Unequal Ageing in Europe

Women's Independence and Pensions

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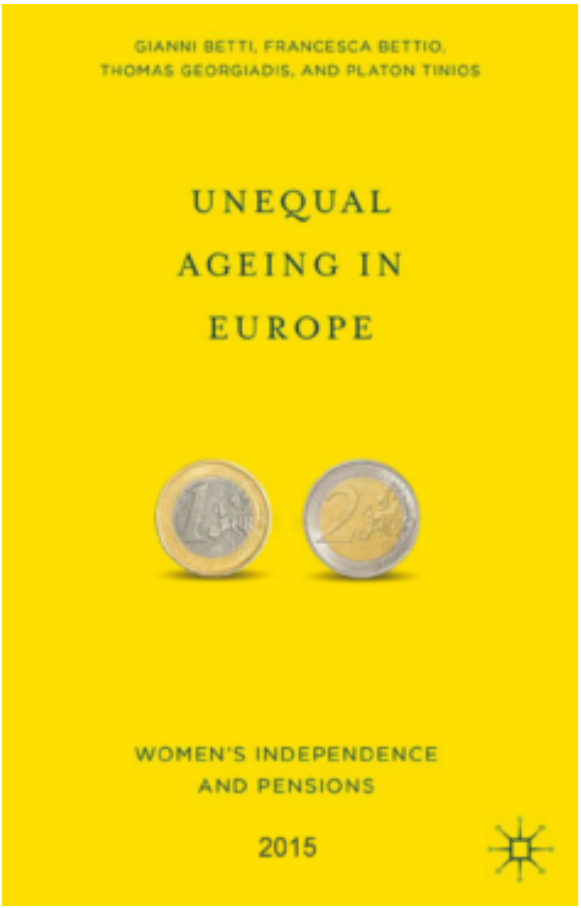

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EU Countries' Abbreviations

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
HU	Hungary
IE	Ireland
IT	Italy
LT	Lithuania
LU	Luxembourg
LV	Latvia
MT	Malta
NL	Netherland
PL	Poland
PT	Portugal
RO	Romania
SE	Sweden
SI	Slovenia
SK	Slovakia
UK	United Kingdom

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Women, Old Age, and Independence: Why Investigate Yet Another Gender Gap?

Introduction

Ageing as a challenge for all societies has been known to exist for more than a generation; the Organisation for Economic Co-operation and Development (OECD) produced an authoritative study warning of population ageing in 1980 (OECD, 1981). Awareness of impending changes spread, first to the policy community, then to policymakers; it thus motivated a number of reforms through the world, adjusting institutions to cope with a changing reality.

As time proceeds, what first appeared as a theoretical challenge to society as a whole increasingly has visible implications for individual men and women in advanced societies. Whether directly, as more people are entering retirement, or indirectly, as ageing-driven reforms are spreading, the process of ageing is a potent source of change for everyday lives. Some of these changes were planned for, others were anticipated, yet others may come as surprises.

This book tries to catalog one such category of changes, those affecting the relative position and economic independence of men and women in later life. It does so by focusing on the most important determinant of economic independence, the existence of independent means. This, for the vast majority of women in Western societies, means access to a decent pension. The book complements our knowledge of the field of gender inequalities in work—the gender pay and earnings gaps—by looking at what happens to inequalities *after* retirement. We know that the world of work has been growing more equal between genders, in some, though not in all,

respects. Will this progress mean that the battle for equality in later life has been already won? Is it simply a case of waiting for the gains in equality during the period of work to percolate through to later life? Is the pension system, in other words, a neutral filter reflecting the situation in employment, albeit with a lag?

It is possible to point to features of pension systems that can either reinforce inequalities or, alternatively, correct them. This book takes an agnostic attitude on this question. Having posed the question, it proceeds to describe and compare the situation regarding gender-based pension inequality using comparable information for a wide range of advanced societies. In this context, the book places the primary focus on the countries of the European Union (EU), treating their experience as a kind of gender policy laboratory.

So, the European focus is not simply parochialism. The diversity of experience between European countries, the nature of social policy, and the direction and speed of pension and other reforms mean that the experience of different EU countries span a wide range of experience. This can serve to illustrate the differing impacts that are likely to face *any* advanced country meeting the challenge of ageing. The common membership of the EU ensures the existence of regular and comparable data for all countries; the fact that all EU members coordinate their policy efforts to meet the ageing challenge implies that this work can plug in and take advantage of an active policy dialogue.

The EU actual experience, as measured by the yardstick of statistical indicators used in this book, can then be usefully benchmarked and compared with experience in other countries. This is done by surveying published work in other advanced countries, as well as direct comparisons in two cases (Israel and the United States) where similarity of data allows construction of the same indicators we derived for the EU. In this way, by starting out in Europe and spreading the inquiry gradually wider, we are able to generalize about the challenges faced by advanced societies more generally.

Much of the literature on ageing entails looking at the macro challenge to societies of impending changes. Our own work, in contrast, treats ageing as a fact of everyday life and sees as a micro problem affecting individuals. Whereas the collective challenges of ageing are similar in nature across all countries, the response

to ageing as affecting individuals is likely to be far more varied—reflecting differences in history, institutions, preferences, and policies. Public policy, in order to be effective, needs to understand the complexity of responses as regards gender, while not losing sight of the macro challenges. The plea made in the final chapter is that public policy should be concerned with *both* dimensions at the same time.

The Need for Gender Vigilance for Older People

Simone de Beauvoir, writing in the 1960s in *The Coming of Age* (1970), was conscious of a pervasive gender dimension in the way society treated old age:

> What we have here is a man's problem . . . When there is speculation upon the subject (of old age) it is considered primarily in terms of men. In the first place because it is they who express themselves in laws, books and legends. (de Beauvoir, 1996, p. 89)

Things need not *necessarily* be so bleak. At a later point in the same book, she notes a potential for righting gender imbalances:

> For women, the last age is a liberation . . . Now at last they can look after themselves. (p. 489)

A generation later, policy is called upon to diagnose and correct the problems created by human institutions and social processes in order to realize the potential for independence that de Beauvoir sensed existed.

An obstacle that existed then is still present: older women are taken for granted, while in many countries they are insufficiently represented in decision-making fora. Their well-being and independence are the outcome of complex forces: older women and men are affected by long-term social changes like population ageing; they are the first group affected by the cumulative impact of 20 years of gradual institutional reform in pension systems and elsewhere; in the current economic and fiscal crisis, they are frequently one of the groups most immediately affected by fiscal retrenchment. At the same time, today's older women witnessed

in their working lifetime a major transformation in the roles played by women in economy and society, a transformation that took place at different speeds in different countries and is yet to be completed.

Pension systems have changed considerably over the last 20 years, and are changing still. Older women have lived and worked in one system and will collect their pensions when that system will be considerably different. This process is in operation across the world, yet had started at different times and has proceeded at different speeds. Countries are faced with common problems, but choose to deal with them in ways that are affected by their own history, institutions, and preferences. In this way, older women's pensions across the world carry simultaneously echoes of *past* disadvantage and premonitions of *future* vulnerability. Comparing the situation of older women *between* countries, especially if the ostensive objectives of these countries are comparable, would allow to make inferences about the policy environment and the reform toolbox. The diversity contained in the Member States of the EU can thus be seen as a microcosm for the dilemmas faced by all advanced societies—a kind of laboratory where ideas and inferences can be tested.

These reasons, taken collectively, imply that it is important to know the extent and location of gender differences in pensions. Perhaps more significantly, in a field which is complex and is affected by numerous influences, it is important to track changes over time. If this can be attained, problems might be spotted early on and solutions sought and implemented in a timely fashion.

This book suggests that policy would benefit if a *gender gap in pensions* (GGP henceforth) indicator were available on a *regular* basis. It defines such an indicator, which can be easily produced across the EU on an annual basis and extended elsewhere with relative ease. The book investigates its properties and uses it to characterize the dimensions of the problem for different groups of the population and different institutional settings; it points the way to further work. A key insight is that the nature of the problem and our understanding of it are such that it is not sufficient to produce a one-off research report calculating the indicator *at a point in time*. On the contrary, an indicator on gender imbalances in pension ought to be available on an annual basis to guide policy and orient public discussion.

Why Monitor Gender Differences in Pensions?

Pensions are the single most important component of older people's income. In contrast to other components, such as return from savings and income from property or rents, which accrue to the whole household and cannot usually be separately attributed to a particular member of the household, pensions are paid to individuals. They thus are an important determinant of *economic independence* of their beneficiaries—the capacity of an individual to lead an independent life and to take decisions for him/herself. In this way, differences in pension rights between women and men form the foundation of gender differences between the sexes in later life, as regards each person's capacity for individual choice.

The distinction between economic welfare and economic independence is important to make and to understand. Economic welfare, the access to resources and capacity to well-being, depends on a wider set of income sources, which accrue to the *household* (Atkinson, 1989; Deaton and Muellbauer, 1980). In order to study welfare, all income entering a household is aggregated, and then apportioned between the members of that household. Given that a household, by definition, is a social unit where consumption is shared among its members, total household income is frequently and by necessity *assumed* to be distributed equally among its members. In social surveys, which are used to gauge economic well-being, this means that income of men and women living as a couple is *equal by construction*.[1] Indicators, such as poverty rates, which rely on household income, constrain in this way the poverty status of men and women living as couples to be identical. Differences in poverty rates by gender thus essentially rely on comparisons between single member households: people who never married, divorced individuals, widows, and widowers. Due to this fact, gender differences in access to resources are almost certainly severely underestimated in any measure which relies on household income. Should our interest lie in the related, but conceptually distinct, issue of relative independence between genders, this shortcoming is even more distorting.

For people of working age, this train of thought leads naturally to a focus on differences in employment remuneration—most frequently encapsulated by some measure of pay or earnings gap.[2] In the case of women, this is essentially an achievement gap,

reflecting the fact that women, in many contexts, may be underpaid, undervalued, overworked across the board; their responsibility for unpaid work in the family leads to underrepresentation in the paid labor market. Once people have left the labor market, the analog of pay or earnings is the source of income that replaces them, that is, *pensions*. An indicator of a pension gap would in this way be a natural complement, almost a sequel, to an interest in gender earnings gaps. Given that many pensions systems are designed to reflect employment experience, one would expect that pensions would reflect the *cumulated* disadvantages of a lifetime's involvement in a gender-biased labor market. The further back in time one goes (and hence the older the pension recipient), the more marked one would expect this effect to be.

However, pensions do not simply reflect labor market experiences in a *neutral* way. Systems which rely on the accumulation and investment of contributions may actually exacerbate inequalities in employment remuneration. In contrast, as the largest single item of social protection expenditure, they are in principle called to correct to some degree what are perceived as imbalances (or even injustices) of the labor market. For this reason, the *possibilities* of intervening to correct gender imbalances are much greater in pensions than in earnings. An intervention requires information. A focus on gender differences in pensions would be an invaluable addition to the policy toolbox.

Those two arguments, to complement pay gender gaps and to orient public pension decisions, are sufficient to justify a policy interest in pension differences between men and women. Why should that interest entail following those differences in regular time intervals? In other words, why should public bodies or organizations such as the EU consider *adding* a *new* pension gap indicator to the set of indicators they publish every year?

