are convinced that the indicator proposed in this paper offers a significant added value in understanding how generous different welfare states are towards families with children by going beyond cash benefits and by trying to take better into account welfare state efforts in providing and subsidizing essential goods and services, a perspective that has received too little attention, in spite of its (growing) importance.

Appendix

Table A.1 Categories of essential goods and services included in the reference budgets for families with children (ImPROvE budgets, 2014)

Housing	rent, utility costs, taxes estimated at 30th percentile (EU-SILC 2012) meeting list of quality criteria
Food	liquids bread, grains, potatoes fruit & vegetables meat, fish, eggs, diary fats & residual kitchen equipment physical activity
Clothing	Coats & sweaters shirts & tops pants/dresses sport clothes underwear & socks accessories shoes maintenance, repair & storage
Personal care	Hand, mouth & body hygiene cosmetics and perfume intimate hygiene women/girls shaving toiletry bag hair care basic bathroom equipment (e.g. mat, rubbish bin)
Rest and leisure	bed with necessities

	<p>fold-out sofa</p> <p>accessories (bedside table, lamp)</p> <p>domestic leisure (e.g. TV, radio) + access to library</p> <p>non-organised leisure (pub, cultural activities)</p> <p>organised leisure (membership association)</p> <p>babysit</p> <p>yearly domestic holiday</p>
Maintaining social relations	<p>visits of family and friends (+ extra dinnerware & chairs)</p> <p>take away food/ eating out</p> <p>computer with internet</p> <p>printer and camera</p> <p>mobile phone (for adults)</p> <p>celebrations, cards and presents</p> <p>obligations as a citizen</p> <p>cheerfulness at home</p>
Safe childhood	<p>day trip</p> <p>mobile phone (teenagers)</p> <p>birthday party (< 12 years)</p> <p>youth association</p> <p>toys</p> <p>cultural activities</p> <p>pocket money</p>
Mobility	Bicycle and bicycle equipment and repair
Publicly provided or subsidised services	
Health care	<p>consult GP (every day diseases, minor traumata)</p> <p>consult dentist (+ filling tooth)</p> <p>sun glasses and -lotion</p> <p>family medicine chest (common medicines, plasters & bandages)</p> <p>medical prevention (vaccines)</p> <p>contraception</p> <p>health insurance</p>

Education*	enrolment fee compulsory insurances compulsory school uniform compulsory school books notebooks, cover paper, files school- and gym bag case holder & writing material desk & chair lunchbox & thermos (if no lunch at school) extracurricular activity/ field trip
Public transport	annual card for use of public transport in the city budget to travel outside the city occasionally (holiday & day trip)

*Note: for secondary education, we have calculated the average costs required for studying a general discipline (no specialization) in a public school.

Tables A.2 Child cost compensation indicator for different household types. The child benefit package for single earners working full time at 40, 100 or 150% of the average national wage, expressed as a percentage of the essential cost of one or two children (10 and 14y), living in a single parent or couple family, 2014.

A.2.1 Child cost compensation for private tenants.

PRIVATE TENANTS							
		Single parent			Couple single earner		
	% of OECD average wage	1 child (10y)	1 child (14y)	2 children (10y, 14y)	1 child (10y)	1 child (14y)	2 children (10y, 14y)
Athens	40%	0.13	0.12	0.12	0.11	0.10	0.11
	100%	0.03	0.03	0.06	0.06	0.06	0.06
	150%	0.00	0.00	0.03	0.03	0.03	0.03
Barcelona	40%	0.06	0.05	0.06	0.06	0.05	0.06
	100%	0.38	0.30	0.22	0.10	0.08	0.10
	150%	0.29	0.23	0.18	0.10	0.08	0.10
Budapest	40%	0.30	0.23	0.30	0.24	0.19	0.24
	100%	0.25	0.20	0.21	0.21	0.16	0.20
	150%	0.25	0.20	0.21	0.21	0.16	0.18
Milan	40%	0.41	0.32	0.33	0.21	0.17	0.24
	100%	0.28	0.22	0.31	0.28	0.22	0.31
	150%	0.22	0.17	0.20	0.22	0.17	0.20
Helsinki*	40%	1.02	-	1,09	0.52	-	0.79
	100%	0.32	-	0.39	0.22	-	0.27
	150%	0.32	-	0.39	0.22	-	0.27
Antwerp	40%	0.58	0.47	0.58	0.34	0.33	0.43
	100%	0.43	0.39	0.50	0.34	0.32	0.46
	150%	0.43	0.39	0.50	0.34	0.32	0.46

A 2.2 Child cost compensation for outright owners.

OUTRIGHT OWNERS							
	Single parent			Couple single earner			
% of OECD average wage	1 child (10y)	1 child (14y)	2 children (10y, 14y)	1 child (10y)	1 child (14y)	2 children (10y, 14y)	
Athens	40%	0.22	0.20	0.15	0.09	0.08	0.09
	100%	0.03	0.02	0.05	0.03	0.02	0.05
	150%	0.00	0.00	0.03	0.00	0.00	0.03
Barcelona	40%	0.06	0.05	0.06	0.06	0.05	0.06
	100%	0.31	0.24	0.18	0.10	0.08	0.09
	150%	0.29	0.22	0.18	0.10	0.08	0.09
Budapest	40%	0.32	0.24	0.30	0.27	0.21	0.28
	100%	0.27	0.21	0.22	0.25	0.19	0.22
	150%	0.27	0.21	0.22	0.25	0.19	0.20
Milan	40%	0.53	0.40	0.39	0.53	0.40	0.39
	100%	0.31	0.24	0.33	0.31	0.24	0.33
	150%	0.24	0.19	0.22	0.24	0.19	0.22
Helsinki*	40%	0.38	-	0.66	0.38	-	0.66
	100%	0.38	-	0.42	0.38	-	0.42
	150%	0.38	-	0.42	0.38	-	0.42
Antwerp	40%	0.67	0.53	0.65	0.67	0.53	0.65
	100%	0.50	0.44	0.56	0.50	0.44	0.56
	150%	0.50	0.44	0.56	0.50	0.44	0.56

Source: own calculations using HHoT/EUROMOD 2014 & ImProvE budgets 2014 (Goedemé et al. 2015b).

*Note: In Helsinki the second child is 4 years instead of 14 years old. The indicator is based on a comparison in Euros, both in the numerator and the denominator.

Table A.3 Government social expenditure on families with children, 2013 and latest available, expressed as % of GDP

	Total	Cash	Tax breaks	ECEC & services	Education (primary to secondary)
Greece*	1.28	0.97	/	0.31	/
Spain	4.15	0.52	0.12	0.82	2.70
Italy	4.69	0.76	0.55	0.65	2.73
Hungary	6.22	1.91	0.69	1.05	2.58
Finland	7.25	1.51	0.00	1.70	4.05
Belgium	7.68	1.83	0.52	1.03	4.30

Source: OECD Social expenditure database and OECD education database (accessed April 2018).
Note: Cash benefits include family benefits, allowances and parental leave benefits. Education includes primary to secondary education. *Data for Greece refer to 2012, and exclude expenditures on tax breaks and education.

Chapter 7: What does it mean to live on the poverty threshold? Lessons from Reference Budget research.

Published as Goedemé, T., Penne, T., Hufkens, T., Karakitsios, A., Simonovits, B., Carillo-Álvarez, E., et al. (2019). 'What does it mean to live on the poverty threshold? Lessons from reference budgets' in B. Cantillon, T. Goedemé, & J. Hills (Eds.), *Decent incomes for all: Improving policies in Europe* (pp. 13-33), New York: Oxford University Press.⁵⁴

Abstract

This chapter makes use of the first effort to construct cross-country comparable reference budgets in Europe to show what the large cross-national differences in living standards imply in practice for the adequacy of incomes at the level of the at-risk-of-poverty threshold. The budgets show that, in the poorest EU Member States, even adequate food and housing are barely affordable at the level of the threshold, whereas a decent living standard is much more in reach for those living on the threshold in the richer EU Member States. The reference budgets also suggest that the poverty risk of some groups (for instance, children) is underestimated relative to that of other age groups, while the poverty risk of homeowners is probably relatively overestimated.

⁵⁴ We are grateful to Jonathan Bradshaw, Peter Saunders, and all members of the ImPRovE Consortium for valuable comments and suggestions throughout the ImPRovE project. In particular we would like to thank Bea Cantillon, Anne Van Lancker, and Fintan Farrell for the exchanges we had when developing this chapter. We made use of anonymized microdata from the EU Statistics on Income and Living Conditions (EU-SILC), provided by Eurostat.

Introduction

Over the past 20 years, the use of the at-risk-of-poverty (AROP) threshold has become increasingly widespread. Furthermore, in this book it takes centre stage as a tool for assessing trends in poverty and social exclusion and for evaluating the distributive effects of social and fiscal policies. However, as is well known, the indicator builds on a number of assumptions and simplifications that have given rise to several criticisms. In this chapter, we illustrate how reference budgets could help to “contextualize” the AROP threshold by generating more insight into the kind of living standard that can be afforded with an income at the level of the threshold in different countries. Such an approach does not necessarily generate empirical support for the use of the threshold, nor does it offer an alternative to the AROP indicator. Nonetheless, we contend that it provides essential background information for researchers and policymakers who use the AROP indicator.

Especially since the enlargement of the EU in 2004, the AROP indicator has attracted criticism, in spite of its strengths and widespread use, as highlighted in, for instance, Atkinson, Cantillon, Marlier, & Nolan (2002). In this chapter, we argue that reference budgets can help to put into context four weaknesses that are often the subject of criticism.

1. The threshold is defined rather arbitrarily, as 60% of the national median equivalent disposable household income.
2. The AROP line represents very different levels of purchasing power in different countries, and it is not at all obvious that an income at the level of the threshold indicates a similar or comparable situation in terms of poverty or social exclusion.
3. The AROP indicator builds on the assumption that economies of scale at the household level are proportional to the level of household income and are

constant across countries, in spite of varying consumption patterns across the income distribution and across countries.

4. The AROP threshold does not take account of cross-national variations in the institutional characteristics of the welfare state and, in particular, variations in the public provision or subsidization of essential goods and services. Obviously, it is a different thing to live on a certain income when essential goods and services (e.g., primary health care, public transport, and education) are freely available or heavily subsidized than when they have to be bought at market prices, *ceteris paribus*.

For several purposes, these shortcomings are not very problematic. For instance, as many chapters in this volume show, the indicator properly allows for studying the size and characteristics of groups living on a very low income, within and between countries and over time, and it provides useful information on the extent to which social and fiscal policies are targeted at the bottom of the income distribution. In contrast, for other purposes, these aspects may be more problematic. For instance, for the AROP indicator to serve as an indicator of poverty, comparability is undermined if there is no linear relation between the AROP threshold and the necessary resources for having access to a minimum acceptable living standard. Similarly, as a poverty indicator, it may partially fail if economies of scale vary substantially across countries or if the provision and subsidization of essential goods and services vary in important respects within or across countries. Also, when evaluating the adequacy of minimum income support, or when entering into a public debate about an appropriate level of the minimum wage or minimum income support, the arbitrariness of the level of the threshold can be problematic. In these cases, comparable reference budgets can be helpful.

Reference budgets, or budget standards, are illustrative priced baskets of goods and services that represent a certain living standard (cf. Bradshaw 1993). Reference

budgets are mainly used to identify the resources required for a decent living standard. They serve a variety of purposes, including setting income maintenance levels, determining additional income support, debt rescheduling, financial education, and assessing the adequacy of (minimum) wages and benefits (for a review, see Storms et al. 2014). As we have argued elsewhere (Goedemé et al. 2015a), if developed in a cross-country comparable way, reference budgets could in addition help to contextualize EU social indicators, to monitor the adequacy of social protection schemes in a comparative perspective, and to facilitate cross-national learning in order to design more effective social policies. However, reference budgets are difficult to construct in a way that is valid, robust, and comparable at the same time. In the ImPRovE project (2012–2016), several country teams have endeavored to construct for the first time cross-nationally comparable reference budgets for six European cities (Antwerp, Athens, Barcelona, Budapest, Helsinki, and Milan). In addition, the same method has been applied to construct reference budgets for Luxembourg, which joined at a later stage (for details, see Franziskus 2016). The seven cities are located in countries that vary greatly in terms of the size and structure of their welfare state as well as GDP per capita. The main methodological considerations as well as the first results of this endeavor have been described in detail in Goedemé, Storms, Stockman, Penne, & Van den Bosch (2015b). In this chapter, we go a step further and explore how comparable reference budgets can be put to use for contextualizing the AROP indicator.

From the ImPRovE project, it has become clear that, due to their complexity, limits to data availability, and the current level of methodological development, reference budgets cannot replace any of the existing indicators of poverty or social exclusion. However, as we show, reference budgets can help to put into context the weaknesses of, for instance, the AROP indicator, so that a better informed interpretation of poverty estimates is possible. In particular, reference budgets help to show what the strong cross-national differences in living standards mean in practice for the

adequacy of incomes at the level of the AROP threshold. They also suggest that the poverty risk of some groups (for instance, children) is underestimated, in absolute terms and relative to that of other groups (such as singles and outright homeowners).

The chapter is structured as follows: first, we elaborate on why it is necessary to contextualize the AROP threshold. Next, we explain the main assumptions underlying the ImPROvE budgets and sketch the method used. Subsequently, we present the ImPROvE reference budgets and explain briefly the most important reasons for the main differences across countries. In the following section, we explore the use of the reference budgets to contextualize the AROP indicator. We conclude with a discussion of what we have learned from the present exercise and how it could be improved in the future.

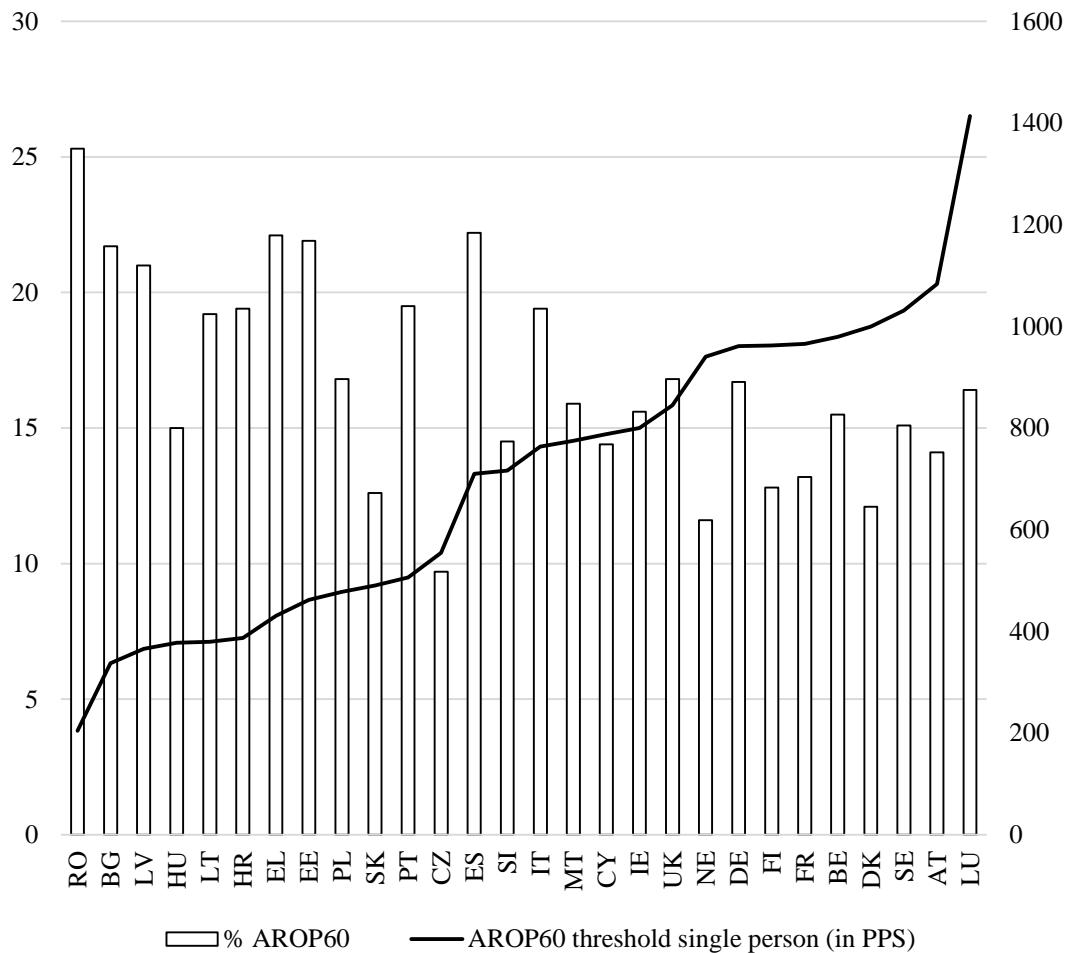
Why contextualise the AROP indicator?

The idea that the results of the AROP indicator should be contextualized is not new (cf. Cantillon and Vandenbroucke 2014). In fact, when Atkinson et al. (2002) made their recommendations for a system of EU social indicators, they wrote, “It is, we believe, possible to ‘demystify’ the choice of percentage, and thus the level of the poverty line, by explaining what it means in terms of purchasing power in each individual member state” (Atkinson et al. 2002, p.92). Later, the EU’s Indicator Sub-Group emphasized that “for each country, the poverty risk indicator must be assessed by looking at both the share of people whose income is below the threshold and the comparative level (in purchasing power standards [PPS] . . .) of this threshold” (ISG 2015, p.10).

Keeping that recommendation in mind, we can note that, although the percentage of the population at risk of poverty in Hungary, for instance, is on a similar level to that in Belgium and Sweden, the purchasing power of those below the poverty line in Hungary is much lower, because at the level of the threshold, a household in

Belgium can afford over 2.5 times more goods and services than a similar household in Hungary (see Figure 1). Also—according to these indicators—the poverty situation was worst in Romania, where the AROP rate was clearly the highest, while the threshold was the lowest—nearly seven times lower than the threshold in Luxembourg (that is, accounting for relative price differences). However, interpretation becomes more difficult when thresholds as well as poverty risks are higher, or both are lower (e.g., Luxembourg compared to the Czech Republic). In these cases, it is very difficult to give a consistent interpretation and to provide an answer with regard to where poverty is most likely to be highest. In addition, the vast differences in purchasing power, as indicated by the threshold expressed in PPS, remain abstract.

Figure 1. The at-risk-of-poverty rate (AROP60; 60% threshold, left axis), contextualised by the 60% at-risk-of-poverty threshold in purchasing power standards (PPS; right-hand axis), EU-SILC 2014



Source: Eurostat online database (accessed August 2016).

So, how can one empirically assess in more concrete terms what it means to live on the poverty threshold with a purchasing power that is 2.5 times lower in one country than in another? And, even more challenging, how can one empirically assess whether 60% of the national median equivalent disposable household income is sufficient to have a decent living standard and to avoid poverty? Various options

could be explored, including the use of other information regarding material deprivation or economic stress, subjective poverty lines, or household budget survey data. In fact, many of these options have been considered in the past for defining a reasonable set of poverty lines (for a review, see Atkinson et al. 2002; Van den Bosch 2001; Deleeck et al. 1992), but none has been very convincing.

In this chapter, we focus on budget standards or reference budgets, an option that has also been suggested by previously cited authors. Various approaches exist for developing reference budgets, differing in particular with regard to the level of detail with which baskets of goods and services are specified and the extent to which one relies on household budget survey data (for a review, see Storms et al. 2014). In the ImPROvE project, we opted for fully specified reference budgets —that is, reference budgets consisting of a concrete list of goods and services with for each product and service a specification of the type, quality, quantity, lifespan, provider, and price. The budgets were constructed on the basis of a variety of information sources, including public guidelines and regulations, survey data, and discussions in focus groups.

The ImPROvE reference budgets: assumptions and method

Main assumptions underlying the ImPROvE budgets

The starting point of developing reference budgets consists in defining the “targeted living standard,” that is, the living standard to which the budgets should correspond.⁵⁵ In our case, this is the minimum financial resources that a household requires for adequate social participation. Adequate social participation is itself defined as “the ability of people to adequately fulfill the various social roles they should be able to take on as members of society” (Goedemé et al. 2015b, p. 5; cf.

⁵⁵ This subsection relies strongly on Goedemé et al. 2015b.

Storms 2012). With regard to the minimum required financial resources, it is important to note that we focus on disposable household income, taking account of subsidized goods and services. In other words, the budgets reflect the out-of-pocket payments by private households, in addition to what they may already be paying through direct taxes and social contributions.

Evidently, the minimum resources required for adequate social participation depend on the characteristics of households as well as their living circumstances. Therefore, fully specified reference budgets can be constructed only for specific hypothetical household types. The hypothetical households are primarily illustrative and should not be considered representative. The compositions of the hypothetical households are defined as:

1. A single person.
2. A single parent with one child, about 10 years old.
3. A couple without children.
4. A couple with two children, a boy of about 10 years old and a girl of about 14 years old.⁵⁶

The adults are assumed to be about 40 years old. The households live in an urban environment (Antwerp, Athens, Barcelona, Budapest, Helsinki and Milan). In addition, we make the following assumptions about:

1. Competences — Family members are well-informed persons, having the necessary competences to make adequate decisions with regard to their health and safety and to be self-reliant. In addition, they are assumed to be able to act economically. For instance, they know their social rights and are willing to exercise them, they know how to access public goods and

⁵⁶ In Finland researchers made use of the results from some previous work (Lehtinen et al. 2011) and assumed, for this reason, that the children of the couple are a boy 4 years old and a girl 10 years old.

services, they are able to compare prices and to buy the products with best value for money, and they can cook economically and healthily with sufficient variation.

2. Health — All household members are in good health. The reason for this assumption is not so much that this is the most common condition, but that costs for health care vary enormously depending on the kind and severity of health problems, each having different implications for the needs of the person affected. Therefore, assuming people are in good health offers a good starting point for comparative analysis, with variations of health to be added in future work.
3. Government-provided or subsidized goods and services — we start from actual provision and actual prices (that is, ‘out-of-pocket costs’), insofar as they are accessible for low-income households.

The purpose was to develop long-term reference budgets that should give people access to the targeted living standard for an indeterminate period of time. In other words, the reference budgets include some room for saving in order to gradually replace durables and to cover large one-off or annual costs. This implies that, for instance, if a young person without any assets moves out to start a new family, the reference budgets would not suffice to cover the initial cost of buying all necessary durables at once. If, on the contrary, a household could rely on savings to compensate for an income below the calculated threshold, the reference budget would be overestimated.

These assumptions mean that, in real-life situations, especially for vulnerable families, more resources will be required than those implied by the reference budgets. For example, people are often confronted with physical or mental health problems; in some situations, there is no equal access to information and to public goods and services; and some people’s budgeting capacities are limited, so that

resources are not always spent in an optimal or most economic way. These assumptions should ensure that the reference budgets are not subject to the critique that they are “too high” when they are used as a benchmark for assessing the adequacy of incomes (cf. Rowntree 1901). Nonetheless, the concept of adequate social participation will remain somewhat elusive when it is translated into a priced list of goods and services: due to the substantial heterogeneity in living conditions and in personal characteristics and needs, as well as people’s diverging experiences and opinions, it is very difficult to define a generally applicable standard in very concrete terms.

The procedure for compiling and pricing comparable reference budgets

We used a common theoretical and methodological framework to translate the targeted living standard into a concrete set of needs, building to an important extent on Doyal and Gough’s theory of human need. In their theory, Doyal and Gough (1991) identified two universal needs, autonomy and health, and 10 so-called intermediate needs that should be fulfilled in order for anyone to participate adequately in society. For each of these needs, we developed a basket of essential goods and services.⁵⁷ The 10 baskets are: adequate housing, food, health care, personal care, clothing, mobility, leisure, rest, maintaining social relations and safety in childhood.⁵⁸

For drawing up priced lists of goods and services fulfilling the above needs, we used a largely standardized approach, as recommended by Bradshaw and Finch

⁵⁷ We also built upon other sources, such as international declarations (e.g. Council of Europe 1996; United Nations General UN 1989). The theoretical framework is discussed in more depth in Storms, Goedemé, Van den Bosch, and Devuyst (2013).

⁵⁸ This is a somewhat adapted version of the initial list of Doyal and Gough (1991), to make it fit better for the purpose of developing coherent baskets of goods and services. The list of intermediate needs is not exhaustive. For instance, the needs ‘security’ and ‘lifelong learning’ are not covered in the ImPROvE budgets.

(2000). In order to avoid arbitrary variations across countries in the composition of the baskets, all country teams started from the same assumptions, quality criteria, and one list of goods and services — namely, a list that was developed several years earlier in Belgium (Storms and Van den Bosch 2009). Each team was asked to adapt the “common base” to the local situation on the basis of a range of information sources, including national regulations and guidelines (e.g., dietary guidelines, regulations for disease prevention, etc.), survey data, national studies on the cost and accessibility of public goods and services, expert opinion, and focus group discussions.⁵⁹ A standardized approach benefits comparability and facilitates cross-national learning because it makes it easier to trace and understand cross-national differences in the level of the reference budgets. However, standardization also involves a risk of not reflecting fully the cross-country variation in living conditions, given that differences across countries (cities) were accepted only if they could be well justified on the basis of the evidence collected by the country teams. Hence, the level of the reference budgets could be upwardly biased in some less-well-off countries, insofar as insufficient evidence was available for further deviations from the common list. In the presentation of results below, we come back to this issue. A more in-depth discussion of the ImPRovE method, its strengths and weaknesses, and the issue of comparability can be found in Goedemé, Storms, Stockman, et al. (2015b) and Goedemé, Storms, & Van den Bosch (2015c).

⁵⁹ For the estimation of housing costs, we followed the same rationale, but applied a different procedure given the heterogeneity of housing markets as well as the availability of representative survey data. More precisely, on the basis of EU-SILC, the cost of an adequate dwelling was estimated at the 30th percentile for the Nomenclature of Territorial Units for Statistics 2 (NUTS2) region in which the city is located, differentiating across tenure status. In order to define an adequate dwelling, a set of minimum quality criteria was applied to all six countries, mainly building upon EU housing indicators (Van den Bosch et al. 2016).

Comparing reference budgets and the EU poverty threshold: what can be learned?

In what follows, we first briefly present the level of the ImPROvE budgets. Subsequently, we illustrate how the reference budgets compare to the AROP threshold. In the third subsection, we turn to the assumptions implied in the AROP indicator with regard to household economies of scale. We first assess economies of scale implicit in the reference budgets and subsequently re-estimate the incidence of child poverty on the basis of the implicit equivalence scale of the budgets.

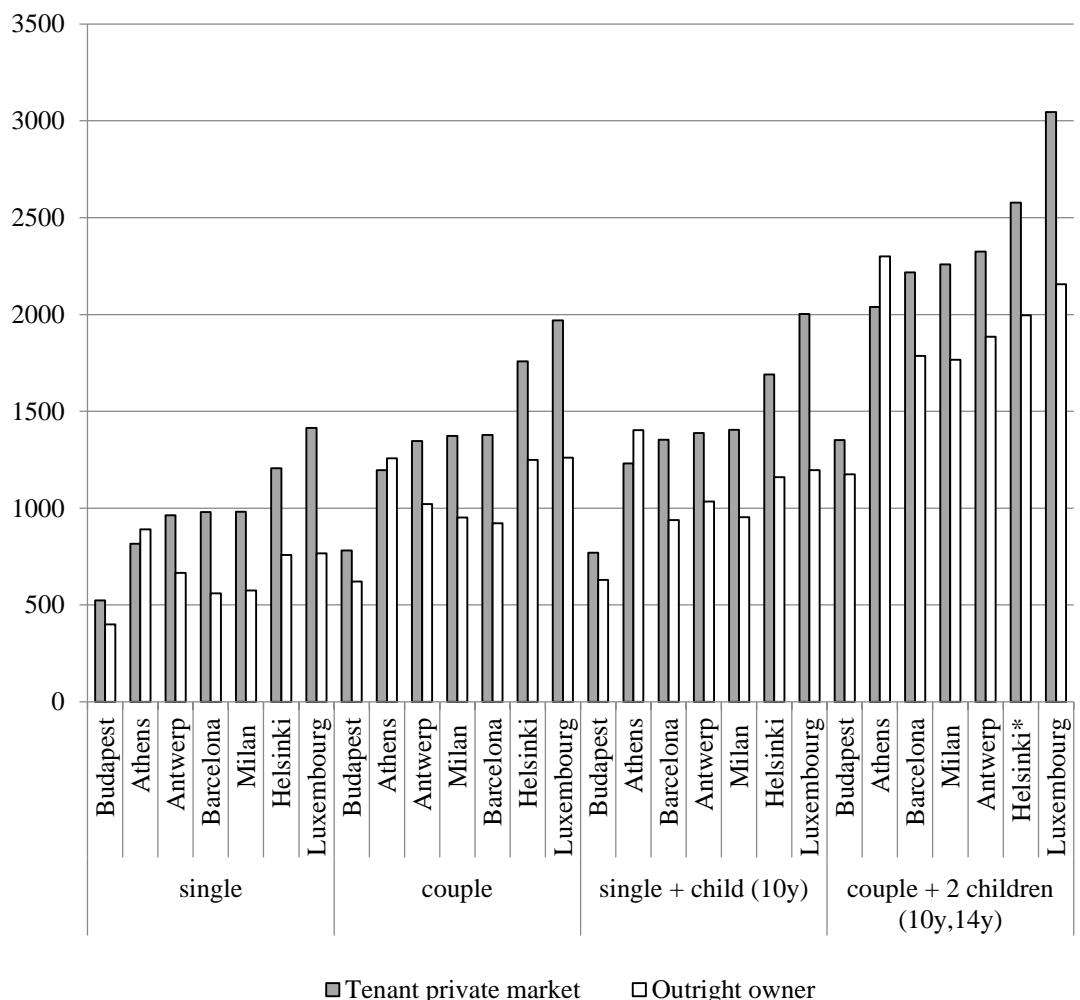
The level of the reference budgets in seven large EU cities

Figure 2 displays the total reference budgets for four different household types in six large European cities, differentiated by tenure (rental and ownership) status. The budgets were priced during the first half of 2014 and are expressed in EUR per month.⁶⁰ It can be observed that for all family types, the level of the budgets is the highest in Helsinki and the lowest in Budapest, except for outright home owners, who face the highest costs in Athens. For Budapest, the reference budgets suggest that a single woman who rents a dwelling in the private market needs about 524 EUR per month at the minimum to participate adequately in society, while she needs almost three times that amount (about 1,415 EUR per month) in Luxembourg in order to reach the same living standard. Yet, the variation of reference budgets across cities is smaller than the variation of national median equivalent net incomes, even when expressed in PPS. The highest reference budget for a single person renting a dwelling in the private market is equal to 2.7 times the lowest budget, while the highest median equivalent net income in PPS (for the seven countries) is equal to 3.7 times the lowest median income. Overall, the level of the budgets is

⁶⁰ Note that, for our purposes, reference budgets are best expressed in EUR rather than PPS, given that they already incorporate price differences across countries. The exchange rate that we have applied for Hungary is 300 HUF (Hungarian forints) to the EUR.

positively correlated with national median equivalent disposable household incomes in PPS, but there are important exceptions, such as Athens in the case of outright homeowners (relatively expensive), and Antwerp for families without children (relatively inexpensive).

Figure 2. Total ImPROvE reference budgets (EUR per month) for four household types, in six large EU cities, 2014.



Note: The single category and single-parent category are both assumed to be female. *In Helsinki the children of the couple are assumed to be 4 and 10 years old instead of 10 and 14 years old. Cities are ordered by the level of the budget for tenants on the private market.

The figure also illustrates how reference budgets increase with family size, but not proportionally, due to economies of scale. Housing costs in particular do not change in proportion to household size. Furthermore, the cost of children generally increases with the age⁶¹, which is mainly due to increasing costs for food, education, personal care, and mobility. Note that we did not include child-care costs. Hence, the real costs of younger children will be underestimated when families have to make use of child-care services, which probably would also increase differences across countries (Hufkens et al. 2016b).

The observed cross-national variation in the absolute level of the reference budgets can be explained by several factors. Most of the variation is due to differences in price levels, although the choice of products is not exactly the same in all cities. For instance, we observe a remarkably large variation in reference housing costs as a result of the distinctive structure of the housing market in each region. Another example is the relatively high cost of clothing in Helsinki, Milan, and Luxembourg, or the relatively low cost of membership in youth associations and sporting clubs in Budapest. The reference budgets are also affected by the climatological, institutional, and cultural context. Climatological differences affect the clothing basket, and we allow for more variation in countries with more pronounced seasons, as is the case for Athens, Barcelona, Budapest, and Milan. Not surprisingly, the institutional context has an important effect on the accessibility and affordability of health care (e.g. co-payments are required for visits to a general practitioner in Antwerp and Luxembourg, but such visits are free of charge in the other cities), education (high cost in Barcelona, low cost in Helsinki), and public transport (high cost in Helsinki, Barcelona, and Milan, relatively low cost in Antwerp and Luxembourg). Institutional variation in terms of public guidelines and regulations

⁶¹ In Helsinki, the age of the second child is 4 years instead of 14 years, which explains partly why the gap between Helsinki and the other cities is relatively small for couples with children.

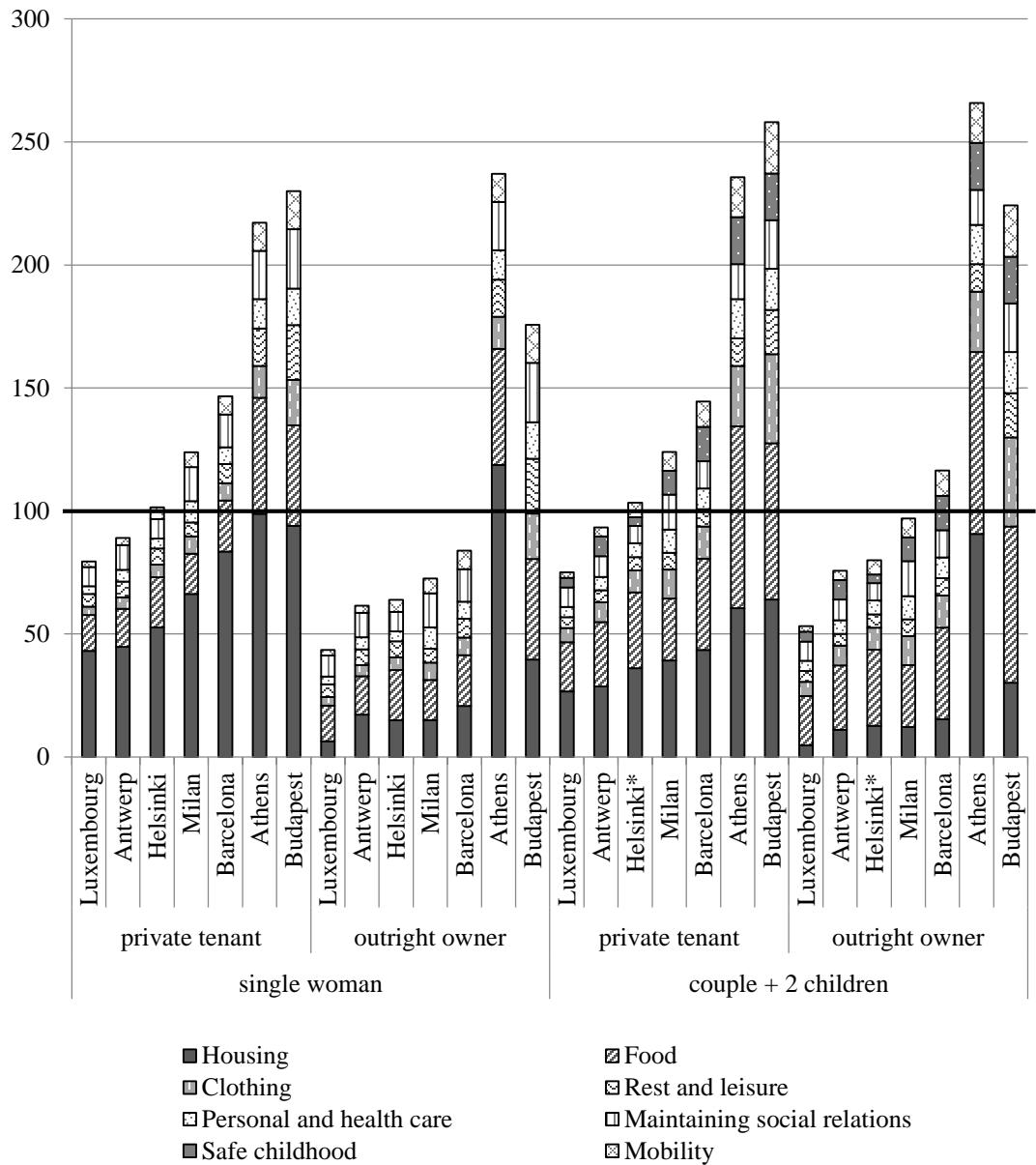
appears to be particularly relevant for the food basket. In Greece, Spain, and Italy, remarkably larger quantities of meat, fish, and fruit are recommended than in the other countries. Finally, cultural habits and social expectations explain some of the differences, particularly for baskets fulfilling sociocultural needs, such as leisure and maintaining social relations. The budgets for the latter two baskets are particularly high in Luxembourg, and they are relatively low in Budapest.

The AROP threshold in perspective

Figure 3 shows how the reference budgets can help in understanding what kind of living standard can be achieved with an income at the level of the poverty threshold. For this purpose, we express the reference budgets for a single woman and a couple with two children as a percentage of the AROP threshold⁶². In Athens and Budapest, the AROP threshold is clearly far below the level of the reference budgets, suggesting that it is not possible to participate adequately in society at the level of the threshold. In contrast, the AROP threshold is higher than the reference budgets for Luxembourg and approaches the level of the reference budgets in Antwerp and Helsinki, in particular in the case of tenants, suggesting that, for these cities, the AROP threshold captures better the minimum cost of participating adequately in society. For outright owners, the AROP threshold is even substantially higher than the reference budgets for a good number of cities. In the case of Barcelona and Milan, outright homeownership seems to determine whether or not an income at the level of the AROP threshold allows for participating adequately in society. Please note that the prevalence of particular occupancy statuses varies strongly across countries.

⁶² The level of the AROP threshold is subject to sampling error. Estimations for EU-SILC 2014 show that the sampling variance of the ratio of the reference budgets and the AROP threshold is relatively small. For tenants renting at market prices in Athens, the 95% confidence interval spans 6 percentage points below and above the value shown in Figure 3. For the other cases, the confidence interval is smaller.

Figure 3. Total reference budgets of a single woman and a couple with two children (private tenant or outright owner) expressed as percentage of the at-risk-of-poverty threshold in seven cities, 2014



Note: *In Helsinki the children of the couple are assumed to be 4 and 10 years old instead of 10 and 14 years old. At-risk-of-poverty threshold retrieved from Eurostat on August 25, 2016. Values refer to 2014 (EU-SILC 2015).

For families with children, except for Luxembourg, an income at the level of the poverty threshold is generally more inadequate, especially in Athens and Budapest. Furthermore, the figure illustrates how housing costs play a major role. Strikingly, for single persons renting their dwelling on the private market in Athens and Budapest, the level of the estimated housing cost of an adequate dwelling alone reaches nearly the level of the poverty threshold. In all cities, except for Athens, housing costs decrease substantially in the case of outright owners, resulting in more adequate living standards for people with an income at the level of the poverty threshold. However, for families with children, the decreasing housing costs become relatively less important because of economies of scale in housing (cf. below). Finally, it is noteworthy that the gap between the reference budgets and the threshold is larger in countries where the absolute level of the AROP threshold is low or very high (as in Luxembourg). Clearly, having an income at the level of the AROP threshold means different things in different countries in terms of the ability to participate adequately in society. In sum, this graph shows how the AROP threshold represents different living standards not only across countries, but also within countries, between households varying in occupancy status and composition.

The ImPROvE budgets may appear to be high for some countries. For instance, the Hungarian team emphasized that the various baskets for Budapest reflected the minimum necessary for adequate participation in each domain separately, but that, still, for many Hungarians, the sum of all baskets together could be perceived as being relatively high. Yet, the results above imply that some trade-offs between essential goods and services are to be made with an income at the level of the poverty threshold. Even if we had largely overestimated the minimum cost of adequate social participation for Athens and Budapest (although we have no indication that this is indeed the case), it is clear that households with an income at the level of the AROP threshold have a (much) harder time making ends meet in

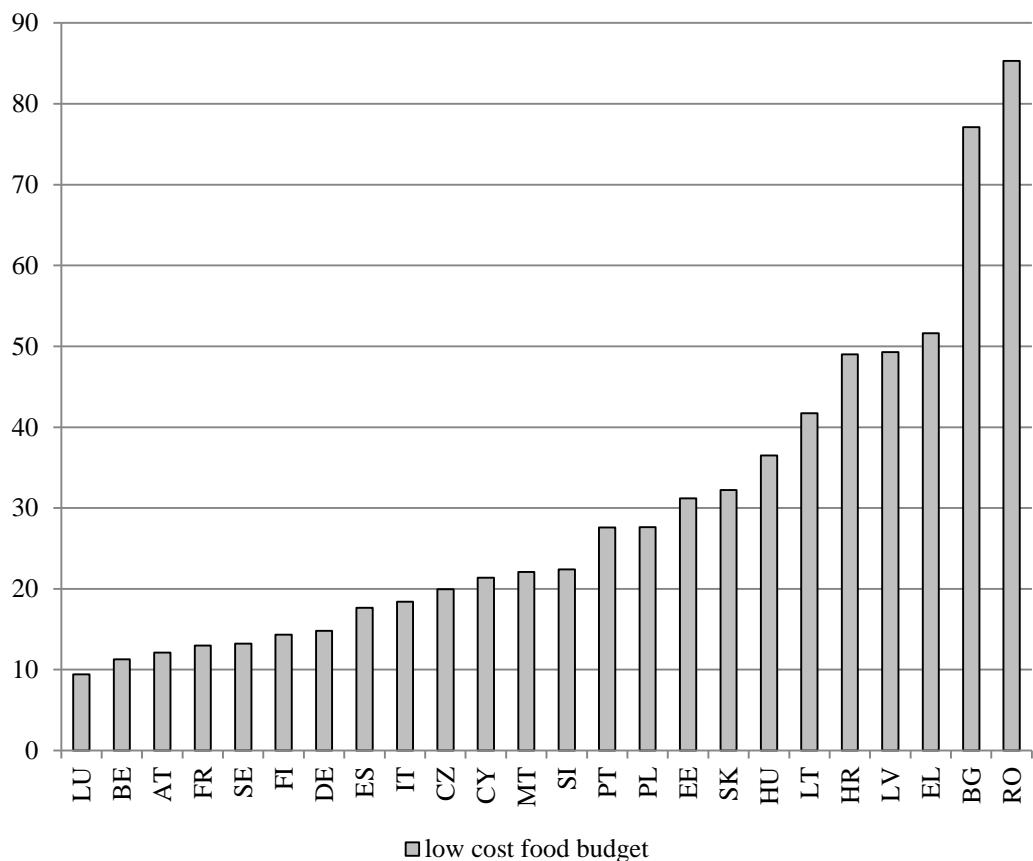
the latter two cities than in the other cities. In the case of Athens, the relatively high housing costs stand out, partially due to relatively high property taxes for homeowners in Athens in 2013. It is also worth saying that, in Greece between 2009 and 2014, the AROP threshold declined by nearly 40% in real terms (Matsaganis and Leventi 2019). If the threshold of 2009 still applied, the ratio of the reference budgets to the threshold would be only 60% of its current level, considerably altering the picture. In contrast, the budgets for Luxembourg may be perceived to be low from a national perspective.

Within the ImPROvE project, full budgets were developed for only seven cities. In another project, in most of the remaining EU capital cities, the minimum cost of a healthy diet was established in accordance with national dietary guidelines. To give a sense of the meaning of the AROP threshold in these EU countries, Figure 4 shows the resulting food budgets, as a percentage of the threshold (Carrillo-Álvarez et al. 2019b; Goedemé et al. 2015a).⁶³ As can be observed from the graph, the degree to which households with an income at the level of the AROP threshold have sufficient income for affording a diet in accordance with the national food-based dietary guidelines varies substantially across EU Member States. The level of the threshold appears to be very low, especially in Bulgaria and Romania. If households in Romania and Bulgaria in the capital city living at the level of the AROP threshold prefer to eat a healthy diet (or governments would want them to do so), they would have to spend their income nearly completely on food, neglecting all other essential expenses, including housing. Maybe this is why anti-poverty NGOs in these countries are hesitant to back the AROP threshold as a benchmark for minimum income protection (cf. A. Van Lancker 2015) and encounter difficulties in explaining the threshold to their members: an income at the level of the threshold

⁶³ The methodology for this basket is largely similar to the ImPROvE methodology. For a complete discussion, see Goedemé, Storms, Penne, et al. (2015a).

can barely be considered adequate. Even if we had overestimated the cost of food in a number of countries, our results indicate that the AROP threshold in Bulgaria and Romania not only is much lower than the one in the richer Member States in terms of purchasing power, but also allows only a very restricted consumption level, at best.

Figure 4. The low-cost food basket expressed as a percentage of the at-risk-of-poverty threshold for a single person (woman) in 24 countries (data are not available for Denmark, Ireland, the Netherlands, Slovakia and the United Kingdom), 2013.



Note: Price levels refer to the capital city. Food baskets are converted to price levels of 2013, making use of the official food-specific HICP, published by Eurostat. At-risk-of-poverty thresholds taken from Eurostat on August 25, 2016 (EU-SILC 2014).

Economies of scale and the poverty risk of children

One of the criticisms of the AROP indicator is that economies of scale at the household level are overly simplified and do not sufficiently take into account the needs and effective costs that people face. Obviously, reference budgets are not required for knowing that the relative poverty risk of persons facing special needs is underestimated (as in the case of a disability or very high health care costs). In contrast, it is not obvious that this is also the case for differences in needs across age groups and different household sizes, given that an equivalence scale is used for capturing these differences.

In Table 1, we express the costs of additional household members as a proportion of the ImPROvE reference budget for a single person. Given that housing costs are the primary driver of economies of scale, we make a distinction between tenants and outright homeowners. When housing costs increase, the relative cost of additional household members decreases, resulting in a flatter implicit equivalence scale. The table shows that the modified OECD equivalence scale, which is used for calculating the AROP threshold, neglects differences in economies of scale by tenure status and across countries. Furthermore, it seems to underestimate the additional cost of children, especially for families with older children and with low housing costs (outright owners or those who benefit from subsidized rent).⁶⁴

⁶⁴ We would like to mention here that the importance of housing costs, or of its complement, the returns to home ownership, has been recognized by those responsible for EU-SILC. The proposal was made that imputed rent for home owners and those renting below market rent should be included in disposable income. Problems with the data quality and the estimation methods of imputed rent made this impossible, unfortunately. See Törmälähto and Sauli (2013).

Table 1. Implicit equivalence scales of the ImPROvE reference budgets, compared to the modified OECD scale, 2014

	Modified OECD scale	Reference budgets - private tenant							Reference budgets - outright owner						
		BE	EL	ES	HU	FI	IT	LU	BE	EL	ES	HU	FI	IT	LU
1st adult	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2nd adult	0.5	0.39	0.47	0.39	0.52	0.46	0.42	0.38	0.52	0.41	0.60	0.59	0.66	0.70	0.63
child 6-11	0.3	0.43	0.51	0.36	0.50	0.41	0.45	0.41	0.53	0.57	0.63	0.62	0.54	0.70	0.54
child 12-17	0.5	0.57	0.56	0.47	0.64	0.57	0.48		0.74	0.62	0.82	0.80	0.91	0.68	

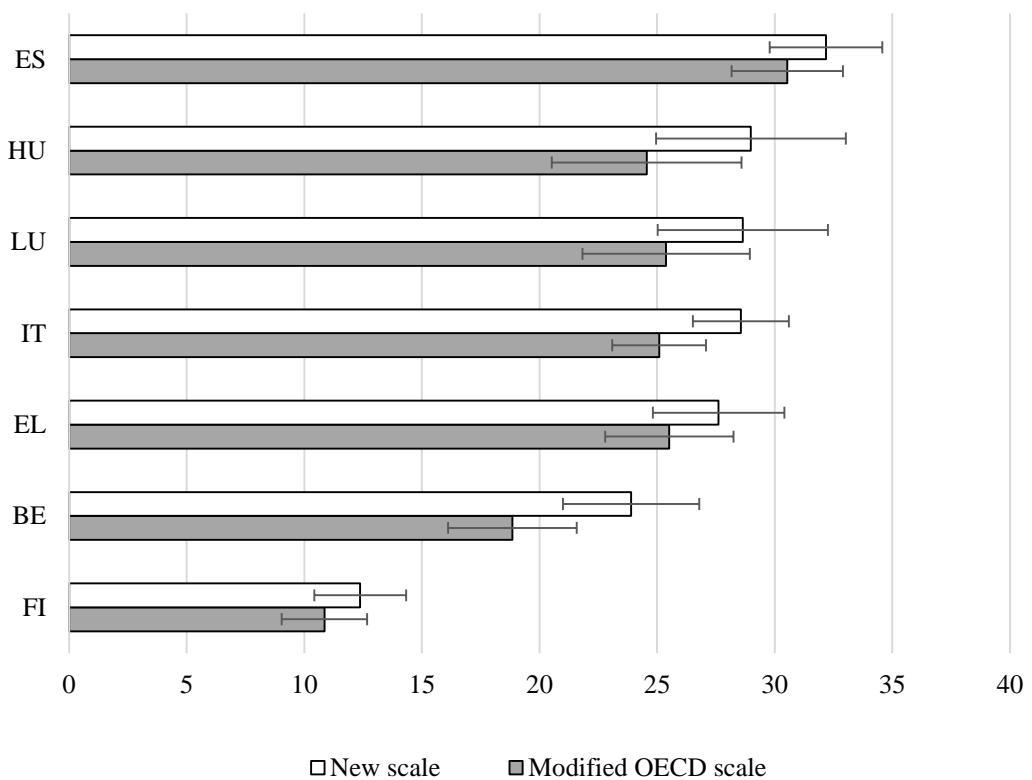
In order to illustrate how the modified OECD scale results most probably in an underestimation of poverty among children, we have re-estimated the AROP rate using an alternative equivalence scale, derived from the reference budgets. Given that we do not have reference budgets for owner-occupiers with a mortgage, which is a common situation in the population, we do not make a distinction by tenure status. Instead, we take the equivalence scale of households renting on the private market from the table above, so as to estimate a lower bound on the potential underestimation of child poverty (as is indicated by Table 1, the relative cost of children can be expected to be higher for other tenure statuses). For Finland, we assume that economies of scale for a child in secondary education are similar to those for a second adult (similar to previous results of reference budget research in Finland). We leave the weight of a child below the age of 6 unchanged (i.e., 0.3, as is the case for the modified OECD equivalence scale). Furthermore, we give students up to the age of 25 the same weight as teenagers, although there are indications that the cost of students is higher (Van Thielen et al. 2010). In other words, we recalculate the AROP indicator (including the threshold) by changing the equivalence scale used.⁶⁵ Admittedly, this remains a very rough approximation: we start from a very limited set of hypothetical household types and, for instance, do not correct for changes in economies of scale as the household size increases further, or for additional needs not covered by the budgets (e.g., child care or special health care).

The results are summarized in Figure 5. In all countries, the poverty risk of children less than 18 years old increases substantially (and significantly at the 95% confidence level) when the alternative equivalence scale is used. The increase is largest in Belgium and Hungary and smallest in Finland and Spain. Furthermore, in

⁶⁵ In Chapter 8 of this dissertation (Penne et al. 2016), we go a step further and illustrate how reference budgets themselves could be used as a poverty line.

all countries, the ratio of the poverty risk of children and the poverty risk of adults is significantly larger with the new equivalence scale than with the modified OECD equivalence scale.

Figure 5. The At-risk-of-poverty rate (AROP60) for persons less than 18 years old, with the modified OECD equivalence scale, and the alternative scale based on the reference budgets, EU-SILC 2014



Source: EU-SILC 2014 version 1, authors' calculations.

Note: 95% confidence intervals, sample design taken into account (cf. Goedemé 2013). Overlapping confidence intervals do not necessarily imply a nonsignificant difference (e.g. Afshartous and Preston 2010).

Conclusions

This chapter uses reference budgets to contextualize the AROP indicator. The budgets were developed by making use of an empirical needs-based approach, without making any *ex ante* assumption about the appropriate level of the budgets in relation to the average income in a country. The budgets are fully specified, in the sense that they cover concrete lists of goods and services representing the minimum resources required for adequate social participation. They are priced at actual prices faced by households, taking publicly provided or subsidized goods and services into account. In addition, they are developed so as to maximize cross-national comparability. For this reason, they are somewhat different from the budgets developed for national purposes (for instance, Storms et al. 2015).

The ImPROvE budgets make clear that the AROP threshold not only varies across countries in terms of purchasing power, but also has real impacts on the extent to which a decent living standard can be reached with an income at the level of the threshold. In the capital cities of Bulgaria and Romania, the AROP threshold is barely sufficient for having access to a healthy diet in accordance with national guidelines, whereas in Budapest and Athens, an income at the level of the threshold allows for adequate food and clothing, but remains insufficient to fulfill other essential needs, such as housing. In contrast, in Antwerp, Helsinki, and especially Luxembourg, it seems more realistic that it is possible to participate adequately in society with an income at the level of the threshold. To some extent, this is the result of differences in the degree to which households can rely on publicly provided or subsidized goods and services, although differences in the level of the median income across countries seem to be the main driving factor. In addition, the budgets show that the AROP indicator is a relatively rough measure, neglecting differences in household economies of scale between groups in society

(notably by tenure status and age) and across countries. As a result, the poverty risk of children is probably underestimated.

By making more concrete the income that is necessary for obtaining a certain living standard, reference budgets help to clarify the actual meaning of being at risk of poverty in countries that vary strongly in their average standard of living (cf. Goedemé et al. 2019b). In our view, due to their clarity and empirical character, the reference budgets also provide policymakers and NGOs with a stronger foothold for assessing the adequacy of minimum income support and for having an evidence-based debate about an appropriate level of minimum incomes. Furthermore, it is clear that, in some countries, there is a problem not only of limited redistribution toward the bottom but also of a generally low standard of living in the population. In these cases, reference budgets could help to define intermediate goals and to select priorities, both for improving the adequacy of wages and for tax-benefit policies. Furthermore, this also raises the question about the desirability of increased cross-national solidarity in the EU.

As we emphasized from the outset, we do not think that reference budgets should or could replace any of the existing indicators of poverty or social exclusion. Reference budgets are still in development, and more and better data (e.g. on prices and living patterns) as well as methodologies (e.g. for the consultation of citizens) are required to come up with robust and comparable reference budgets that are more generalizable than those developed for four household types in the ImPROvE project. In that sense, much more research is still necessary for developing reference budgets that are valid, robust, and comparable at the same time. ImPROvE has taken a very valuable first step and was successful in developing and applying for the first time a method that resulted in largely comparable reference budgets. It has led to useful results and has shown that considerable

cross-national coordination is required to come up with comparable budgets. The field is open for further exploration, expansion, and improvement. As we have tried to show, reference budgets bring in a new type of information that is very helpful for better understanding the limits of the AROP indicator when the latter is used for measuring poverty within and across countries, or as a benchmark for the adequacy of social policies. Combining the results of reference budgets research with those of other approaches (e.g., the study of actual spending patterns as documented in household survey budget data) could further improve our understanding of poverty in Europe and could help to foster an evidence-based debate on the policies that are required to improve the adequacy of incomes throughout Europe.

Chapter 8: Can Reference Budgets be used as a poverty line?

Published as Penne, T., Cussó Parcerisas, I., Mäkinen, L., Storms, B., & Goedemé, T. (2016). 'Can reference budgets be used as a poverty line?' *ImPROvE Working Paper No. 16/05*, Antwerp: Herman Deleeck Centre for Social Policy, University of Antwerp.⁶⁶

Abstract

The most common indicator to measure and compare the extent of poverty within and across European countries is the well-known at-risk-of-poverty indicator. Although the relative income-based measure is widely used, over time it has been the target of considerable criticism. In this paper, reference budgets are introduced as a valuable complementary indicator, since they illustrate the cost of baskets of goods and services that are essential to participate adequately in society. When constructed in a comparable way, they show which standard of living can be achieved at the level of the at-risk-of-poverty threshold in different countries, taking account of out-of-pocket costs of public goods and services. In this paper, we draw on data from cross-nationally comparable reference budgets in three reference cities (Antwerp, Barcelona and Helsinki) to illustrate how RBs can be used to evaluate other poverty indicators and to construct complementary poverty thresholds. At the same time, we explain that there are important challenges to address, including (1) the limited number of specific household types for which reference budgets are developed, (2) problems of robustness and comparability, and (3) the lack of important information in the EU-SILC microdata for our purposes. Acknowledging these limitations, this paper provides a first illustrative attempt to estimate of the number of people with a disposable income below the RB threshold for densely populated areas in Belgium, Finland and Spain. First estimates indicate that families renting on the private market, families with children and young people are relatively worse off when poverty is measured with the reference budget indicator as compared to the at-risk-of-poverty indicator.

⁶⁶ The authors are grateful to Karel Van den Bosch and Ides Nicaise for comments and suggestions on a previous draft of the paper. The results were presented during a number of ImPROvE meetings where the input received by participants helped to considerably improve the paper. Finally, we would like to cordially thank our partners in the ImPROvE project.

Introduction

In Europe, poverty is usually measured with the so-called ‘at-risk-of-poverty indicator’, which defines poverty as the share of people with an equivalised disposable income (after social transfers) below the at-risk-of-poverty threshold. The threshold is set at 60 % of the national median equivalised disposable income (Atkinson et al. 2002). Due to large cross-national differences in living standards, the at-risk-of-poverty threshold is much higher in some countries than in others. This raises the question whether an income at the level of the at-risk-of-poverty threshold reflects the same level of adequacy across countries. For quite some time now, researchers have contested the validity of this indicator. In particular, it has been argued that the indicator is a measure of inequality rather than poverty, that it is unrelated to criteria of need and deprivation, and biased against benefits in kind and public services (e.g. Beblavy and Mizsei 2006; Garfinkel et al. 2006; Goedemé and Rottiers 2011; Juhász 2006; Whelan and Maître 2009). Some authors have argued that the picture should be completed by calculating a single pan-European poverty threshold (e.g. Brandolini 2007; Fahey 2007; Goedemé and Collado 2016). However, it is not clear whether this results in a more valid indicator (Decancq et al. 2014).

A very old and well-known approach to define a minimum acceptable living standard, is the budget standard approach. In budget standard, or reference budget research, priced baskets of goods and services are constructed, reflecting a given living standard for certain household types (Bradshaw 1993; Storms et al. 2014). These reference budgets (RBs) can reflect any standard of living, but most frequently they have been developed to represent ‘minimum adequate’ or ‘participation level’ standards. Reference budgets struggle with many challenges. Nonetheless, in principle, they can offer an empirical approach for defining an

appropriate poverty threshold and, if constructed in a comparable way, they could offer a test for assessing to what extent the minimum resources for adequate social participation vary with national median income, as the at-risk-of-poverty threshold implies.

Although most European countries have experience with developing reference budgets, the budgets are usually not comparable, as they are developed for different targeted living standards and are based on various methods and information sources (for a review see Storms et al. 2014). Recently, some important steps towards a comparative methodology have been taken in two related European projects, funded by the European Commission and coordinated by the Herman Deleeck Centre for Social Policy (Goedemé et al. 2015a; Goedemé et al. 2015b). Hence, for the first time, RBs are available for evaluating the adequacy of the at-risk-of-poverty threshold in a comparative setting. In this paper we make use of the reference budgets developed in a comparable way for three countries, covering three different types of welfare states: Belgium, Finland and Spain. The reference budgets have been developed within the framework of the ImPRovE project (Goedemé et al. 2015b). The aim is to explore in more detail how reference budgets could offer a benchmark for assessing to what extent the at-risk-of-poverty threshold represents the same level of adequacy of incomes cross-nationally. In addition, we highlight several important challenges for using reference budgets as an alternative poverty threshold. Finally, we present some preliminary results that illustrate how reference budgets could enrich our understanding of poverty in Europe.

In this paper we: (1) briefly discuss the main shortcomings of the current poverty measures in Europe; (2) suggest what could be the added value of reference budgets with regard to the measurement of poverty; (3) show how reference

budgets can help to contextualise the at-risk-of-poverty threshold and better understand the represented living standard of an income at the level of the threshold; (4) explain the method we used to construct a poverty threshold based on reference budgets; (5) provide some preliminary results of a first comparative effort that estimates poverty rates on the basis of RBs; (6) discuss the limitations of reference budgets as poverty lines; (7) conclude with a discussion of the usefulness of RBs as a complementary poverty indicator, and the way forward.

Some limitations of current poverty measures in Europe

Each measurement of a social problem should be preceded by a clear definition of the problem. Unfortunately, there does not exist a single, unambiguous definition of poverty. Moreover, current poverty indicators often seem to lack theoretical underpinnings and a clear concept of poverty. Without presenting an overview of the existing patchwork of definitions, we generally notice that concepts of poverty contain both an absolute and a relative aspect. Various prominent authors (Rowntree 1901; Sen 1983; Townsend 1979) have defined poverty as a lack of necessary resources or basic capabilities which, despite a core of absolute deprivation (Rowntree 1901; Sen 1983), also depends on the generally accepted living standard in society (for a discussion, see Goedemé and Rottiers 2011). The European Union defines persons at risk of poverty as “individuals or families whose resources are so small as to exclude them from the minimum acceptable way of life of the member state in which they live” (Council of the European Communities, 1975). However, it is not clear to what extent the at-risk-of-poverty indicator and the severe material deprivation index refer to what is widely approved as a minimum in society (Goedemé and Rottiers 2011; Van den Bosch 2001).

As was mentioned in the introduction, the at-risk-of-poverty indicator is the most widely used indicator for measuring income poverty in the EU. Nevertheless, the indicator received many criticisms. First, by some it is argued that a relative income-based measure cannot be logically derived when poverty is defined in terms of consumption and deprivation (e.g. Ringen 1987). Second, various authors argue that it rather measures inequality at the bottom of the income distribution and not necessarily poverty (e.g. Fahey 2007; Förster 2005; Guio 2005). For instance, when the standard of living of the middle class sinks, poverty rates may decrease while the situation of the poor has not improved (or even worsened). Especially for Member States experiencing very low income levels per capita, a poverty line which is relative to the median income, will not capture the number of people with insufficient resources for having access to some basic capabilities (e.g. Juhász 2006; Förster 2005). This is why Ravallion and Chen (2011) propose a ‘weakly relative poverty line’ combining absolute and relative elements, since people also care about their own and others’ absolute standard of living and since the cost of adequate social participation is not decreasing proportionally with national median disposable household incomes (Ravallion and Chen 2011). In short, there is no *ex ante* guarantee that the at-risk-of-poverty threshold corresponds to the minimum resources required for a minimum acceptable living standard in any one Member state; and refers to the same level of adequacy of living standards cross-nationally (or, for that matter, between households).

In order to make incomes comparable across households in terms of living standards, they are equivalised using the modified OECD equivalence scale. This scale assigns a value of 1 to the household head, 0.5 to each additional household member aged 14 and over, and of 0.3 to each child below the age of 14 (Atkinson et al. 2002; OECD 2013). By adding up all values, the equivalent household size is obtained. Subsequently, disposable household incomes are divided by the

equivalent household size. The idea behind this procedure is to take economies of scale into account (a couple arguably needs less than twice the amount of a single for achieving the same living standard, given the partners of the couple can share some costs, notably of housing). However, economies of scale are likely to vary across the income distribution; as well as between countries (Atkinson 1992; Bargain and Donni 2012; Brandolini 2007; J. A. Nelson 1993). In addition, household needs vary in more complex ways than suggested by the modified OECD equivalence scale (see e.g. Aaberge et al. 2010; Paulus et al. 2010; Storms and Bogaerts 2012). In particular, the health status of household members as well as their labour market states may strongly affect the economic resources that are required for obtaining a given living standard. Not surprisingly, then, there is a long-standing debate regarding the appropriateness of various equivalence scales for measuring poverty in a national and cross-national context (Atkinson 1992; Buhmann et al. 1988; Coulter et al. 1992; de Vos and Zaidi 1997).

Another point of criticism is that the at-risk-of-poverty rate focuses on cash income of households without taking into account other non-cash resources or the capabilities of households to convert financial resources into a certain living standard, given their needs (Sen 1985). Factors that are not taken into account include wealth (especially ownership of a dwelling) and benefits in kind, especially publicly-provided or subsidised goods (e.g. a dwelling at reduced rent, medicines at reduced cost) and services (e.g. education, health care and public transport). Some authors (e.g. Verbist and Matsaganis 2014; Smeeding et al. 1993; Frick et al. 2010) have added the monetary advantage of home ownership or renting at reduced cost to income-based measures of poverty. Needless to say, this has a non-negligible effect on the composition of poverty: owner-occupiers appear to be much better off, whereas those renting in the private market are worse off when ‘imputed rent’ is taken into account. Alternatively, others have argued to

look at actual expenditures of households, instead of income data. There is a methodological and conceptual argument for doing so (Brewer and O'Dea 2012; Meyer and Sullivan 2012; Ringen 1988): (1) the income of low income groups tend to be understated in income surveys due to under-reporting of transfers (Meyer and Mittag 2019), while household expenses of low-income households seem to be better recorded; (2) income offers a short-term snapshot, given that households may save and borrow to smooth their consumption for maintaining their living standard, while income fluctuates more strongly across time. Nonetheless, also consumption data face important challenges. From a practical point of view, in Europe representative, household budget survey data are less accessible on a large scale as compared to income data, and are not subject to the same harmonisation standards as is the case of the EU Survey on Income and Living Conditions (EU-SILC).

Also the value of other non-cash incomes or services can be imputed to create a measure of so-called 'extended income' (e.g. Callan and Keane 2009; Marical et al. 2008; Verbist and Matsaganis 2014). The extended income approach is mostly based on the production cost and the actual use of services while generally adopting similar equivalence scales as those applied to cash income, being mostly the modified OECD scale. This is problematic since the use of services often corresponds to an increased need for these services varying across the life-cycle (e.g. chronic diseases) (Paulus et al. 2010; Aaberge et al. 2010; Verbist and Matsaganis 2014). This means that disabled people, elderly persons and families with children would be better off when including the benefits of health and education services in their 'extended income', if based on actual use without adjustment to their needs for medical care or education. It is worth pointing out that neglecting benefits in kind does not only undermine the validity of the at-risk-of-poverty indicator, but also its comparability across time and between countries.