An answer to the question of "why an annual indicator?" can be sought in the complexity of influences that combine to produce the pension gender effects that will appear every year. These influences can interact mutually or with other features and can frequently lead to unforeseen outcomes, possibly even some "collateral damage." The structure of pensions—and hence gender-based differences—is influenced by three sets of factors:

First are very long-term structural changes, operating like tectonic changes to transform the pension environment. *Ageing and*

demography are the most well known of these differences: older women are increasing in number; their state of health is changing while in comparison with earlier periods they have fewer children and social ties are looser. The anticipation of future acceleration of ageing may already have effects on today's older people, as policy adjusts with a lead.[3] Similar in their effects to ageing, *are echo effects of past employment* patterns. *Today's* pensions may reflect *yesterday's* employment picture. The pace of women's emancipation in the labor market has proceeded at different speeds in different parts of Europe (Jaumotte, 2003; Lyberaki et al., 2013; Pissarides et al., 2005), with the North typically more advanced than the South. The older cohorts may be more influenced by past gender imbalances; younger pensioners may already show the effects of nontraditional modes of working (part-time, contract work, etc.). Finally, *social norms* have been altering aspects that affect pensions: the incidence of divorce, the prevalence of widowhood, and the probability of cohabitation between generations.

Second, today's pensions are intimately affected by the extent and spread of institutional change, chiefly pension reform.[4] Pension reforms have been an ongoing project in Europe since the 1990s. They are motivated by influences particular to pensions, such as the need to prepare for the long-term fiscal challenge of ageing, in some cases transforming the pension picture completely (Bonoli and Shinkawa, 2005). Given that public pensions form an important part of the functions of government, pension provision has also been affected by more general tendencies of public sector reform. New pension structures lay stress on cooperation with private initiative (the "multi-pillar pension systems"), while there is an increasing emphasis on individual responsibility and a consequent tendency to direct entitlements to individuals rather than households.

However, in most cases, reforms influence the *flow* of people entering retirement, and, hence, take a long time to percolate through all retirees. Insofar as one can generalize, today's retirees are affected by the general climate of retrenchment. Given that in many countries pension reforms have been under way for almost two decades, they are often covered by transitional arrangements designed to smooth the effects of those reforms and addressed toward those relatively close to retirement.[5] This phenomenon is known as "grandfathering."[6] As time proceeds, though, and new

systems mature, there will be an increasing number of individuals whose pensions will be marked by the characteristics of the *new* systems, and who will be vulnerable to *new* kinds of pension risks, probably linked to the operation of the new system. Indeed, in those countries where reforms took place first (e.g., Holland, United Kingdom, and Switzerland), those effects should *already* be visible.

The two most salient directions that are likely to impact on gender issues are: *First*, *the switch in emphasis from first pillar pensions* (provided by the State and usually based on societal solidarity and pay-as-you-go financing) to *second* pillar pensions (i.e., provided collectively based on *occupational* solidarity, and prefunded). This switch is frequently (though not always) combined with a change in the type of pensions from defined-benefit (DB), final salary schemes to defined contribution schemes (Mackenzie, 2010). The overall effect tends to be an increase in individual responsibility in the form of a closer link between contributions and benefits[7] and hence an overall reduction in solidarity of the system. Indeed, in the United States, this trend has been termed "the privatization of risk" (Orenstein, 2009), in the sense that it transfers risk from the employer and worker to the beneficiary. The second reform direction is the emphasis on *working longer*, which is a key message in "Europe 2020."[8] Though the long-term rationale of this direction is unassailable, there may be side effects in the medium and short terms that must be guarded against: disincentives for early retirement may lead to lower incomes for those with little choice (e.g., due to inability to work later owing to caring responsibilities). While the focus is (rightly) on the supply of labor (i.e., on incentives to work longer), employer prejudice and discrimination in training may keep *demand* for older workers low.[9]

The final set of factors shaping pensions are short-term pressures, usually connected with the current economic crisis. These pressures vary from country to country but could lead to important (and hard-to-predict) swings in gender effects. For example, greater insecurity in the labor market increases the relative attractiveness of state-provided DB pensions; in this way, fiscal problems are exacerbated. Second pillar pensions have been hit hard by the collapse of asset values.[10] The sovereign debt crisis led to numerous cuts of pension in payment, making a mockery of the notion of "DBs" and fueling pensioner insecurity.[11] In a cash shortage, first pillar pensions are one of the largest items of expenditure under

the direct control of the public sector; pensioners as a group are vulnerable to public finance pressures.

Recapitulating, older women pensioners may be, as a group, "stuck in the middle." They have lived and worked under one system—which frequently implicitly presupposed a "male breadwinner model"; they will in many cases receive benefits under another. Where their entitlements are transitional ("grandfathered"), they depend on government assurances given at the time of the original reform (the urgency of which many years later may be forgotten). They are, thus, not protected by the internal operational logic of the system, whether new or old. Women may be more at risk than men: their rights on social insurance are often "derived rights" (survivors' pensions, married people's supplements); in those systems where a second pillar is taking hold, women are more likely to rely on state systems, or to be more affected by gaps in contributions and broken careers; finally, in many countries, they persist in the role of carers (for children or aged parents) even as unpaid work is receiving less recognition.

Women in particular may be vulnerable due to four factors:

1. Echoes of past problems—women may have fewer pension contributions. This may be due to broken careers, low pay, segregation, past discrimination, working informally.
2. Premonitions of future problems. Tighter linking to contributions, though desirable in itself, may exacerbate current disadvantages faced by women. Types of work such as part time may lead to lower rights in future; multi-pillar systems could compound disadvantages by introducing effects magnifying inequalities.
3. Problems where institutional change may lag behind social change (e.g., social insurance treatment of divorce, widowhood).
4. Women may in practice be more vulnerable to crisis-induced changes. If women are worse off to begin with, they may be more vulnerable to a sudden deterioration. Despite protestations to the contrary, "male breadwinners" or "heads of households" may implicitly be given priority in crisis responses.

Current pensions received will, thus, at any one time reflect both long-term factors operating slowly and other influences due to the conjuncture. Some effects may be policy driven, while

others may be due to individual choice. The types of policy which will affect pensions of the two genders may be not only systemic features but also decisions taken in a shorter time frame, sometimes in contexts not directly related to pensions, such as the macroeconomy or public finances. In this type of situation, it is important that policymakers must be made aware of gender effects, so that the source of the imbalance can be identified and—if possible—corrected.

The EU, as a supranational organization, is built around the notion of subsidiarity; in the layers of authority starting from the local onto national and then Union-wide levels, decisions are taken at that level closer to the individual. Or, to look at matters from the opposite direction, decisions assigned to the EU level need to demonstrate substantial value added relative to taking them at the national level. Equal pay and gender balance are part of EU's "hard law," in the sense that they can influence the operation of the single market and competitiveness. The EU has therefore taken a lead in promoting gender balance across the EU.

The case of ageing is somewhat different. Social policy, partly due to the very different institutional starting points, has always been a prerogative of the nation-states.[12] Nevertheless, given its salience in economic, fiscal, and labor affairs, there has always been a case of coordinating social policy. Once social policy was co-opted in the competitiveness narrative as a factor allowing greater competitiveness (encapsulated in the phrase "social protection as a factor of production"), then the importance of coordination became all the more obvious. Ageing as a cross-cutting issue was brought into the European ambit in the early 2000s (by the Gothenburg summit). The coordination of (public) pension policy in the context of ageing was assigned to the Open Method of Coordination (Papadimitriou and Copeland, 2012), used as an instrument of policy dialogue and to encourage consistent reforms in the Member States.

As the EU in the past had taken a lead both on gender balance and on ageing populations, it is reasonable to expect that it should follow on with possible side effects of the one area of activity impinging on another. Gender aspects of pensions are the intersection of two already busy areas of policy; bringing pension gender balance to the attention of policymakers is likely to elicit a policy dialogue of relevance to all industrial countries.

The Sustainability-Adequacy Policy Conundrum

There has been concern that demographic changes necessitate major readjustments to pension systems for at least 30 years (e.g., OECD 1981, 1988). The emphasis up to the 1990s was on the need to safeguard *sustainability* of the pension systems. When the EU became formally involved (as a result of the Gothenburg and Stockholm summits in 2001),[13] it brought into the limelight the idea of *adequacy*, which can be understood as the extent to which pension systems fulfill their social policy functions. The two concepts should be complementary and inseparable, in the sense that they comprise a trade-off: sustainability can always be satisfied by sacrificing adequacy, or vice versa. The task for policy is to seek changes that do as well as possible in *both* dimensions at the same time.

Adequacy in the field of pensions means two different things: first, avoidance of low income and poverty at old age, which it shares with social inclusion policy. Second, ensuring smoothing of income at different stages in the life cycle; retirement from employment should not lead to sharp falls in financial well-being. Those two objectives are, to some extent, antithetical. Indeed, "Beveridge-type" social protection systems (based on citizenship rights) traditionally have given emphasis toward the first objective. "Bismarck-type" continental systems organized around social insurance use income smoothing as their starting point.[14] However, though the two systems' origins may differ, they evolved in converging directions, with the result that it is now possible to talk of a "European social model." This model has common objectives, which can, perhaps, be pursued by different instruments. Indeed, this recognition is the essence of the Open Method of Coordination, applied in the field of pensions since 2001.[15] Concern of researchers and policy commentators in the United States and other countries mirrors this schema, though fragmentation of areas of responsibility leads to separate treatment of public and private pensions. The EU discussion is thus useful in bringing all areas of concern to bear in a single policy document.

The dimension of gender enters through this twofold framework. Nevertheless, the fact that the discussion was always placed squarely within the area of social policy implied that features such as greater longevity for women were not allowed into the

discussion. As a result, European discussion of equity issues in pensions sidesteps the fact that women live longer;[16] thus, unisex actuarial factors are used in all new systems.[17]

It was clear all along that much of the sustainability adjustment had a gender dimension: women's retirement ages and labor force participation were envisaged as adjusting the most. At the same time, pension reforms frequently did away with some gender-specific aspects of pension systems which were originally justified as compensating women for non-pension obstacles. Similarly, features of new systems could interact with existing gender disadvantages to produce new kinds of inequities, even as provisions that perpetuated disadvantage were gradually done away with.[18] Finally, many of the principles running through reforms could, as side effects, lead to lower entitlements for women: closer linking of contributions to entitlements cannot avoid penalizing periods out of the labor force, unless some mitigation is designed. These looming threats can be well illustrated by work profiling hypothetical career structures and computing ("synthetic") replacement rates for people who fit those profiles; the Indicators Subgroup (ISG) of the Social Protection Committee (SPC) has produced such results,[19] as has the OECD. The work of the ISG is a clear warning sign, that, should behavior remain unchanged, many new equity issues affecting gender could appear in future years.

Long-term strategic policy in the EU operates on the basis of key strategy statements which orient its actions. The "Lisbon strategy" was decided during the Portuguese presidency of 2000 and was supposed to orient policy and reforms in the period to 2010 (Papadimitriou and Copeland, 2012). The successor of the Lisbon strategy is known as the Europe 2020 strategy[20] (Armstrong, 2012). That document gives a clear signal that pension reforms and working longer will have pride of place in the overall attempt toward "smart, sustainable and inclusive growth." In this context, though, policy formation is facing a conundrum, which is especially sharp in the field of gender.

This conundrum facing all policy toward gender and ageing is illustrated well by two key documents, both published by the EU in 2012. The 2012 Ageing Report[21] notes that the reforms of the last few years have resulted in the outlook for sustainability being much improved in comparison with the 2009 Report. The 2012 Adequacy Report[22] is more circumspect, noting that

"analysis of the change in replacement rates . . . demonstrates that greater sustainability . . . has been achieved through reductions in future adequacy" (p. 9).[23] The same report goes on to say that "an important part of the adequacy challenge is gender specific." In other words, pension reforms could, *if people's behavior does not change*, pose threats to gender equity among the older population. Avoiding this is a key challenge for the EU; this holds equally for all advanced countries.

Much of the Adequacy Report discusses this challenge. It examines statistical indications of today's situation and assesses the knowledge gaps to be filled by future work. Indeed, it may be said that the Adequacy Report, through a different route and from a different starting point, has arrived at the same conclusion that this book has reached: ageing policy cannot do without careful and regular monitoring of the gender pension gap.

Outline of the Book

Chapter 2 introduces the an intuitive concept of gender gap in pensions indicator, constructed to be a kind of later-life sequel to the pay, earnings, and participation gaps familiar from analyses of younger men and women. It discusses how a pension gap may appear as the interplay between the cumulative inequality of working life and the operation of the pension system. The points of difference and similarity between the working life and retirement measures of gender inequality are compared and contrasted. Chapter 3 gets to work by examining the broad outlines of the gender gap in pensions indicator in Europe; its value in 2011, the situation regarding women with no access to pensions, differences between people of different age classes, and trends over time. The next chapter presses on with European pension gaps, describing and explaining their diversity across the continent: by education and marital status, according to different career patterns, its relationship to the overall distribution of income. Chapter 5 spreads the net wider by attempting to benchmark and to generalize the key European results. It examines estimates based on administrative data for Europe and published studies from elsewhere, giving particular emphasis on the United States. In two cases, the United States and Israel, where there exist data directly comparable to the European survey we compute direct analogs. The benchmarking

exercise points to the international relevance of the European results. The US results can be said to amplify the warning of dangers ahead. Chapter 6 examines to what extent the European data can be said to reflect directly typologies of welfare state. The conclusion is that pensions systems introduce idiosyncrasies that preclude easy generalizations. One such complication of importance for policy is the focus of the next chapter—differences in pensions inside the household between spouses—the intra-household gap. The conclusion that transpires is that there may be a conflict between greater independence on the one hand and poverty prevention on the other. Finally, the concluding chapter provides an overview of results and discusses what they mean about the flavor of challenges yet to come.

2

Concepts and Literature

Introduction

This chapter is devoted to the definition of concepts, the construction of indicators, and the choice of data. The idea is to seek the simplest way to bridge the gap between the macro representation of ageing indicators and the micro experience of individuals, in this case to highlight differences between men and women. Given the decision to survey experience across countries, a further matter of importance is ensuring that the data used can be compared: that they have similar meaning and coverage. A further issue is that the data and the indicators must be able to feed into policy discussion by shedding light on social processes in a transparent manner.

We approach the issues in a slightly unorthodox fashion: we first introduce and outline the definition of indicators and indicate the data to be used. We then take a step back and examine literature on gender inequalities on pension, which, in a sense, is what gives life to our indicators. We thus set the stage for the analysis of our own indicators in chapters 3 and 4.

A Gender Gap in Pensions Indicator

An indicator is a construct halfway between the worlds of policy discussion and that of data. It provides a bridge of understanding that summarizes a picture of the world that statistics give, but in a manner that can inform policy and give meaning to public discussion. Atkinson et al. (2002) discuss the general issue in a report commissioned by the EU to suggest indicators in the field of poverty and social inclusion. Theirs was an example of a highly charged area in emotional terms, poverty. In that case, there coexisted strong (frequently value-informed) presuppositions which needed to be translated to yield indicators with a precise quantitative

meaning, while still doing justice to the notions these indicators were attempting to portray. Their report deals extensively with the characteristics a good indicator should have. Following their approach, an indicator tracking gender imbalances in the field of pensions should:

- be easily understood,
- be available on an annual basis,
- be available and comparable across countries, and
- should complement existing indicators in current use. In the advanced economies this would mean indicators of the risk of poverty but also gender pay and earnings gaps.

Given the above, in the European context the only realistic source of data is the EU *Statistics on Income and Living Conditions (EU-SILC)* (Eurostat, 2011; Verma and Betti, 2006). This is a questionnaire-based survey, which draws a random sample covering the entire population and is currently conducted annually in all 28 EU member states.[1] Considerable effort is expended to standardize answer categories to make them internationally comparable. The last available data are based on the survey conducted in 2011; given that the question posed to respondents refers to the past year, the situation reflected in the data is that pertaining to 2010. The same survey is used to construct other EU structural indicators, most notably those connected with social inclusion and the risk of poverty; its properties, advantages and drawbacks, are well understood. As the survey has been conducted with only minor changes since 2005, SILC information is also comparable over time.

EU-SILC asks households detailed questions about income sources of all their members, whether from employment, from property or social transfers.[2] Social transfers are defined in such a way as to include under the same heading both first pillar (state pensions) and second pillar (occupational pensions). The two pillars cannot be distinguished (reflecting a judgment that at least in some systems the demarcation between the two may rely on fine distinctions), a matter of some importance in the current investigation. In contrast, individually negotiated pension packages (the third pillar) are distinguished. A feature of EU-SILC that is problematic is that (in most countries) survivors' pensions paid

to individuals older than 65 are classified as "old age protection" and not separately identified.[3] In situations such as this, where there are problems of comparability between countries, the *sum* of three variables (in this case, "pensions") may be more reliable and meaningful than each component taken separately. These two issues, the inability to distinguish survivors' pensions and second pillar pensions, may be thought as "blind spots" of EU-SILC in the context of gender gap in pensions analysis.

EU-SILC is a survey of the population irrespective of age; moreover, it probes especially in the areas linked to economic and financial well-being—that is, "income and living conditions." For an older population, there exist other questions and areas of enquiry, such as health care, and social relations, which acquire greater importance. In order to delve in greater detail in particular issues or to investigate issues related to the EU-SILC "blind spots," it is possible to draw data from another survey of European countries. This is the Survey of Health, Ageing and Retirement in Europe (SHARE), an interdisciplinary survey covering economic well-being, health, (physical, mental, and health care), and social relations.[4] Though it is of the nature of sample surveys that they cannot be absolutely comparable, being able to draw on an alternative survey can be thought of as a check on key findings in EU-SILC. Equally, the existence of more detailed information on items such as employment histories can shed light on causal mechanisms that may be obscured in EU-SILC. The first two waves of SHARE were undertaken in 2004 and 2007, while the third wave (SHARELIFE) was devoted to extracting retrospective information for respondents' entire life from childhood. There was a fourth wave in 2011, while the fifth wave was collected in 2013, data for which are at varying degrees of readiness. SHARE wave 2 will be used to supplement the picture derived from EU-SILC.

When we focus on older populations, we must be aware of a further blind spot—the exclusion of people living in old people's homes, hospitals and other collective habitations—that is, people not living in normal households, which is the sampling unit in all surveys.[5] The proportion of the older population living in this type of accommodation has a strong gender dimension, while it also has a very notable North–South gradient. Moreover, one may expect that the sampling rate of those parts of the elderly population who are infirm, bedridden, or have fading cognitive abilities may well

be lower.[6] This is an argument for supplementing EU-SILC data with other surveys designed for an older population, which try to accommodate these issues to a greater extent.

A matter of some importance is the decision of whom to include in the definition of "pensioner." This has two aspects, which are explained below.

First, individuals themselves decide when to leave work and to enter retirement. They decide whether to apply for a pension as a conscious decision, depending on a number of features both of their personal circumstances, the parameters and regulations of the pensions system in place (e.g., minimum retirement ages), and ultimately whether they prefer to be pensioners rather than to carry on working.[7] The transition from work to retirement is a very complex process; the kinds of issues that enter into it are largely distinct from the issues that motivate the search for a pension gap indicator. In order to abstract from these complications and to produce an indicator that retains the feature of simplicity and ease of understanding, we investigate a homogeneous group of people. That group is defined in such a way that the transition from work to retirement is complete, and whose pensions have settled into the relationship with other income that will characterize the rest of their retirement. To achieve this, the simplest course is to focus on the *group of people over 65*. In all advanced countries, the transition to retirement is all but complete;[8] in consequence, the relationship between pensions and other incomes, as well as, most crucially, gender differences in pensions have settled into their long-term values.[9]

During the course of the analysis, age will be subdivided further (into "the younger old" 65–80, and "the oldest old" 80+). Indicative results will also be presented for the younger retirees (50–65) (Section 3.6). In this way, the effect of excluding large numbers of pensioners in those countries with a lower retirement age can become apparent. Furthermore, the use of 65 as a cutoff age also serves to underline the concern for the elderly; that age is the conventional statistical start for "old age" and will thus allow the indicator to be harmonized with a large number of other works in the area. The older group aged 80+ is, in some senses, problematic: Selection problems begin to matter, as in some countries a large proportion of individuals go into old age homes, while international differences in life expectancy also affect relative size

of the group between countries. In a similar vein, we shall see that survivors' pensions can complicate the picture for the over-80s considerably, while a greater time would separate current pensions from original value when first issued. For some purposes connected with policy, therefore, it could make sense to separate what could be thought of as the "central pension gap"—that is, that affecting the group aged between 65 and 80—from the "senior gap" or outside gap of the over-80s. Pension gaps of individuals in the central age group can be expected to be closer related to features of the pension system as it is currently operating and to offer a closer guide to policy.

The second important issue is also related to the definition of who is a pensioner. The definition used here is "any person who appears to be drawing a pension as his/her own income," that is, individuals with nonzero values of pensions.[10] This *excludes* from the definition individuals who are not themselves beneficiaries of pensions, and whose pension income is zero.[11] The definition of who is a pensioner is thus sensitive to the definition of what is a pension. Should Eurostat define in EU-SILC small social benefits given to older people in, say, recognition of child rearing, as "pensions" then our definition will include individuals collecting them as "pensioners";[12] they will unavoidably enter the calculation on an equal standing with age pensioners whose pension is substituting at least for minimum resources. If (as is likely) these types of pensions are more common among women, this would introduce a considerable upward bias to pension gap estimates. However, this problem may be seen as an example of the statistical tools improving as more use is made of them.[13]

Thus, a pension system would be defined by *two* indicators: one measuring gender pension differences for those with a pension and another indicator depending on system coverage—that is, the gender differences for those people over 65 who have no pension. It should be noted that the exact parallel exists in the case of people of working age: gender analysts are used to talking separately of a participation gap (i.e., how many more women rather than men are working for pay) and an earnings (or pay) gap; the latter looks at earnings of those who are working and compares women and men.

The Gender Gap in Pensions is computed in the simplest possible way: it is one minus women's average pension income divided by men's

average pension income. To express it as a percentage this ratio is multiplied by 100. It is the percentage by which women's average pension is lower than men's, or by how much women are lagging behind men.

Thus, in parallel with earnings gaps we define two linked indicators:

1. *The coverage gap*—that is, the extent to which more women than men do not have access to the pension system (in the sense of having zero pension income—as that in defined in EU-SILC).
2. *The pensioners' pension gap*—or else "the" pension gap, that is, the difference in pensions *excluding* zero pensions. This measures how the pension system treats "its beneficiaries," that is, the indicator excludes those that have no active links with pensions.[14] It is thus what data produced by pension providers themselves, that is, administrative data, would invariably cover *by construction*. This definition would thus match statistics produced by pension providers, or any other kind of administrative data (e.g., compilations of pension fund data).

If we include in the pension average calculation individuals with zero income, we arrive at an indicator which combines the two above—which can be called the "elderly pension gap," in the sense that it includes in one indicator all people over 65.

Thus, the analysis will use the pensioners' pension gap and the coverage gap as its "headline indicators"; it will, nonetheless, investigate how these two indicators combine in the elderly gap.

Clearly, in surveys of individuals of a comparable structure to EU-SILC, such as SHARE or the US Health and Retirement Survey (HRS), we can define a pension gap and coverage indicators in equivalent ways. (Details on the use of SHARE as a source of information as well as the description of the pension variables in SHARE wave data are provided in the Appendix to this chapter, as well as the corresponding information on HRS.)