Insofar that the access, availability, and quality of publicly-provided goods and services varies across time and between countries, living with an income at 60 per cent of median disposable household incomes does not have the same consequences in each country. To make this point clearer, one could imagine two countries with exactly the same population characteristics and distribution of disposable household incomes. In one country education is free, whereas in the other there is only private education at high cost for private households. It is clear that for households with children the standard of living at 60% of the national median income is very different in both countries, even though the at-risk-of-poverty rate will be the same.

Reference budgets and their added value

Reference budgets are priced baskets of goods and services that reflect a certain living standard for specific household types (Bradshaw 1993; Storms et al. 2014). The targeted living standard illustrated by the reference budgets considered in this paper is defined as the minimum financial resources needed for adequate social participation (Goedemé et al. 2015a). In other words, we look at the minimum required disposable household income (the out-of-pocket payments) taking into account public goods and services that are for free or at reduced prices. Adequate social participation is further defined as “the ability of people to play the various social roles one should be able to play as a member of a particular society”⁶⁷ (cf. Storms 2012). Even though adequate social participation and poverty are not

⁶⁷ Being able to adequately play social roles, means that the material and other needs are fulfilled to take social positions in line with the dominant social expectations associated with them, as embodied by the institutions of the society in which one lives, and in such a way that it does not cause harm to one’s possibilities to do so in the future. In addition, adequate social participation implies that people should also be able to contribute to society by having the opportunity to redefine their social roles (cf. Goedemé et al. 2015a).

necessarily the same concept⁶⁸, we are convinced that reference budgets could make a valuable contribution to the construction of poverty indicators, not least by contextualising the widely used at-risk-of-poverty indicator.

Potentially, reference budgets could offer a complementary approach, which accommodates to some extent some of the aforementioned limitations of the at-risk-of-poverty indicator or the extended income-approach. For instance, they start from a normative and empirical needs-based approach and build on a range of information sources to explicitly explore what a minimum acceptable living standard may look like, rather than making a very rough assumption about it. In other words, reference budgets do not depend on the national median income, but try to empirically assess the level of income that is needed at the minimum for adequate social participation. Consequently, they are not relative *ex ante*, and explicitly try to identify what is minimally needed to participate adequately in a particular society, taking the social context as much as possible into account. When constructed in a cross-nationally comparable way, they help to understand how adequate living standards differ or rather converge across the EU (cf. Chapter 7 of this thesis). In addition, by focusing on the out-of-pocket-cost of essential goods and services for adequate social participation, they can also show the impact of cost-reducing policy measures that improve the accessibility and affordability of (public) goods and services (cf. Chapter 5 and 6 of this thesis).

In addition, reference budgets can shed an alternative, empirically informed, light on economies of scale resulting from household size and composition. By constructing reference budgets for different household compositions, one can easily deduce the budget impact of an additional household member on the minimum required resources for adequate social participation. Various studies

⁶⁸ Even though relevant and interesting, this discussion is outside the scope of this paper.

have tried to estimate the costs of adults or children based on real expenditure of households (e.g. Bargain and Donni 2012; Browning et al. 2013). Compared to these expenditure-based approaches, RBs offer the advantage to derive needs-based equivalence scales without relying on expenditure data which are confronted with endogenous budget constraints. In addition, the equivalence scales derived from RBs take the availability of publicly-provided or subsidies goods and services fully into account. On the other hand, the problem with the RB-based equivalence scales is that they only apply to specific households living at the level of the reference budget, which makes it difficult to generalize the scale to the population as a whole.

From a policy perspective, reference budgets offer a more balanced evaluation of policy alternatives. When used as a policy tool, RBs indicate how governments can reduce poverty in two different ways: either by ensuring that low-income families have access to a higher income, or by lowering the costs low-income families face in order to have access to essential goods and services (e.g. Storms et al. 2015).

Before we explain our method, we first give some more information on the cross-nationally comparable ImPROvE reference budgets and their underlying assumptions. Further it is shown how they relate to the at-risk-of-poverty indicator.

Reference budgets for specific hypothetical households⁶⁹

Obviously, there are important differences in the needs of households depending on their size and composition and related economies of scale, but also on other characteristics such as age, gender, living area, mental and physical health

⁶⁹ This subsection relies strongly on Goedemé et al. 2015b.

situation and social and economic resources. Consequently, when constructing a minimum budget that allows for adequate social participation, it is impossible to specify a concrete list of essential goods and services, without making rather detailed assumptions regarding the characteristics of households. Therefore, fully-specified reference budgets are constructed for so-called hypothetical households or model families. In the ImPROvE project (cf. Goedemé et al. 2015b), reference budgets were constructed for four hypothetical household types:

- A single person
- A single parent with one child
- A couple without children
- A couple with two children

All adults are assumed to be of active age. The child of the single parent is a boy of primary school age (about 10 years old) and for the couple with two children the second child is a girl of secondary school age (about 14 years old). Further, some important assumptions are made in order to construct a budget reflecting the minimum required resources for adequate social participation.

- First of all we assume that the family members are well-informed, self-reliant and have normal competences to manage their budget efficiently. This means that they are aware of price levels and social tariffs, that they can compare different prices and act in an economical way (e.g. not too much food waste, saving energy and water use).
- Secondly, all family members are assumed to be in a good health. This choice was made because there is such a wide variation in needs and related costs depending on the kind of health problem. Hence, being in a good health can be seen as a starting point. Arguably, many households will need more resources to access the same level of social participation, if they are confronted with severe health problems.

- Thirdly, we assume that the family members make use of existing public goods and services to the extent that they are accessible for low income households. For all goods and services, we included the out-of-pocket costs people need to pay in order to get access to the service.

These assumptions result in the estimation of a lower bound for the level of resources necessary for adequate social participation. If competences are lacking, if people are in bad health, or do not have access to publicly provided or subsidized goods and services, the minimum cost for an adequate living standard will be higher.

In addition, the hypothetical households are assumed to live at specific locations, namely in relatively large cities (Antwerp, Athens, Barcelona, Budapest, Helsinki and Milan). Obviously this has some implications for the level of the reference budgets, which need to be taken under consideration when interpreting the results. There are two main reasons why the results may not be representative for people living in rural areas. Firstly, needs can be different because of a different institutional, cultural and geographical context. For instance, in some regions there is no access to adequate public transportation which means that the need of a car could be defendable in order to achieve adequate social participation. Secondly, prices and purchasing patterns can differ substantially across regions. Prices of goods at the market but also of public goods and services vary regionally. For instance, in Finland there is a large regional variation in prices for public transport (cf. Kalenoja and Rissanen 2014). Generally not much information can be found on regional price differences. Exceptionally, a Spanish study (Costa et al. 2015) has made estimations of regional purchasing power parities for total expenditure in 2012. It was found that Madrid, Navarra, Catalonia and the Basque regions are confronted with higher price levels than the national average. A final remark is

that people living at the country side may have other purchasing habits, and have more access to home-grown food.

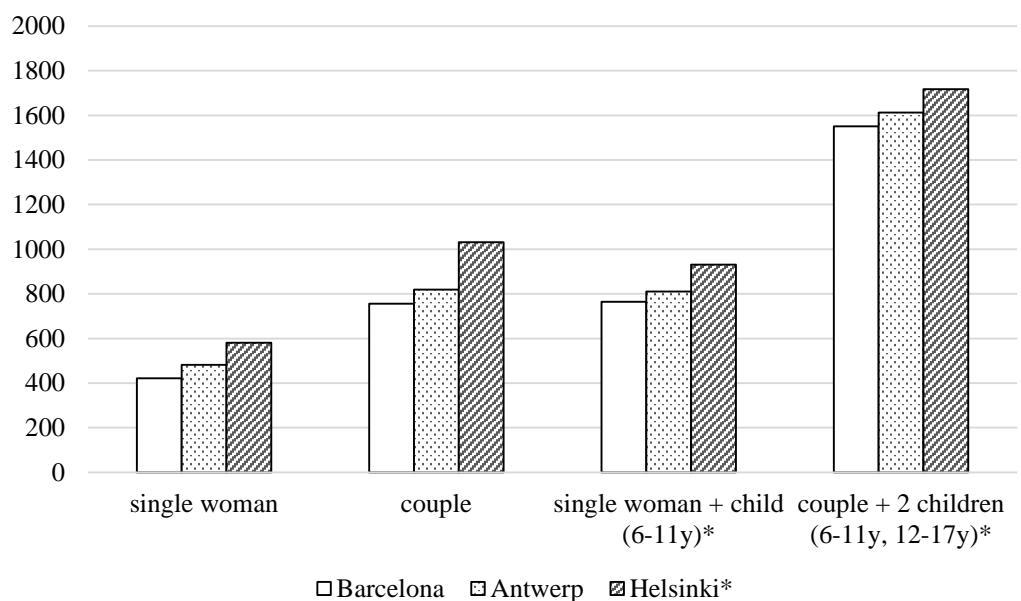
Comparable reference budgets for three large European cities

The targeted living standard to which the ImPROvE reference budgets refer, is based on a common theoretical framework inspired by the theory of human need (Doyal and Gough 1991). In order to participate adequately in society, two universal needs are identified: ‘autonomy’ and ‘health’. In addition, ten so-called ‘intermediate needs’ are singled out, namely: food, health, personal care, clothing, mobility, leisure, rest, maintaining social relations, safety in childhood and housing. Guided by extensive international coordination, and based on various information sources such as international and national recommendations and guidelines (e.g. with regard to dietary guidelines, disease prevention, ...), survey data, national studies on the cost and accessibility of public goods and services, expert opinion, and focus group discussions, the intermediate needs are translated into a concrete set of priced baskets of goods and services (cf. Goedemé et al. 2015b).

Figure 1 below shows the level of the ImPROvE reference budgets for three countries Belgium, Finland and Spain, representing three different types of welfare states. The budgets are expressed in euro per month for four household types, without housing costs. It is clear that for all household types, the level of the budgets is the highest in Helsinki and the lowest in Barcelona, while Antwerp is situated somewhere in the middle. A single woman needs 421 EUR per month in Barcelona, while she needs about 160 euros per month more in Helsinki (580 EUR). This can be explained by differences in price levels but also by differences in the geographical, institutional and cultural context (for a more detailed discussion, see Goedemé et al. 2015b). The gap between Helsinki and Barcelona

is relatively smaller for families with children. This is partly due to the fact that the ages of the children in Finland deviate from the standard household types (about 4 and 10 years old instead of 10 and 14 years old). However, a part can also be assigned to the relatively lower costs of children in Helsinki, mainly because of the high public investments in education.

Figure 1. Total ImPROvE budgets (EUR/month) without housing costs for four household types in three EU cities, 2014.



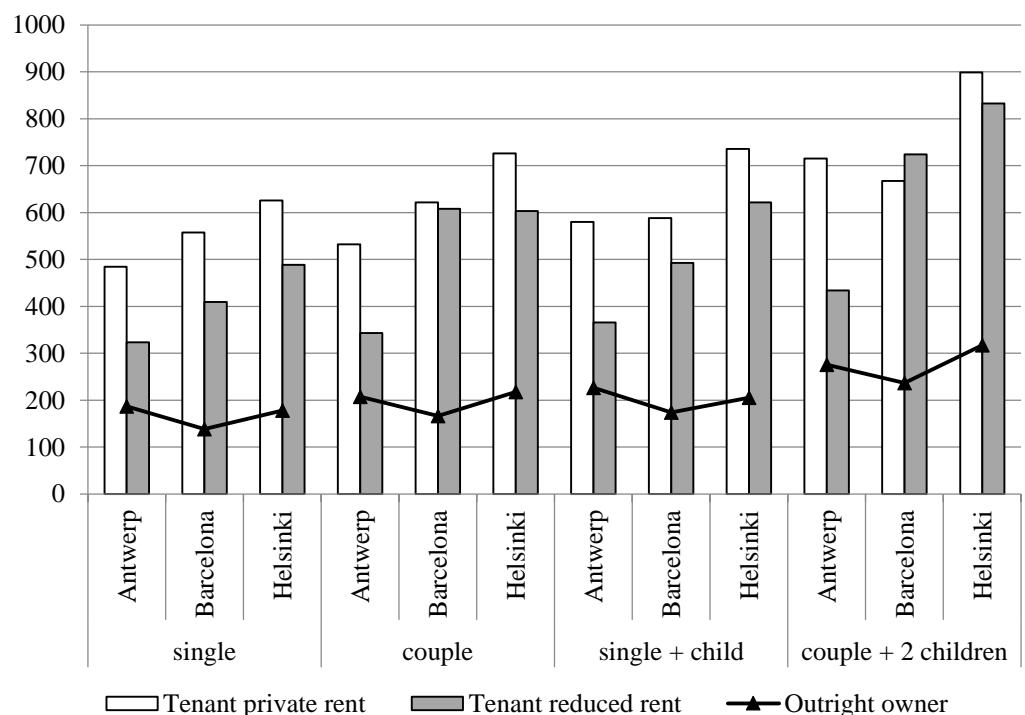
Source: ImPROvE budgets 2014 (Goedemé et al. 2015b), excluding housing costs.

Note: *For Helsinki the budgets are constructed for households with children of different ages: a child in pre-primary school (3-5y) and a child in primary school (6-11y)

Obviously, housing costs can be very considerable. For the development of reference budgets, a particular challenge of housing costs is their heterogeneity. Not only from a cross-national perspective (housing markets differ substantially across Europe), but especially also within countries (and even within cities)

dwellings differ in many respects, including their cost. Therefore, the cost of an adequate dwelling was estimated at the 30th percentile, differentiating across tenure status (Van den Bosch et al. 2016). Some minimum quality criteria for dwellings were used, mainly building upon EU housing indicators. The figure below depicts the results of the housing budget for families renting at the private market, renting at reduced prices or owning a dwelling without paying mortgage. We can see that housing costs are the highest for tenants at the private market. The costs decrease when households have the possibility to rent at reduced prices, and especially when they own a dwelling without paying mortgage.

Figure 2. Housing costs (EUR/month) at the 30th percentile, for modest but adequate dwellings in three EU cities, 2014

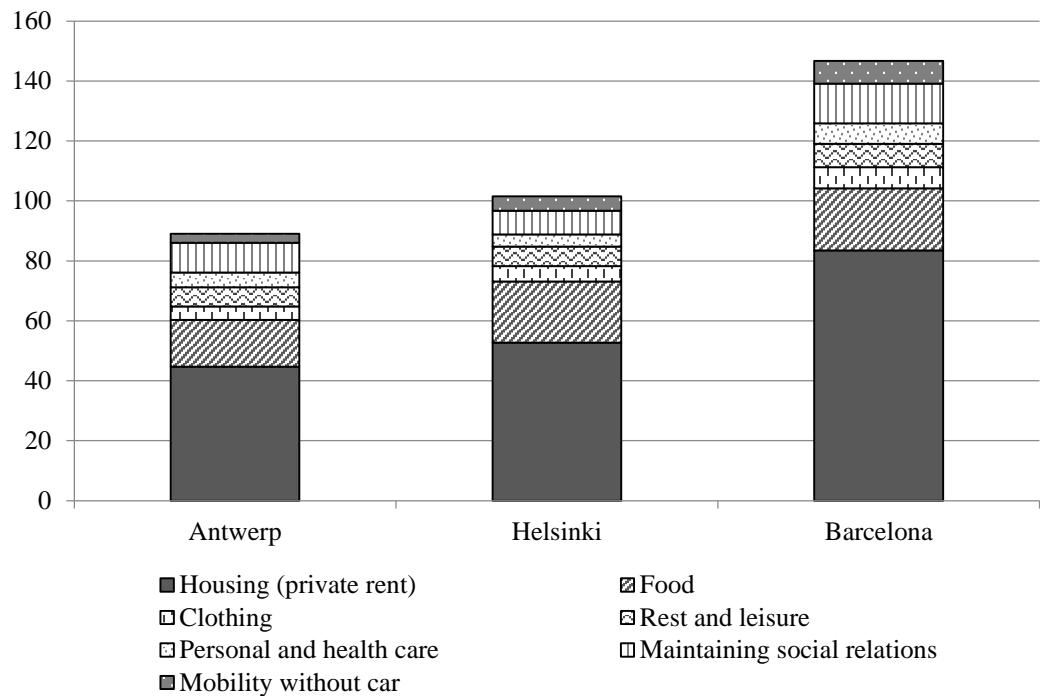


Source: Van den Bosch et al. (2016)

How the reference budgets relate to the at-risk-of-poverty threshold

Figure 3 below shows the total reference budget for a single woman in Antwerp, Barcelona and Helsinki expressed as percentage of the at-risk-of-poverty rate. As explained before, it is important to keep in mind that the budgets are specifically developed within the context of reference cities for hypothetical family types, while the at-risk-of-poverty rate is calculated for the population as a whole. Housing costs for renting on the private market (as shown in Figure 2 above) are included, which substantially increases the level of the reference budgets. Expressed as percentage of the at-risk-of-poverty threshold, the lowest percentage can be found in Antwerp and the highest in Barcelona. In Antwerp and Helsinki, the level of the total reference budgets reaches (nearly) the poverty threshold. In other words, the comparison suggests that single persons living with an income around the at-risk-of poverty threshold in wealthier Member States, who live in an urban region and have no health problems, are financially able to participate adequately in society. By contrast, in Barcelona an income at the level of the poverty threshold does not seem to reflect the income that is needed for adequate social participation. Obviously, housing costs play a major role, and the prevalence of renting a dwelling on the private market varies strongly across countries and cities.

Figure 3. Total ImPROvE budgets expressed as percentage of the AROP60 threshold in three cities, single woman, 2014



Source: ImPROvE budgets 2014 (Goedemé et al. 2015b). AROP60 2015 (incomes year 2014) from Eurostat.

Before explaining our method of how RBs can be adjusted in order to construct poverty thresholds, it is important to emphasize that RBs face particular problems of robustness. For a large scope of items the number, quality, brand, shop and lifespan have to be defined. This requires a continuously balancing exercise to reconcile sensitivity to the local context and cross-national comparability. The latter is mainly challenged by the elusiveness of the targeted living standard, the limited robustness in the procedures and the lack of internationally comparable data on the needs and expenses of households and on the prices and lifespans of items (Goedemé et al. 2015a; Goedemé et al. 2015b).

Method: reference budgets as a poverty indicator

In this section the aim is to explore how the RB data can be used for the measurement of poverty and to elaborate on the preparatory steps that need to be taken. The use of RBs as a poverty threshold involves several steps: (1) calculating the cost of additional household members (adults and children of different ages); (2) extrapolating the RBs to the entire population; (3) application of the RBs to a representative survey (in this case, EU-SILC) to estimate the number of persons with an income below the threshold.

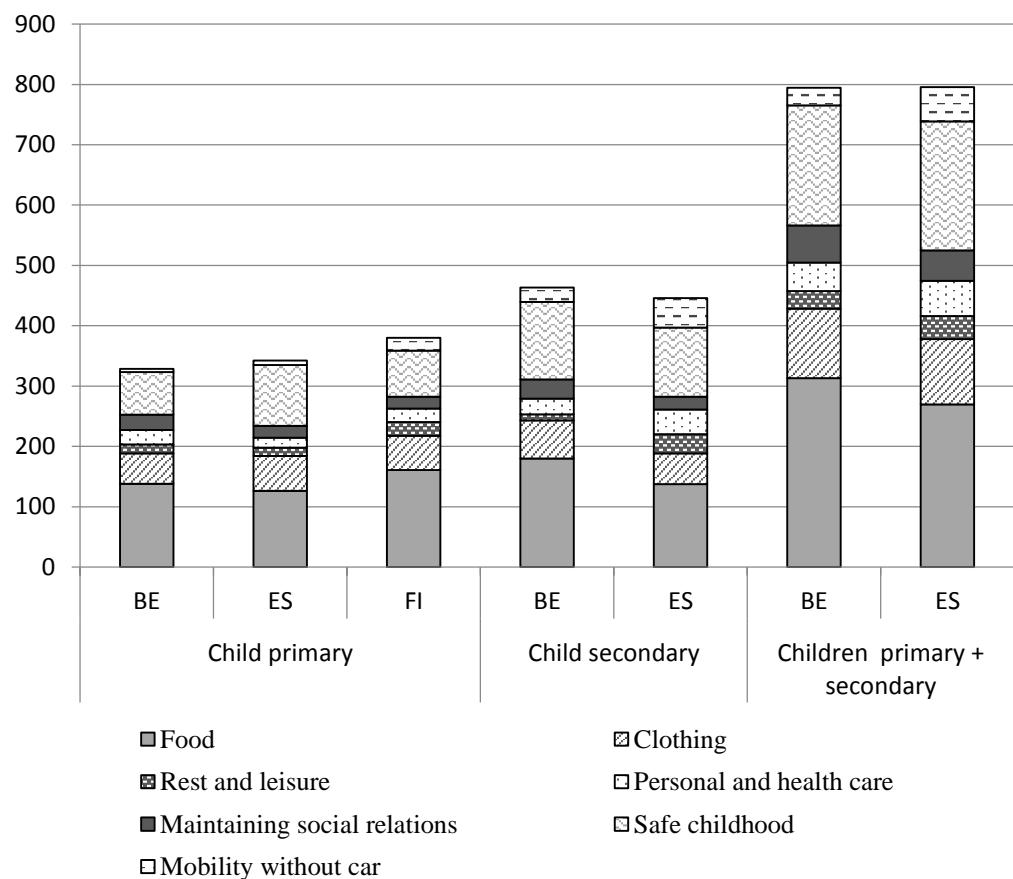
The cost of an additional household member

As mentioned earlier (section 3.1), an important limitation of the ImProvE reference budgets is that they are constructed for hypothetical household types with specific characteristics (e.g. regarding their age and health status) and household constellations. As a result, equivalence scales cannot be estimated for other household compositions, or for persons confronted with other (health) circumstances, without making additional assumptions about the generalisability of the reference budgets. On the basis of the existing reference budgets we have information on the costs of the first and the second adult, a child in primary school (a boy) and a child in secondary school (a girl). As mentioned above, RBs for Helsinki are developed for household types including children of different ages. This means that in the case of Helsinki, the cost of children in pre-primary and in primary school can be calculated, but there is no information about the specific needs and costs of a child above the age of 12.

Based on the total budgets of the abovementioned family types, the costs of a second adult and children of different ages are derived, taking the budget of a single person as a reference. In order to do this, we deduct the total cost of a

childless family from that of a family with children (cf. Oldfield and Bradshaw 2011). The graph below shows the cost of a child in primary and in secondary education in a single parent household across the three cities.

Figure 4. Comparison of the costs (without housing) of children at the age of primary and secondary education, living in single parent families in Antwerp, Barcelona and Helsinki*, 2014



Source: ImProvE budgets 2014 (Goedemé et al. 2015b), excluding housing costs.

Note: *In Helsinki only the cost of children in primary education is available

In line with other studies, it can be observed that the cost of a child generally increases with age (Oldfield and Bradshaw 2011; Thévenon 2009). The costs that increase most with age concern the baskets food, safety in childhood, personal and health care and mobility. However, there are also a few costs that decrease with age such as babysitting costs included in the leisure basket. Importantly, we did not include childcare costs. The real costs of younger children will be underestimated when families make use of child care services, which probably would also increase differences across countries. For families with two children, economies of scale may reduce the costs, particularly with respect to housing and utility costs (which are not included in the graph above) and furniture. Regarding the other costs, economies of scale are rather negligible at the level of what is minimally necessary for adequate social participation. However, we did not take account of practices related to “passing on” of materials such as clothes and toys, which are probably an important source of savings in the daily reality of most households.

The figure above illustrates important cross-national variations in the costs of children of different ages. These differences can be explained by differences in price levels, but also by differences in socio-cultural and institutional contexts. Especially the different public investment in goods and services has an important impact on the variation across cities. For instance, when we look at health care, the cost of younger children is higher in Antwerp since it is the only city of the three where people need to pay a fee for a visit to the GP. On the other hand, the health care costs of teenage girls are lower in Antwerp, since the cost of contraceptives (pill) is fully covered by the state. We also observe a high budget of ‘safety in childhood’ for Barcelona. This can be explained by the high costs of

education⁷⁰ compared to the other cities. In Antwerp the maximum billing regulation that puts a ceiling on parents' costs in primary education is not applied in secondary education, which raises the costs of older children when they move on from primary to secondary education. A final example are the differences between countries in reductions for public transport. In Antwerp and Barcelona, children below the age of 12 travel (nearly) for free, while in Helsinki the same price is charged for all children between the ages of 7 and 16. In Barcelona the cost of public transport increases considerably for children in secondary education, but in Antwerp children below 25 years old can still travel at reduced prices.

The level of the threshold without housing costs

In this section we illustratively derive an equivalence scale, based on the ImPROvE reference budgets for Antwerp, Barcelona and Helsinki. As stressed before, this equivalence scale only applies to an income (and consumption pattern) at the level of the reference budgets.

The first step for deriving an equivalence scale includes the calculation of the cost of an additional adult or child in the household, as illustrated in the previous subsection. Second, for calculating the number of households with an income below the level of reference budgets, the equivalence scale should be generalized to the entire population. For doing so, we made some rough assumptions. Firstly, we take the average budget for males and females, although the reference budgets for men/boys and women/girls vary slightly because of the different needs with regard to food intake, health care, personal care and clothing. Nonetheless, the

⁷⁰ All direct and indirect costs of education are taken into account (registration fees, equipment, lunches, books, uniforms, insurances, excursions...). For secondary school attendance it includes the average costs that are accompanied with studying a general discipline (no specific specialization).

gender status does not result in significant differences in total costs. Also, we make no distinction between persons in paid employment and those not in paid employment. Importantly, the ImPRovE budgets do not contain information on the costs of students in higher education (>18 years). Belgian reference budget research indicates that the minimum required resources for a student in higher education may exceed those of a single adult (Bogaerts et al. 2014; Storms et al. 2015; Van Thielen et al. 2010). The cost is slightly higher than the cost of a teenager for students living at home, but the costs rise sharply for students in need of student housing. As an approximation we allocate students the same budget as for single persons in all cities, which means that the level of the reference budget doubles when a student is added to a single person household. Similarly, there is no information for Antwerp and Barcelona on the cost of a child aged less than 6 years. National reference budgets research shows that the cost of children in pre-school is lower than the associated costs of older children, when child care is not needed (Lehtinen and Aalto 2014; Mäkinen 2015; Oldfield and Bradshaw 2011; Storms et al. 2015). Hence, for Antwerp and Barcelona it is assumed that the cost of children younger than six is two thirds of the budget of children of primary school age.

Finally, there is no cross-national information about the specific needs and costs for elderly people who are retired. Belgian reference budgets research suggests that the minimum required resources for elderly who live independently, without serious health problems, do not deviate much from those for adults at working age (Storms et al. 2015; Van Thielen et al. 2010). Hence, for the purpose of this illustrative exercise, all adults older than 18 years, who are not studying, are assigned to the same minimum budget. As explained before, this will most likely result in an underestimation of poverty for people in a bad health situation, given their specific needs.

The budgets for different age categories are used to calculate ratio factors taking as a reference the budget of a single person. The resulting equivalence scales can subsequently be used to estimate reference budgets for household types that do not strictly meet the descriptions of the original hypothetical households. In sum, we extrapolate the RBs to the complete population as follows:

- 1) The base line is the reference cost of a single person without housing costs. In order to define this base line, the average cost of a man and a woman is calculated. The following budgets (expressed in EUR/month) are taken as starting point for the three cities:
 - Antwerp: 489 EUR (F=481; M=497)
 - Barcelona: 437 EUR (F=422; M=453)
 - Helsinki: 575 EUR (F=580; M=570)
- 2) In order to be in line with the year of income data in EUSILC 2012, the reference budgets of 2014 are converted to prices of 2011 using the harmonized consumer price index (HCPI) available from Eurostat.
- 3) Based on the RBs for different household types, a separate budget is derived for individual household members with different age profiles. Because of the limited number of household types, several assumptions are made in order to generalize to the broader population.
 - In Antwerp and Barcelona, the cost of children <6 years old is equal to 2/3 of the cost of children between 6-11 years old.
 - In Helsinki, the cost of children between 12-17 years equals the cost of a second adult
 - The cost of students between 18-25 years old is similar to the budget of a single person household.
 - The cost of a second adult is assigned to every additional person in a household who is 18+ years old and who is not studying, independent of differences in gender and labour market situation.

4) Finally, the cost of various additional family members is set in proportion to the base line. In this way “equivalence scales” are obtained at the level of reference budgets without housing costs.

Table 1. Equivalence scales at the level of the RBs with variation of housing costs for Antwerp, Barcelona and Finland compared to the modified OECD scales.

	Mod. OECD scale	Reference budgets – without housing costs			Reference budgets - private tenant			Reference budgets - outright owner		
		BE	ES	FI	BE	ES	FI	BE	ES	FI
1st adult	1	1	1	1	1	1	1	1	1	1
2nd adult	0.5	0.67	0.73	0.79	0.43	0.37	0.48	0.56	0.62	0.64
child 0-6	0.3	0.44	0.50	0.62	0.29	0.29	0.48	0.35	0.44	0.56
child 6-11	0.3	0.66	0.75	0.67	0.44	0.43	0.50	0.52	0.66	0.60
child 12-17	0.5	0.93	0.98	0.79 ⁷¹	0.58	0.54	0.48	0.72	0.84	0.64
Student	0.5	<i>1</i>	<i>1</i>	<i>1</i>						

Source: ImProvE budgets 2014 (Goedemé et al. 2015b). The factors in italic are based on interpolations from other budgets or other studies.

⁷¹ As the household types for Helsinki do not include the cost of a teenager it is, based on national RBs research, assumed that this cost is similar to the cost of a second adult. The Finnish RBs estimated an equivalence scale of 0.7 for a teenager and 0.75 for the second adult without housing costs (Lehtinen and Aalto 2014). However, as they did not have the full data at use, the cost of a

Table 1 shows the derived equivalence scale at the level of the reference budgets for three different housing situations in Antwerp, Barcelona and Helsinki, compared to the modified OECD scale. In order to illustrate the housing costs of private tenants and outright owners, we used the housing budget of qualitative dwellings as estimated in the ImPROvE project, as explained above in section 3.2 (Van den Bosch et al. 2016). Some significant differences across countries can be observed. In Barcelona, the equivalence scales are steeper compared to the other two cities when no housing costs are included or in the case of low housing costs (outright owners). When comparing the factors for private tenants the reverse is true and equivalence scales are the flattest for Barcelona due to the higher housing costs.

The table mainly illustrates the important role of the (shared) housing costs in economies of scale. When housing costs are added, equivalence scales become less steep due to the large shared cost. It is also shown that economies of scale strongly depend on the tenure status, even though this is usually neglected. The possibility to calculate different equivalence factors for different housing situations is a clear advantage of the reference budgets. Also the needs of children of different ages are better reflected, since the modified OECD scale takes the same factor (0.5) for adults and children of 14 years and older and a lower factor (0.3) for younger children (<14). Reference budget research finds that the cost of children is generally higher, increases with the age of the child, and even exceeds the cost of a second adult in the case of teenagers and students. In other words, the modified OECD scale probably underestimates the cost of children, especially for families with low housing costs (outright owners or subsidized rent).

teenager does not take into account the commodities that the household uses jointly. This approach probably underestimates the cost of teenagers.

Application of the thresholds to EU-SILC and the treatment of housing costs

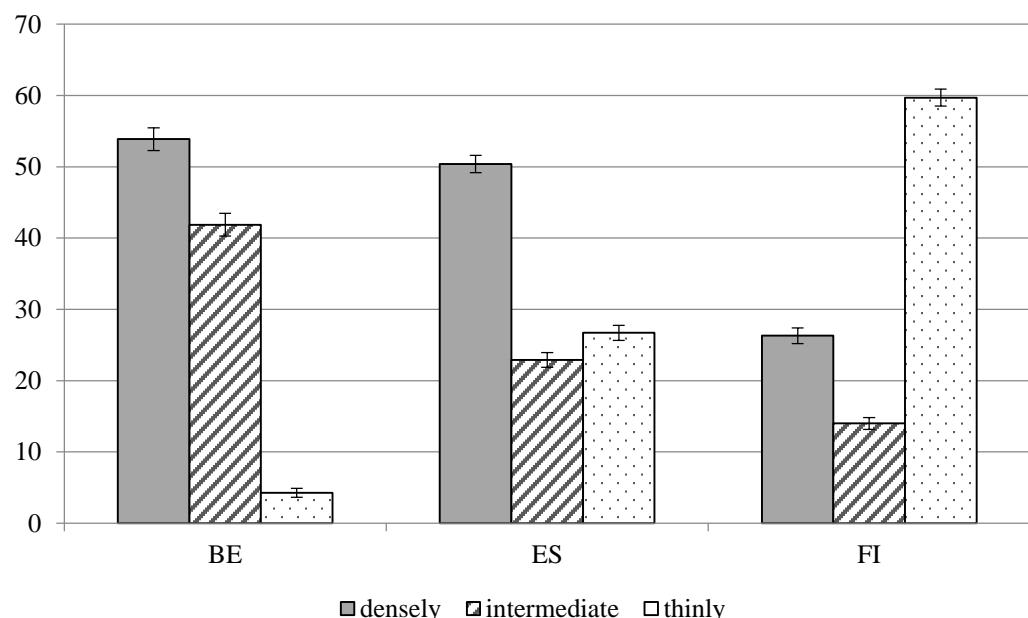
In a last step, we calculate the number of persons with an income below the level of reference budgets. For doing so, we make use of the EU Survey on Income and Living Conditions (EU-SILC), which contains a representative sample of private households (e.g. Marlier et al. 2007). More in particular, we make use of EU-SILC 2012 (version 3). The sample contains information on 5.817 households in Belgium, 10.307 in Finland and 12.714 in Spain. Since RBs refer to the out-of-pocket-costs of essential goods and services, we compare their level to the total disposable household income, assuming that household members share equally in the incomes and costs of all household members. Disposable household income includes taxes, benefits and allowances, and is measured in the representative and cross-nationally comparable European Survey of Income and Living Conditions (EU-SILC) (Marlier et al. 2007; Goedemé 2013).