THE QUESTION OF ADMINISTRATIVE DATA

In the Gender Gap in Pensions analysis at the European level, a key consideration is that of comparability—that is, the numbers produced have to mean the same thing for all member states. This,

in a survey coordinated on a European level, such as EU-SILC, is ensured by asking a common set of questions and ensuring the definitions and concepts can encompass the heterogeneity that is unavoidable in collecting data from 27 different jurisdictions. Comparability is not something that emerges automatically; it continuously improves with the use of data and with attempts to resolve the problems of interpretation that arise. Thus, the very fact of highlighting a particular area of data by using it will bring forth improvements in the survey information.

Yet it is inescapable that in each member state taken separately, the natural place to look for pension gender differences is from those organizations that disburse those pensions—that is, to use administrative data. For someone accustomed to the picture emerging from administrative data, the EU-SILC data may well be unfamiliar. It is thus important at the outset to understand why and in what directions administrative data may differ from survey information:

- Administrative data would of necessity cover *only* those receiving a pension (i.e., what we call the pensioners' gender gap, rather than the elderly gender gap).
- National pension systems are frequently fragmented—there may be a multitude of pension providers and data may exist separately by occupational category. In multi-pillar systems, statistics for the pension total (equivalent to SILC which aggregates first and second pillar pensions) may be hard to get. The typical case is that statistics for the first pillar is far easier to obtain than that from the second;[15] the latter are very hard to aggregate to derive a national picture. Sometimes data for parts of the system (e.g., civil servants) are only available separately and are not aggregated.
- Administrative data are frequently produced separately by types of pension: old age, disability, and survivors may produce separate statistics.[16] Pension providers naturally count legal claims, which can be conceptualized as counting pension checks and not people. In the (not fanciful) case of someone entitled to two pensions, it is fully possible that that person will be counted twice; indeed, it is not unknown in pension statistics for the pensioner population to exceed the demographic population. This is sometimes corrected by conducting a periodic (in France

every four years, also in Germany) survey of activities of pension providers.
- Administrative data would normally be available for all pensioners. These would include those under 65 who are excluded in our definition. Additionally, differences will be due to those excluded from the EU-SILC sampling frame—those living in old age homes, those not responding due to cognitive problems, and those resident abroad; on the other side will be beneficiaries of foreign systems, as well as cases of fraud.
- Finally, administrative data have a key advantage of linking in with macroeconomic and fiscal data, as it those aggregates that enter the public finances. Similarly, it is administrative data that are used for projections by actuaries and statisticians. Though it is possible to blow up individual-level survey data to the population macro aggregates, this is a process that is error-prone and approximate.

In order to highlight and illustrate the crucial distinction between administrative and survey data, this book will return to the issue in chapter 5 by contrasting EU-SILC findings to a mosaic of available administrative data from 11 European countries.

WHAT DO WE KNOW? AN IMPRESSIONISTIC LITERATURE REVIEW

Figure 2.1 shows in diagrammatic form how pension gaps, that is, gender inequalities in later life, materialize. Inequities build up during individuals' working life, in the form of differences in total career resources (panel A). These may cumulate differences in pay per hour (perhaps due to education, skills, but also segregation and discrimination) with hours worked. Mothers and other women engaged in unpaid care work in the home find they can devote fewer hours to market-paid work, with the result that an earnings gap appears. This is cumulated by women frequently having to interrupt work for family responsibilities and unemployment by multiplying annual amounts by fewer years (though periods of military service or education which delay labor market entry may have similar effects).

Our interest is centered on panel B: annual pensions during retirement. Pensions are frequently a function of and are derived

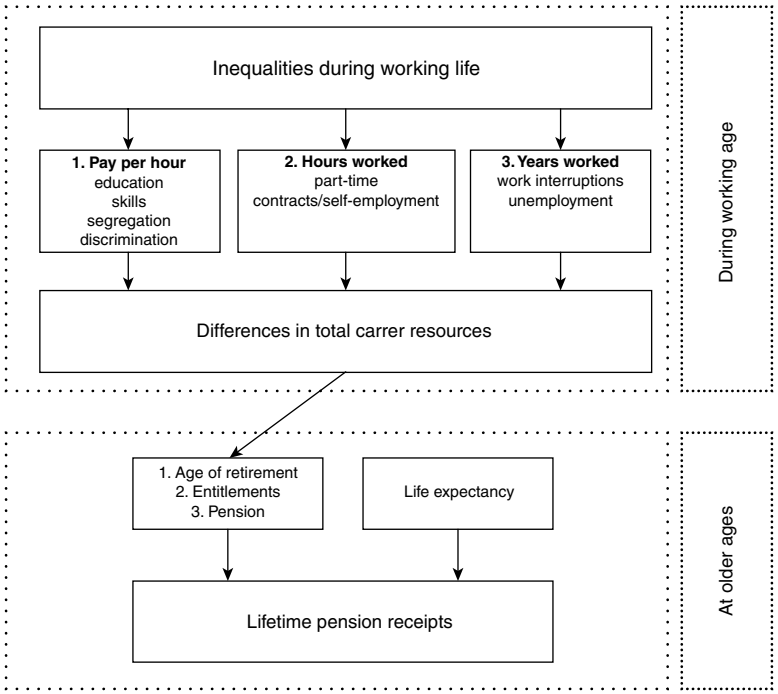

Figure 2.1 A simple diagram of how pension gaps appear.

from total career resources. However, pensions systems are not simply a neutral filter. They impact with the individual's own choices, most frequently the age of retirement. A delay in retirement will frequently mean a higher pension; low pensions may, in this sense, be partly the result of the individual's own choice. However, pension systems also introduce other features such as minima, maxima, subsidization of lower pensions, or other equalizing factors from the realm of social policy. On the other hand, pension features rewarding thrift or risk taking (common in private and occupational pensions) may have the impact of exacerbating underlying working life inequalities.

However, one may go one step further and investigate the stock of pension outlays during an individual's lifetime—the stock concept corresponding to the flow of annual pension payments. This would bring into the picture earlier retirement and differences in life expectancies, both importantly correlated to gender. "Lifetime pension receipts" is the appropriate concept to juxtapose to lifetime

career resources. To investigate either would entail far more information than we currently possess, as we would need to delve into matters such as the difference between age groups and cohorts.

Conversely, annual gender gaps in pensions are the analog of pay and participation gaps. As flow concepts they can be the object of public policy interventions more readily like stock concepts than lifetime gaps. It is thus for practical, theoretical, and policy reasons that we focus on the pension gaps.

Gender Gaps as a Difference in Life Chances

The gender gap is one of the better-known aspects of empirical gender analysis. According to *dictionary.com*, gender gap (noun) is "the difference between women and men, especially as reflected in social, political, intellectual, cultural, or economic attainments or attitudes." The gender gap is essentially an achievement gap. It focuses on inequalities in outcomes between men and women and usually places emphasis on wage rates, earnings, or other economic magnitudes.[17]

In more general terms, gender gaps could be taken to mean systematic differences in access to resource or in life chances between men and women. In this way, the concept could be generalized in order to be applied to an older population, whose attachment to the labor market lies in the past but still may be a dominant influence on their economic well-being. Though this is a natural extension, the sequel of pay gaps, it has received far less attention, both theoretical and empirical, than gender gaps more directly linked to the labor market. Does old age maintain inequalities, does it cumulate them and make them worse, or does it give a chance to redistribute and level life chances? (O'Rand and Henrietta, 1999).

From the Labor Market to Cumulative Gender Gaps

The gender gap in labor force participation has been eroding steadily over the past century, albeit with a different pace in different countries and periods. The gender gap that attracts the most attention, however, is in earnings: here, though no steady trend is in operation, considerable progress has been recorded over time.[18]

As for the reasons accounting for the difference in earnings between men and women, economists tend to come up with observable and non-observable factors: education and shorter work experience belong to the first category, while discrimination[19] to the latter (e.g., Blau and Kahn, 2000; Smith and Ward, 1989).[20] Finally, the unbalanced gender distribution in occupations (often called occupational segregation)[21] supplies a further explanation for women's lower earnings, in the sense that they tend to populate lower-paid jobs (Bettio, 2008).

Evidence based on historical cross-section data provides a snapshot of different economic outcomes in the labor market at a specific point in time, as well as over time. In a more dynamic analysis focusing on the life pattern of the same individuals, the consecutive instances of different outcomes add up to an effect of cumulative disadvantage of women. Such a dynamic approach can follow one of the two following paths: either to utilize panel data sampling the same individuals over time or to assess the performance of different cohorts in the same phase in their life (say, reproductive ages 25 to 45 years). The latter approach has been used in order to evaluate the "maternity burden" on wages throughout the life course (Crittenden, 2001, for the United States; and Davies and Joshi, 1999; Davies, Joshi and Peronaci, 2000; Price 2006 for United Kingdom). On the investigation of interaction between the life course, pension system, and women's incomes in later life in United Kingdom, West Germany, and the United States, Evandrou et al. (2009) and Sefton et al. (2013) conclude that differentials in income in later life by family history are greatest where work histories and retirement incomes are most strongly related (West Germany) than where weakest (in United Kingdom).

It is thus a well-documented fact that women are paid lower wages and tend to accumulate less income from (paid) work in the course of their working lives. There is a consensus that women's role as the main carers at home largely explains their lower earning record.[22] This is the result of three main facts, present in all national contexts, but to varying degrees:

> *First*, women with family obligations participate less in the labor market. *Second*, even when they participate, they tend to work for fewer hours and/or years. And *third*, they receive lower wages. (Davies, Joshi, and Peronaci, 2000) The combination of these three

> stylized facts produces a snowball effect on women's earnings and careers. Although it appears that the cumulative disadvantage over the life course has been eased in the late 1990s for women with high education characteristics, there is no recorded improvement for women with lower educational attainment (Davies and Joshi, 1999; Davies, Joshi, and Peronaci, 2000).

International comparisons reveal substantial differences in the cumulative earnings gap in Europe: Germany and United Kingdom show similar intensity in the gap, while France and Sweden display lower cumulative earnings gap (Davies and Joshi, 1994). In a more recent attempt to capture international variations, Sigle-Rushton and Waldfogel (2007) utilized data from the Luxembourg Incomes Study in order to compare the cumulative earnings gap in eight countries.

From the Labor Market to the Gender Gap in Pensions

In a special issue on gender and ageing, Folbre et al. (2005) note "Although women are a majority among the elderly, little is heard about gender differences in economic resources" (p. 3). Fifteen years earlier, Hurd 1990 noted, "The great majority of research on retirement has been the retirement of single men and husbands."

Even and Macpherson (2004), surveying how the US Gender Gap in Pensions evolved over the last 30 years, note what is the key question still to be answered. During that time there were dramatic improvements in gender balance in the labor market. Yet the gender gap in median incomes of the older population "has been stagnant over the past fifty years. The female–male ratio of median incomes in the population aged 65 and over was 0.61 in 1950 and fell only slightly to 0.59 in 1994" (p. 182). They explain this stagnation through countervailing institutional change in pension policy (extending the critical period for pension calculation), as well as selection effects,[23] chiefly to do with second pillar pensions.

Tracking the Gender Gap in Pensions outside the United States has not been attempted in a systematic manner in a cross section of countries, in the way that has happened to pay and earnings gaps (as in, say, Olivetti and Petrongolo, 2008). There have been a number of studies of individual countries, usually focusing on

specific aspects of the pension system.[24] This literature, surveyed recently by Jefferson (2009), can generate a number of hypotheses that can be used to explain observed differences in gender balance in pensions: (1) gaps in *coverage* in systems linking entitlements to contribution: coverage gaps in public systems are closing as new gaps are opening up in occupational systems (p. 120), thus highlighting the importance of following the *total* entitlement for all pillars, (2) *benefit* calculation policies— (the role of derived benefits such as survivors' pension, the period of earnings taken into account, the existence of pension minima, unisex annuity tables for the second pillar),[25] and (3) methods of financing and part-shifting to funding, affecting the distribution of risk.