Subsequently, a first illustrative attempt can be done to estimate the number of people with a net disposable income below the level of the reference budgets for Belgium, Spain and Finland. The estimations are based on the EU-SILC data for the year 2012. The income reference year is the year before the survey year. Therefore, the ImPROvE reference budgets constructed for the year 2014 are converted to the year 2011 using the harmonised consumer price index (HCPI) available from EUROSTAT. We calculate 95% confidence intervals, taking as much as possible the complex sample design of EU-SILC into account (cf. Goedemé 2013).

A significant challenge is that the reference budgets are constructed for reference cities (Antwerp, Barcelona and Helsinki) which cannot be considered representative for the country as a whole due to the regional differences in prices and needs (see above). Because of lacking information on the regional level for

Belgium we were not able to make use of the NUTS-2 level variable in EU-SILC. In contrast, we restrict for all three countries the sample to households living in densely populated areas. Many cultural and institutional (e.g. public transport) differences are related to the degree of urbanization, but regional variation may be important as well. When interpreting the results, it is important to keep in mind that the proportion of people living in densely populated areas is not the same across countries. The figure below shows that in Belgium and Spain more than half of the people live in densely populated areas. In contrast, only 26% of the households in Finland live in densely populated areas. It is clear that one should not infer the results presented below to the broader population.

Figure 5. The proportion of people living in densely populated areas for Belgium, Finland and Spain.



Source: EU-SILC 2012 version 3.

Note: 95% confidence intervals, sample design taken into account (Goedemé 2013).

A particular challenge for this exercise, is the treatment of housing costs. There are at least two different ways of including housing costs:

- 1) The first option is to start from reference housing costs, which reflect the cost for different tenure statuses of renting an adequate dwelling at the 30th percentile (Van den Bosch et al. 2016). Unfortunately, due to data limitations this exercise can take only to a limited extent regional variations in housing prices into account. In addition, it is not very clear whether all households with higher housing costs would be able to find an adequate dwelling at that cost, if they wanted to.
- 2) The second option is to add actual housing costs to the household-specific reference budget, before comparing it to the disposable income of the household⁷². More precisely, EU-SILC contains a variable (HH070) which contains the monthly rent or mortgage and the additional utility costs and other housing-related charges that households need to pay at the moment of the survey. Housing benefits are directly paid to the landlord and not deducted from the total housing cost which means they might be somewhat overestimated. By simply adding real housing costs to the reference budget, we assume that these housing costs correspond to the minimum necessary for adequate social participation, given the current situation of households. Obviously this is a strong assumption: quite a few households may be spending more than what is strictly necessary, whereas others may live in inadequate housing situations.

In this paper, we stick to the second option. It is important to keep in mind that real housing costs do not give information on the quality of the dwelling which means that people living in poor but low cost housing conditions may not be identified as living in poverty. On the other hand people, with excessive housing costs could be identified as poor while their housing conditions are high above the minimum. To limit the latter factor, we have top-coded housing costs at the 99th

⁷² This is equivalent to comparing the RBs without housing costs to disposable income after housing costs.

percentile. In the future it would be interesting to explore also the normative approach, and compare both results to gain more insight on the relation between housing costs, housing conditions and poverty.

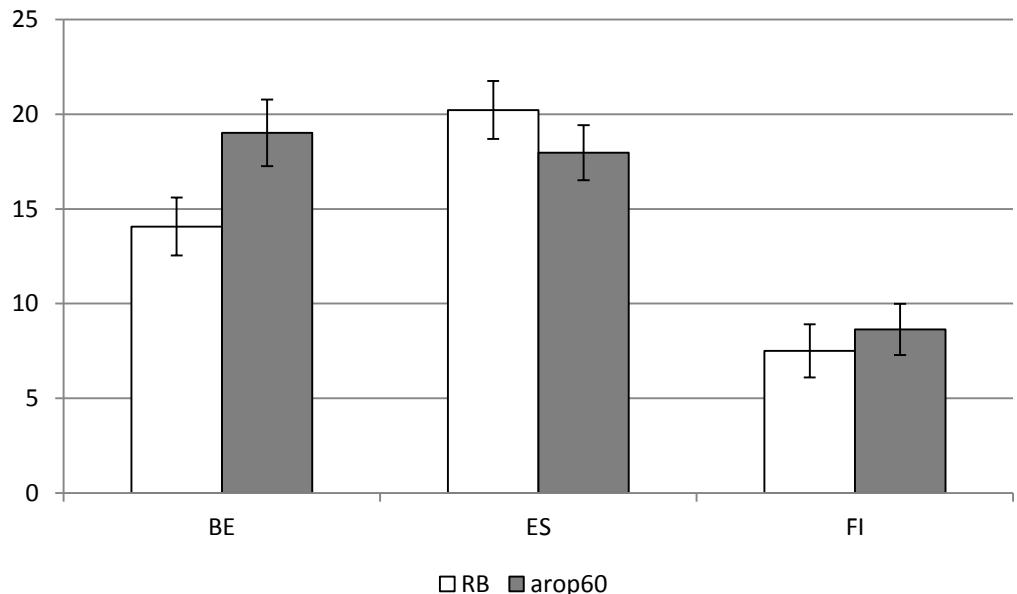
In principle, as is the case for housing costs, we would like to take account of other large costs that people may face, and which are not covered by the reference budgets, in particular child care and health care. However, in contrast to housing costs, information on the out-of-pocket costs for these services is not available in EU-SILC.

Results

The starting point for each country are the reference budgets without housing costs, developed for specific cities. By multiplying this budget in every country with the equivalence scale (without housing costs) for each household member of different ages, a reference budget is allocated to all families in the sample. Then, as explained in the previous section, the real housing costs of each household are included which results in household-specific poverty thresholds taking into account differences in household composition and housing costs.

Figure 6 below shows the proportion of people in densely populated areas, whose net disposable household income after housing costs is below the level of the RBs for Belgium, Spain and Finland. The white bars illustrate the results when using reference budget thresholds including real housing costs as explained above, the grey bars show the results of the at-risk-of-poverty rate.

Figure 6. The percentage of people living in a household with a net disposable income below the RB threshold or the AROP60 threshold in Belgium, Finland and Spain, densely populated areas.



Source: EU-SILC 2012 version 3.

Note: 95% confidence intervals, sample design taken into account (Goedemé 2013).

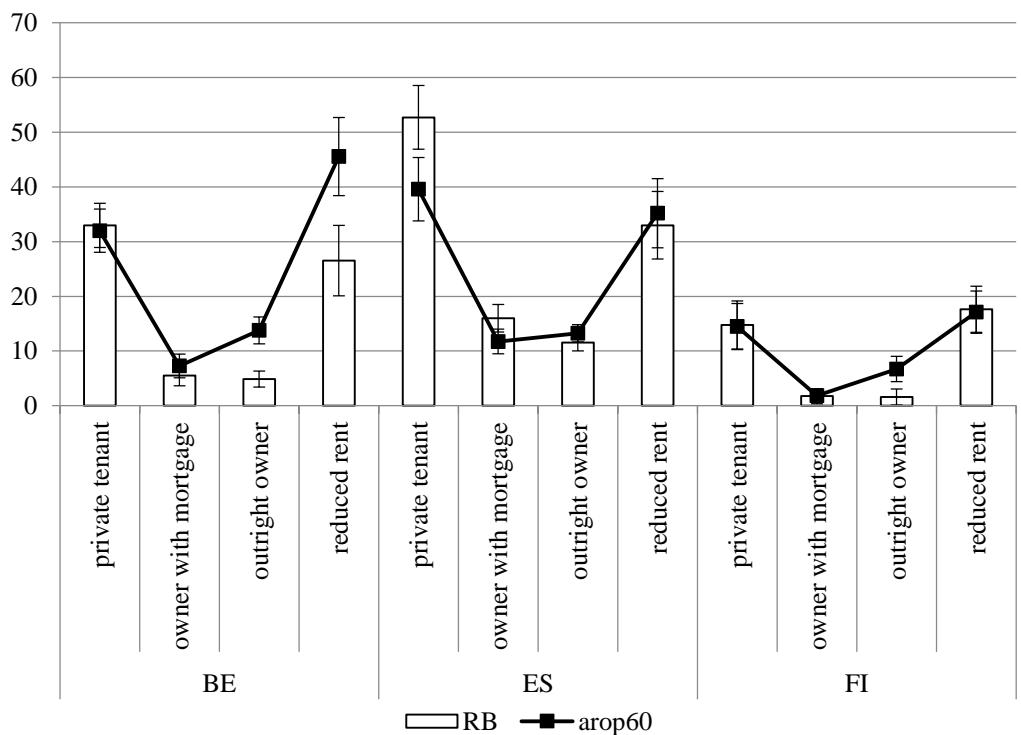
In Spain the percentage of people in densely populated areas with inadequate income to achieve the level of the reference budgets is the highest (20%), followed by Belgium (14%) and Finland (8%). When measured with the at-risk-of-poverty rate, the poverty percentage reaches a higher level for Belgium (19%) and Finland (9%), but in Spain the estimates end up lower (18%). As we illustrated above, the RB indicator suggests that in Spain an income at the level of the poverty threshold is too low to participate adequately in society.

As mentioned earlier, we must keep in mind that reference budgets are developed for specific household types reflecting a lower bound. In many cases, more

financial resources are needed to participate adequately in society. As is the case with the at-risk-of-poverty indicator, poverty rates are probably underestimated for people with limited competences, problems with budgeting, with a limited social network, bad access to information resources, with severe health problems or disabilities, inadequate housing or no access to public services.

More importantly, the question is whether both the RBs-based measure and the at-risk-of-poverty measure result in the identification of the same groups at risk. We discuss poverty by tenure status, household type and age groups.

Figure 7. Proportion of people with a net disposable income below the thresholds for densely populated areas, by tenure status

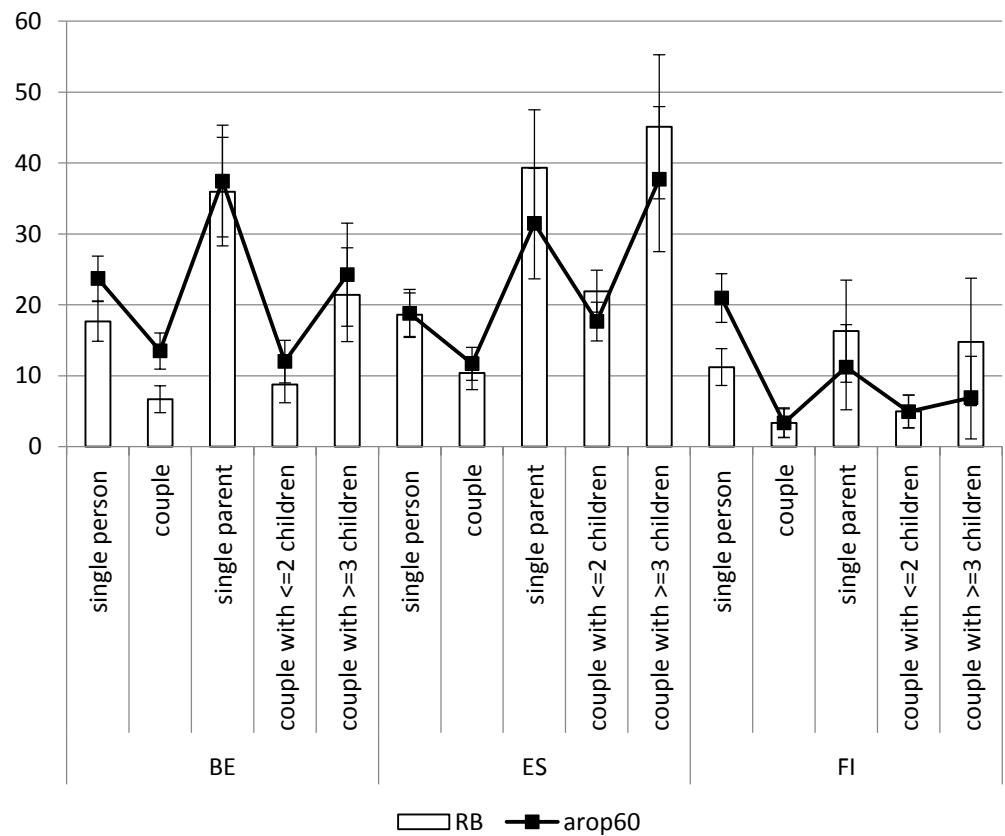


Source: EU-SILC 2012 version 3.

Note: 95% confidence intervals, sample design taken into account (Goedemé 2013).

The graph above illustrates that even though those who pay a reduced rent tend to have low incomes (their at-risk-of-poverty rate is relatively high), the fact that they have reduced housing costs helps to raise their remaining income above the level of reference budgets. In particular, the relative risk of those renting on the private market and those paying reduced rent is assessed considerably differently in Belgium and Spain when comparing both approaches to poverty measurement. For both countries, the RB indicator shows that governments should be at least as concerned about households renting on the private market as about those renting in the reduced rent sector. In Belgium and Finland outright owners, and in Belgium also tenants who pay reduced rent, face a significantly lower poverty risk when this is measured using the RB threshold in comparison with the at-risk-of-poverty rate.

Figure 8. Proportion of people with a net disposable income below the thresholds for densely populated areas, by household types



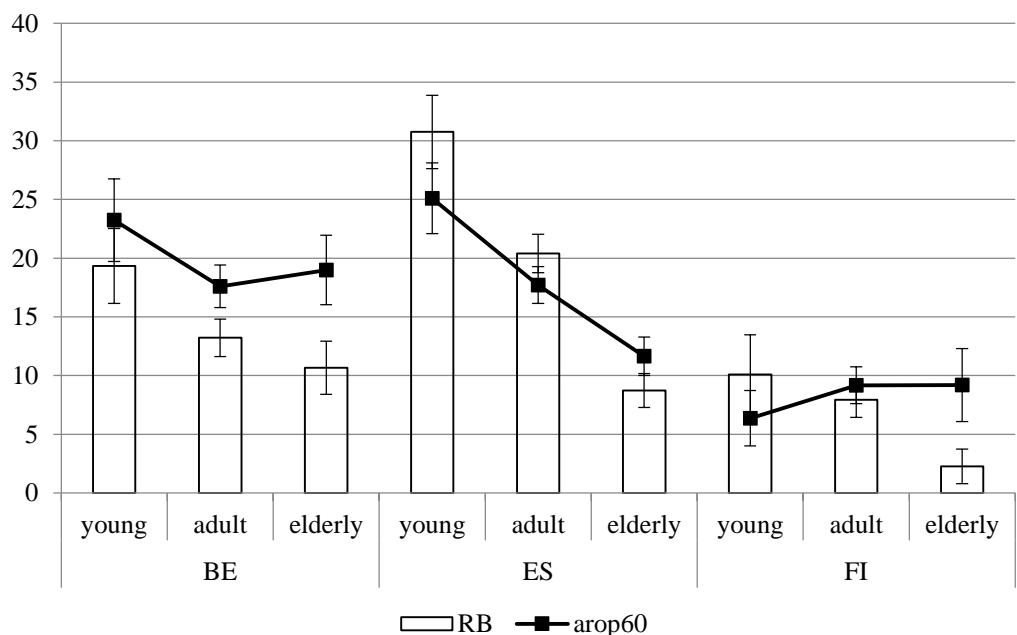
Source: EU-SILC 2012 version 3.

Note: 95% confidence intervals, sample design taken into account (Goedemé 2013).

When we differentiate the poverty rates by household types, both the at-risk-of-poverty indicator and the RBs identify the same groups as those with the highest level of poverty. With both indicators, single parent families are generally the most vulnerable household type. In Belgium and Finland, the at-risk-of-poverty threshold seems to over-emphasise poverty among single persons (and in Belgium also among couples) without children compared to the RB threshold. In Spain and

Finland poverty rates for single parent families and couples with more than three children increase when the RB threshold is used.

Figure 9. Proportion of people with a net disposable income below the threshold for densely populated areas, by age groups



Source: EU-SILC 2012 version 3.

Note: 95% confidence intervals, sample design taken into account (Goedemé 2013).

The last graph shows the proportion of people with a net disposable household income below the RBs or the at-risk-of-poverty threshold for different age groups. When measured with the RB indicator, poverty rates are the highest for people below the age of 18 in the densely populated areas of all three countries. In Spain a similar result is obtained when measured with the at-risk-of-poverty indicator, but in Belgium and Finland poverty is significantly higher for elderly persons (over 65 years old), resulting in an (almost) inverse picture compared to the RB

indicator. This is most likely mainly the result of taking housing costs into account: many elderly persons have a relatively low income (at least in Belgium and Finland), but at the same time they have a higher likelihood of low housing costs due to full ownership of the dwelling. As a result, they do rather poorly when housing costs are ignored, and relatively well if housing costs are taken into account.

Discussion: the limitations of reference budgets as a poverty indicator

In the previous section we have illustrated how reference budgets could be used as poverty thresholds and complement the at-risk-of-poverty indicator. More in particular, reference budgets illustrate how the at-risk-of-poverty threshold does not represent the same living standard across different EU Member States and different subgroups in the population. At the same time, the results should be interpreted with caution. The original purpose of reference budgets is not to estimate poverty rates but to create a benchmark against which an adequate living standard can be assessed. As such, reference budgets do not provide information on the number of people with insufficient financial resources to acquire an adequate living standard. When RBs are used as poverty lines, we identified three main challenges. Firstly, as indicated above, reference budgets face problems of robustness because of their concrete and detailed character and the lack of cross-nationally comparable expenditure data and price and lifespan information. Secondly, we pointed at the limitations of the EU-SILC dataset which lacks microdata containing information on the needs and essential expenditures of households. And last but not least, reference budgets are developed for a limited range of hypothetical households on the basis of specific assumptions. Many of these assumptions do not generally apply to the broader population, and in particular not to households living on low incomes. In order to be able to better

apprehend the implications of these assumptions, in what follows we briefly review the literature on the discrepancies between the abovementioned characteristics of the household types and the observed characteristics and circumstances of real households. In addition, we explore how these discrepancies affect the level of the reference budgets and their use as a poverty line. Consecutively, we discuss assumptions with regard to: (1) being well informed and having ‘normal’ competences; (2) being in good health; (3) making use of available public goods and services; (4) living in an adequate dwelling.

Informed people with normal competences

An important assumption is that households are aware of correct information about requirements of adequate social participation (e.g. healthy living patterns, their entitlements to public goods and services) and the cost of goods and services, and, moreover, have the capacities to use this information to act economically. This might not be self-evident for everyone. Comparing different prices, mastering one’s budget and taking up all social rights require specific resources such as time, reliable information, social networks, access to institutions and skills such as being literate or even higher educated. In addition, continuously making economic choices takes time, energy and long-term budget strategies. Recent psychological research shows that scarcity of income (but also of other goods such as time) limits people’s cognitive capacities, leading to more impulsive purchases and less budget control (Mullainathan and Shafir 2013).

Access to information and the ability to compare prices is increasingly related to digital literacy, which is not distributed equally. In particular people living on low incomes, elderly and low educated lag behind because of limited financial and psycho-social capacities (Hargittai 2010; Mariën and Van Audenhove 2011;

Selwyn 2004). In this case a budget that fulfils material needs for internet use will not suffice, as also extensive training and support are necessary to strengthen the competences of people with different backgrounds. If people lack the assumed competences the level of the reference budget threshold will not allow for adequate social participation, which means poverty rates could be underestimated.

Being in a good health

Many people are confronted with health problems for which they need additional (financial) resources. This is particularly problematic as a wide variety of studies has shown a strong correlation between (self-reported) health status and a low socio-economic background (e.g. Van Doorslaer et al. 2004; Hernández-Quevedo et al. 2006; Lynch et al. 2000; Knoops and van den Brakel 2010; Mackenbach et al. 2008). Comparative research also reveals substantial differences in health inequalities between countries (Hernández-Quevedo et al. 2006; Mackenbach et al. 2008; Marmot 2002). Studies confirm that countries with a low GDP, low accessibility of services and higher levels of inequality perform worse with regard to socio-economic inequalities in health (Van Doorslaer et al. 2004; Kawachi and Subramanian 2014; Lynch et al. 2000; Mackenbach et al. 2008; Marmot et al. 2012).

The income-based inequalities in health are a result of three main processes that work in different directions. First of all, health problems can result in a loss of income due to the extra costs caused by conditions of sickness or disability or to the decreased possibilities to gain income from work (e.g. see Decock et al. 2001; Hill et al. 2015; Zaidi and Burchardt 2005). Secondly, in addition to the direct and indirect costs related to health problems, people with chronic diseases or disabilities need additional resources to overcome barriers in order to participate

adequately in other domains (Mithen et al. 2015; Vermeulen and Hermans 2013; Van Thielen et al. 2010). Thirdly, the underlying explanatory factor is the harmful effect of low income on health status (Hernández-Quevedo et al. 2006; Marmot 2002; Muennig 2008). First of all, this can be explained by the effects of inadequate food intake, bad sanitation and low quality housing conditions. Secondly, low income is related to low levels of education, low quality jobs, unemployment and social exclusion, which are known to have a negative impact on health (e.g. Marmot 2002). Further, also long-term psycho-social effects of living in poverty can increase the risk of physical and mental health problems (e.g. Lynch et al. 2000). Finally, people with lower socio-economic status may have unequal access to health care due to financial or social barriers, which can result in a procrastination of medical treatment (Després et al. 2011; Mackenbach et al. 2008; Van Doorslaer et al. 2004; Van Doorslaer et al. 2006). It is an empirical question whether the level of reference budgets allows for sufficient budget space to avoid mental and physical health problems in the long term. Given that we have ignored the additional financial means that sick and disabled persons need to enable adequate social participation, poverty rates will most certainly be underestimated.

Accessible public goods and services

Another assumption implies that families make use of accessible public goods and services, such as health care services, education and public transport. RBs take account of the out-of-pocket costs that are needed to make use of these services, but no additional monetary or non-monetary costs are included in the case people do not have full access. The problem is that we cannot assume that public goods and services are equally used (Ghysels and Van Lancker 2011; Cantillon and Van Lancker 2013). There exists indeed evidence of low-income families making

limited use of universal childcare (e.g. Ghysels and Van Lancker 2011; W. Van Lancker 2013), participating less in higher education (e.g. Marical et al. 2008; Verbergt et al. 2009) and refraining from visiting medical specialists (e.g. Després et al. 2011; Morris et al. 2005; Van Doorslaer et al. 2006). Various factors are mentioned in literature, among which are financial and cultural barriers, attitudes and beliefs, inadequate information and spatial segregation. If people receive an income at the level of the reference budgets, the problem of affordability should disappear but other psycho-social forms of exclusion may persist. Consequently, if we do not take account of this limited accessibility of services for low income families, an important aspect of poverty may be neglected.

In many countries low-income families have the right to pay reduced tariffs for making use of publicly provided services such as health care and education. The question is to what extent these price advantages should be taken into account in order not to overestimate poverty. Even if means-tested benefits, cost-compensating measures or public goods such as social housing are specifically targeted at people in poverty, there are problems with restricted eligibility, accessibility and information which results in non-take up (Ditch et al. 2001; Eeman and Van Regenmortel 2013; Hernanz et al. 2004). Hence, some cost-reducing measures are not taken into account for the construction of the ImPProvE reference budgets because of the lack of information on the implementation and take-up of social tariffs such as rent premiums, public transport and health care reductions or a maximum tariff for electricity and gas. Also, eligibility may depend on the income that people have, which in the case of reference budgets depends on their out of pocket costs. In other words, assumptions regarding hypothetical households' income are endogenous. Nonetheless, it would be interesting to repeat the exercise taking account of the most important cost reductions to which low-

income families are entitled. In this paper, only the effects of social rent are to a certain extent included.

Adequate housing

Finally, assumptions were made in order to estimate what families need at the minimum for adequate housing. There is a large variation in national and regional housing policies which determines differences in housing costs and in the predominant tenure status between and within countries (Ball 2005; Fahey et al. 2004; Rybkowska and Schneider 2011). Not only housing costs and tenure status but also the related housing conditions differ largely across countries, regions and socio-economic groups. In 2009, 30 million people in the EU suffered from severe housing deprivation (Rybikowska and Schneider 2011). Differences in housing quality can be explained by differences in general wealth, housing policies, the rate of homeownership and the role of family support in housing provision (Mandic and Cirman 2012). Especially in the Eastern European Member States the problem of poor housing conditions is frequently occurring. Many dwellings are in disrepair since families lack the financial means for renovation. Moreover, due to a lack of investments the housing options are very limited for new households (Rybikowska and Schneider 2011; Lelkes and Zólyomi 2010; Ball 2005; Mandic and Cirman 2012). But also in more wealthy EU Member States many families with a low socio-economic status face poor housing conditions. In all countries, people with an income below the at-risk-of-poverty threshold report more often problems with inadequate or lacking basic facilities, leaking roofs and lack of space (Rybikowska and Schneider 2011; Lelkes and Zólyomi 2010).

As we have explained (see above 4.3) housing costs can be calculated in two different ways, starting from different assumptions. By including real housing costs, we take account of the limitations of the housing market and demonstrate

concrete differences across countries and different socio economic groups. However, we do not know how the costs relate to the quality of the housing. Possibly, housing costs are affordable and people are not classified as poor, although they are confronted with bad housing conditions or lacking basic facilities. Moreover, adequate housing is not only a need by itself, it is also strongly interlinked with other needs such as health situation, social networks, access to facilities, security and mobility. If the assumption of adequate housing is not fulfilled, this will interfere with the cost of other baskets of goods and services in the reference budgets.

Conclusions

In this paper we have explored how cross-nationally comparable reference budgets could be useful instruments for measuring income poverty within a European context. Reference budgets are priced baskets of goods and services, reflecting the resources that people need at the minimum to adequately participate in society. When constructed in a cross-nationally comparable way, they show how adequate living standards differ across the EU, and, as a consequence, contribute to the discussion on poverty concepts and poverty measurement. In two recent EU-funded projects, a first attempt has been made to construct such cross-nationally comparable RBs, based on a common theoretical and methodological framework. We have argued that these rich and comparable data have the potential to contextualise other poverty indicators as well as to develop an empirically needs-based poverty threshold, which combines the income and expenditure side of household budgets.

The data used in this paper are derived from the reference budgets developed within the ImPRovE project for three reference cities: Antwerp, Helsinki and

Barcelona. The process to derive poverty thresholds involved three steps. Typically, reference budgets are developed only for a limited number of household types. Therefore, a first step was to estimate the costs of additional household members of different ages and subsequently derive equivalence scales. The results show how various institutional, cultural, and geographical differences between countries influence the level of the budget that adults and children need at the minimum to adequately participate in society. For instance, the necessary costs of children are relatively high in Barcelona compared to the other two cities, which is mainly due to the higher education costs. Taking account of the differences in needs and economies of scales across countries and household constellations, the results suggest that the adequacy of the frequently used modified OECD scale seems to depend largely on the housing situation (in all three countries, in situations where housing costs are low, the equivalence scales are much steeper), and underestimates the costs of older children (even in the context of high housing costs).

Because of its dominant share in the total budget of households, housing costs are an essential element of adequate poverty measurement. The usual approach is to calculate imputed rent (that is, the ‘benefit’ that people derive from owning a house or paying sub-market level rent), and add this amount to disposable incomes. In contrast, in the RB approach the cost of housing is included in the poverty threshold. Due to the large variation of housing costs across households it is important to explore different options to impute housing costs in the level of the threshold. In this paper, for illustrative purposes we simply added (top-coded) actual housing costs to the poverty threshold, as measured for each household in EU-SILC. Clearly, more sophisticated approaches should be explored. Ideally, real expenditure data should also be taken into account for other needs-based costs

that differ significantly across households and regions such as health care, education, child care and mobility costs. However, within a context of severe data constraints this was not considered feasible for the purposes of this paper.

Finally, we illustrate how RB thresholds can be used to estimate the number of people with a net disposable income below the threshold for Belgium, Finland and Spain; and how this compares to the usual poverty estimates on the basis of the at-risk-of-poverty indicator. Estimations are based on representative income data available in the EU-SILC for the year 2012, restricting the sample to densely populated areas (given that the reference budgets were developed for large cities). We have seen that poverty rates are the highest for Spain and the lowest for Finland, being in line with the conclusions based on the at-risk-of-poverty rate. However, when poverty is measured with the reference budget indicator, there are some important differences compared to traditional poverty outcomes. In Spain, poverty figures end up higher compared to poverty rates based on the at-risk-of-poverty indicator, while it is the other way around for Belgium and Finland. Supported by earlier findings, this leads to the conclusion that the at-risk-of-poverty threshold does not represent the same level of living standard across different EU Member States. The difference between both indicators becomes even clearer when the characteristics of those who are identified as poor according to both thresholds are compared. We can generally say that those renting on the private market, families with children and young people are relatively worse off when poverty is measured with the reference budget indicator compared to the at-risk-of-poverty rate.

Even though reference budgets may provide useful complementary information on poverty, there are various barriers to be overcome before reference budgets data can be used to construct a more valid poverty line. We have indicated three main

limitations (1) current EU-reference budgets are not fully comparable, are challenged by issues of robustness and can be improved further, especially with regard to data collection, pricing and lifespan assumptions, (2) the use of a RB methodology for poverty measurement requires detailed microdata with information on economic resources, as well as the needs and essential expenditures of households -in this paper we made use of EU-SILC, that does not entirely comply with these data requirements-, (3) RBs are constructed for a limited number of well-defined household types and cannot easily be extrapolated to the population as a whole. Acknowledging these limitations, the purpose of this paper is exploring and illustrating the possibilities of how RBs could be used as an informative benchmark for the European ‘at-risk-of poverty’ threshold, rather than developing an alternative poverty indicator.

Regarding the third limitation, it is crucial to emphasise that RBs refer to a lower bound of income that specific hypothetical households need for adequate social participation. The assumptions underlying the minimum cost of adequate social participation deviate most from the reality of households situated at the bottom of the income distribution. This means that poverty rates are probably underestimated for people with severe health problems or disabilities, limited competences (e.g. regarding efficient budgeting), deficient social networks, information resources, inadequate housing or no access to public services. It is also worth repeating that in this paper we have used RBs constructed for specific reference cities to estimate poverty levels at the country-level. Hence, even if we restricted the sample to densely populated areas, we can assume that regional differences in price and social context can bias the results to a certain extent. However, it should be noted that information on regional price variations within European countries is not

directly accessible. It would be extremely useful to have regional price level indices, in addition to the national price level indices published by Eurostat.

The analyses presented in this paper could be improved in many ways. First of all, the quality and robustness of reference budgets could be enhanced as suggested by Goedemé, Storms, Penne and Van den Bosch (2015a). In addition, we should consider constructing RBs for a broader range of household types. Second, in order to improve estimates of those with an income below the level of reference budgets, an enhanced micro-dataset with information on needs and expenditure across households and regions would be very useful. To some extent, household budget survey data could be used for this purpose, even though in contrast to EU-SILC, these data are not comparable across countries. Furthermore, it would be interesting to explore alternative ways of including housing costs. Finally, regional data on price differences as well as on cultural and institutional differences are indispensable to estimate poverty in a more accurate way across regions.

To conclude, this paper illustrates how RBs can be used for the contextualisation of other poverty indicators and how they could potentially enrich poverty studies. At the same time, it is clear that considerable methodological improvements are possible, and required. In our view, this offers a fruitful and rich agenda for future research, which could substantially contribute to a more accurate picture of poverty in Europe.

CONCLUSION

In this dissertation, I have endeavoured to contribute to the *cross-national study* and measurement of welfare state adequacy and poverty in Europe. In doing so, I relied primarily on the *Reference Budgets (RBs)* for adequate social participation that have been developed in a comparable way in a wide selection of European member states. RBs assess the minimum out-of-pocket costs that specific households have to make to be able to access essential goods and services, which has the advantage of taking the impact of public provisions or subsidies into account. By combining data, both on necessary expenses and disposable incomes, this dissertation aimed to develop and contextualise social indicators to (1) assess *affordability*, which is defined here as “the ability of households to afford a specific good or service without being forced to under-consume other essential goods and services” (see also Heylen and Haffner 2013), and (2) measure the *adequacy* of incomes, which is understood in terms of social participation, i.e. “having sufficient resources to be able to comply (or not) with the dominant social expectations in society”.

At the European level, a large set of social indicators is available for the evaluation of living standards and social policies in a comparative framework (Atkinson et al. 2002; Atkinson et al. 2017). This toolbox has been crucial in enhancing social rights in Europe, while at the same time becoming widely adopted by researchers to assess and measure the adequacy of welfare states and poverty within and across countries (Cantillon et al. 2019). Nevertheless, in this dissertation, I argued that these indicators remain incomplete in two respects. First, current comparative measures of income adequacy and poverty usually lack an empirical and normative underpinning of what an acceptable minimum entails across varying social contexts. In chapters 1 and 2, based on a joint effort by two large-scale EU

projects on RBs, we demonstrated that it is possible to develop a benchmark that builds on a common understanding of a decent living standard in the different member states. Second, traditional social indicators assessing affordability or income adequacy usually neglect the mutual relation between adequate incomes and the necessary out-of-pocket costs that households face to access essential goods and services. They particularly fail to take proper account of the impact of publicly provided or subsidised goods and services on the living standards of households with different needs (Aaberge et al. 2017; Verbist and Matsaganis 2014; Verbist 2017).

This doctoral thesis demonstrated the usefulness of cross-nationally comparable RBs in contextualising current social indicators (chapter 7) and contributing to studies on welfare state adequacy and poverty in Europe, by taking the (subsidised) necessary expenses of households into account (chapters 3-6 and 8). RBs were used to measure affordability and in doing so, they highlight that adequate income is of the utmost concern in ensuring access to essential goods and services (chapters 3 and 4). Vice versa, RBs were used to show that increasing the affordability of essential goods and services can positively affect the adequacy of living standards (chapters 5 and 6). Chapters 5, 6 and 8 have demonstrated how both concepts are strongly intertwined and need to be addressed jointly to accurately assess the effectiveness of social policies and to measure poverty across European welfare states. In what follows, I will summarize the main findings and limitations of this doctoral study and give directions for future research and social policy.

The road to cross-nationally comparable reference budgets

With this thesis, I have built on previous research on RBs and supported the further development and use of cross-nationally comparable RBs in Europe. In the

ImPROvE project (Goedemé et al. 2015b) and the EU Pilot project (Goedemé et al. 2015a), led by Bérénice Storms, Tim Goedemé and Karel Van den Bosch and collaborating with many international colleagues, we made a first attempt to develop cross-nationally comparable RBs for 6 large EU cities (Antwerp, Athens, Barcelona, Budapest, Helsinki, and Milan - Luxembourg later participated as a 7th city), and comparable food baskets for 26 EU capital cities. This dissertation both contributed to and strengthened this common effort, and explored how the collected data could be used to develop comparative social indicators for the study of welfare state adequacy and poverty in Europe.

The RBs concerned are embedded in a normative theoretical framework on human needs and adequate social participation, inspired by the Belgian method (cf. Storms 2012). In the two European projects further expanded on in this dissertation, we have strengthened and validated this theoretical foundation from a comparative perspective. We combined a needs and rights-based approach with focus group discussions that consulted citizens in each participating member state. This led to the conclusion that, at least at an abstract level, there is a shared understanding of what adequate social participation means and which needs should be minimally fulfilled in the different European countries. The results convinced us that there is sufficient common ground for the development of a meaningful benchmark through which to evaluate the adequacy of living standards in a comparable way across Europe.

In order to translate the list of human needs into illustrative priced baskets of goods and services for each country, our two EU projects followed a mixed-method approach (described in Goedemé et al. 2015a) that relied on a wide range of information sources. In these projects as well as in this dissertation, important steps were taken to go beyond procedural comparability, i.e. following common

procedures, and to maximise substantive comparability, i.e. representing the same level of living standard in the different countries (see Goedemé et al. 2015a). To improve substantive comparability, we developed household types with specific features and well-defined premises and started with a data collection on the societal circumstances in each country. This dissertation highlighted the large impact exercised by the institutional context and the accessibility of publicly provided or subsidized goods and services on the minimal financial resources needed to participate adequately in society. On the other hand, this doctoral thesis also revealed the limitations and challenges of developing such a comparable benchmark (see below).

What can we learn from reference budgets?

In the second part of this dissertation, I demonstrated how RBs can be used to develop comparative indicators to assess the impact of social policy and to evaluate the adequacy of living standards. Importantly, this is not to say that RBs should replace current social indicators. However, by demonstrating the out-of-pocket costs that households face to fulfil their needs for social participation, and in combining this insight with other information sources, they can be of added-value alongside current indicators. In doing so, they shed new light on welfare state adequacy and poverty in Europe. On the one hand, RBs were combined with hypothetical household simulations of tax and benefits through the micro-simulation tool HHoT in Euromod (chapters 4, 5 and 6) to assess the adequacy of incomes and social policies. On the other hand, RBs were imputed at the population level using representative survey data (EU-SILC), to estimate affordability risks and poverty rates (chapters 3, 4 and 8). Based on the newly developed RB-based indicators, the following main lessons can be drawn.

Affordability and income adequacy: a reciprocal relationship

First, in chapters 3 and 4, affordability problems were assessed based on the out-of-pocket costs that households have to make to fulfil their minimum needs and the net incomes they have at their disposal. Compared to traditional affordability indicators based on actual spending (e.g. Miniaci et al. 2008) and deprivation indicators (e.g. O. Davis and Geiger 2017), these new indicators helped to identify different at-risk groups. In chapter 3, we demonstrated that 10% of the Flemish population with needs-based water affordability problems usually stays under the radar when using actual spending indicators because they spend below what is minimally needed. In chapter 4, the food deprivation indicator⁷³ failed to capture a significant share of the population across Europe with an income (after housing costs) below the level of a healthy diet, especially in Romania, Bulgaria and Greece. Importantly, the affordability of one specific good or service for any given income also depends on the cost of other essential expenses (see also e.g. Haffner and Heylen 2011). When this is taken into account, the affordability of essential goods and services is also found to be a considerable problem in richer EU member states. For instance, given the cost of other essential goods and services, we have shown that in 16 out of 24 EU member states, at least 10% in (sub)urban areas has insufficient resources to access a healthy diet. In sum, using the needs-based affordability indicators allows for the identification of particularly precarious groups that include those in more affluent welfare states, putting inadequate incomes back at the heart of affordability problems.

Second, turning to income adequacy, we evaluated welfare state intentions through micro-simulations of tax-benefit policies in chapters 4, 5 and 6. In line with other

⁷³ Based on one of the dimensions included in the severe material deprivation indicator: “the inability to afford a meal with meat, chicken, fish (or vegetarian equivalent) every second day” (see e.g. O. Davis and Geiger 2017; Loopstra et al. 2015)

research (e.g. Marchal 2017), the results showed that minimum income schemes are generally insufficient to participate adequately in society in most EU Member States. In Eastern and Southern European countries, recipients of social assistance often have insufficient resources to even access a healthy diet and to rent a dwelling, let alone to satisfy other needs. In some of these countries, this is most likely not only a problem of redistribution but of low standards of living in general. In Bulgaria and Romania for instance, the cost of a healthy diet already amounts to half of the median income. But in many member states with overall high standards of living such as France, Belgium and Sweden, minimum income protection often also does not allow inhabitants to fulfil their minimum needs for adequate social participation. Moreover, not only social assistance incomes but full-time minimum (or equivalently low) wages for single-earners are also proven here to be insufficient for adequate participation in many EU societies. For families with children, we have shown that child benefit packages are generally insufficient to compensate for the direct costs of children and compensate less when children get older. Although these child-specific policies usually have a bigger impact at the lower end of the income distribution, in most of the countries under study, they fail to guarantee adequate social participation for single-earner families with children who rent their dwelling on the private market. The only exception to this rule is for low-wage workers in Helsinki.

A third and very important lesson is that income adequacy cannot be separated from the affordability of essential goods and services. This doctoral study aimed to improve insight into the impact of publicly provided or subsidized goods and services on the adequacy of living standards and poverty in Europe. We can conclude that reducing out-of-pocket costs to access essential goods and services can support cash benefits in ensuring an adequate living standard. In chapters 5, 6 and 8 for instance, the results demonstrated that a reduction of housing costs

through subsidies, ownership or social rent, has a positive effect on the adequacy of incomes and hence, can reduce income poverty. In chapter 6, we showed that in Finland, relatively generous subsidization of child-specific services accompanied by high levels of social protection improves income adequacy at the bottom of the income distribution. By contrast, in Spain, Hungary and Greece, families face a relatively high access cost to publicly provided services, which makes minimum income protection even more inadequate. Moreover, in many European countries, public and private institutions allocate various means-tested benefits to reduce the essential expenses of vulnerable households, such as social tariffs for utility services and housing benefits (see Immervoll 2012; Frazer and Marlier 2016). The case study of Belgium in chapter 5 illustrated that though these cost-reducing benefits can improve income adequacy, they are also fragmented, subject to strict (income) conditions and non-take-up, and insufficient to compensate for low cash benefits. Moreover, these specific social tariffs are often contingent on social assistance, excluding those in paid work – or in other social insurance categories, which might unintentionally have a negative effect on financial work incentives.

Contextualising and developing indicators of poverty

Finally, although RBs face specific limitations (see below), we conclude from chapters 7 and 8 that they are useful to the measurement of poverty in at least three respects: they can reveal the weaknesses of current indicators, they bring other at-risk groups to the fore and, again, they show that differences in income adequacy are also driven by cross-national variations in public provisions and subsidies of goods and services.

First, because they aim to represent an acceptable and adequate living standard in a comparable way across Europe, RBs are well-suited to contextualising current social indicators that do not go beyond procedural comparability, such as the at-risk-of-poverty threshold (AROP). The AROP, set at 60% of the median equivalent disposable household income, is the most commonly used indicator in assessing income adequacy and poverty in Europe (e.g. Atkinson et al. 2002; Cantillon and Vandenbroucke 2014). This relative poverty threshold depends on the median level of welfare in a country, but it is not clear to what extent it refers to an adequate living standard in the different member states. RBs have shed light on this black box. In chapter 7, we showed that the AROP does not represent the same level of income adequacy across Europe. On the one hand, in the poorer European countries, such as Hungary and Greece, and especially in Romania and Bulgaria, people with an income at the poverty threshold cannot even adequately fulfil basic physical needs such as food, clothing and shelter. On the other hand, in richer member states such as Finland and Belgium, the poverty threshold seems to represent what is needed to participate adequately in society quite well. Compared to differences in (60% of) median incomes across Europe, cross-national variations in the out-of-pocket costs that households face to fulfil their needs are clearly much smaller.

Second, chapter 8 demonstrates how the profile of the poor changes when using (adjusted) RBs, compared to the AROP indicator. Particularly for private tenants, children and young people, the poverty risk increased compared to the at-risk-of-poverty figures. The AROP indicator makes use of the modified OECD equivalence scale to compare incomes across households with different compositions. However, the modified OECD-scale neglects the fact that the out-of-pocket costs that households face, as well as the economies of scale in which they are embedded, differ largely across countries and institutional contexts. The

results discussed in chapters 7 and 8 illustrate the importance of people's housing situations (lower housing costs cause steeper equivalence scales) and suggest that the modified OECD scale underestimates the cost of children. This might have an important impact on measured poverty outcomes.

Third and last, we have demonstrated that cross-country differences in poverty rates increase when a benchmark is used that better accounts for the minimum costs that households face in reaching an adequate standard of living across EU countries. Moreover, these differences in out-of-pocket costs are also driven by cross-national variations in public provisions and subsidies of goods and services. For instance, in Spain, the average living standard is lower compared to Finland, but the out-of-pocket costs to access public education are higher. This is not accounted for by the purely income-based at-risk of poverty threshold, while being included in the level of the RBs.

Limitations

In Chapter 5 and elsewhere (see Goedemé et al. 2015a), we have discussed the quality of RB-based indicators in the light of the commonly agreed-upon set of quality criteria for the development of comparative social indicators in Europe (Atkinson et al. 2002). In doing so, we have highlighted RBs' strengths in that they have a clear normative interpretation, strong internal validity, are responsive to cash and in-kind policy interventions and enhance substantive comparability. On the other hand, these quality criteria have also revealed the limitations of using RBs as comparative social indicators, as they face (1) potential problems of robustness, (2) a lack of representativeness or external validity, and (3) serious challenges of practical feasibility in implementing and updating them across time and space.

First of all, RBs face problems of robustness. As a consequence, there are limits to the objective of substantive comparability. There are two main reasons for this. First, the concept of social participation remains somewhat elusive and many concrete and detailed choices have to be made (see chapter 1). Hence, the level of RBs does not represent an exact income threshold and remains to an extent illustrative. Second and most importantly, there is a lack of comparable representative data on social expectations, purchasing patterns and on the accessibility, life spans and prices of essential goods and services across Europe. The quality of the underlying information sources and data differs across countries. For instance, the extent to which the food-based dietary guidelines are an adequate cultural and scientific reflection of what a healthy diet consists of in the various national contexts can be criticised (see Carrillo-Álvarez et al. 2019a). Moreover, the price survey is based on a rather small sample within a limited selection of shops.

Second, RBs are essentially developed for specific household types with well-defined premises regarding individual and societal circumstances. These hypothetical situations improve cross-national comparability but challenge the use of RBs as social indicators to measure poverty in the population. There are two particular reasons for this. First, the number of hypothetical household types is limited and cannot be seen as representative for the population as a whole. The cross-nationally comparable RBs in this dissertation have been developed for the situations of adult singles and couples at active age with zero to two children of specific ages. In couple households, the partner is assumed to be inactive and hence, dual-earner families were not studied. The households live in urban areas and usually rent on the private tenant market or own a house without paying mortgage (see Van den Bosch et al. 2016). It is important to know that the representativeness of these characteristics varies widely across and within

countries (see also chapter 2, Goedemé et al. 2015a). For instance, renting a dwelling on the private market is much more common in some countries (e.g. Belgium) than in others (e.g. Hungary)⁷⁴ and the share of single-earner families is larger in Southern European Countries than in the North of Europe (OECD 2013). Importantly, regional variations are neglected, though prices and purchasing patterns differ greatly in some countries (Janský and Kolcunová 2017). Secondly, in order to construct a lower bound of the income needed for social participation, we assumed that the household members are in good health, self-reliant, well-informed and have certain skills and capabilities, such as being able to shop and cook healthily. These premises, however, do not represent daily reality and can deviate strongly from real-life situations, particularly for vulnerable groups at the bottom of the income distribution (e.g. Mullainathan and Shafir 2013; Hernández-Quevedo et al. 2006; Hargittai 2010). In the focus groups organised for both the Belgian and the European projects, participants with varied socio-economic backgrounds discussed these premises and emphasized common constraints such as health problems and a lack of information or skills. The same is true for the underlying premise about the societal context, namely that publicly provided goods and services are accessible to everyone. In trying to understand the impact of the affordability of (publicly provided and subsidised) goods and services on household living standards, this dissertation largely disregarded other aspects that determine accessibility, such as the availability, acceptability and the quality of the good or service (e.g. Vandenbroeck and Lazzari 2014; Peters et al. 2008). In Flanders for instance, there is a limited supply of social housing with long waiting lists for families in need (Vlaamse Maatschappij Sociaal Wonen 2019). Moreover, it are the particularly vulnerable groups in our society that face economic,

⁷⁴ In chapters 4 and 8, the large regional variation in housing costs was accounted for by measuring poverty and food insecurity ‘after actual housing costs’ as included in the EU-SILC survey.

sociocultural, spatial and information barriers to access publicly provided or subsidised services such as good quality housing and (health) care services (Eurofound 2017; Bonoli et al. 2017). Even if essential goods and services are affordable, other psycho-social forms of exclusion may persist. Consequently, not accounting for the individual constraints and limited accessibility of services for low-income families might lead to an underestimation of the actual resources that households need, and hence, might bias poverty outcomes.

Finally, one of the quality criteria expressed by Atkinson et al. (2002) is that an indicator should be easy to implement and regularly update by building on available data. So far, fully developed cross-nationally comparable RBs are only available at one point in time, for a limited number of household types, living in large cities across 7 EU member states. It is crystal clear that, in order to use RBs as comparative social indicators to measure poverty in the population, updates, adjustments and additional data collections are needed. This is a time-intensive process that requires systematic coordination, a strong European network of experts, motivated and competent national teams, a wide variety of existing and to be developed data sources and a high level of financial and societal support (see also Goedemé et al. 2015a). The development of cross-nationally comparable RBs would ideally also benefit largely from the improvement of the quality, comparability and representativeness of data on needs, expenditures, accessibility, prices and life spans of goods and services. This is particularly crucial to households at the bottom of the income distribution.

Directions for future research

In this dissertation, I rely on cross-nationally comparable RBs. However, as clarified in the previous section, comparative research on RBs is still in its infancy. In the future, RBs for adequate social participation could be extended to a larger

selection of countries and updating the baskets on a regular basis would be beneficial to the study of welfare state adequacy over time. In addition to expanding the scope of the research, there are possibilities to develop cross-nationally comparable RBs for a larger number of household types with different compositions. Similarly, researchers can alter the predetermined assumed characteristics, competences or contexts of the hypothetical household types. As comparable RBs have only been developed for large cities, an important extension would be to allow for regional variations, especially variations in needs, prices and the availability of goods and services in rural versus urban areas. For poverty research, it would be particularly interesting to study the additional needs and out-of-pocket costs related to long-term illness, disabilities and labour market participation (e.g. child care, mobility).

As we have explained previously and elsewhere (see Goedemé et al. 2015a; Goedemé 2020), there is still much room for improvement concerning the robustness, validity and comparability of the RB approach, which is in itself sufficient for a new research agenda. For instance, future studies could improve the pricing method and life span estimations by working with a larger, random sample of products. The availability of price data from national statistical institutes, particularly at the regional level, would be very useful in enhancing the representativeness of the study. Another area that could inspire future research is citizen consultation. In the previous EU projects, only a very limited number of focus group discussions were organised to assess the completeness, feasibility and acceptability of RBs. Future studies could explore how to involve well-considered views of citizens in a more representative way across countries, for instance through survey techniques and new rounds of discussions based on sufficiently large random samples. This would be particularly helpful in gauging social expectations and in gaining more insight into the barriers to accessing goods and

services experienced by vulnerable groups in society. Doing this would improve the empirical basis of RBs as a consensus-building instrument in society.

This dissertation is only the tip of the iceberg in understanding the impact of subsidising or the provision of essential goods and services on income adequacy and poverty in Europe. The relationship between affordability, or more broadly accessibility, and income adequacy raises new questions for future research. Welfare state scholars have traditionally mainly focused on comparing levels and coverage of cash benefits, whilst disregarding variations in the accessibility of publicly provided or subsidized services across EU member states. Studies that take services into account (e.g. Jensen 2011; Kuitto 2016; Verbist and Matsaganis 2014), tend to focus on patterns in public expenditures. While this dissertation looked at the minimum out-of-pocket costs that households face in accessing essential goods and services, further research could gain more insight into other dimensions of accessibility such as 'availability' and 'quality' (see Roose and De Bie 2003; Vandenbroeck and Lazzari 2014). Through existing or additional citizen consultation, more detailed patterns regarding the accessibility of services, such as child care, (non-compulsory) education and health care, could be revealed and compared across EU countries. Furthermore, future comparative studies could look more carefully at differences in out-of-pocket costs across population groups, taking into account in-kind policies such as rent subsidies, study allowances and social tariffs for utility services, that specifically target vulnerable groups (as we have done in chapter 5 for the case of Belgium). This research will not only shed light on how patterns in services differ from more traditional welfare regime typologies, but could also provide crucial background information for studies and social indicators that try to capture income adequacy and poverty in Europe, including through RB research.

In addition, we aimed in this dissertation to contribute to the development of needs-based poverty thresholds that surpass income. Equivalence scales are essential in accounting for differing needs across households. In poverty research, equivalence scales are used to convert disposable household incomes into a comparable measure in order to compare living standards across households that vary in size and composition (Buhmann et al. 1988). Currently, most poverty research makes use of a very simple equivalence scale, known as the modified OECD scale. However, this scale neglects important variations in needs and in economies of scale, that depend on the tenure status, health situation and accessibility of services across and within countries (Aaberge et al. 2017; Paulus et al. 2010; Brandolini 2007). As we have discussed in this dissertation, RBs can be used to calculate the minimum cost of an additional household member and to derive an RB-based equivalence scale across countries. In chapter 8, this RB-based scale was used to estimate poverty thresholds for households that do not strictly meet the descriptions of the original limited set of hypothetical household types. Given that in practice household situations are much more diverse and complex, future research could enrich the needs-based RB approach with representative information on spending patterns (e.g. including actual health care spending of households as we have done here for housing) in order to estimate more realistic poverty thresholds for the broader population (see also Vrooman 2009a). This could contribute to the measurement of poverty across households and countries, as it can be expected that current poverty measures are biased against groups with higher needs and limited access to public services; groups which can be expected to be more vulnerable (as described above as a limitation of current research).

Finally, this thesis did not pay much attention to the broader political and environmental context which clearly has an impact on people's ability to participate in society. This includes a safe and healthy environment, political

freedom and democratic participation. We started from a favourable context as a given in industrial welfare states, although this is more and more doubtful in the light of climate change and increased pressure on the democratic character of several European countries. Societies and life patterns are becoming ever more complex, requiring more sophisticated instruments in their study. Hence, future research should invest in a better understanding of the impact of the (changing) societal, political and environmental contexts on accomplishing adequate social participation (cf. chapter 1). Moreover, since RBs reveal the goods and services that people minimally need, we can study the ecological footprint of such a minimally acceptable living standard, or vice versa, the minimum cost of an environmentally friendly living standard. This might pave the way for new and innovative research on how to fight poverty while respecting planetary boundaries, in other words on how to reconcile ecological and social policies (see e.g. Gough 2017).

Policy implications

With this thesis, I aimed to show how RBs constitute a useful benchmark to inform the policy debate, and to provide policy makers with ammunition for evidence-based policies. As explained earlier, the particular aim was to demonstrate how cross-nationally comparable RBs are a useful EU policy tool in contextualising the existing social indicators on the one hand (see chapter 7), and in developing new social indicators on the other (see chapters 3-6 and 8). By combining RBs with hypothetical household simulations and representative income data, (steps towards) new social indicators were proposed in addition to the current EU policy tool-box. Though we acknowledge their limitations, these RB-based indicators proved to be suitable for measuring the affordability of essential goods and services, for monitoring the adequacy of minimum income support, for evaluating

cash and in-kind social policy measures, for assessing the generosity of welfare states towards families with children, for constructing needs-based equivalence scales and for contributing to the measurement of income-related food insecurity and poverty within and across European member states.

At European level, investing in RB-research could contribute to a shared comparative social policy analysis and strengthen the coordination of common social policy objectives (cf. Vandenbroucke 2017). In contrast to the indicators in general use, RBs give a clear normative interpretation of what constitutes an adequate income in the different member states while taking the affordability of essential (publicly provided or subsidised) goods and services into account. In doing this, they respect the specific member states' contexts while highlighting the importance of upward convergence and solidarity. At the same time, the suggested indicators have the advantage of evaluating the *policy input* of welfare state packages (as discussed by Cantillon et al. 2017) and show the impact of their design on income adequacy and poverty, thereby establishing a clear link with *policy outcomes* (cf. Vandenbroucke 2017).

Based on the results discussed throughout this dissertation, three main policy routes can be recommended that both independently and jointly contribute to combating poverty and social exclusion in Europe: (1) policies that increase income protection directly through the tax- and benefit system and wage regulations, (2) policies that improve the accessibility of essential goods and services, and (3) policies that strengthen individual competencies and labour market participation.

First of all, as we have shown in chapters 4, 5 and 6, most EU member states clearly need to increase the level of minimum income protection for their active-age population. Especially social assistance and unemployment insurance for the

non-working population are generally insufficient to allow for adequate social participation. But the disposable household incomes of single minimum wage earners are also far from adequate in several countries. RB research can support the process towards a more binding minimum income benchmark at EU level. They make what it means to live with an inadequate income very tangible, as it highlights for instance not being able to fulfil essential needs or being forced to make demeaning choices. In chapter 4, it becomes clear that European citizens living on minimum income protection are sometimes not even able to access basic physical needs such as healthy food in accordance with the national dietary guidelines and housing, especially in Southern and Eastern EU countries. We have shown how this is an important risk factor that drives food insecurity across Europe. For policymakers this provides a stronger incentive to raise income adequacy, as it shows that income constraints lead to inevitable cuts in household expenditures related to health, education and social contacts, thus revealing the failure to protect basic human rights and the negative impact on society as a whole. With respect to the European coordination of social policy, RBs can also help to identify priorities. Looking at the relationship between RBs and median incomes, it is clear that in poor countries such as Bulgaria and Romania, policies aiming towards social inclusion are constrained by a generally low living standard within the population. In these countries, RBs can reveal which goods and services demand a particularly large share of the total budget and how policies can improve their affordability and accessibility (see below), or they can help to set intermediate targets on the road to adequate social participation.

Secondly, this dissertation has shown how the adequacy of incomes can also be partially improved by policy interventions aimed at enhancing access to essential goods and services. As we have learned from chapters 5 and 6, providing or subsidising goods and services such as housing, health care, education and public

transport, has a large impact on the out-of-pocket costs that households face to fulfil their needs (among other advantages see e.g. Gough 2019). Hence, at EU policy level, RBs can be used to take a holistic approach to policy packages that are adjusted to the member states' contexts and allow for cross-national learning. For instance, with respect to family policies, the case of Finland has taught us that high levels of child cash benefit packages, combined with an affordable education and health care system, ensures the fulfilment of the essential needs of low-wage single-earner families with children. Even if cash benefit levels cannot be sufficiently increased in a specific context, living standards can be improved by means of in-kind support. Policymakers can also specifically target vulnerable groups to improve their access to services, for instance through means-tested cost reductions. Our case study of Belgium has shown that these cost-compensation measures can positively affect the adequacy of income protection, especially if the affordability of housing is improved substantially (e.g. through social housing). However, publicly provided services and cost-reducing policy measures are not always available or accessible to everyone in need, due to economic, institutional, cultural and psychological barriers (e.g. Bonoli et al. 2017; Eurofound 2017). Hence, for in-kind benefits to have a positive impact, policymakers should invest in their overall accessibility (cf. Gough 2019) in tandem with labour market policies and adequate social protection levels (cf. Vandenbroucke and Vleminckx 2011). As has been stressed in chapters 3 and 4, enhancing the affordability of one specific good or service through for instance fair water tariffs or food banks, can improve access for vulnerable groups but does not solve the structural problem of income adequacy and the affordability of other essentials such as housing. These specific – e.g. food and water – policies should be embedded in a broader set of cash and in-kind policies aimed at realising the right to adequate social participation with respect for people's freedom of choice.

Third, in this dissertation, we highlighted the fact that the adequacy of incomes also largely depends on households' circumstances (see Sen 1983). Hence, in order to assess a minimum income level, RBs have been essentially developed for specific household types with well-defined characteristics. However, we know from citizens' opinions from the focus group discussions used for the development of Belgian and comparative RBs, but also from other studies (e.g. Mullainathan and Shafir 2013; Hernández-Quevedo et al. 2006; Hargittai 2010), that the basic premises of being able-bodied, in good health and well-informed, have a clear socioeconomic gradient. Hence, policies that aim to improve human capital and skills and competences (e.g. budget counselling, digital literacy, cooking healthy diets, economic use of water and energy), and to inform people about their social rights, can add to the adequacy of living standards for people with limited incomes. Although these policy efforts are not immediately reflected in the constructed indicators in this thesis, their effect becomes clear when adjusting RBs to real-life situations for support at the local level (see Storms 2020). Social workers can use these instruments to foster social participation, reduce out-of-pocket costs and enhance the labour market integration of vulnerable groups. However, the impact of these measures will always be limited in the context of the largely insufficient income levels that some people face.

In summary, the fight against poverty and social exclusion requires a wide and comprehensive set of policy measures at all levels, implemented through a fair and redistributive tax and benefit system, through education and employment policies for the lower-skilled, and through accessible essential goods and services. The most recent EU policy and legal framework to monitor social policy and secure adequate incomes in the various member states is the European Pillar of Social Rights. The Pillar includes a right to adequate minimum income protection, linked to active labour market inclusion and access to affordable essential goods and

services (see Commission 2017). To avoid this remaining a hollow phrase, policymakers need strong indicators to monitor and safeguard its implementation. In addition to the current portfolio at EU-level, further investments in policy indicators based on RBs can contribute to this end. Ideally, these indicators could support local, national and European policymakers to test ex-ante and ex-post policy intentions in the light of adequate social participation. Because RBs by their very nature are evidence-based, transparent and concrete, and include citizens' voices, the proposed method has the potential to become a widely accepted and participative instrument of consensus-building regarding what constitutes a decent living standard across the different EU member states. This could, in turn, contribute to a shared view on issues of solidarity and social justice across Europe and foster a more binding EU social policy framework on social rights and adequate incomes.

REFERENCES

Aaberge, R., Bhuller, M., Langørgen, A., & Mogstad, M. (2010). The distributional impact of public services when needs differ. *Journal of Public Economics*, 94(9), 549-562.

Aaberge, R., Langørgen, A., & Lindgren, P. (2017). The distributional impact of public services in European countries. In A. B. Atkinson, A.-C. Guio, & E. Marlier (Eds.), *Monitoring Social Europe* (pp. 159-174). Luxembourg: Publications Office of the European Union.

Adema, W. (2012). Setting the scene: The mix of family policy objectives and packages across the OECD. *Children and Youth Services Review*, 34(3), 487-498.

Afshartous, D., & Preston, R. A. (2010). Confidence intervals for dependent data: equating non-overlap with statistical significance. *Computational Statistics & Data Analysis*, 54(10), 2296-2305.

Aggarwal, A., Monsivais, P., Cook, A. J., & Drewnowski, A. (2011). Does diet cost mediate the relation between socioeconomic position and diet quality? *European Journal of Clinical Nutrition*, 65(9), 1059-1066.

Alkire, S. (2002). Dimensions of human development. *World Development*, 30(2), 181-205.

Alkire, S., & Foster, J. (2011). Understandings and misunderstandings of multidimensional poverty measurement. *The Journal of Economic Inequality*, 9(2), 289-314.

Antentas, J. M., & Vivas, E. (2014). Impacto de la crisis en el derecho a una alimentación sana y saludable. Informe SESPAS 2014. *Gaceta Sanitaria*, 28(suppl 1), 58-61.

Atkinson, A. B. (1992). Measuring poverty and differences in family composition. *Economica*, 59(233), 1-16.

Atkinson, A. B. (2019). *Measuring poverty around the world*. Princeton: Princeton University Press.

Atkinson, A. B., Cantillon, B., Marlier, E., & Nolan, B. (2002). *Social indicators: the EU and social inclusion*. Oxford: Oxford University Press.

Atkinson, A. B., Guio, A.-C., & Marlier, E. (2017). *Monitoring social inclusion in Europe*. Luxembourg: Publications Office of the European Union.

Babones, S., Moussa, J. S., & Suter, C. (2016). A Poisson-based framework for setting poverty thresholds using indicator lists. *Social Indicators Research*, 126(2), 711-726.

Backholer, K., Blake, M., & Vandevijvere, S. (2017). Sugar-sweetened beverage taxation: an update on the year that was 2017. *Public Health Nutrition*, 20(18), 3219-3224.

Bäckman, O., & Ferrarini, T. (2010). Combating child poverty? A multilevel assessment of family policy institutions and child poverty in 21 old and new welfare states. *Journal of Social Policy*, 39(02), 275-296.

Badley, E. M. (2008). Enhancing the conceptual clarity of the activity and participation components of the international classification of functioning, disability, and health. *Social Science & Medicine*, 66(11), 2335-2345.

Ball, M. (2005). RICS European housing review. (pp. 153). London: RICS.

Ballard, T. J., Kepple, A. W., Cafiero, C., & Schmidhuber, J. (2014). Better measurement of food insecurity in the context of enhancing nutrition. *Ernährungs Umschau*, 61(2), 38-41.

Banerjee, S. G., & Morella, E. (2011). *Africa's water and sanitation infrastructure: access, affordability, and alternatives*. Washington: World Bank Publications.

Barca, F. (2009). *Agenda for a reformed cohesion policy. A place-based approach to meeting European Union challenges and expectations*. Brussels: European Commission.

Bargain, O., & Donni, O. (2012). Expenditure on children: A Rothbarth-type method consistent with scale economies and parents' bargaining. *European Economic Review*, 56(4), 792-813.

Barosh, L., Friel, S., Engelhardt, K., & Chan, L. (2014). The cost of a healthy and sustainable diet—who can afford it? *Australian and New Zealand journal of Public Health*, 38(1), 7-12.

Barrett, C. B. (2010). Measuring food insecurity. *Science*, 327(5967), 825-828.

Beblavy, M., & Mizsei, K. (2006). Make spurious poverty statistics history. *Development and Transition*, 4(4).

Berkman, L. F., Glass, T., Brissette, I., & Seeman, T. E. (2000). From social integration to health: Durkheim in the new millennium. *Social Science & Medicine*, 51(6), 843-857.

Biddle, B. J. (1986). Recent developments in role theory. *Annual Review of Sociology*, 12(1), 67-92.

Bilchitz, D. (2002). Giving socio-economic rights teeth: the minimum core and its importance. *The South African Law Journal*, 119(3), 484-501.

Bilchitz, D. (2007). *Poverty and fundamental rights: the justification and enforcement of socio-economic rights*. Oxford: Oxford University Press.