Most of the literature on gender and pensions is oriented toward the effects of reforms, usually focusing on a *specific* reform or systemic feature. In this way, the effects of *combination* of factors, or indeed of the overall logic of systems, may be missed. This piecemeal approach begs the question of *benchmarking the starting point*: what is the current level of gender imbalance, how does it differ between countries and why?

In this respect, the United States was privileged in having access to good-quality survey data which allowed researchers to pose relevant questions and to ponder on causes of observed phenomena. Chief among these was the HRS, a panel survey of people 50+ which has been in operation since 1992,[26] and has provided material for a large number of studies. The SHARE was consciously modeled on the HRS. SHARE-based studies have begun appearing, in some cases attempting to explain income gaps in older age. Many of the papers in Börsch-Supan et al. (2011) approach the issue of broken careers (Lyberaki et al., 2013; Tinios et al., 2011).

However, when one looks at European-level data one has to get along with studies relying on local administrative data or impressionistic analyses of selective cases (see, e.g., Frericks et al., 2009).

A Schematic Comparison of Pay and Pension Gaps

Gender differences begin cumulating from the world of work. The aspect most studied concerns pay per hour. Differences may be "'explained" by different endowments of measurable variables (e.g., years of education), by concentration of the gender's in different

occupation, or simply due to "discrimination." Men and women also differ according to the hours worked per year, where there is not only different concentration in part-time work, seasonal work, or fixed-term employment but also differing propensities toward self-employment. Period earnings such as annual earnings reflect all these differences. Annual earnings cumulate through the career and are mediated by years worked. Gender differences may be due to late entry (education, military service) but are most commonly because of exit from the labor force due to childbearing and unemployment spells. The three aspects are multiplied to form total career resources—which could lead to a lifetime earnings gap (table 2.1 which elaborates on figure 2.1).

The world of retirement is predicated upon the world of work and builds on lifetime earnings. These operate through the rules of the pension system, but are also, in most cases, affected by the individual deciding on an age of retirement. The resulting pension is typically affected by both features: early pensions typically lead to lower pensions and the pension system may correct imbalances in lifetime resources, or it may amplify them (e.g., where a prefunded element may reward saving). We may distinguish three types of situations:

- Some social insurance systems may lead to some individuals with an insufficient insurance record not being entitled to a pension at all (zero pensions). In those situations, the other partner (in the case of married couples) may receive a married person's pension supplement.
- Some systems may have an age pension which is received by all citizens on reaching a particular age. In some countries, there may be a widespread use of pension-like emoluments (e.g., for having raised children in Luxembourg).
- Social insurance pensions are designed to reflect lifetime contributions and can be expected to mirror the career earnings gaps. Nevertheless, a number of devices (credit for childbearing periods, minimum pensions) can temper this. Second pillar pensions can be expected to have a closer link to contributions, as well as to reflect possible differences in rates of return.

We must note that looking at pensions neglects benefits in kind, housing benefits, transport subsides, and eligibility of other social

Table 2.1 In outline: The Gender Gap in Pensions and Gender Earnings Gap

Gender Gaps—from the Pay to the Pension gap through the life cycle			
THE WORLD OF WORK			
A. Pay per hour → PAY GAP			TOTAL CAREER RESOURCES
Education, skills (human capital)	Segregation ("*women's work*")	Discrimination	
B. Hours Worked per year → HOURS GAP →			
Part-time	Contract or seasonal work	Self-employment	
C. Years Worked → BROKEN CAREERS			LIFETIME EARNINGS GAP (=*AxBxC*)
Late entry due to education, military service	Unemployment, Work Interruptions	(periods credited for social insurance and → other compensating measures could correct)	
THE WORLD OF RETIREMENT			
Choice of AGE OF RETIREMENT		**PENSION SYSTEM**	
D. PENSION → PENSION GAP			
Depending on system—zero pensions.	Age pensions may be given to all after a certain age. Other pension supplements?	Social insurance pensions reflect lifetime earnings gap. Married supplements.	TOTAL PENSION RECEIPTS
Individually based additions (Benefits in kind?)		Second-pillar pensions may compound lifetime gap.	E. TOTAL PENSION GAP
YEARS IN RETIREMENT/LIFE EXPECTANCY			
Survivors' pensions	Gender differences in life expectancy		*Indexation practices*

Table 2.2 The Gender Gap in Pensions and Gender Gaps in Earnings: Similarities and dissimilarities in concept, data quality, time unit, and population coverage

The Gender Gap in Pensions (GGP)	The Gender Gap in Earnings
Concept	
The (unadjusted) Gender Pension Gap measures the difference between average gross yearly pension income of male pensioners and that of female pensioners as a percentage of the average gross yearly pension income of male pensioners. Only pensioners aged 65 years and older are considered.	*The Gender Gap in Earnings* measures the difference between average gross period earnings of male paid employees and those of female paid employees as a percentage of average gross period earnings of male paid employees. All age groups are included.
Comment: There is a perfect analogy in the (formal) concept. In both cases, the income (earnings) for men is the standard of reference, and inequality is measured as a percentage difference with respect to the standard.	
Data Source and Quality	
The source we propose for the headline GGP is the EU-SILC survey, cross-sectional, which is deemed the best data base at EU level for coverage, quality, and comparability of income data.	The source of the Gender Gap in Earnings is the Structure of Earnings survey, which is deemed to be the best source for quality and comparability of wage and earnings data.
Comment: The source currently used for the Gender gap in Earnings and that proposed here for the GGP are first choice: there is, of course, scope for improvement in both cases.	
Time Unit (Year and Period)	
Comment: The difference in time unit is less consequential that it may appear at first sight. The Gender Gap in Earnings refers to period earnings and can be meaningfully computed on a per-day, per-week, per-month, or per-year basis. All pensions are paid on an annual basis, so differences in hours are irrelevant. Thus, year is the appropriate unit. Pensioners who also work, however, do exist and their number will probably increase in the future. However, their prevalence is limited in the over 65 population.	
Population Coverage	
The reference population is individuals aged 65 years and older receiving a pension. Two major exclusions concern: - non-pension beneficiaries - pension beneficiaries younger than 65	The reference population is all waged employees. Two major exclusions concern: - nonworking people - the self-employed

Continued

Table 2.2 Continued

The Gender Gap in Pensions (GGP)	The Gender Gap in Earnings
Comment: Both indicators need to be flanked by measures of coverage in order to give indications about the importance of non-beneficiaries. In the case of the gap in earnings, the coverage indicator is the employment rate, a well-known and widely used statistics. Its analog for the GGP we propose is the Coverage Gap.	
Coverage indicators separate out beneficiaries from non-beneficiaries. People thus excluded take no part in the calculation of gaps. For example, the self-employed are excluded from calculation of the gap in earnings in the same way that younger pensioners are excluded from calculation of the GGP. Both exclusions are motivated by difficulties of measurement and of ensuring simplicity of the indicator. In both cases, moreover, the distortion that such exclusions imply is likely to vary across countries.	
A key issue relates to the definition of a pension. Certain small social protection benefits collected by old age people may be classified as "pensions" in some countries and not in others. Definitions would have to be harmonized.	

Table 2.3 The Gender Gap in Pensions and Gender Gaps in Earnings: Similarities and dissimilarities in sectoral coverage, relation to labor market inequality, and analytical fecundity

The Gender Gap in Pensions (GGP)	The Gender Gap in Earnings
Sectoral coverage	
No sectoral or firm-based exclusion. (in *administrative* data there may be differences in coverage where the system is fragmented and/or in multi-pillar systems).	Data are available from the reference source for all sectors excluding agriculture forestry and fisheries, activities of households as employers extra-territorial organizations, and depending on the country, public administration, defense, and compulsory social security. Moreover, inclusion of enterprises with nine or less employees is optional for members countries and is often not taken up.
Comment: Because of the uneven distribution of male and female employees across sectors and size of firms, the gap in earnings may be distorted by the above restrictions, the most consequential exclusions concerning public administration and very small firms. The GGP does not suffer from such a limitation. However, the main reference source—EU-SILC—does not allow for a breakdown by past sector of activity of the pensioner. This limits the analysis of the impact of occupational pension schemes, unless a different source is used such as SHARE.	

Continued

Table 2.3 Continued

The Gender Gap in Pensions (GGP)	The Gender Gap in Earnings
Relation to Labor Market Inequality	
The GGP reflects cumulative differences in earnings measured at the end of one's working life, i.e., it is influenced by differences in hours and days worked in one's lifetime as well as in hourly earnings.	The Gender Gap in Earnings captures differences in earnings at one point in time
Comment: Again, the apparently large dissimilarity between the two indicators must be qualified. Although the gap in earnings takes a snapshot, it reflects cumulative qualifications (e.g., past education and training choices) as well as cumulative labor market experience. As a result, we may expect both indicators to move slowly over time insofar as they both depend on past history of individuals.	
Analytical Fecundity	
The GGP is an "unadjusted" indicator because it compares individuals with different characteristics and past work history.	The gap in earnings is an "unadjusted" indicator because it compares individuals with different characteristics and past work history.
Comment: Both indicators are "unadjusted" and can be "adjusted" using the same econometric techniques. At present, however, there is a difference in the extent of adjustment that can be carried out using the respective data sources. The SES source is much richer in details about past work history of waged employees than the EU-SILC survey source is about past work history of pensioners. This can be partly made up for by using the SHARE source for analysis of "adjusted GGPs." Given the very long time needed for changes to operate across lifetimes, the operational and policy significance of decomposition is different in the case of pensions.	

inclusion benefits such as minimum income guarantees (though in most systems minimum income guarantees to older people are incorporated into the pension system).

Finally, symmetrically with the world of work, one may also calculate the total lifetime pension receipts. Gender differences in years collecting pensions are due to earlier retirement as well as longer life expectancy for women, but may also depend on pension indexation practices. The status of survivors' pensions is unclear: they constitute a legal right earned by the (male) contributor, yet are collected by the surviving (usually female) partner.

Of the various gender gaps, the one most extensively studied is the gap in hourly pay. Many of the issues that arise in the treatment of pension gaps are also met in the case of pay gaps: the

practice of distinguishing a pay gap and a participation gap is the most obvious case. Other issues, such as the treatment of small pension-like emoluments, can also find analogies in the case of pay gaps; these can serve as guides in defining the gap and/or refining the data that enters the pension gap calculation.

How far can the analogy between the gender Earnings Gap and Gender Gap in Pensions—our headline indicator—be carried out? In answer to this question, we comment in the preceding pages tables 2.2 and 2.3 examined on a catalog of similarities and dissimilarities, strengths and limitations of the two indicators with respect to criteria such as concept, data quality, sectoral and population coverage, relation to labor market inequality, and analytical fecundity.

3

Gender Gaps in Pensions in Europe

Introduction

This chapter describes aggregate pension gaps in Europe. Two questions are examined: first, who is a pensioner, a coverage gap; second, how different pensions are for the two genders for those who draw a pension. The latter is the key diagnostic used and is termed the "*Pensioners* gender gap in pensions." An alternative concept, the "elderly gender gap in pensions" is defined over the entire population, that is, includes those with no pensions.

A key point of interest described is whether the passage of time is leading to the pension gap becoming wider or narrower. This is affected by improvements in gender balance in employment over the last generation. In the opposite direction, the spread of atypical modes of employment such as part-time working, contract employment, or other ways of combining work and family life could imply larger number of individuals with lower social insurance entitlements. Similarly, past pension reforms could leave some individuals "stranded" and could produce "echo" effects visible in the data.