Boardman, B. (2010). *Fixing fuel poverty: challenges and solutions*. London: Earthscan.

Bogaerts, K., Hufkens, T., Storms, B., & Verbist, G. (2014). De sociale doelmatigheid van financiële tegemoetkomingen voor studenten: kostendekking en verdelingsanalyse van studietoelagen, kinderbijslagen en fiscale voordelen. *FLEMO SI Discussion Paper*, No. 31.

Bonoli, G., Cantillon, B., & Van Lancker, W. (2017). Social investment and the Matthew effect. In A. Hemerijck (Ed.), *The uses of social investment* (pp. 66-77). Oxford: Oxford University Press.

Bradbury, B. (2008). Time and the cost of children. *Review of Income and Wealth*, 54(3), 305-323.

Bradshaw, J. (1993). *Budget standards for the United Kingdom*. Aldershot: Avebury.

Bradshaw, J. (2013). Child poverty and child well-being in comparative perspective. In P. Kennett (Ed.), *A handbook of comparative social policy, second edition* (pp. 303-328). Cheltenham: Edward Elgar Publishing.

Bradshaw, J., & Finch, N. (2000). Conclusions and recommendations. In J. Bradshaw, B. Nolan, B. Maître, & N. Finch (Eds.), *The measurement of absolute poverty—Final report for Eurostat* (pp. 63-79). York: Social Policy Research Unit, University of York.

Bradshaw, J., & Finch, N. (2002). A comparison of child benefit packages in 22 countries. Norwich: UK Department for Work and Pensions.

Brambila-Macias, J., Shankar, B., Capacci, S., Mazzocchi, M., Perez-Cueto, F. J. A., Verbeke, W., et al. (2011). Policy interventions to promote healthy eating: A review of what works, what does not, and what is promising. *Food and Nutrition Bulletin*, 32(4), 365-375.

Brandolini, A. (2007). Measurement of income distribution in supranational entities: The case of the European Union. In S. P. Jenkins, & J.

Micklewright (Eds.), *Inequality and poverty re-examined* (pp. 62-83). Oxford: Oxford University Press.

Brewer, M., & O'Dea, C. (2012). Measuring living standards with income and consumption: evidence from the UK. *ISER Working Paper Series*.

Brinks, D., Gauri, V., & Shen, K. (2015). Social rights constitutionalism: negotiating the tension between the universal and the particular. *Annual Review of Law and Social Science*, 11, 289-308.

Brown, K. A., Timotijevic, L., Barnett, J., Shepherd, R., Lähteenmäki, L., & Raats, M. M. (2011). A review of consumer awareness, understanding and use of food-based dietary guidelines. *British Journal of Nutrition*, 106(1), 15-26.

Browning, M. (1992). Children and household economic behavior. *Journal of Economic Literature*, 30(3), 1434-1475.

Browning, M., Chiappori, P.-A., & Lewbel, A. (2013). Estimating consumption economies of scale, adult equivalence scales, and household bargaining power. *Review of Economic Studies*, 80(4), 1267-1303.

Bublitz, M. G., Hansen, J., Peracchio, L. A., & Tussler, S. (2019). Hunger and food well-being: advancing research and practice. *Journal of Public Policy & Marketing*, 38(2), 136-153.

Buhmann, B., Rainwater, L., Schmaus, G., & Smeeding, T. M. (1988). Equivalence Scales, Well-Being, Inequality, and Poverty: Sensitivity Estimates across Ten Countries Using the Luxembourg Income Study (LIS) Database. *Review of Income and Wealth*, 34(2), 115-142.

Burchi, F., & De Muro, P. (2016). From food availability to nutritional capabilities: advancing food security analysis. *Food Policy*, 60, 10-19.

Callan, T., & Keane, C. (2009). Non-cash benefits and the distribution of economic welfare. *The Economic and Social Review*, 40(1), 49-71.

Cantillon, B. (2017). Sir Tony Atkinson's last contribution: monitoring social inclusion in Europe, edited by Anthony B. Atkinson, Anne-Catherine Guio, and Eric Marlier. *Review of Income and Wealth*, 63(3), 585-596.

Cantillon, B., Goedemé, T., & Hills, J. (2019). *Decent incomes for all: improving policies in Europe*. New York (USA): Oxford University Press.

Cantillon, B., Marchal, S., & Luigjes, C. (2017). Decent incomes for the poor: which role for Europe? *Journal of Common Market Studies*, 55(2), 240-256.

Cantillon, B., & Van Lancker, W. (2013). Three shortcomings of the social investment perspective. *Social Policy and Society*, 12(04), 553-564.

Cantillon, B., & Vandenbroucke, F. (2014). *Reconciling work and poverty reduction: How successful are European welfare states?* New York (USA): Oxford University Press.

Caraher, M., & Cavicchi, A. (2014). Old crises on new plates or old plates for a new crises? Food banks and food insecurity. *British Food Journal*, 116(9).

Carrillo-Alvaréz, E., Anguera, M., Cussó-Parcerisas, I., & Riera-Romaní, J. (2019). *What is the minimum budget for families and their children to have a healthy food diet in Barcelona? A revision and update of the healthy food basket using the reference budgets approach.* Paper presented at the Towards Resilient Nordic Welfare States Conference, Helsinki, 14th -16th March 2019.

Carrillo-Álvarez, E., Boeckx, H., Penne, T., Palma Linares, I., Storms, B., & Goedemé, T. (2019a). A comparison of European countries FBDG in the light of their contribution to tackle diet-related health inequalities. *European Journal of Public Health*, ckz139.

Carrillo-Álvarez, E., Cussó-Parcerisas, I., & Riera-Romaní, J. (2016). Development of the Spanish Healthy Food Reference Budget for an adequate social participation at the minimum. *Public Health Nutrition*, 19(17), 3232-3244.

Carrillo-Álvarez, E., Penne, T., Boeckx, H., Storms, B., & Goedemé, T. (2019b). Food reference budgets as a potential policy tool to address food insecurity: lessons learned from a pilot study in 26 European countries. *International Journal of Environmental Research and Public Health*, 16(1), 32.

Carrillo-Álvarez, E., & Riera-Romaní, J. (2017). Childhood obesity prevention: does policy meet research? Evidence-based reflections upon the spanish case. *MOJ Public Health*, 6(2), 310-321.

Carruthers, R., Dick, M., & Saurkar, A. (2005). Affordability of public transport in developing countries. *Transport Papers*. Washington: The World Bank Group.

Casas, R. P. (2005). Setting minimum social standards at EU level: main issues. *Working paper I, Setting Minimum Social Standards across Europe. Transnational exchange project (VS/2005/0376)*. Dublin: EAPN.

Cerami, A. (2006). *Social policy in Central and Eastern Europe: The emergence of a new European welfare regime*. Berlin: LIT Verlag Münster.

CESCR (1999). General comment 12: The right to adequate food. UN Doc. E/C/12/1999/5. Committee on Economic, Social and Cultural Rights.

Chen, J., Hao, Q., & Stephens, M. (2010). Assessing housing affordability in post-reform China: a case study of Shanghai. *Housing Studies*, 25(6), 877-901.

Chen, W.-H., & Corak, M. (2008). Child poverty and changes in child poverty. *Demography*, 45(3), 537-553.

Chenoweth, J. (2008). Minimum water requirement for social and economic development. *Desalination*, 229(1-3), 245-256.

Chiappori, P. A. (2016). Equivalence versus indifference scales. *The Economic Journal*, 126(592), 523-545.

Chrysostomou, S., Andreou, S. N., & Polycarpou, A. (2017). Developing a food basket for fulfilling physical and non-physical needs in Cyprus. Is it affordable? *European Journal of Public Health*, 27(3), 553-558.

Coleman, D., & Iso-Ahola, S. E. (1993). Leisure and health: the role of social support and self-determination. *Journal of Leisure Research*, 25(2), 111-128.

Collado, D., Cantillon, B., Van den Bosch, K., Goedemé, T., & Vandelannoote, D. (2019). The end of cheap talk about poverty reduction: the cost of closing the poverty gap while maintaining work incentives. In B. Cantillon, T. Goedemé, & J. Hills (Eds.), *Decent incomes for all: improving policies in Europe*. (pp. 223-243). New York (USA): Oxford University Press.

Corak, M. (2006). Do poor children become poor adults? Lessons for public policy from a cross country comparison of generational earnings mobility. *Research on Economic Inequality*, 13(1), 143-188.

Cornelis, I., & Vandervoort, B. (2013). *Een hele dag lekker en gezond eten voor 5 euros*. Gent: Borgerhoff & Lamberigst.

Costa, A., García, J., López, X., & Raymond, J. L. (2015). Estimació de les paritats de poder adquisitiu per a les comunitats autònombes espanyoles. *Monografies* (Vol. n°17). Barcelona: Generalitat de Catalunya: Departament d'Economia i Coneixement.

Coulter, F. A. E., Cowell, F. A., & Jenkins, S. P. (1992). Equivalence scale relativities and the extent of inequality and poverty. *Economic Journal*, 102(414), 1067-1082.

Council of Europe (1992). Council recommendation on common criteria concerning sufficient resources and social assistance in social protection systems (92/441/CEE). (pp. 246–248).

Council of Europe (1996). European Social Charter (Revised). Strasbourg, France: Council of Europe.

Council of Europe (2010). Accession by the European Union to the European Convention on Human Rights: Answers to frequently asked questions, 1 June 2010.

Council of the European Communities (1975). Council Decision of 22 July 1975 concerning a programme of pilot schemes and studies to combat poverty, 75/458/EEC. Brussels: Publications Office of the European Union.

Daly, M., & Ferragina, E. (2018). Family policy in high-income countries: Five decades of development. *Journal of European Social Policy*, 28(3), 255-270.

Darmon, N., & Drewnowski, A. (2008). Does social class predict diet quality? *The American Journal of Clinical Nutrition*, 87(5), 1107-1117.

Darmon, N., & Drewnowski, A. (2015). Contribution of food prices and diet cost to socioeconomic disparities in diet quality and health: a systematic review and analysis. *Nutrition Reviews*, 73(10), 643-660.

Davis, A. H., Donald, Padley, M., & Shepherd, C. (2018). A Minimum Income Standard for the UK 2008-2018: continuity and change. York: Joseph Rowntree Foundation - Loughborough University.

Davis, O., & Geiger, B. B. (2017). Did food insecurity rise across Europe after the 2008 crisis? An analysis across welfare regimes. *Social Policy and Society*, 16(3), 343-360.

Dawson, J., Marshall, D., Taylor, M., Cummins, S., Sparks, L., & Anderson, A. S. (2008). Accessing healthy food: availability and price of a healthy food basket in Scotland. *Journal of Marketing Management*, 24(9-10), 893-913.

De Nocker, L., Broekx, S., Vanhulsel, M., Botterman, S., Moris, A., & Debusscher, M. (2017). Watergebruik 2016 door huishoudens in Vlaanderen. Studie uitgevoerd in opdracht van de Waterregulator. Mol: VITO & Gfk, mimeo.

de Swaan, A. (2007). *De Mensenmaatschappij*. Amsterdam: Bert Bakker.

de Vos, K., & Zaidi, M. A. (1997). Equivalence scale sensitivity of poverty statistics for the member states of the European Community. *Review of Income and Wealth*, 43(3), 319-333.

Deaton, A. S., & Muellbauer, J. (1986). On measuring child costs: with applications to poor countries. *The Journal of Political Economy*, 94(4), 720-744.

Decancq, K., Fleurbaey, M., & Maniquet, F. (2019). Multidimensional poverty measurement with individual preferences. *The Journal of Economic Inequality*, 17(1), 29-49.

Decancq, K., Goedemé, T., Van den Bosch, K., & Vanhille, J. (2014). The evolution of poverty in the European Union: concepts, measurement and data. In B. Cantillon, & F. Vandenbroucke (Eds.), *Reconciling work and poverty reduction in Europe: how successful are European welfare states?* (pp. 60-93). New York (USA): Oxford University Press.

Decock, R. C., Depoorter, A. E., Graeve, D. D., & Colebunders, R. (2001). Direct costs of health care for HIV/AIDS patients in Belgium. *AIDS Care*, 13(6), 721-731.

Decoster, A., Perelman, S., Vandelannoote, D., Vanheukelhom, T., & Verbist, G. (2019). Which way the pendulum swings? Equity and efficiency of three decades of tax-benefit reforms in Belgium. *CSB Working Paper Series, No. 19.07*. Antwerp: Herman Deleeck Centre for Social Policy - University of Antwerp.

Deeming, C. (2010). The historical development of family budget standards in Britain, from the 17th century to the present. *Social Policy & Administration*, 44(7), 765-788.

Deeming, C. (2017). Defining minimum income (and living) standards in Europe: Methodological issues and policy debates. *Social Policy and Society*, 16(1), 33-48.

Deleeck, H., Van den Bosch, K., & De Lathouwer, L. (1992). *Poverty and the adequacy of social security in the EC: a comparative analysis*. Aldershot: Avebury.

Depa, J., Gynell, F., Müller, A., Eleraky, L., Hilzendegen, C., & Stroebele-Benschop, N. (2018). Prevalence of food insecurity among food bank users in Germany and its association with population characteristics. *Preventive Medicine Reports*, 9, 96-101.

Després, C., Dourgnon, P., Fantin, R., & Jusot, F. (2011). Giving up on health care for economic reasons: an econometric approach. *Questions d'économie de la Santé*, No. 170: Institute for Research and Information in Health Economics.

Devuyst, K., Storms, B., & Penne, T. (2014). Methodologische keuzes bij de ontwikkeling van referentiebudgetten: welke rol voor focusgroepen? . *VLAS-studies 19*. Antwerpen: Vlaams Armoedesteunpunt.

Ditch, J., Lewis, A., Wilcox, S., & Britain, G. (2001). *Social housing, tenure and housing allowance: an international review*. London: Department for Work and Pensions.

Dowler, E. A., & O'Connor, D. (2012). Rights-based approaches to addressing food poverty and food insecurity in Ireland and UK. *Social Science & Medicine*, 74(1), 44-51.

Doyal, L., & Gough, I. (1991). *A theory of human need*. Hounds mills: Palgrave Macmillan.

Drewnowski, A., & Eichelsdoerfer, P. (2010). Can low-income Americans afford a healthy diet? *Nutrition Today*, 44(6), 246–249.

Düwell, M., Braarvig, J., Brownsword, R., & Mieth, D. (2014). *The Cambridge handbook of human dignity: interdisciplinary perspectives*. Cambridge: Cambridge University Press.

Ecohuis (2016). Waterfactuur verlagen? Dat kan. Accessed 20/07/2017 via <https://www.antwerpen.be/nl/overzicht/eco-huis-antwerpen/advies/waterfactuur-verlagen-dat-kan>.

Eeman, L., & Van Regenmortel, T. (2013). Automatische rechtentoekekening en proactief handelen. Een verkenning op lokaal niveau met bijzondere aandacht voor mensen met een laag inkomen. *VLAS-studies 4*. Antwerpen: Vlaams Armoedesteunpunt.

EFSA (2010). Scientific opinion on establishing Food-Based Dietary Guidelines. *EFSA Journal*, 8(3), 1–42.

Eide, A. (1989). Realization of social and economic rights and the minimum threshold approach. *Human Rights Law Journal*, 10(1-2), 35-51.

Esping-Andersen, G. (2008). Childhood investments and skill formation. *International Tax and Public Finance*, 15(1), 19-44.

European Commission (2008). Commission Recommendation on the Active Inclusion of People Excluded from the Labour Market. COM (2008) 639 Final. Brussels: European Commission.

European Commission (2017). European Pillar of Social Rights. *Proclaimed by the European Parliament, the Council and the Commission on 16 November 2017*. Brussels: European Commission.

European Commission (2019). Mid-Term Evaluation of the Fund for European Aid to the Most Deprived (FEAD). Brussels: European Commission.

Eurofound (2016). European observatory of working life: Statutory minimum wages in the EU 2016. Dublin: Eurofound.

Eurofound (2017). European Quality of Life Survey 2016: Quality of life, quality of public services, and quality of society. Luxembourg: Publications Office of the European Union.

Eurofound (2018). Statutory minimum wages in the EU - 2018: First findings. Dublin: Eurofound.

European Parliament (2010). Role of minimum income in combating poverty and promoting an inclusive society in Europe. European Parliament resolution 2010/2039 (INI).

Fagnani, J., & Math, A. (2008). Policy packages for families with children in 11 European countries: Multiple approaches. In A. Leira, & C. Saraceno (Eds.), *Childhood: Changing Contexts (Comparative Social Research, Volume 25)* (pp. 55-78). Bingley: Emerald Group Publishing Limited.

Fahey, T. (2007). The case for an EU-wide measure of poverty. *European Sociological Review*, 23(1), 35-47.

Fahey, T., Nolan, B., & Maitre, B. (2004). Housing expenditures and income poverty in EU countries. *Journal of Social Policy*, 33(3), 437-454.

Falkenmark, M. (1986). Fresh water: time for a modified approach. *Ambio*, 192-200.

Fankhauser, S., & Tepic, S. (2007). Can poor consumers pay for energy and water? An affordability analysis for transition countries. *Energy Policy*, 35(2), 1038-1049.

FAO (2018). The State of Food Security and Nutrition in the World 2018. Building climate resilience for food security and nutrition. Rome: FAO.

FEBA (2018). Towards the Next Decade Together. FEBA Annual Report 2018. Brussels: European Food Banks Federation.

Federal Public Service (2017). Social Security. Everything you always wanted to know (in Belgium). Accessed June 2019 via <https://socialsecurity.belgium.be/en/publications/everything-you-have-always-wanted-know-about-social-security>. Brussels.

Ferrarini, T., Nelson, K., & Höög, H. (2012). The fiscalization of child benefits in OECD countries. *Gini Discussion Paper, No. 49*. Amsterdam: AIOS Institute for Advanced Labour Studies.

Figari, F., Matsaganis, M., & Sutherland, H. (2013). Are European social safety nets tight enough? Coverage and adequacy of minimum income schemes in 14 EU countries. *International Journal of Social Welfare*, 22(1), 3-14.

Figari, F., Paulus, A., & Sutherland, H. (2011). Measuring the size and impact of public cash support for children in cross-national perspective. *Social Science Computer Review*, 29(1), 85-102.

Fisher, G. M. (2007). An overview of recent work on standard budgets in the United States and other Anglophone countries. (pp. 29). Washington, DC: US Department of Health & Human Services - Assistant Secretary for Planning and Evaluation.

Fitch, M., & Price, H. (2002). Water poverty in England and Wales. London: Centre for Utility Consumer Law and Chartered Institute of Environmental Health.

Folbre, N. (2008). *Valuing children: rethinking the economics of the family*. Cambridge: Harvard University Press.

Förster, M. (2005). The European social space revisited: comparing poverty in the enlarged European Union. *Journal of Comparative Policy Analysis*, 7(1), 29-48.

Förster, M., & Verbist, G. (2012). Money or kindergarten? Distributive effects of cash versus in-kind family transfers for young children. *OECD Social, Employment and Migration Working Papers, No. 135*. Paris: OECD Publishing.

Forster, T., Kentikelenis, A., & Bambra, C. (2018). Health inequalities in Europe: setting the stage for progressive policy action. Dublin: TASC, Foundation for European Progressive Studies.

Franziskus, A. (2016). Quels besoins pour une vie décente? Vers un budget de référence pour le Luxembourg. *Cahier Économique* 122. Luxembourg: STATEC.

Frazer, H., & Marlier, E. (2016). Minimum Income Schemes in Europe. *A study of national policies, European Social Policy Network (ESPN)*. Brussels: European Commission.

Frick, J. R., Grabka, M. M., Smeeding, T. M., & Tsakloglou, P. (2010). Distributional effects of imputed rents in five European countries. *Journal of Housing Economics*, 19(3), 167-179.

Friedler, E., Butler, D., & Brown, D. M. (1996). Domestic WC usage patterns. *Building and Environment*, 31(4), 385-392.

Fudge Schormans, A. (2014). Social Participation. In A. Michalos (Ed.), *Encyclopedia of Quality of Life and Well-Being Research* (pp. 6135-6140). Dordrecht: Springer Netherlands.

Gábos, A., Branyiczki, R., Lange, B., & Tóth, I. G. (2019). Employment and poverty dynamics in the EU countries before, during and after the crisis. In B. Cantillon, T. Goedemé, & J. Hills (Eds.), *Decent incomes for all: improving policies in Europe*. (pp. 34-55). New York (USA): Oxford University Press.

Gakidou, E., Afshin, A., Abajobir, A. A., Abate, K. H., Abbafati, C., Abbas, K. M., et al. (2017). Global, regional, and national comparative risk assessment of 84 behavioural, environmental and occupational, and metabolic risks or clusters of risks, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016. *The Lancet*, 390(10100), 1345-1422.

Galli, F., Hebinck, A., & Carroll, B. (2018). Addressing food poverty in systems: governance of food assistance in three European countries. *Food Security*, 10(6), 1353-1370.

Gambaro, L., & Stewart, K. (2014). *An equal start? Providing quality early education and care for disadvantaged children*. Bristol: Policy Press.

García-Valiñas, M. D. L. Á., Martínez-Espineira, R., & González-Gómez, F. (2010a). Affordability of residential water tariffs: Alternative measurement and explanatory factors in southern Spain. *Journal of Environmental Management*, 91(12), 2696-2706.

García-Valiñas, M. D. L. Á., Martínez-Espineira, R., & González-Gómez, F. (2010b). Measuring water affordability: a proposal for urban centres in

developed countries. *International Journal of Water Resources Development*, 26(3), 441-458.

Garfinkel, I., Rainwater, L., & Smeeding, T. M. (2006). A re-examination of welfare states and inequality in rich nations: How in-kind transfers and indirect taxes change the story. *Journal of Policy Analysis and Management*, 25(4), 897-919.

Gauthier, A. H. (2002). Family policies in industrialized countries: is there convergence? *Population*, 57(3), 457-484.

Gentilini, U. (2013). Banking on food: The state of food banks in high-income countries. *IDS Working Papers*, 2013(415), 1-18.

Gezin, K. e. (2017). Verzorging. Elke dag. Accessed 6/11/2017 via <https://www.kindengezin.be/verzorging/elke-dag>.

Ghysels, J., & Van Lancker, W. (2011). The unequal benefits of activation: an analysis of the social distribution of family policy among families with young children. *Journal of European Social Policy*, 21(5), 472-485.

Gibney, M., & Sandström, B. (2000). Final Report. A framework for food-based dietary guidelines in the European Union. *Public Health Nutrition*, 4(2a), 293-305.

Giddens, A. (1984). *The constitution of society*. Cambridge: Polity Press.

Giddens, A. (2001). *Sociology (4th edition)*. Cambridge: Polity Press.

Gilg, A., & Barr, S. (2006). Behavioural attitudes towards water saving? Evidence from a study of environmental actions. *Ecological Economics*, 57(3), 400-414.

Ginn, A., Majumdar, A., Carr, M., Eastwood, G., & Menger, B. (2016). Mapping access to community-developed healthy food baskets including cost and availability. *Health Education Journal*, 75(8), 911-924.

Glass, T. A., De Leon, C. F. M., Bassuk, S. S., & Berkman, L. F. (2006). Social engagement and depressive symptoms in late life: longitudinal findings. *Journal of Aging and Health*, 18(4), 604-628.

Gleick, P. H. (1996). Basic water requirements for human activities: Meeting basic needs. *Water International*, 21(2), 83-92.

Goedemé, T. (2013). How much confidence can we have in EU-SILC? Complex sample designs and the standard error of the Europe 2020 poverty indicators. *Social Indicators Research*, 110(1), 89-110.

Goedemé, T. (2020). The steep and winding road to comparable reference budgets in Europe. In C. Deeming (Ed.), *Minimum income standards and reference budgets: international and comparative policy perspectives* (pp. 255-270). Bristol: Policy Press.

Goedemé, T., & Collado, D. (2016). The EU convergence machine at work. To the benefit of the EU's poorest citizens? *Journal of Common Market Studies*, 54(5), 1142-1158.

Goedemé, T., Penne, T., Hufkens, T., Karakitsios, A., Simonovits, B., Carillo-Alvaréz, E., et al. (2019a). What does it mean to live on the poverty threshold? Lessons from Reference Budgets. In B. Cantillon, T. Goedemé, & J. Hills (Eds.), *Decent incomes for all: improving policies in Europe* (pp. 13-33). New York (USA): Oxford University Press.

Goedemé, T., & Rottiers, S. (2011). Poverty in the enlarged European Union. A discussion about definitions and reference groups. *Sociology Compass*, 5(1), 77-91.

Goedemé, T., Storms, B., Penne, T., & Van den Bosch, K. (Eds.). (2015a). *Pilot project for the development of a common methodology on reference budgets in Europe. The development of a methodology for comparable reference budgets in Europe - Final report of the pilot project*. Brussels: European Commission.

Goedemé, T., Storms, B., Stockman, S., Penne, T., & Van den Bosch, K. (2015b). Towards cross-country comparable reference budgets in Europe: First results of a concerted effort. *European Journal of Social Security*, 17(1), 3-30.

Goedemé, T., Storms, B., & Van den Bosch, K. (2015c). Pilot project for the development of a common methodology on reference budgets in Europe: Proposal for a comparable method for reference budgets in Europe. Brussels: European Commission.

Goedemé, T., Trindade, L., & Vandenbroucke, F. (2019b). A pan-European perspective on low-income dynamics in the EU. In B. Cantillon, T. Goedemé, & J. Hills (Eds.), *Decent incomes for all: improving policies in Europe* (pp. 56-82). New York (USA): Oxford University Press.

Goedemé, T., & Vanhille, J. (2018). Water expenses by households living in Flanders: Data availability in the Belgian EU-SILC. *Data in Brief*, 20, 1568-1572.

Gough, I. (2014). Lists and thresholds: comparing the Doyal-Gough theory of human need with Nussbaum's capabilities approach. In F. Comim, & M. C. Nussbaum (Eds.), *Capabilities, gender, equality* (pp. 357-382). Cambridge: Cambridge University Press.

Gough, I. (2017). *Heat, greed and human need. Climate change, capitalism and sustainable wellbeing*. Cheltenham, UK: Edward Elgar Publishing.

Gough, I. (2019). Universal basic services: a theoretical and moral framework. *The Political Quarterly*, 90(3), 534-542.

Greiss, J., Cantillon, B., Marchal, S., & Penne, T. (2019). Europe as agent that fills the gaps? The case of FEAD. *CSB Working Paper Series, No. 19.03*. Antwerp: Herman Deleeck Centre for Social Policy - University of Antwerp.

Griggs, J., & Walker, R. (2008). The costs of child poverty for individuals and society: a literature review. York: Joseph Rowntree Foundation.

Guio, A.-C. (2005). Income poverty and social exclusion in the EU25. *Statistics in Focus*, 7p

Guio, A.-C., Fusco, A., & Marlier, E. (2009). A European Union approach to material deprivation using EU-SILC and Eurobarometer data. *Integrated Research Infrastructure in the Socio-economic Sciences (IRISS) Working Paper Series*, 19, 2009.

Gupta, N. D., Smith, N., & Verner, M. (2008). The impact of Nordic countries' family friendly policies on employment, wages, and children. *Review of Economics of the Household*, 6(1), 65-89.

Haffner, M., & Heylen, K. (2011). User costs and housing expenses. Towards a more comprehensive approach to affordability. *Housing Studies*, 26(4), 593-614.

Hargittai, E. (2010). Digital na(t)ives? Variation in internet skills and uses among members of the "net generation". *Sociological Inquiry*, 80(1), 92-113.

Hernández-Quevedo, C., Jones, A. M., López-Nicolás, A., & Rice, N. (2006). Socioeconomic inequalities in health: a comparative longitudinal analysis using the European Community Household Panel. *Social Science & Medicine*, 63(5), 1246-1261.

Hernanz, V., Malherbet, F., & Pellizzari, M. (2004). Take-up of welfare benefits in OECD countries: a review of the evidence. Paris: OECD Publishing.

Heylen, K., & Haffner, M. (2013). A ratio or budget benchmark for comparing affordability across countries? *Journal of Housing and the Built Environment*, 28(3), 547-565.

Hill, K., Davis, A., Hirsch, D., Padley, M., & Smith, N. (2015). Disability and minimum living standards: the additional costs of living for people who are sight impaired and people who are deaf. York: University of Loughborough.

Hills, J. (2012). Getting the measure of fuel poverty: Final report of the fuel poverty review. London: Centre for Analysis of Social Exclusion, London School of Economics and Political Science.

Hoge Gezondheidsraad (2005). Maten en gewichten: handleiding voor een gestandaardiseerde kwantificering van voedingsmiddelen. Brussels: Belgische Hoge Gezondheidsraad.

Honkanen, P., Räsänen, T., Simanainen, M., Tervola, J., & Valaste, M. (2017). EUROMOD Country Report Finland(FI), 2014-2017.

Howard, G., & Bartram, J. (2003). Domestic water quantity, service level, and health. Geneva: World Health Organization

Hufkens, T., Leventi, C., Rastrigina, O., Manios, K., Van Mechelen, N., Verbist, G., et al. (2016a). HHoT: a new flexible Hypothetical Household Tool for tax-benefit simulations in EUROMOD (Deliverable 22.2). Leuven: FP7 InGRID project.

Hufkens, T., Verbist, G., Figari, F., Gábos, A., Kalavrezou, N., Matsaganis, M., et al. (2016b). The distributive effects of work-family life policies in European welfare states. *ImPROvE Working Paper, No. 16/09*. Antwerp: Herman Deleeck Centre for Social Policy – University of Antwerp.

Hulchanski, J. D. (1995). The concept of housing affordability: six contemporary uses of the housing expenditure-to-income ratio. *Housing Studies*, 10(4), 471-491.

Hutton, G. (2012). Monitoring “Affordability” of water and sanitation services after 2015: Review of global indicator options. *A paper submitted to the UN Office of the High Commissioner for Human Rights*.

Immervoll, H. (2012). Minimum-income benefits in OECD countries. In D. Besharov, & K. Couch (Eds.), *Counting the poor: new thinking about European poverty measures and lessons for the United States*. Oxford: Oxford University Press.

Immervoll, H., Sutherland, H., & de Vos, K. (2001). Reducing child poverty in the European Union: the role of child benefits. In K. Vleminckx, & T. M. Smeeding (Eds.), *Child poverty, child well-being and child policy in modern nations: What do we know?* (pp. 407-432). Bristol: Policy Press.

ISG (2015). Portfolio of EU social indicators for the monitoring of progress towards the EU objectives for social protection and social inclusion. 2015 update. *Social Protection Committee - Indicators Sub-Group*. Luxembourg: Publications Office of the European Union.

Janský, P., & Kolcunová, D. (2017). Regional differences in price levels across the European Union and their implications for its regional policy. *The Annals of Regional Science*, 58(3), 641-660.

Janta, B. (2014). Caring for children in Europe. How childcare, parental leave and flexible working arrangements interact in Europe. *RR-554-DG Employment, European Platform for Investing in Children (EPIC)* (pp. 24). Brussels: RAND Europe.

Jensen, C. (2011). The forgotten half: analysing the politics of welfare services. *International Journal of Social Welfare*, 20(4), 404-412.

Jones, A. D. (2017). Food insecurity and mental health status: a global analysis of 149 countries. *American Journal of Preventive Medicine*, 53(2), 264-273.

Juhász, G. (2006). Exporting or pulling down? The European social model and Eastern enlargement in the EU. *European Journal of Social Quality*, 6(1), 82-108.

Kalenoja, H., & Rissanen, R. (2014). Joukkoliikenteen valtakunnalliset taksavyöhykkeet. Joukkoliikenteen taksavyöhykkeet ELY-keskusten toimivaltaisten viranomaisten alueella. Helsinki.

Kameran, S. B., & Kahn, A. J. (1978). *Family policy: government and families in fourteen countries*. New York: Columbia University Press.

Karamessini, M. (2008). Continuity and change in the southern European social model. *International Labour Review*, 147(1), 43-70.

Kawachi, I., & Subramanian, S. V. (2014). Income inequality. In L. F. Berkman, I. Kawachi, & M. M. Glymour (Eds.), *Social Epidemiology* (pp. 126-151). Oxford: Oxford University Press.

King, J. (2012). *Judging social rights* (Vol. 3). Cambridge: Cambridge University Press.

Kirkpatrick, S. I., & Tarasuk, V. (2007). Adequacy of food spending is related to housing expenditures among lower-income Canadian households. *Public Health Nutrition*, 10(12), 1464-1473.

Knoops, K., & van den Brakel, M. (2010). Rijke mensen leven langer en gezond. *TSG*, 88(1), 17-24.

Koulovatianos, C., Schrder, C., & Schmidt, U. (2009). Nonmarket household time and the cost of children. *Journal of Business & Economic Statistics*, 27(1), 42-51.

Kruschwitz, A., Karle, A., Schmitz, A., & Stammerger, R. (2014). Consumer laundry practices in Germany. *International Journal of Consumer Studies*, 38(3), 265-277.

Kuitto, K. (2016). From social security to social investment? Compensating and social investment welfare policies in a life-course perspective. *Journal of European Social Policy*, 26(5), 442-459.

Kumanyika, S., Libman, K., & Garcia, A. (2013). Strategic action to combat the obesity epidemic. *Report of the Obesity Working Group*. Doha, Qatar.