"Pensioners Gender Gap in Pensions"

It is important to have an idea of the Pensioners Gender Gap in Pensions (as defined in chapter 2) in Europe—what may be thought as the "headline indicator" or our "best estimate" for gender differences in pensions. This, for the record, consists of the difference in average pensions between men and women over 65, calculated in terms of pensions gross of tax (i.e., before tax is

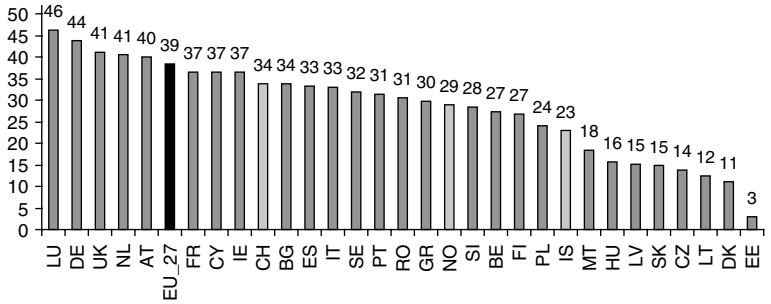

Figure 3.1 Pensioners' Gender Gap in Pensions (%), pensioners aged over 65 years.
Source: EU-SILC 2011, own estimation. Estimate for IE is based on 2010 data.

subtracted). The results appear in figure 3.1, for 30 countries, for each of the (pre-2014) 27 members of the EU (Croatia, the 28th state, is to be included in the wave released late in 2014), as well as for three non-EU countries, Switzerland (CH), Norway (NO), and Iceland (IS).

Taking the EU as a whole (weighted by population), men on average are entitled to pensions which are greater than those of women by *39 percent*. The widest difference is observed in Luxembourg (46%), followed by Germany (44%), which are clearly above the average. United Kingdom (41%), the Netherlands (41%) Austria (40%), France (37%), Cyprus (37%), and Ireland (37%) are clustered around the average. A relative large group of countries have values exceeding a third (Switzerland, Bulgaria, Spain, and Italy), while six other countries are around 30 percent (Sweden, Portugal, Romania, Greece, Norway, and Slovenia). It is thus true to say that in 15 of the 27 Member States women receive pension on average by 30 percent or more lower than men's. The EU average is calculated on a population-weighted basis and is consequently heavily affected by the gap of the populous countries—Germany, United Kingdom, and France most notably.

Belgium (27%), Finland (27%), Poland (24%), and Iceland (23%) do better, but still show sizable differences in gender gap in pensions. The lowest values are found for Malta (18%), Eastern European countries—Hungary (16%), Latvia (15%), Slovakia (15%), Czech Republic (14%), Lithuania (12%)—plus Denmark (11%); finally, Estonia is "top of the class"—as women's pensions are lower by only 3 percent.

The Pensioners Gender Gap in Pensions, as here defined, essentially compares each person to the society's average. If rich men's wives have not worked or have few years of contributions,[1] the distance between the two pensions will be such as to magnify the gender gap (i.e., the gender gap will be affected by extreme values). To see how far this has affected the data, figure 3.2 presents an alternative definition of Gender Gaps in Pensions, based not on *average* pensions, but on the pension of the middle individual (i.e., the median). That measure is not affected by outliers, whether high or low.[2] However, it is sensitive to the classification of what is and is not a pension; including a large number of individuals drawing small benefits would have the effect of pulling the median down. In order to facilitate comparisons with the headline (average), the sequence of countries is preserved for all subsequent analysis—that is, all presentation are sorted by order of the headline gap.

The median gaps of figure 3.2 make our headline estimation of figure 3.1 appear reasonably robust. The classification of countries into four groups is largely preserved: in 20 countries, the gender gap in pensions based on mean pension income does not deviate by more than 4 percentage points (pp) from figure 3.1. For example, in Italy and Poland there is practically no difference; in Germany, Bulgaria, Greece, Lithuania, and Estonia it only deviates by one point; in Luxembourg, Slovenia by 2; and in the Netherlands by 3. Nevertheless, there are some notable divergences: in Denmark, Ireland, Cyprus, Iceland, and Slovakia the estimation of the gender gap in pensions based on median pension income is more than 8 pp lower, ranging from 9 pp in Denmark to over 12 pp in Slovakia.[3]

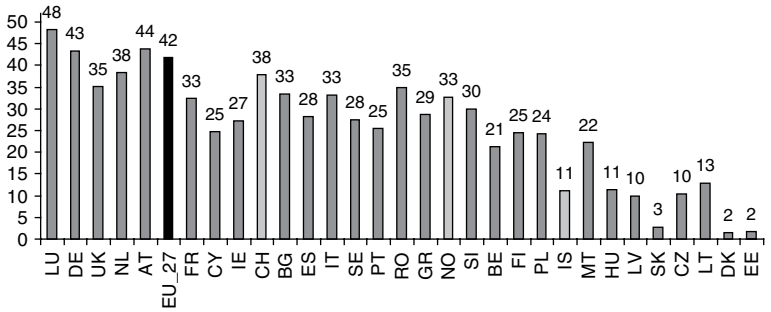

Figure 3.2 Pensioners Gender Gap in *Median* Pensions: Pensioners aged 65+.

Source: EU-SILC 2011, own estimation. Estimate for IE is based on 2010 data.

Women's pensions are lower than men's pensions. At the same time, pensions across Europe may be higher or lower *in absolute terms*, but also relative to productive capacity of a country depending on how rich or poor a country as a whole is, or how its social protection system is structured. Though these matters are not part

Table 3.1 Mean Value of Annual Pension Income of Men and Women aged 65+

Persons aged 65+	Mean *monthly* value of Pension Income (EUR)*		Mean Annual Pension Income as of 2009 GDP per capita (%)**		Mean Annual Pension Income as of 2010 National Poverty line (%)***	
Country	Men	Women	Men	Women	Men	Women
LU	3,833	2,053	59	32	237	127
DE	1,855	1,039	73	41	197	111
UK	1,470	866	63	37	172	101
NL	2,249	1,336	76	45	222	132
AT	2,439	1,459	86	51	237	142
EU_27	**1,471**	**903**	**72**	**44**	**199**	**122**
FR	1,943	1,233	78	49	194	123
CY	1,262	801	72	46	156	99
IE	1,908	1,211	64	41	170	108
CH	2,869	1,894	65	43	187	124
BG	170	112	43	28	113	74
ES	1,180	788	62	42	186	124
IT	1,621	1,086	76	51	203	136
SE	2,098	1,427	67	46	213	145
PT	800	550	59	40	184	127
RO	212	147	44	30	208	144
GR	993	698	61	43	166	117
NO	2900	2,058	54	38	179	127
SI	904	647	63	45	154	110
BE	1,525	1,106	56	41	157	114
FI	1,778	1,303	64	47	167	122
PL	464	352	60	46	211	160
IS	1,402	1,079	56	43	153	118
MT	755	616	59	48	146	119
HU	364	306	45	38	171	144
LV	307	260	43	36	135	115
SK	451	384	45	38	148	126
CZ	461	398	39	33	131	113
LT	278	243	37	33	137	120
DK	2,049	1,820	58	51	160	142
EE	323	313	36	35	113	109

Notes: *Monthly value= Annual mean total gross pensions divided by 12; **GDP at market prices, source Eurostat; ***At-risk-of-poverty level for 1-member household, from EU-SILC 2010.

of the focus of this book, it is important to have an idea of what absolute magnitudes lie behind our relative figures. Table 3.1 sets out the values (in euros) of average monthly pensions by gender. It also notes what percentage this is of gross domestic productive (GDP) per capita and of the at-risk-of-poverty threshold for a household with one member for each country.[4] The variation (as expected) is enormous, with the lowest pension for women being in Bulgaria (112 EUR/month) and the highest in Norway and Luxembourg (more than 2050 EUR); the latter, interestingly, corresponds to one of the *lowest* shares of pensions as percentage of per capita GDP. Only in Bulgaria and Cyprus are *mean* women's pensions insufficient to take a single person out of poverty.

Do countries with higher *absolute* pensions tend to have higher gender imbalance? This is what one would expect should pension systems be designed to give priority to greater needs; pension systems would focus on other objectives only once those needs are met. This question is approached by relating a measure of pension generosity (average pension income of individuals 65+ as a percentage of GDP *per capita*) with the Gender Gap in Pensions of figure 3.1. The result appears in the form of a scatter plot in figure 3.3. The hypothesis finds some corroboration in the form of a positive relationship; richer countries like Austria, the Netherlands, and Germany have higher gender gaps. However the relationship is weak and leaves much dispersion around the trend line (R^2 = 0.3).

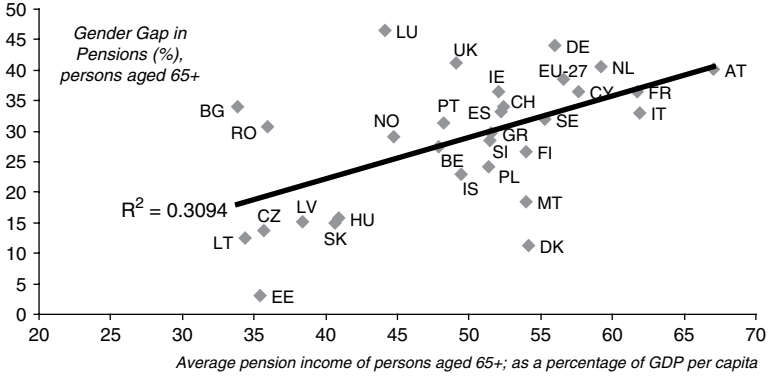

Figure 3.3 Plotting the Gender Gap in Pensions against pension Generosity.

Source: EU-SILC 2011, own estimation. Estimate for IE is based on 2010 data.

To begin answering the key question of interest "how wide is the pension gap in Europe?," one needs a point of comparison. In the case of pensions, the obvious yardstick is the gap in mean annual earnings—that is, differences between men and women in paid labor. Pensions replace employment income at an older age when that ceases, so the comparison is a natural one to make. At the same time, the earnings gap is one of the most extensively studied aspects of gender differentiation. It must be noted, of course, that today's gap in earnings and today's pension gaps refer to different groups of *people*. If evaluated *today*, pension gaps average income sources of a different *generation* than the one currently earning income in the labor market.[5] Nevertheless, in order to grasp orders of magnitude, it is important to see how the two gaps compare. Figure 3.4 juxtaposes the headline pension gap with the latest available Gender Gap in Mean Annual Earnings, based on the European Structure of Earnings Survey for 2010, the latest available.[6]

A first observation is that pension gaps are generally wider than earnings gaps: the average gender gap in earnings for the EU-27 is 23 percent, two-fifths lower than the pension gap (39%). This is expected given that women work fewer years, and hence we would expect an even *wider* career earnings gap. It is the latter earnings concept that most pensions systems base the pension calculation on. A large difference is thus only to be expected. However, there appears no simple relationship linking the two indicators as pension systems can intervene on market outcomes in very meaningful ways. The country with the second widest gender gap in earnings (Estonia, which also has the lowest hourly pay gap) is the one with the lowest *pension gap*. This kind of coincidence is not infrequent in eastern Europe, but it can also be found in two Nordic countries (Denmark and Finland), albeit to varying extent. Third, the dispersion in earnings gaps appears to be lower than that for pension gaps.

Data derived from EU-SILC comprise the bulk of our analysis. However, it is important that this information is cross-checked against other data sources. Given that EU-SILC frequently lacks information that is needed for older people, it is also important to be able to supplement it to explore *particular* questions with other sources of data. Data designed for an older population go into some questions at greater depth or approach questions from different angles. Data drawn from the Survey of Health, Ageing

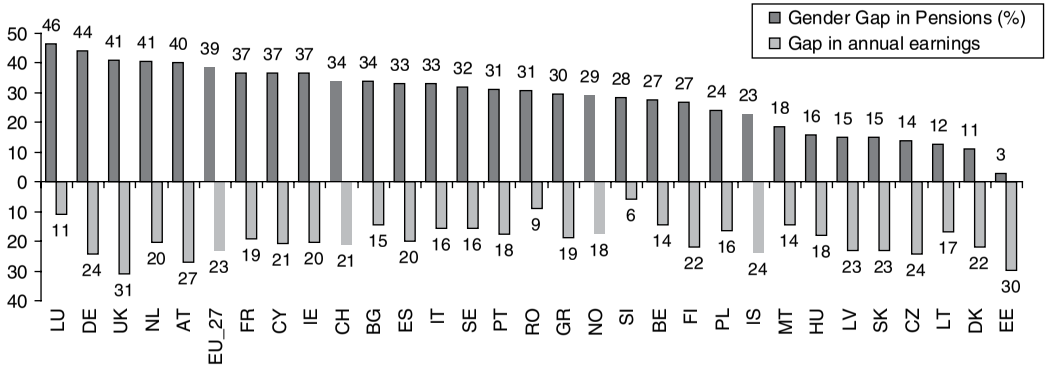

Figure 3.4 Gender Gap in Pensions vis-à-vis Gender Gap in Mean Annual Earnings.

Note: Estimate for the GGP in Ireland is based on 2010 data.

Source: EU-SILC 2011, own estimation; Structure of Earnings Survey 2010.

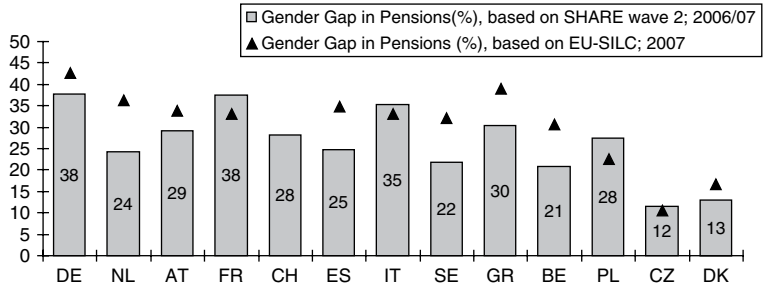

Figure 3.5 Gender Gap in Pensions: Evidence from SHARE vis-à-vis EU-SILC for 2007.

Source: SHARE (Survey on Health, Ageing & Retirement in Europe), wave 2 (2006/7) and EU-SILC 2007, own estimation. CH did not participate in EU SILC 2007.

and Retirement in Europe (SHARE) will be used in a number of occasions in this study to cross-check and supplement the picture emerging from EU-SILC. It is thus important at this stage to compare the results of the two sources and to be aware of their key differences, in order to interpret answers derived later on in the analysis. Figure 3.5 compares SHARE wave 2 data from the data derived from figure 3.1 (what has been called the "headline Pensioners Gender Gap in Pensions") for the same countries and for the *same* year (2007).

The first thing to notice is that the ranking of countries is comparable, though not identical. Germany, followed by France, has the widest gap, with the Czech Republic and Denmark being among the narrowest. Gender gap in pensions estimates based on SHARE data tend to be lower (with the notable exceptions of France, Italy, and Poland). This could be due to a different definition of income (SHARE reported figures are net of tax—see chapter 4 for the equivalents in EU-SILC); it may also be due to the inclusion of alternative or supplementary pension sources, as a result of a more detailed pension questionnaire. However it may be, the differences between SHARE and EU-SILC are *not* such as to preclude SHARE as a supplemental source of information.

Coverage Effects—The Prevalence of Zero Pensions

A key characteristic of a pension system is its coverage: whether it leaves some people without pensions at all. In pension systems

that often include an age pension, paid to all citizens past a certain age, the gender gap in coverage will be zero. In contrast, we might see prevalence gaps emerging in social insurance systems where the right to an old age pension is dependent on a minimum number of years of contributions. In many such systems, in a distinct echo of the "male breadwinner model" (rather than a married woman who has insufficient years of contributions being entitled to her own pension), the husband's pension is augmented by a married allowance (e.g., Belgium, Greece). In the latter case, we might expect to see a large prevalence gap to be associated with a *larger* pension gap and even greater gap if zero pensions are included (figure 3.6).

Figure 3.6 charts the coverage gap on the same graph as the headline gap. In most countries, the entire population of men and women has active links and access to the pension system.

All the countries in the group with high pension gaps come into that category (Luxembourg, Germany, United Kingdom, and the Netherlands); pension gaps are caused by women receiving low pensions, rather than not having access to pensions at all. On the contrary, there are countries where coverage gaps tell a large part of the story: in Malta, 36 percent more women than men have no pension, and in Spain, it is 28 percent. Other countries with a large group of women with no pension are Belgium (16%), Greece (16%), Ireland (15%), Austria (11%), and Italy (11%), while Romania has a value a little over 6 percent. Negative values (more men than women having no pension) in Slovenia, Norway, and Iceland are probably due to a misclassification of disability pensions.[7] Though they could also be due to men working to a greater extent than women past age 65. However, as already noted, the coverage statistic is sensitive to the statistical definition of what is a pension in EU-SILC. A similar issue may be created by classifying certain small social benefits as "pensions." This could explain the very small coverage gap in social insurance-based systems such as Luxembourg (where a small benefit, referred to as the "mama pension" is paid to all mothers over a certain age, regardless of social insurance contributions); a similar small benefit paid to Greek mothers over 65 who had given birth to more than three children is not classified as a pension. The result is a large coverage gap in Greece and its disappearance in Luxembourg. Though clear instructions were given to interviewers in Greece to *exclude*

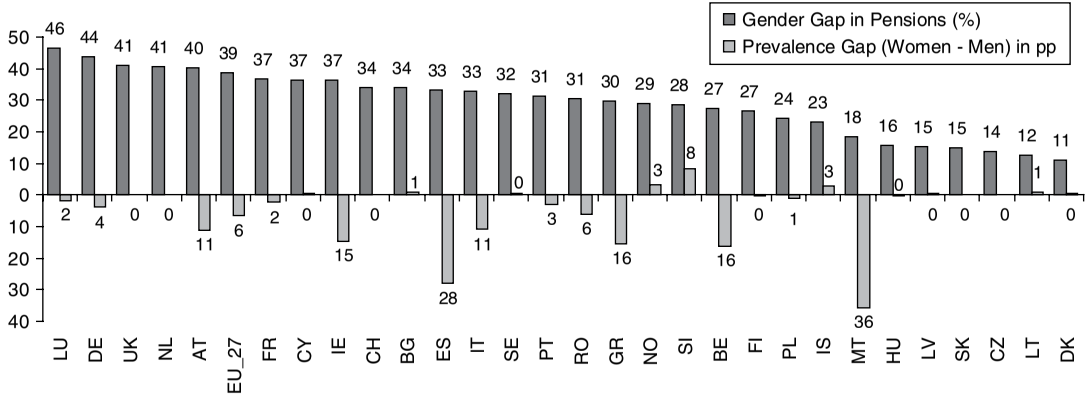

Figure 3.6 Gender Gap in Pensions and Gender Gap in Coverage by the pension system.

Source: EU-SILC 2011, own estimation. Estimate for IE is based on 2010 data.

the mothers from the definition of pensions, it is not clear whether this happened to the "mama pension of Luxembourg." An important point to note is that, as in the Luxembourg case, including large numbers of very small "pensions" in the calculation biases the pensioner's gap in pensions upwards. When statistics are used for the first time as indicators to track social phenomena, this kind of issue is in some sense unavoidable; once it is identified, classifications and taxonomies can adapt.

The Combined Picture: The Elderly Pension Gap

It is possible to combine the story told by the pension gap and the coverage gap in a single indicator, one based on the entire population. It would rather naturally be termed "the Gender Gap in Pensions among the Elderly" as it includes everyone over 65, whether they have a pension or not (i.e., it would include individuals with zero pensions who are absent from figure 3.1). Figure 3.7 shows the elderly gap for 2011, also noting the value of the headline gap. The overall gap is somewhat higher at 43 percent as opposed to 39 percent. However, in those cases where there exists a large coverage gap, the elderly pension gap is massively affected. Spain is now the country with the widest gap, which at 52 percent is 19 points higher. Malta follows closely increasing from 18 percent to 48 percent. For those two cases, bringing

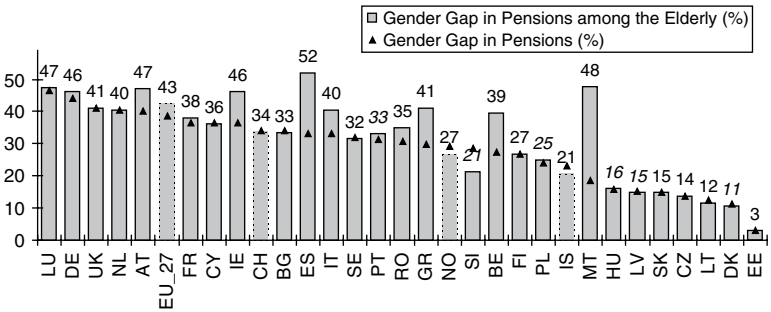

Figure 3.7 Gender Gap in Pensions among the Elderly (%), persons aged 65+.

Note: Gender Gap among the Elderly is based on the mean pension income by gender of persons aged 65+ years, including zero pension income values.

Source: EU-SILC 2011, own estimation. Estimate for IE is based on 2010 data.

coverage in the picture alters the impression given by the headline gender gap almost completely: the fact that women's pensions are (relatively) high compared to men is due to the large number of women being excluded from pensions altogether. This may be reinforced by a selectivity effect: in systems where few women work (or do not drop out), those who are working may be disproportionately better paid. Thus, raising women's pensions (and earnings) might depress observed pension (and earnings) gap *for that selected subgroup*.[8] Considerable (though not as large) differences are noted in the other countries with sizable coverage gaps: Belgium, Greece, Ireland, Italy, and Austria.[9]

The implications of this discrepancy between the elderly and the headline gaps depend largely on the viewpoint adopted. The countries where a coverage gap exists have pension systems based on the social insurance principle, whereby the right to a pension is earned through the payment of contributions. The existence of a coverage gap reflects the fact that many older women had limited involvement in paid labor, plus the fact that some pension systems have chosen to award women derived rights through increasing the working husband's entitlement. However, it must be pointed out that other countries *also* following the social insurance paradigm (e.g., Germany, France) ensure that all of both men and women have access to their own pension, presumably overcoming the same issue. This observation has important implications about policy actions needed to complete the spread of social protection across all groups of the population.

Cohort Analysis: Is the Gap Becoming Wider or Narrower Over Time?

A key point of interest is whether the passage of time is leading to the pension gap becoming wider or narrower. If over the last generation the situation in gender balance *improved* in employment, we would expect older individuals to experience worse gender imbalances than younger ones. In the opposite direction, the spread of atypical modes of employment such as part-time working, contract employment, or other ways of combining work and family life could imply, as unwanted side effects, a larger number of individuals with insufficient (or simply lower) social insurance rights. Though the rapid spread of such contracts in the 1990s

implies that most individuals over 65 would have been affected only marginally, this effect could be visible for some countries.[10] A cohort effect would also be produced by pension reform. Older cohorts faced systems which, by encouraging early exit of women, also condemned them to retire with fewer contributions (and hence fewer rights). Moreover, if (as is often the case) some countries' index pensions were inadequately relative to inflation, the longer a person has remained in retirement, the lower his/her pension relative to the average. Finally, one should also bear in mind that sampling and other technical survey issues are likely to be more prevalent for the older group. Figure 3.8 is designed to examine this question by splitting our sample into a "central" or younger group (the younger old, aged 65–80) and a senior older group (the oldest old aged over 80). The corresponding pension gaps could be referred to as the central gap and the senior gap.