Lambie-Mumford, H. (2019). The growth of food banks in Britain and what they mean for social policy. *Critical Social Policy*, 39(1), 3-22.

Land, K. C., & Michalos, A. C. (2018). Fifty years after the social indicators movement: Has the promise been fulfilled? *Social Indicators Research*, 135(3), 835-868.

Lee, C. (2011). Privatization, water access and affordability: Evidence from Malaysian household expenditure data. *Economic Modelling*, 28(5), 2121-2128.

Lehtinen, A. R., & Aalto, K. (2014). Viitebudjettien päivitys vuodelle 2013-Mitä kohtuullinen eläminen maksaa? (pp. 47p). Helsinki: Kuluttajatutkimuskeskus.

Lehtinen, A. R., Varjonen, J., Raijas, A., & Aalto, K. (2011). What is the cost of living? Reference budgets for a decent minimum standard of living in Finland. Helsinki: National Consumer Research Centre.

Leijten, I. (2018). *Core socio-economic rights and the European Court of Human Rights*. Cambridge: Cambridge University Press.

Lelkes, O., & Zólyomi, E. (2010). Housing quality deficiencies and the link to income in the EU. *Policy Brief Series March*. Vienna: European Centre for Social Welfare, Policy and Research.

Leng, G., Adan, R. A., Belot, M., Brunstrom, J. M., De Graaf, K., Dickson, S. L., et al. (2017). The determinants of food choice. *Proceedings of the Nutrition Society*, 76(3), 316-327.

Levasseur, M., Richard, L., Gauvin, L., & Raymond, É. (2010). Inventory and analysis of definitions of social participation found in the aging literature: Proposed taxonomy of social activities. *Social Science & Medicine*, 71(12), 2141-2149.

Lock, K., Pomerleau, J., Causer, L., Altmann, D., & McKee, M. (2005). The global burden of disease attributable to low consumption of fruit and vegetables: implications for the global strategy on diet. *Bulletin of the World Health Organisation*, 83(2), 100-108.

Loopstra, R., Reeves, A., & Stuckler, D. (2015). Rising food insecurity in Europe. *The Lancet*, 385(9982), 2041.

Lynch, J. W., Smith, G. D., Kaplan, G. A., & House, J. S. (2000). Income inequality and mortality: importance to health of individual income, psychosocial environment, or material conditions. *Bmj*, 320(7243), 1200-1204.

Mack, E. A., & Wrage, S. (2017). A burgeoning crisis? A nationwide assessment of the geography of water affordability in the United States. *PloS One*, 12(4), e0169488.

Mackenbach, J. P., Stirbu, I., Roskam, A. J. R., Schaap, M. M., Menvielle, G., Leinsalu, M., et al. (2008). Socioeconomic inequalities in health in 22 European countries. *New England Journal of Medicine* 358(23), 2468-2481.

Mäkinen, L. (2015). *Using reference budgets as a poverty indicator: the Finnish approach*. Paper presented at the FISS 2015 Conference Hong Kong,

Maldonado, L. C., & Nieuwenhuis, R. (2015). Family policies and single parent poverty in 18 OECD countries, 1978–2008. *Community, Work & Family*, 18(4), 395-415.

Mandic, S., & Cirman, A. (2012). Housing conditions and their structural determinants: Comparisons within the enlarged EU. *Urban Studies*, 49(4), 777-793.

Marchal, S. (2017). *The social floor: essays on minimum income protection*. Doctoral dissertation. University of Antwerp, Antwerp.

Marchal, S., Marx, I., & Verbist, G. (2018a). Income support policies for the working poor. In H. Lohmann, & I. Marx (Eds.), *Handbook on In-Work Poverty* (pp. 213-227). Cheltenham: Edward Elgar Publishing.

Marchal, S., Siöland, L., & Goedemé, T. (2018b). Methodological working paper: Using HHoT to generate institutional minimum income protection indicators. *CSB Working Paper Series, No. 18.20*. Antwerp: Herman Deleeck Centre for Social Policy - University of Antwerp.

Marchal, S., & Van Mechelen, N. (2017). A new kid in town? Active inclusion elements in European minimum income schemes. *Social Policy & Administration, 51*(1), 171-194.

Marical, F., d'Ercole, M. M., Vaalavuo, M., & Verbist, G. (2008). Publicly provided services and the distribution of households' economic resources. *OECD Economic Studies, 44*(1), 9-47.

Mariën, I., & Van Audenhove, L. (2011). Mediageletterdheid en digitale vaardigheden: naar een multidimensioneel model van digitale exclusie. In M. A. Moreas, & J. Pickery (Eds.), *Mediageletterdheid in een digitale wereld* (pp. 99-137). Brussel: Studiedienst Vlaamse Regering.

Marlier, E., Atkinson, A. B., Cantillon, B., & Nolan, B. (2007). *The EU and social inclusion: facing the challenges*. Bristol: Policy Press.

Marmot, M. (2002). The influence of income on health: views of an epidemiologist. *Health Affairs, 21*(2), 31-46.

Marmot, M., Allen, J., Bell, R., Bloomer, E., & Goldblatt, P. (2012). WHO European review of social determinants of health and the health divide. *The Lancet, 380*(9846), 1011-1029.

Marshall, G. (1998). *A dictionary of sociology*. Oxford: Oxford University Press.

Marx, I., & Nelson, K. (2013). *Minimum income protection in flux*. UK: Palgrave Macmillan.

Matsaganis, M., & Leventi, C. (2019). Distributive effects of the crisis in the European periphery. In B. Cantillon, T. Goedemé, & J. Hills (Eds.), *Decent incomes for all: improving policies in Europe* (pp. 133-153). New York (USA): Oxford University Press.

Matsaganis, M., O'donoghue, C., Levy, H., Coromaldi, M., Mercader-Prats, M., Rodrigues, C. F., et al. (2005). Child poverty and family transfers in Southern Europe. *IZA Discussion Paper, No. 1509*. Bonn: Institute for the Study of Labor.

Mau, S., & Verwiebe, R. (2010). *European societies: Mapping structure and change*. Bristol: The Policy Press.

McCradden, C. (2013). *Understanding human dignity*. Oxford: Oxford University Press.

Meyer, B. D., & Mittag, N. (2019). Using linked survey and administrative data to better measure income: implications for poverty, program effectiveness, and holes in the safety net. *American Economic Journal: Applied Economics*, 11(2), 176-204.

Meyer, B. D., & Sullivan, J. X. (2012). Identifying the disadvantaged: official poverty, consumption poverty, and the new supplemental poverty measure. *The Journal of Economic Perspectives*, 26(3), 111-135.

Milanovic, B. (2016). *Global inequality: a new approach for the age of globalization*. Cambridge: Harvard University Press.

Miniaci, R., Scarpa, C., & Valbonesi, P. (2008). Measuring the affordability of basic public utility services in Italy. *Giornale degli Economisti e Annali di Economia*, 185-230.

Mithen, J., Aitken, Z., Ziersch, A., & Kavanagh, A. M. (2015). Inequalities in social capital and health between people with disabilities and without disabilities. *Social Science and Medicine*, 126, 26-35.

Montagnese, C., Santarpia, L., Buonifacio, M., Nardelli, A., Caldara, A. R., Silvestri, E., et al. (2015). European food-based dietary guidelines: a comparison and update. *Nutrition*, 31(7-8), 908-915.

Moons, N. (2016). *The right to housing in Flanders-Belgium: international human rights law and concepts as stepping stones to more effectiveness*. University of Antwerp, Antwerp.

Moore, R. (2012). Definitions of fuel poverty: Implications for policy. *Energy Policy*, 49, 19-26.

Morales, L. (2018). The discontent of social and economic rights. *Res Publica*, 24(2), 257-272.

Morris, S., Sutton, M., & Gravelle, H. (2005). Inequity and inequality in the use of health care in England: an empirical investigation. *Social Science & Medicine*, 60(6), 1251-1266.

Muennig, P. (2008). Health selection vs. causation in the income gradient: what can we learn from graphical trends. *Journal of Health Care for the Poor and Underserved*, 19(2), 574-579.

Mullainathan, S., & Shafir, E. (2013). *Scarcity: Why having too little means so much*. New York: Times Books.

Muro, P., Carrillo-Álvarez, E., & Marzo, T. (2018). Empoderar en hábitos saludables a familias vulnerables. In *REPS 2018: Políticas sociales ante horizontes de incertidumbre y desigualdad; Red Española de Política Social* (pp. 1317-1335). Zaragoza: Universidad de Zaragoza.

Nagata, J. (2001). Plural Societies. In N. J. S. B. Baltes (Ed.), *International Encyclopedia of the Social & Behavioral Sciences* (pp. 11513-11516). Oxford: Pergamon.

Naska, A., Fouskakis, D., Oikonomou, E., Almeida, M., Berg, M., Gedrich, K., et al. (2006). Dietary patterns and their socio-demographic determinants in 10 European countries: data from the DAFNE databank. *European Journal of Clinical Nutrition*, 60(2), 181-190.

Nelson, J. A. (1993). Household equivalence scales: Theory versus policy? *Journal of Labor Economics*, 11(3), 471-493.

Nelson, K. (2013). Social assistance and EU poverty thresholds 1990–2008. Are European welfare systems providing just and fair protection against low income? *European Sociological Review*, 29(2), 386-401.

Nikolić, M., Glibetić, M., Gurinović, M., Milešević, J., Khokhar, S., Chillo, S., et al. (2014). Identifying critical nutrient intake in groups at risk of poverty in Europe: the CHANCE project approach. *Nutrients*, 6(4), 1374-1393.

Nolan, B. (2018). *Inequality and inclusive growth in rich countries: shared challenges and contrasting fortunes*. Oxford: Oxford University Press.

Nordström, J., & Thunström, L. (2011). Can targeted food taxes and subsidies improve the diet? Distributional effects among income groups. *Food Policy*, 36(2), 259-271.

Noreau, L., Desrosiers, J., Robichaud, L., Fougeyrollas, P., Rochette, A., & Viscogliosi, C. (2004). Measuring social participation: reliability of the LIFE-H in older adults with disabilities. *Disability and rehabilitation*, 26(6), 346-352.

Notten, G., & Guio, A.-C. (2019). The impact of social transfers on income poverty and material deprivation. In B. Cantillon, T. Goedemé, & J. Hills (Eds.), *Decent incomes for all: improving policies in Europe* (pp. 85-107). New York (USA): Oxford University Press.

Nussbaum, M. C. (2001). *Women and human development: the capabilities approach* (Vol. 3). Cambridge: Cambridge University Press.

Nussbaum, M. C. (2011). *Creating capabilities: The human development approach*. Cambridge: Harvard University Press.

O'Connell, R., Owen, C., Padley, M., Simon, A., & Brannen, J. (2019). Which types of family are at risk of food poverty in the UK? A relative deprivation approach. *Social Policy and Society*, 18(1), 1-18.

OECD (2003). Social issues in the provision and pricing of water services. Paris: Organisation for Economic Co-operation and Development.

OECD (2009). Managing water for all: an OECD perspective on pricing and financing Paris: Organisation for Economic Co-operation and Development.

OECD (2013). OECD framework for statistics on the distribution of household income, consumption and wealth. *OECD Publishing*. Paris.

OECD (2014a). Social Expenditure Database (SOCX). Available online: <http://www.oecd.org/els/soc/expenditure.htm>.

OECD (2014b). What are equivalence scales? . Accessed November 2019 via <http://www.oecd.org/els/soc/OECD-Note-EquivalenceScales.pdf>.

OECD (2015). *In it together: Why less inequality benefits all*. Paris: OECD Publishing.

OECD (2016). OECD. Stat: Average annual wages. Accessed April 2017 via https://stats.oecd.org/Index.aspx?DataSetCode=AV_AN_WAGE.

Oldfield, N., & Bradshaw, J. (2011). The costs of a child in a low-income household. *Journal of Poverty and Social Justice*, 19(2), 131-143.

Onwuegbuzie, A. J., Dickinson, W. B., Leech, N. L., & Zoran, A. G. (2009). A qualitative framework for collecting and analyzing data in focus group research. *International Journal of Qualitative Methods*, 8(3), 1-21.

Opschoor, J. H. (2006). Water and merit goods. *International Environmental Agreements: Politics, Law and Economics*, 6(4), 423-428.

Pakula, C., & Stamminger, R. (2010). Electricity and water consumption for laundry washing by washing machine worldwide. *Energy Efficiency*, 3(4), 365-382.

Paulus, A., Sutherland, H., & Tsakloglou, P. (2010). The distributional impact of in-kind public benefits in European countries. *Journal of Policy Analysis and Management*, 29(2), 243-266.

Pechey, R., & Monsivais, P. (2016). Socioeconomic inequalities in the healthiness of food choices: exploring the contributions of food expenditures. *Preventive Medicine*, 88, 203-209.

Penne, T., Cussó Parcerisas, I., Mäkinen, L., Storms, B., & Goedemé, T. (2016). Can reference budgets be used as a poverty line? *ImPROvE Working Paper*, No. 16/05. Antwerp: Herman Deleeck Centre for Social Policy – University of Antwerp.

Penne, T., Hufkens, T., Goedemé, T., & Storms, B. (2018). To what extent do welfare states compensate for the cost of children? A hypothetical household approach to policy evaluations. *CSB Working Paper Series*, No. 18.11. Antwerp: Herman Deleeck Centre for Social Policy - University of Antwerp.

Perez-Escamilla, R., Bermudez, O., Buccini, G. S., Kumanyika, S., Lutter, C. K., Monsivais, P., et al. (2018). Nutrition disparities and the global burden of malnutrition. *Bmj*, 361, k2252.

Peters, D. H., Garg, A., Bloom, G., Walker, D. G., Brieger, W. R., & Rahman, M. H. (2008). Poverty and access to health care in developing countries. *Annals of the New York Academy of Sciences*, 1136(1), 161-171.

Platt, G. M. (2001). Status and role, social psychology of. In N. J. S. B. Baltes (Ed.), *International encyclopedia of the social & behavioral sciences* (pp. 15090-15095). Oxford: Pergamon.

Pollak, R. A., & Wales, T. J. (1979). Welfare comparisons and equivalence scales. *The American Economic Review*, 216-221.

Pollard, C. M., & Booth, S. (2019). Food insecurity and hunger in rich countries—It is time for action against inequality. *International Journal of Environmental Research and Public Health*, 16(10), 1-13.

Pomerleau, J., McKee, M., Lobstein, T., & Knai, C. (2003). The burden of disease attributable to nutrition in Europe. *Public Health Nutrition*, 6(5), 453-461.

Poulain, J.-P. (2017). *The sociology of food: eating and the place of food in society*. London: Bloomsbury Publishing.

Praktisch Duurzaam (2015). Waterbesparing in het toilet. Accessed 20/07/2017 via <http://www.praktischduurzaam.nl/waterbesparing-in-het-toilet/>.

Randolph, B., & Troy, P. (2008). Attitudes to conservation and water consumption. *Environmental Science & Policy*, 11(5), 441-455.

Rao, N. (2007). On the use and abuse of dignity in constitutional law. *Columbia Journal of European Law*, 14(2), 201-256.

Rasnača, Z. (2017). Bridging the gaps or falling short? The European Pillar of Social Rights and what it can bring to EU-level policymaking. *Working Paper 2017.05*. Brussels: ETUI.

Ravallion, M., & Chen, S. (2011). Weakly relative poverty. *Review of Economics and Statistics*, 93(4), 1251-1261.

Reynaud, A. (2008). Social policies and private sector participation in water supply—the case of France. In N. Prasad (Ed.), *Social policies and private sector participation in water supply*. Basingstoke & New York: Palgrave.

Riches, G., & Silvasti, T. (2014). Hunger in the rich world: food aid and right to food perspectives. In G. Riches, & T. Silvasti (Eds.), *First world hunger revisited: food charity or the right to food?* (pp. 1-14). UK: Palgrave Macmillan.

Ringen, S. (1987). *The possibility of politics: A study in the political economy of the welfare state*. Oxford: Clarendon Press.

Ringen, S. (1988). Direct and indirect measures of poverty. *Journal of Social Policy*, 17(3), 351-365.

Roberto, C. A., Swinburn, B., Hawkes, C., Huang, T. T., Costa, S. A., Ashe, M., et al. (2015). Patchy progress on obesity prevention: emerging examples, entrenched barriers, and new thinking. *The Lancet*, 385(9985), 2400-2409.

Robertson, A., Lobstein, T., & Knai, C. (2007). Obesity and socio-economic groups in Europe: Evidence review and implications for action. (pp. 192p.). Brussels: European Commission.

Roose, R., & De Bie, M. (2003). From participative research to participative practice—a study in youth care. *Journal of Community & Applied Social Psychology*, 13(6), 475-485.

Roth, N., & Knai, C. (2003). Food based dietary guidelines in the WHO European Region. *World Health Organisation* (pp. 38).

Rowntree, B. S. (1901). *Poverty: a study of town life*. Bristol: The Policy Press.

Rybikowska, A., & Schneider, M. (2011). Housing conditions in Europe in 2009. *Eurostat Statistics in Focus*, 4, 1-12.

Sainz García, P., Ferrer Svoboda, M. C., & Sánchez Ruiz, E. (2016). Competencias culinarias y consumo de alimentos procesados o preparados en estudiantes universitarios de Barcelona. *Revista Española de Salud Pública*, 90, 1-13.

Salanauskaite, L., & Verbist, G. (2013). Is the neighbour's grass greener? Comparing family support in Lithuania and four other New Member States. *Journal of European Social Policy*, 23(3), 315-331.

Sarlo, C. A. (2013). *The cost of raising children*. Vancouver: Fraser Institute.

Saunders, P. (1999). Budget standards and the costs of children. *Family Matters*(53), 62.

Saunders, P., & Bedford, M. (2017). *New minimum income for healthy living budget standards for low-paid and unemployed Australians*. Sidney: Social Policy Research Centre, UNSW.

Sawkins, J. W., & Dickie, V. A. (2005). Affordability of household water and sewerage services in Great Britain. *Fiscal Studies*, 225-244.

Schönfeldt, H., Hall, N., & Bester, M. (2013). Relevance of food-based dietary guidelines to food and nutrition security: A South African perspective. *Nutrition Bulletin*, 38(2), 226-235.

Schröder, H., Marrugat, J., & Covas, M. (2006). High monetary costs of dietary patterns associated with lower body mass index: a population-based study. *International Journal of Obesity*, 30(10), 1574-1579.

Scott, J. (2001). Status and role: structural aspects. In N. J. S. B. Baltes (Ed.), *International encyclopedia of the social & behavioral sciences* (pp. 15095-15098). Oxford: Pergamon.

Sebri, M. (2015). Water affordability and social equity in Tunisian governorates: a distributive approach. *Water Policy*, 17(1), 26-45.

Sefton, T. (2002). Targeting fuel poverty in England: is the government getting warm? *Fiscal Studies*, 23(3), 369-399.

Selwyn, N. (2004). Reconsidering political and popular understandings of the digital divide. *New Media & Society*, 6(3), 341-362.

Sen, A. (1982). *Choice, welfare and measurement*. Oxford: Blackwell.

Sen, A. (1983). Poor, relatively speaking. *Oxford Economic Papers*, 35(2), 153-169.

Sen, A. (1985). A sociological approach to the measurement of poverty: a reply to Professor Peter Townsend. *Oxford Economic Papers*, 37(4), 669-676.

Sen, A. (1987). *The standard of living*. Cambridge: Cambridge University Press.

Sen, A. (1990). Justice: means versus freedoms. *Philosophy & Public Affairs*, 19, 111-121.

Sen, A. (1992). *Inequality reexamined*. Oxford: Oxford University Press.

Sen, A. (1993). Capability and well-being. In A. Sen, & M. C. Nussbaum (Eds.), *The quality of life* (pp. 30-53). Oxford: Clarendon Press.

Sen, A. (2005). Human rights and capabilities. *Journal of Human Development*, 6(2), 151-166.

SERV (2014). Tarivering van drinkwater. Analyse en aanbevelingen. Brussel: Sociaal-Economische Raad Vlaanderen.

Sjöström, M., & Stockley, L. (2000). Toward public health nutrition strategies in the European Union to implement food based dietary guidelines and to enhance healthier lifestyles. *Public Health Nutrition*, 4(2a), 307-324.

Smeeding, T. M., Saunders, P., Coder, J., Jenkins, S., Fritzell, J., Hagenaars, A. J., et al. (1993). Poverty, Inequality, and family living standards impacts across seven nations: The effect of noncash subsidies for health, education and housing. *Review of Income and Wealth*, 39(3), 229-256.

Smets, H. (2008). De l'eau potable à un prix abordable. Paris: Johanet.

Smets, H. (2009). Access to drinking water at an affordable price in developing countries. *Options Méditerranéennes*, A n°, 88.

Sobal, J., & Bisogni, C. A. (2009). Constructing food choice decisions. *Annals of Behavioral Medicine*, 38(suppl_1), 37-46.

Steenhuis, I. H., Waterlander, W. E., & De Mul, A. (2011). Consumer food choices: the role of price and pricing strategies. *Public Health Nutrition*, 14(12), 2220-2226.

Stendahl, S., & Swedrup, O. (2016). A Legal Analysis of the Possibilities and Impediments for Citizens Seeking to Enforce their Social Rights, deliverable 6.4. of the bEUcitizen project. University of Gothenburg.

Stendahl, S., & Swedrup, O. (2018). Social human rights as a legal strategy to enhance EU citizenship. In F. Pennings, & M. Seelieb-Kaiser (Eds.), *European citizenship and social rights: entitlements and impediments to accessing welfare*. Cheltenham: Edward Elgar Publishing.

Stiglitz, J., Sen, A., & Fitoussi, J.-P. (2009). The measurement of economic performance and social progress revisited: reflections and overview. *OFCE N°2009-33*: hal-01069384.

Stone, M. E. (2006). What is housing affordability? The case for the residual income approach. *Housing Policy Debate*, 17(1), 151-184.

Storms, B. (2012). *Referentiebudgetten voor maatschappelijke participatie*. Doctoraal proefschrift. Universiteit Antwerpen, Antwerpen.

Storms, B. (2020). Belgian reference budgets for social participation and their use for policy purposes. In C. Deeming (Ed.), *Minimum income standards and reference budgets: international and comparative policy perspectives*. Bristol: Policy Press.

Storms, B., & Bogaerts, K. (2012). Le dindon de la farce: enquête sur l'efficacité des prestations financières pour les enfants à charge. *Revue belge de sécurité sociale/Belgique. Ministère de la prévoyance sociale*.-Bruxelles, 54(4), 599-645.

Storms, B., Goedemé, T., Van den Bosch, K., & Devuyst, K. (2013). Towards a common framework for developing cross-nationally comparable reference budgets in Europe. *ImPROvE Working Paper, No. 13/02*. Antwerp: Herman Deleeck Centre for Social Policy – University of Antwerp.

Storms, B., Goedemé, T., Van den Bosch, K., Penne, T., Schuerman, N., & Stockman, S. (2014). *Pilot project for the development of a common methodology on reference budgets in Europe: Review of current state of play on reference budget practices at national, regional, and local level*. Brussels: European Commision.

Storms, B., Penne, T., Vandelannoote, D., & Van Thielen, L. (2015). Referentiebudgetten als benchmark voor het beoordelen van de doeltreffendheid van de minimuminkomensbescherming. Hoe evolueerden inkomens en noodzakelijke uitgaven in de periode 2008-2013? *Belgisch Tijdschrift voor Sociale Zekerheid*(3), 497-516.

Storms, B., & Van den Bosch, K. (2009). *Wat heeft een gezin minimaal nodig? Een budgetstandaard voor Vlaanderen*. Leuven: ACCO.

Storms, B., Van Thielen, L., Penne, T., & Goedemé, T. (forthcoming). *Hoeveel inkomen is minimaal nodig? Referentiebudgetten voor maatschappelijke participatie*. Brugge: Die Keure.

Superior Health Council (2016). Voedings- aanbevelingen voor België - 2016. Advies nr. 9285. Brussel: HGR.

Sutherland, H., & Figari, F. (2013). EUROMOD: the European Union tax-benefit microsimulation model. *International Journal of Microsimulation*, 6(1), 4-26.

Świątkowski, A., & Wujczyk, M. (2018). The European Social Charter as a basis for defining social rights for EU citizens. In F. Pennings, & M. Seeleib-Kaiser (Eds.), *European citizenship and social rights: entitlements and impediments to accessing welfare*. Cheltenham: Edward Elgar Publishing.

Teng, A. M., Jones, A. C., Mizdrak, A., Signal, L., Genç, M., & Wilson, N. (2019). Impact of sugar-sweetened beverage taxes on purchases and dietary intake: Systematic review and meta-analysis. *Obesity Reviews*, 20(9), 1187-1204.

Thévenon, O. (2009). Assessing the costs of children: a challenge for policy. In M. T. Letablier, A. Luci, A. Math, & O. Thévenon (Eds.), *The costs of raising children and the effectiveness of policies to support parenthood in European countries: a Literature Review* (pp. 17-34). Brussels: European Commission.

Thévenon, O. (2011). Family policies in OECD countries: a comparative analysis. *Population and Development Review*, 37(1), 57-87.

Thomson, K., Hillier-Brown, F., Todd, A., McNamara, C., Huijts, T., & Bambra, C. (2018). The effects of public health policies on health inequalities in high-income countries: an umbrella review. *BMC Public Health*, 18(1), 869.

Tiwari, A., Aggarwal, A., Tang, W., & Drewnowski, A. (2017). Cooking at home: a strategy to comply with US dietary guidelines at no extra cost. *American Journal of Preventive Medicine*, 52(5), 616-624.

Törmälehto, V.-M., & Sauli, H. (2013). The distributional impact of imputed rent in EU-SILC 2007–2010. Luxembourg: Publications Office of the European Union.

Townsend, P. (1979). *Poverty in the United Kingdom. A survey of household resources and standards of living*. Middlesex: Penguin Books.

United Nations (1948). The Universal Declaration of Human Rights. *10 December 1948, 217 A (III)*. Paris: United Nations General Assembly.

United Nations (1989). Convention on the rights of the child, United Nations General Assembly. Accessed July 2018 via <https://www.ohchr.org/en/professionalinterest/pages/crc.aspx>.

United Nations (2003). General Comment No. 15: The Right to Water (Arts. 11 and 12 of the Covenant) In S. a. C. R. Committee on Economic (Ed.), Accessed 20 July 2017 via <http://www.refworld.org/docid/4538838d11.html>.

United Nations (2010). Resolution adopted by the General Assembly on 28 July 2010: The human right to water and sanitation (Vol. Resolution 64/292). United Nations General Assembly.

UNDP (2006). Human Development Report 2006. Beyond scarcity: Power, poverty and the global water crisis. New York: United Nations Development Programme.

Utz, R. L., Carr, D., Nesse, R., & Wortman, C. B. (2002). The effect of widowhood on older adults' social participation: An evaluation of activity, disengagement, and continuity theories. *The Gerontologist*, 42(4), 522-533.

Van de Ven, J., Hérault, N., & Azpitarte, F. (2017). Identifying tax implicit equivalence scales. *The Journal of Economic Inequality*, 15(3), 257-275.

Van den Bosch, K. (2001). *Identifying the poor: Using subjective and consensual measures*. Aldershot: Ashgate Pub Ltd.

Van den Bosch, K., Goedemé, T., Schuerman, N., & Storms, B. (2016). Reference housing costs for adequate dwellings in ten European capitals. *Critical Housing Analysis*, 3(1), 1-9.

Van Doorslaer, E., Koolman, X., & Jones, A. M. (2004). Explaining income-related inequalities in doctor utilisation in Europe. *Health Economics*, 13(7), 629-647.

Van Doorslaer, E., Masseria, C., & Koolman, X. (2006). Inequalities in access to medical care by income in developed countries. *Canadian Medical Association Journal*, 174(2), 177-183.

Van Kerm, P. (2007). Extreme incomes and the estimation of poverty and inequality indicators from EU-SILC. *IRISS Working Paper Series 2007-01*. Luxembourg: CEPS/INSTEAD.

Van Lancker, A. (2015). Toward adequate and accessible Minimum Income Schemes in Europe—Synthesis report. Brussels: European Commission.

Van Lancker, W. (2013). Putting the child-centred investment strategy to the test: Evidence for EU27. *European Journal of Social Security*, 15(1), 4-27.

Van Lancker, W., & Van Mechelen, N. (2015). Universalism under siege? Exploring the association between targeting, child benefits and child poverty across 26 countries. *Social Science Research*, 50, 60-75.

Van Mechelen, N., & Bradshaw, J. (2013). Child poverty as a government priority: Child benefit packages for working families, 1992–2009. In I. Marx, & K. Nelson (Eds.), *Minimum income protection in flux* (pp. 81-107). UK: Palgrave Macmillan.

Van Mechelen, N., & Janssens, J. (2017). Who is to blame? An overview of the factors contributing to the non-take-up of social rights. *CSB Working Paper Series, No. 17.08*. Antwerp: Herman Deleeck Centre for Social Policy - University of Antwerp.

Van Mechelen, N., & Marchal, S. (2013). Struggle for life: social assistance benefits, 1992–2009. In *Minimum income protection in flux* (pp. 28-53). UK: Palgrave Macmillan.

van Thiel, L. (2014). Watergebruik Thuis 2013. *Uitgevoerd in opdracht van de Vereniging van waterbedrijven in Nederland*. Amsterdam: TNS NIPO.

Van Thielen, L., Deflandre, D., Baldewijns, K., Boeckx, H., Leysens, G., Casman, M., et al. (2010). Minibudget: Wat hebben gezinnen nodig om menswaardig te leven in België. Onderzoek gefinancierd door Federaal Wetenschapsbeleid in opdracht van de POD MI.

Vandenbroeck, M., & Lazzari, A. (2014). Accessibility of early childhood education and care: a state of affairs. *European Early Childhood Education Research Journal*, 22(3), 327-335.

Vandenbroucke, F. (2017). Comparative social policy analysis in the EU at the brink of a new era. *Journal of Comparative Policy Analysis: Research and Practice*, 19(4), 390-402.

Vandenbroucke, F., Cantillon, B., Van Mechelen, N., Goedemé, T., & Van Lancker, A. (2013). The EU and minimum income protection: clarifying the policy conundrum. In I. Marx, & K. Nelson (Eds.), *Minimum income protection in flux* (pp. 271-317). UK: Palgrave Macmillan.

Vandenbroucke, F., & Vleminckx, K. (2011). Disappointing poverty trends: is the social investment state to blame? *Journal of European Social Policy*, 21(5), 450-471.

Vanhille, J. (2015). *Consumption-based water charges and public water regulators' equity concerns - an empirical evaluation of alternative tariff*

structures for Flemish households. Paper presented at the International Conference on Public Policy, Milan, Italy, 01-04 July 2015

Vanhille, J., Goedemé, T., Penne, T., Van Thielen, L., & Storms, B. (2018). Measuring water affordability in developed economies. The added value of a needs-based approach. *Journal of Environmental Management*, 217, 611-620.

Verbergt, G., Cantillon, B., & Van den Bosch, K. (2009). Sociale ongelijkheden in het Vlaamse onderwijs: tien jaar later. *CSB berichten*. Antwerpen: Centrum voor Sociaal Beleid Herman Deleeck - Universiteit Antwerpen.

Verbist, G. (2017). Measuring social investment returns: do publicly provided services enhance social inclusion? In A. Hemerijck (Ed.), *The uses of social investment* (pp. 194-204). Oxford: Oxford University Press.

Verbist, G., & Matsaganis, M. (2014). The redistributive capacity of services in the European Union. In B. Cantillon, & F. Vandenbroucke (Eds.), *Reconciling work and poverty reduction: How successful are European welfare states?* (pp. 185-211). New York (USA): Oxford University Press.

Verbist, G., & Van Lancker, W. (2016). Horizontal and vertical equity objectives of child benefit systems: an empirical assessment for European countries. *Social Indicators Research*, 128(3), 1299-1318.

Vereecken, C. A., Inchley, J., Subramanian, S. V., Hublet, A., & Maes, L. (2005). The relative influence of individual and contextual socio-economic status on consumption of fruit and soft drinks among adolescents in Europe. *European Journal of Public Health*, 15(3), 224-232.

Vermeulen, B., & Hermans, K. (2013). Op het snijpunt van handicap en armoede: effectiviteit van de tegemoetkomingen voor personen met een handicap. *Belgisch Tijdschrift voor Sociale Zekerheid*, 55(4), 29-57.

Vlaamse Maatschappij voor Sociaal Wonen (2019). Kandidaat-huurders. Statistisch bulletin 2018 (versie 1.1). Accessed January 2020 via <https://www.vmsw.be/home/footer/over-sociale-huisvesting/statistieken/kandidaat-huurders-en-kopers>.

VMM (2014). Watermeter 2014 – Drinkwaterproductie en -levering in cijfers. Aalst: Vlaamse Milieu Maatschappij.

VMM (2016). Statistieken toepassing Algemeen Waterverkoopreglement 2015. Aalst: Vlaamse Milieu Maatschappij.

VMM (2017). Minder verbruiken en betalen? Accessed 20/07/2017 via <http://www.vmm.be/waterloket/minder-verbruiken-en-betalen>.

Voss, T. R. (2001). Institutions. In N. J. S. B. Baltes (Ed.), *International encyclopedia of the social & behavioral sciences* (pp. 7561-7566). Oxford: Pergamon.

Vranken, J. (2010). *Peer review in social protection and social 2010: Using reference budgets for drawing up the requirements of a minimum income scheme and assessing adequacy*. Synthesis Report. Brussels: European Commission.

Vrooman, J. C. (2009a). Poverty and institutional regimes: A generalised budget approach in 11 countries. *LIS Working Paper Series, No 518*. Luxembourg: Luxembourg Income Study (LIS).

Vrooman, J. C. (2009b). *Rules of Relief. Institutions of social security, and their impact*. The Hague: The Nederlands Institute for Social Research | SCP.

Wallace, B. B., & MacEntee, M. I. (2012). Access to dental care for low-income adults: perceptions of affordability, availability and acceptability. *Journal of Community Health*, 37(1), 32-39.

Ward, P. R., Verity, F., Carter, P., Tsourtos, G., Coveney, J., & Wong, K. C. (2013). Food stress in Adelaide: the relationship between low income and the affordability of healthy food. *Journal of Environmental and Public Health*, 2013.

Whelan, C. T., & Maître, B. (2009). Europeanization of inequality and European reference groups. *Journal of European Social Policy*, 19(2), 117-130.

Whiteford, P., & Adema, W. (2007). What works best in reducing child poverty: a benefit or work strategy? *OECD Social, Employment and Migration Working Papers, no. 51*. Paris: OECD.

Whitehead, C. M. (1991). From need to affordability: an analysis of UK housing objectives. *Urban Studies*, 28(6), 871-887.

WHO (1982). Manuals on child mental health and psychosocial development. Geneva: WHO.

WHO (1996). Preparation and use of Food-Based Dietary Guidelines. Report of a joint FAO/WHO consultation. Nicosia, Cyprus.

WHO (2014a). European food and nutrition action plan 2015–2020. (64th session ed., pp. 24). Copenhagen: WHO regional office for Europe.

WHO (2014b). *Global status report on noncommunicable diseases 2014* (Vol. WHO/NMH/NVI/15.1): World Health Organization.

WHO (2017). World Health Statistics 2017: monitoring health for the Sustainable Development Goals. Geneva: World Health Organization.

Winters, S., Ceulemans, W., Heylen, K., Pannecoucke, I., Vanderstraeten, L., Van den Broeck, K., et al. (2015). *Wonen in Vlaanderen anno 2013. De bevindingen uit het Grote Woononderzoek 2013 gebundeld*. Antwerpen-Apeldoorn: Garant.

Wodon, Q. T. (1997). Food energy intake and cost of basic needs: Measuring poverty in Bangladesh. *The Journal of Development Studies*, 34(2), 66-101.

Woessmann, L. (2004). How equal are educational opportunities? Family background and student achievement in Europe and the US. *CESifo Working Paper, No. 1162*. Munich: Center for Economic Studies and Ifo Institute.

Wolf, D. A., Lee, R. D., Miller, T., Donehower, G., & Genest, A. (2011). Fiscal externalities of becoming a parent. *Population and Development Review*, 37(2), 241-266.

Wong, K. C., Coveney, J., Ward, P., Muller, R., Carter, P., Verity, F., et al. (2011). Availability, affordability and quality of a healthy food basket in Adelaide, South Australia. *Nutrition & Dietetics*, 68(1), 8-14.

Young, K. G. (2008). The minimum core of economic and social rights: a concept in search of content. *Yale Journal of International Law*, 33(No. 1).

Zaidi, A., & Burchardt, T. (2005). Comparing incomes when needs differ: equivalization for the extra costs of disability in the UK. *Review of Income and Wealth*, 51(1), 89-114.

Zeitlin, J., & Vanhercke, B. (2018). Socializing the European Semester: EU social and economic policy co-ordination in crisis and beyond. *Journal of European Public Policy*, 25(2), 149-174.

NEDERLANDSTALIGE SAMENVATTING

Inleiding en doelstelling

Armoede en sociale uitsluiting blijven hardnekkige problemen in Europese welvaarstaaten. In de meeste lidstaten zijn de sociale bescherming en lage lonen dan ook structureel ontoereikend voor mensen aan de onderkant van de inkomensverdeling (Cantillon et al. 2019). Dit betekent dat een aanzienlijk deel van de actieve bevolking onvoldoende financiële middelen heeft om hun essentiële behoeften te vervullen. Nochtans is het recht op een menswaardig bestaan en een adequate levensstandaard verankerd in universele en Europese mensenrechtenverdragen. De uitdaging voor het beleid zijn dus niet verminderd.

Deze doctoraatsthesis tracht een bijdrage te leveren aan de beschouwing, meting en evaluatie van armoede en adequaat sociaal beleid in Europese welvaartstaaten. Wat verstaan we onder een *adequate (m.a.w. menswaardige) levensstandaard*? Hoe meten we dit en hoe kunnen we vergelijken tussen verschillende Europese landen? Hiervoor is er nood aan robuuste, betrouwbare, cross-nationaal vergelijkbare indicatoren die effectief reageren op beleidsveranderingen en die praktisch uitvoerbaar zijn (Atkinson et al. 2002). In Europa nam de sociale indicatorenbeweging een hoge vlucht sinds de jaren negentig. Met het verdrag van Lissabon en de Open Coördinatiemethode (OMC) werd een gemeenschappelijke set van niet-bindende sociale indicatoren opgesteld om sociale rechten en integratie binnen de Unie te bevorderen (Atkinson et al. 2002). Deze thesis vertrekt vanuit het argument dat de bestaande vergelijkbare sociale indicatoren op twee vlakken tekortschieten. Ten eerste ontbreken ze vaak een empirische en normatieve onderbouwing van wat een adequate levensstandaard betekent in verschillende sociale contexten (zie bv. Goedemé & Rottiers 2011; Sen 1983,

1985; Van den Bosch 2001). Ten tweede kijken traditionele sociale indicatoren voornamelijk naar cash inkomen en houden ze onvoldoende rekening met de impact van door de overheid gesubsidieerde of voorziene goederen en diensten (zie bv. Aaberge et al. 2017; Verbist & Matsaganis 2014; Verbist 2017).

Met dit proefschrift wordt gestreefd naar het opvullen van deze leemtes. Hiervoor wordt gebruik gemaakt van referentiebudgetten (RB), dit zijn geprijsde korven van goederen en diensten die een bepaalde levensstandaard weerspiegelen (Bradshaw 1993; Storms et al. 2014). Ik bouw specifiek verder op bestaand onderzoek naar cross-nationaal vergelijkbare RB die weerspiegelen wat specifieke huishoudens minimaal nodig hebben om volwaardig te participeren in de maatschappij. De vergelijkbare RB zijn het resultaat van een gemeenschappelijke inspanning in twee eerdere Europese projecten (Goedemé et al. 2015a, 205b) gebaseerd op de Belgische methode van Bérénice Storms en collega's (Storms & Van den Bosch 2009, Storms 2012). Door deze unieke data van noodzakelijke uitgaven te combineren met gegevens van beschikbare huishoudinkomens, beoogt deze thesis meer inzicht te krijgen in de impact van betaalbare (publieke) goederen en diensten op de adequaatheid van inkomen en armoede vanuit een vergelijkend Europees perspectief. *Betaalbaarheid* wordt gedefinieerd als "het vermogen van huishoudens om zich een bepaald goed of dienst te veroorloven zonder in te boeten op de consumptie van andere essentiële goederen en diensten". Een *adequaat inkomen* definiëren we hier als de financiële middelen die minimaal noodzakelijk zijn voor adequate sociale participatie. Onder adequate sociale participatie verstaan we "het kunnen realiseren van de sociale rollen die iemand als lid van de samenleving moet kunnen vervullen", bijvoorbeeld als kind, als burger, als lid van een vereniging, enzovoort (zie Storms 2012).

De doctoraatsthesis bundelt acht hoofdstukken, waarvan de meesten al eerder zijn verschenen in de vorm van wetenschappelijke artikels en boekhoofdstukken. Het eerste deel van de thesis bestaat uit twee hoofdstukken die het theoretische en methodologische kader verder uitwerken. In het tweede deel worden RB gecombineerd met microsimulaties van belastingen en uitkeringen voor hypothetische huishoudens (HHoT-Euromod) enerzijds en met representatieve inkomensgegevens (EU-SILC) anderzijds. Op deze manier worden sociale indicatoren onderbouwd en ontwikkeld die bijdragen aan het begrijpen en meten van (1) betaalbaarheidsproblemen (hoofdstuk 3 en 4), (2) de adequaatheid van inkomensbescherming en sociaal beleid (hoofdstuk 5 en 6) en (3) armoede (hoofdstuk 7 en 8). Deze indicatoren maken het mogelijk om welvaartsstaten te evalueren en vergelijken, rekening houdend met zowel inkomensverhogende als kostenverlagende beleidsinterventies.

Wat vooraf ging: de weg naar vergelijkbare referentiebudgetten in Europa

Referentiebudgetten (RB) zijn een wijdverspreide onderzoekstraditie en een gevestigde waarde in het onderzoek naar minimaal aanvaardbare levenspatronen, bestaansnormen en armoedemaaatstaven (Storms et al. 2014). In België worden ze sinds 2008 door Bérénice Storms et al. (Storms & Van den Bosch 2009, Storms 2012) ontwikkeld om te bepalen wat gezinnen minimaal nodig hebben om deel te nemen en bij te dragen aan de maatschappij. Vanuit een normatief theoretisch kader worden universele en intermediaire behoeften of *korven* geïdentificeerd: adequate huisvesting, voeding, kleding, gezondheidszorg, persoonlijke verzorging, het onderhouden van sociale relaties, een veilige kindertijd, rust en ontspanning, mobiliteit en veiligheid. Aan de hand van verschillende informatiebronnen zoals (inter)nationale richtlijnen, wetenschappelijke kennis en focusgroepen worden deze korven uitgewerkt tot lijsten van geprijsde goederen en

diensten. Het prijzen gebeurt jaarlijks opnieuw door middel van een eigen prijsonderzoek bij toegankelijke winkels. Om de vijf jaar worden de budgetten volledig geüpdatet zodat ze de veranderende sociale normen in de samenleving accuraat blijven weerspiegelen. De laatste volledige update vond plaats in 2018.⁷⁵ In deze thesis worden deze data gebruikt voor empirische illustraties in de Belgische *case studies* in hoofdstukken 3 en 5.

Hoewel de meeste Europese landen ervaring hebben met het ontwikkelen van RB, zijn de budgetten meestal niet vergelijkbaar, omdat ze een verschillende levensstandaard beogen en gebruik maken van een brede waaier aan methoden (voor een overzicht zie Storms et al. 2014). Gebaseerd op de Belgische methode, werden in twee Europese projecten eerste stappen gezet voor de ontwikkeling van cross-nationaal vergelijkbare RB in Europa. De projecten werden gefinancierd door de Europese Commissie en gecoördineerd door het Centrum voor Sociaal Beleid Herman Deleeck onder leiding van Bérénice Storms, Tim Goedemé en Karel Van den Bosch. In het ImPRovE-project (2012-2016) hebben we in samenwerking met vele internationale partners, voor het eerst vergelijkbare RB ontwikkeld voor vier typegezinnen in zes grote Europese steden (Antwerpen, Athene, Barcelona, Boedapest, Helsinki en Milaan - Luxemburg sloot later aan als zevende stad) (Goedemé et al. 2015b). Vervolgens, in het kader van een Europees pilootproject (2013-2015), werd een *common method* ontwikkeld en werkten nationale teams vergelijkbare voedingskorven uit in 26 Europese hoofdsteden (Goedemé et al. 2015a).

⁷⁵ Het prijzen en updaten van de referentiebudgetten gebeurt door het centrum voor budgetadvies en -onderzoek (CEBUD, Thomas More-hogeschool). Voor meer info zie www.cebud.be.

Deel 1: theoretische en methodologische valorisatie

RB zijn van nature en noodzakelijkerwijs het resultaat van teamwork. Ik heb in bovengenoemde EU projecten kunnen bijdragen aan de ontwikkeling van vergelijkbare RB in Europa, zowel op het gebied van coördinatie als gegevensverzameling en uitwerking. Dit proefschrift bouwde grotendeels verder op deze gemeenschappelijke inspanning en onderzocht verdere ontwikkelingen en toepassingen. Ondanks de vele uitdagingen, zijn er belangrijke stappen gezet voor het versterken van de theoretische en methodologische grondslag van een vergelijkbare maatstaaf in Europa die weergeeft wat een menswaardig inkomen betekent in de verschillende lidstaten (zie Goedemé et al. 2015a, 2015c voor een discussie).

Geïnspireerd door de Belgische methode (Storms 2012) werd vertrokken van een theoretisch kader over menselijke behoeften voor maatschappelijke participatie (cf. Doyal & Gough 1991). In de twee EU projecten die in dit proefschrift verder worden uitgebouwd, hebben we dit theoretisch kader versterkt en gevalideerd (cf. hoofdstuk 1). Eerst werd de lijst van behoeften en sociale rollen afgetoetst aan formele sociale verwachtingen op basis van (inter)nationale richtlijnen en wettelijke overeenkomsten. Vervolgens werden in elke deelnemende lidstaat drie focusgroepen georganiseerd waar burgers met verschillende socio-economische achtergronden werden geraadpleegd over de heersende informele sociale verwachtingen. Op basis hiervan concluderen we in hoofdstuk 1 dat er tot op zekere hoogte een gedeeld begrip bestaat van wat het betekent om adequaat te participeren in de samenleving en welke behoeften en sociale rollen hiervoor minimaal moeten worden vervuld in de verschillende lidstaten.

Voor een concrete vertaling van deze behoeften in geprijsde korven van goederen en diensten voor elk land, werd een gemeenschappelijke methode ontwikkeld

(beschreven in Goedemé et al. 2015a, 2015c en beknopter in hoofdstuk 2 van dit proefschrift). Deze methode berust op een breed scala aan informatiebronnen zoals formele richtlijnen, wetenschappelijke kennis, survey data en focusgroepen. Zowel in de Europese projecten als in dit proefschrift zijn stappen gezet om de substantiële of inhoudelijke vergelijkbaarheid te maximaliseren, met andere woorden om een vergelijkbaar niveau van maatschappelijke participatie te weerspiegelen in de verschillende landen (zie Goedemé et al. 2015a). Om willekeurige verschillen tussen landen te vermijden, werd een gecoördineerde, stapsgewijze en geharmoniseerde aanpak gevuld. Een belangrijk instrument hierbij waren de welomschreven typegezinnen met specifieke kenmerken en duidelijke vooronderstellingen. De focus lag op huishoudens bestaande uit alleenstaanden of koppels op actieve leeftijd zonder of met één of twee kinderen tussen 6 en 18 jaar. De gezinsleden worden verondersteld om autonoom, goed geïnformeerd en in goede gezondheid te zijn, zonder handicap of langdurige ziekte. Ze leven in grote steden met toegang tot openbare diensten en hebben de nodige competenties om rond te komen met een beperkt budget.

Deel 2: het gebruik van referentiebudgetten voor de ontwikkeling van sociale indicatoren

In het tweede deel van deze doctoraatsthesis heb ik aangetoond hoe RB kunnen worden gebruikt voor het contextualiseren en ontwikkelen van sociale indicatoren. Door het vergelijken van de noodzakelijke uitgaven van gezinnen met hun beschikbaar inkomen en met de beleidsintenties in een selectie van Europese landen, draagt het proefschrift bij aan de meting van betaalbaarheidsrisico's, inkomensadequaatheid en armoede. Een belangrijke meerwaarde is dat deze indicatoren rekening houden met de beschikbaarheid en betaalbaarheid van (publiek gesubsidieerde of voorziene) goederen en diensten. Uit de resultaten van

de verschillende hoofdstukken kunnen de volgende belangrijke lessen worden getrokken.

Ten eerste, in hoofdstukken 3 en 4 tonen we dat RB nuttige hulpmiddelen zijn voor het meten van betaalbaarheidsproblemen. Traditionele betaalbaarheidsindicatoren zijn vaak gebaseerd op de werkelijke uitgaven van huishoudens, waardoor ze worden beïnvloed door individuele voorkeuren en budgettaire beperkingen. Door het vergelijken van beschikbare huishoudinkomens met de minimaal noodzakelijke kosten die huishoudens moeten maken, treden nieuwe risicogroepen op de voorgrond. Dit zijn vaak zeer kwetsbare groepen aan de onderkant van de inkomensverdeling, zoals werkarme gezinnen, grote gezinnen, alleenstaande ouders en huurders. In hoofdstuk 3 identificeren we op basis van onze *werkelijke behoeften indicator* 10% van de Vlaamse bevolking met waterbetaalbaarheidsproblemen die meestal onder de radar blijven wanneer er wordt gefocust op reële uitgaven, omdat ze minder water verbruiken dan wat minimaal noodzakelijk is. In hoofdstuk 4 bestuderen we de betaalbaarheid van gezonde voeding en het fenomeen van voedselonzekerheid op basis van de Europees vergelijkbare voedingskorven die weergeven wat gezinnen minimaal nodig hebben om te eten volgens de nationale voedingsrichtlijnen. In Europa wordt voor het meten van voedselonzekerheid vaak de materiële deprivatie indicator gebruikt waar één dimensie zich richt op de vraag of “personen zich om de twee dagen een maaltijd met vlees, vis of vegetarisch equivalent kunnen veroorloven”. Opnieuw identificeert onze RB-indicator een significant deel van de bevolking in Europa dat, na het betalen van huisvestingskosten, onvoldoende financiële middelen heeft om gezonde voeding te bekostigen maar toch onder de radar blijft met de veelgebruikte deprivatie indicator. We tonen aan dat voedselonzekerheid vanwege een beperkt inkomen vooral een probleem is in armere lidstaten, zoals Bulgarije, Roemenië en Griekenland. Maar wanneer we

rekening houden met de kost van andere essentiële goederen en diensten, ondervinden we dat in 16 van de 24 Europese welvaarstaten, waaronder enkele rijkere lidstaten, minstens 10% in stedelijke gebieden over onvoldoende inkomen beschikt om toegang te krijgen tot een gezond voedingspatroon. Op deze manier plaatsen we ontoereikende inkomens opnieuw centraal in de betaalbaarheidsproblematiek.

Ten tweede tonen RB in combinatie met microsimulatie technieken in hoofdstukken 4, 5 en 6 op een zeer tastbare en concrete manier dat de minimuminkomensbescherming (i.e. het gesimuleerde netto beschikbaar inkomen uit een leefloon of minimum werkloosheidsuitkering, rekening houdend met alle gezinstoelagen, kinderbijslagen en belastingvoordelen) in de meeste Europese welvaartstaten onvoldoende is om volwaardig te kunnen deelnemen aan de samenleving (zie ook Marchal 2017). In Oost en Zuid Europa is een leefloon vaak al ontoereikend voor gezinnen om een woning te huren en op een gezonde manier te eten, laat staan om in andere behoeften te voorzien. Maar ook in rijkere lidstaten, zoals Frankrijk, België en Zweden, laten minimuminkomens in de meeste situaties niet toe om tegemoet te komen aan de minimale behoeften voor maatschappelijke participatie. Bovendien is ook een voltijds minimumloon (of een gelijkwaardig laag loon) voor eenverdienergezinnen onvoldoende om te kunnen deelnemen aan de meeste Europese samenlevingen. In hoofdstuk 6 tonen we in een vergelijkende studie van zes Europese welvaartstaten dat daarenboven de kinderbijslagpakketten in vijf van de zes steden ontoereikend zijn om de directe kosten van kinderen te compenseren. Hoewel deze welvaarstaten vaak harder werken aan de onderkant van de inkomensverdeling, garanderen ze (behalve in Helsinki) geen adequate levensstandaard voor eenoudergezinnen met kinderen die hun woning huren op de private huisvestingsmarkt.

Ten derde, hoofdstuk 7 toont aan dat cross-nationaal vergelijkbare RB uitermate geschikt zijn om de huidige sociale indicatoren te contextualiseren, m.a.w. inhoudelijk betekenis te geven. De armoederisicodempel (AROP), vastgesteld op 60% van het mediane equivalente beschikbare gezinsinkomen, is de meest gebruikte indicator voor de meting van armoede en inkomensadequaatheid in Europa (bv. Atkinson et al. 2017; Cantillon & Vandenbroucke 2014). Deze relatieve armoedegrens is procedureel vergelijkbaar, maar we weten niet in hoeverre 60% van het mediane inkomen overeenkomt met een aanvaardbare en adequate levensstandaard in de verschillende lidstaten. RB zijn een zeer nuttig hulpmiddel om de concrete koopkracht van een inkomen op en rond de armoedelijn weer te geven. In hoofdstuk 7 komen we tot het besluit dat de AROP zeker niet overal in Europa dezelfde levensstandaard vertegenwoordigt. In armere Europese landen, zoals Roemenië en Bulgarije, kunnen mensen met een inkomen ter hoogte van de armoedegrens niet voorzien in hun elementaire fysieke behoeften zoals voedsel, kleding en onderdak. Aan de andere kant lijkt de armoedegrens in rijkere lidstaten, zoals Finland en België, vrij accuraat te weerspiegelen wat nodig is om adequaat te participeren in de samenleving.

Ten vierde laat hoofdstuk 8 zien dat het mogelijk is om RB, mits aanpassingen, te gebruiken voor het doel van armoedemeting. Door het gebruik van deze ontwikkelde RB-indicator verandert het profiel van mensen in armoede. We zien dat het armoederisico toeneemt voor kinderen en huurders op de private huisvestingsmarkt ten opzichte van de traditionele armoederisicocijfers. Om inkomens te vergelijken tussen huishoudens met verschillende composities, maakt de AROP-indicator gebruik van de gewijzigde OESO equivalentieschaal. Deze OESO-schaal houdt echter geen rekening met cross-nationale verschillen in de kosten en schaalvoordelen waarmee huishoudens worden geconfronteerd. In hoofdstukken 7 en 8, illustreren we het effect van de huisvestingssituatie op

schaalvoordelen en suggereren we dat de gewijzigde OESO-schaal de kosten van kinderen onderschat. Dit kan een belangrijke invloed hebben op armoedemetingen.

Een laatste en belangrijke les die naar voor komt uit hoofdstukken 3 tot 8, is dat de adequaatheid van inkomens niet kan worden losgekoppeld van de toegankelijkheid en betaalbaarheid van essentiële goederen en diensten. Deze doctoraatsstudie streefde naar een beter inzicht in de impact van publieke goederen en diensten op de adequaatheid van de levensstandaard in Europese welvaartstaten. Omdat RB de minimale kosten weergeven die specifieke huishoudens moeten maken om toegang te krijgen tot goederen en diensten, konden we aantonen dat het subsidiëren of verminderen van deze kosten een positieve impact heeft op de levensstandaard van huishoudens. In Finland bijvoorbeeld wordt een relatief genereuze subsidiëring van onderwijs en gezondheidszorg gecombineerd met een hoog niveau van sociale zekerheidsbescherming, waardoor de adequaatheid van de levensstandaard voor gezinnen met kinderen toeneemt. In de hoofdstukken 5, 6 en 8 tonen de resultaten dat een verlaging van de huisvestingskosten door middel van subsidies, eigendom of sociale huur, een positief effect heeft op de adequaatheid van inkomens en dus inkomensarmoede kan verminderen. Bovendien worden er in verschillende Europese welvaartstaten allerlei selectieve sociale tarieven en subsidies uitgekeerd aan kwetsbare huishoudens zoals huursubsidies en voordeeltarieven voor energie, openbaar vervoer en gezondheidszorgen (zie Immervoll 2012; Frazer & Marlier 2016). Met de casestudy van België in hoofdstuk 5 illustreren we dat deze kostencompensaties weliswaar de adequaatheid van inkomens kunnen verbeteren, maar dat ze tegelijk problemen met zich meebrengen van fragmentatie en non-take-up terwijl ze meestal onvoldoende zijn om de lage uitkeringen te compenseren. Daarbij zijn deze voordeeltarieven vaak gekoppeld aan de bijstand,

waardoor ze mensen actief op de arbeidsmarkt of met een sociale zekerheidsuitkering uitsluiten.

We besluiten dat RB, ondanks hun beperkingen, in ten minste drie opzichten nuttig zijn voor de evaluatie van de adequaatheid van sociaal beleid en armoedemeting: ze kunnen door hun concrete normatieve betekenis tekortkomingen van huidige indicatoren aan het licht brengen en deze complementeren, ze brengen andere – veelal kwetsbare – risicogroepen naar voor en ze laten zien dat (variatie in) de adequaatheid van de welvaartstaat zowel wordt gedreven door inkomensbescherming als door de toegankelijkheid en betaalbaarheid van goederen en diensten.

Uitdagingen en beperkingen

Anderzijds benadrukt deze thesis ook de uitdagingen die gepaard gaan met het ontwikkelen van vergelijkbare RB in Europa. Op basis van de gemeenschappelijke criteria voor het ontwikkelen van kwaliteitsvolle indicatoren geformuleerd door Atkinson et al. (2002) identificeren we drie belangrijke beperkingen: (1) de robuustheid, (2) de representativiteit en (3) de praktische uitvoerbaarheid. Ten eerste, de problemen met de robuustheid vloeien voort uit de aard van het begrip maatschappelijke participatie dat niet exact te definiëren valt. Er moeten vele concrete en gedetailleerde keuzes worden gemaakt, waardoor de hoogte van de budgetten tot op zekere hoogte illustratief blijft. De grootste oorzaak voor de beperkte robuustheid is echter het gebrek aan vergelijkbare representatieve data over sociale verwachtingen, aankooppatronen en over de toegankelijkheid, de levensduur en de prijzen van essentiële goederen en diensten in Europa.

Ten tweede, RB worden noodzakelijkerwijs ontwikkeld voor specifieke typegezinnen. Zoals gezegd, verbeteren deze welomschreven hypothetische

situaties de substantiële vergelijkbaarheid. De keerzijde is dat het geringe aantal typegezinnen niet als representatief kan worden beschouwd voor de gehele bevolking. Bovendien verschilt de representativiteit van de kenmerken sterk tussen landen (zie ook hoofdstuk 2, Goedemé et al. 2015a) en worden regionale verschillen verwaarloosd. In deze thesis en voorgaande projecten, benadrukken we meermaals dat de ‘ideale omstandigheden’ waarin de typegezinnen verkeren op het vlak van gezondheid, zelfredzaamheid, informatie, vaardigheden en maatschappelijke context, sterk kunnen afwijken van de werkelijkheid. We hebben dit proberen blootleggen aan de hand van focusgroep discussies, literatuur en survey data. Hieruit werd duidelijk dat in het bijzonder kwetsbare groepen met een laag inkomen vaak benadeeld zijn op het vlak van gezondheid en competenties en te maken krijgen met verschillende economische, sociaal-culturele, ruimtelijke en cognitieve barrières in de samenleving (zie ook bv. Mullainathan & Shafir 2013; Hernández-Quevedo et al. 2006; Hargittai 2010 ; Eurofound 2017). Het niet in rekening brengen van deze extra drempels voor gezinnen met een laag inkomen kan leiden tot een onderschatting van de werkelijke middelen die huishoudens nodig hebben, en dus ook tot een vertekening van de armoederesultaten.

Ten slotte moet een goede indicator gemakkelijk te implementeren zijn en verder bouwen op beschikbare gegevens. Tot dusver zijn cross-nationaal vergelijkbare RB slechts beschikbaar op één punt in de tijd voor een beperkt aantal typegezinnen in 7 grote Europese steden. Als we in de toekomst vergelijkbare RB verder willen ontwikkelen en gebruiken als sociale indicatoren in Europa, zijn er grondige herzieningen en nieuwe dataverzamelingen nodig. Dit is een tijdrovend en intensief proces dat systematische coördinatie en voldoende financiële ondersteuning vereist, maar ook een sterk Europees netwerk van deskundigen, gemotiveerde en competente nationale teams en een grote verscheidenheid aan kwaliteitsvolle data (zie ook Goedemé et al. 2015a).

Beleidsaanbevelingen

RB vormen een nuttig instrument voor Europese beleidsmakers, zeker wanneer ze worden geconstrueerd op cross-nationaal vergelijkbare wijze. De voorgestelde RB-indicatoren hebben het voordeel dat ze beleidspakketten van welvaartsstaten in hun geheel evalueren (zoals besproken door Cantillon et al. 2017) alsook de impact op inkomensadequaatheid en armoede, waardoor een duidelijk verband wordt gelegd tussen beleids en -output (zie Vandenbroucke 2017). Bovendien houden ze rekening met de specifieke context van elke lidstaat terwijl ze tegelijk het belang benadrukken van opwaartse convergentie en solidariteit. Op basis van de resultaten van dit proefschrift, kunnen drie beleidstrajecten worden aanbevolen die kunnen bijdragen aan de bestrijding van armoede en sociale uitsluiting in Europa: (1) beleid dat de inkomensbescherming rechtstreeks verbetert via het belasting- en uitkeringsstelsel en loonregulering, (2) beleid dat inzet op de toegankelijkheid van essentiële goederen en diensten, en (3) beleid dat individuele competenties versterkt.

Ten eerste, het is voor de meeste EU-lidstaten aangewezen om de minimuminkomens voor de actieve bevolking op te trekken. RB kunnen een stap zijn in de richting van een meer bindende Europese norm voor een adequate inkomensbescherming. De empirische illustraties laten zien dat onvoldoende gezinsinkomen onvermijdelijk leidt tot besparingen op het vlak van gezondheid, onderwijs en sociale contacten. Wat de Europese coördinatie van het sociaal beleid betreft, kunnen RB ook helpen bij het bepalen van tussentijdse doelstellingen en prioriteiten. In landen met een zeer laag welvaartsniveau, zoals Roemenië en Bulgarije, kunnen ze laten zien welke goederen en diensten een grote hap uit het gezinsbudget eisen. Beleidsmakers kunnen dan bijvoorbeeld inzetten op het

verbeteren van de betaalbaarheid en de toegankelijkheid van deze goederen en diensten (zie volgende alinea).

Ten tweede, dit proefschrift heeft laten zien hoe de levensstandaard ook kan worden verbeterd door beleidsinterventies die inzetten op de toegankelijkheid en betaalbaarheid van essentiële goederen en diensten. Wat bijvoorbeeld het gezinsbeleid betreft, heeft het geval van Finland ons geleerd dat een hoog niveau van kinderbijslagen, in combinatie met betaalbare gezondheidszorg en onderwijsdiensten, tegemoet komt aan de essentiële behoeften van eenverdiener gezinnen met kinderen. Beleidsmakers kunnen zich ook specifiek richten op kwetsbare groepen om de toegang tot diensten te verbeteren, bijvoorbeeld door middel van selectieve kostenverminderingen en sociale tarieven. We zagen bijvoorbeeld dat inzetten op de betaalbaarheid van huisvesting door middel van sociale huur effectief kan zijn omdat huurkosten vaak zwaar wegen op het beschikbare gezinsbudget. Om ervoor te zorgen dat overheidsvoorzieningen en sociale tarieven een positief effect hebben, moeten beleidsmakers echter ook investeren in hun algemene toegankelijkheid (zie Gough 2019) in combinatie met het stimuleren van arbeidsmarktparticipatie en adequate minimuminkomensbescherming (zie Vandenbroucke & Vleminckx 2011).

Ten derde hebben we in dit proefschrift benadrukt dat de adequaatheid van inkomen ook deels afhankelijk is van – ongelijk verdeelde – individuele omstandigheden (cf. Sen 1983). Beleid dat gericht is op het versterken van menselijk kapitaal en competenties (bijvoorbeeld budgetbeheer, digitale geletterdheid, gezond koken, spaarzaam energieverbruik), en het informeren van mensen over hun sociale rechten, kan helpen om sociale participatie te bevorderen, gezinsuitgaven te verminderen en integratie van kwetsbare groepen op de arbeidsmarkt te verbeteren (zie Storms 2020). Het effect van deze maatregelen zal

echter beperkt blijven in de context van een grotendeels ontoereikende inkomensbescherming.

Samenvattend kunnen we zeggen dat de bestrijding van armoede en sociale uitsluiting een brede waaier aan coherente beleidsmaatregelen op alle niveaus vereist, aan de hand van een fair en sterk herverdelend sociale zekerheidsstelsel, een effectief onderwijs- en werkgelegenheidsbeleid en toegankelijke en betaalbare essentiële goederen en diensten. Het meest recente Europese beleidskader om adequaat sociaal beleid te monitoren en garanderen, is de Europese pijler van sociale rechten. De pijler omvat een recht op adequate minimuminkomensbescherming, gekoppeld aan arbeidsmarktintegratie en toegang tot betaalbare essentiële goederen en diensten (zie Commissie 2017). Om te voorkomen dat dit loze beloftes blijven, hebben beleidmakers sterke indicatoren nodig. Naast het huidige pallet van indicatoren op EU-niveau kunnen verdere investeringen in beleidsindicatoren op basis van RB hiertoe bijdragen. Idealiter kunnen deze indicatoren lokale, nationale en Europese beleidmakers ondersteunen bij het *ex ante* en *ex post* testen van beleidsmaatregelen in het licht van adequate maatschappelijke participatie. RB zijn bovendien empirisch onderbouwd, transparant en geven gehoor aan de mening van burgers. Dit geeft hen potentieel om een breed aanvaard en participatief instrument te worden dat ons dichter brengt bij een gedeelde visie over solidariteit, rechtvaardigheid en een menswaardig bestaan in Europa.