Figure 3.8 compares the gender gap in pensions for the younger (65–80-year-olds) with the older group. Though the situation is not uniform across countries, there is a definite tendency for pension gender gaps to be higher for the younger group and to appear to fall with age. Contrary to the "*march of progress*" expectations of greater equality between genders with time, the younger group faces considerably *wider* pension gaps than their predecessors. The *average* pension gap for the younger group is 41 percent, whereas for the older group it is 9 pp lower, at 32 percent. Differences are especially marked in Cyprus, the Netherlands, and Slovakia.

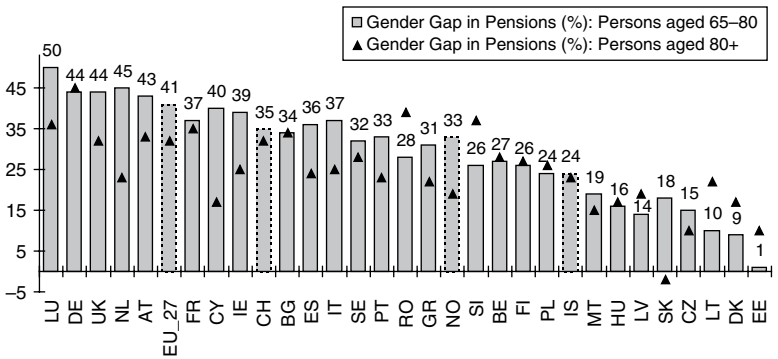

Figure 3.8 Gender Gap in Pensions: Cohort analysis, all pensions.

Source: EU-SILC 2011, own estimation. Estimate for IE is based on 2010 data.

In contrast, in France, Germany, and Denmark there is no discernible difference, while in some smaller countries (Slovenia, Lithuania, Romania, Denmark, and Estonia) gender gaps widen with age; in pension reforms in Eastern countries, older individuals were less affected than those who retired earlier—the effect of grandfathering. The more time passes since the reform, the more we will see the effects of the new system.

We must be careful, however, not to rush to conclusions that gender progress in the labor market over the last generation had no impact on pensions, that is, to conclude that the Gender Gap in Pensions problem is getting worse. In older age groups, survivors' pensions given to widows become very common. This type of pensions would depress gender gaps in pensions; if men have higher pensions, their widows would correspondingly increase the average of pensions drawn by women. A simple solution to the problem would be to include in the calculation only pensions given to individuals as a result of *personal* entitlement (i.e., old age plus disability) and to exclude survivors' pensions. However, this is not possible in EU-SILC data, as survivors' pensions given to individuals over 65 are reclassified as old age protection. To compensate for this, it is possible to *exclude* all widows from the analysis leaving in the sample only pensions drawn as a personal right (figure 3.9).[11]

Figure 3.9 partly confirms our supposition that survivors' pensions act in an equalizing fashion. Gender gaps for both groups are widened; however, the gap for the older group (based on a

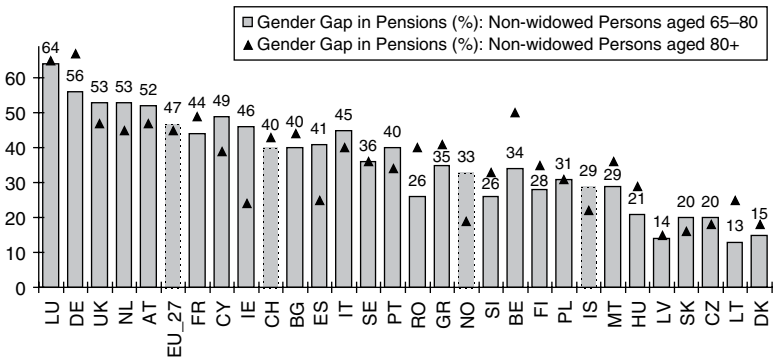

Figure 3.9 Gender Gap in Pensions: Cohort analysis, non-widowed persons.

Source: EU-SILC 2011, own estimation. Estimate for IE is based on 2010 data.

smaller sample) is increased by more. Though the average pension gap is still wider for the younger group, the distance between them is for most (though not all countries) much reduced. There is also probably a selection effect: life expectancy is lower among disadvantaged groups. In almost half of the countries, the younger group faces lower pension gaps. However, taking out of the sample a differentially large percentage of observations between the two cohorts is bound to affect the results, most probably in the direction of reducing gender gaps among the older group.

Given the policy importance of the question of whether the passage of time is making gender imbalances better or worse, it is worth posing the same question to our alternative data source, SHARE. That data set allows us to selectively subtract survivors' pensions from individual incomes, leaving only pensions based on own rights; SHARE could also have better coverage for the group of the very old. In the case, for an example, where a widow has both a pension based on her own contributions and a survivor's pension from her husband, we can focus only on the former. Figure 3.10 examines whether, looking at all pensions with the exception of survivors' pensions, the younger group faces a wider or narrower pension gap. It normalizes all gaps relative to the pension gap based on the pension gap of the younger cohort (65–80 = 100) using *total* pension income.

The cohort picture emerging is mixed. In some countries, pensions of younger cohorts exhibit greater gaps (Greece, Germany, Austria, Sweden); in others, they exhibit smaller ones (France, Spain).

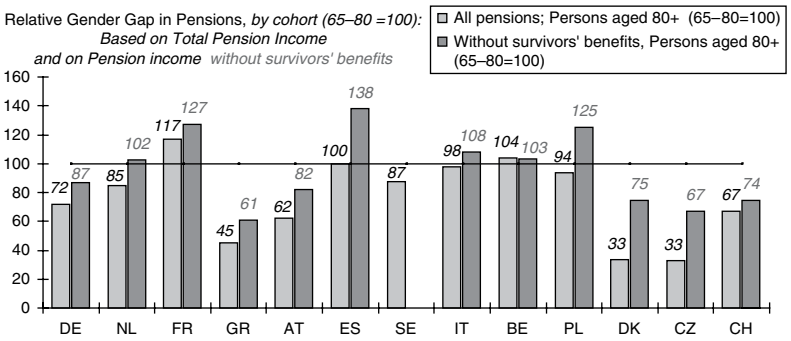

Figure 3.10 SHARE cohort analysis, all pensions; without survivors.

Source: SHARE (Survey on Health, Ageing & Retirement in Europe), wave 2 (2006/7), own estimation.

The effect of abstracting from survivors' pensions is larger for the Netherlands, Greece, Austria, Poland, Denmark, and Czech Republic. In contrast, in Belgium, Italy, Switzerland, and Germany the differences are smaller.

Concluding this inquiry it is fair to say that, although there is some evidence that pensions due to individuals' own contribution history are becoming more balanced by gender, this is a process that proceeds at very different speeds across Europe, mediated by characteristics of the pension systems.

COHORT ANALYSIS: THE TRANSITION TO RETIREMENT BEFORE AGE 65

The investigation by cohorts was based on the comparison between two cohorts, both over 65. What is the situation of those approaching retirement age, that is, those *aged between 50 and 65*?

It is worth recalling that this group was excluded from the analysis on the grounds that any picture emerging will be dominated by factors related to the process of exiting the labor market, rather than the more structural long-term forces that would affect people who rely totally on pensions. Also, given that the general retirement ages are at different ages in different countries, comparability will be hampered. Nevertheless, at this point it is appropriate to see what kind of gender gaps are being faced by this group, in particular, whether there are any discernible trends that would affect the situation in future affecting the older group, as this younger age group approach age 65. Figure 3.11 looks at the combined prevalence and pensioner gap picture, in a manner equivalent to figure 3.6.

The first thing to notice is that there is a far more complex picture regarding prevalence.[12] In those countries where individuals receive an old age pension (at 65 or 60 in some cases), women at ages *below* 65 are less likely to receive pensions than men. This would appear as negative prevalence gaps (e.g., in the Baltic States, Slovenia, Romania, and Austria). It would be counteracted by a tendency of those women who are working to exit into retirement before men (e.g., due to lower minimum retirement ages).

As regards pension gaps, if some women retire earlier with fewer contributions (and hence a lower entitlement to pensions), whereas those women who continue working will end up with higher

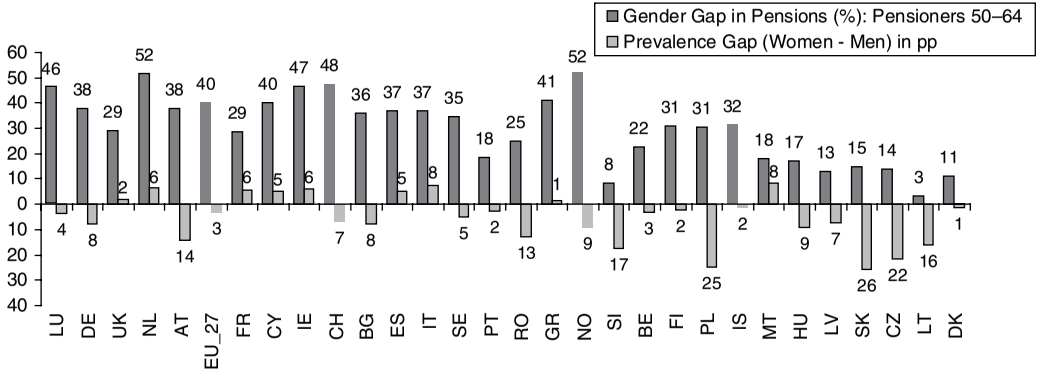

Figure 3.11 Gender Gap in Pensions and Gender Gap in Coverage by the pension system, persons 50–64.

Source: EU-SILC 2011, own estimation. Estimate for IE is based on 2010 data.

pensions, then gender gaps calculated for this group would be seriously *over* estimated relative to the picture that will emerge at our headline indicator of over 65s.[13] The same would result if lower-paid men retire earlier with a lower pension. We see, for example, in the Netherlands, that the gender gap is wider for this group than for the group of 65–80; this observation also holds for Greece, Ireland, and Poland. In contrast, for other countries, such as Slovenia, United Kingdom, Portugal, and France, pension gaps are *lower*: the EU-27 average is 40 percent for those below 65, and 41 percent for the immediate older cohort. Thus, though, it would be tempting to conclude that the "stored change" embodied in this group who will enter full retirement in the next ten years is positive, no such conclusion is possible, essentially due to their heterogeneity.

CAN WE DISCERN TRENDS IN THE PENSION GAP OVER TIME?

A question that any policy analyst would pose is whether there are any indications that things are improving over time or not. There are plausible grounds to suppose that each of these statements may be true. If pension gaps are the result of past injustices, we may expect things to get better; if they are premonitions of future problems, they may be getting worse. However, both of these phenomena are likely to operate over the longer term and are unlikely to be visible in changes from year to year. Here we compare results based on EU-SILC 2011, already presented in Section 3.2 and results based on EU-SILC (2005), the oldest EU SILC data available. Given that EU-SILC (2011) refers to 2010 incomes, this (in most countries, though not, say in Latvia or Hungary) would take into account some part of the impact of the economic crisis. Figure 3.12 compares the "headline Gender Gap in Pensions" for the two years 2005 and 2011.

Contrary to some expectations, Gender Gaps in Pensions appear to be slowly *widening* over time for the EU as a whole. The EU average is greater by 2.1 pp. This, however, is the result of a consistent deterioration in some large and medium countries including the Netherlands (5.5 pp), Germany (4.5 pp), and Italy (3.4 pp). There are *opposing* trends toward greater gender balance in other, generally smaller, countries including Belgium (–6.7) Lithuania (–6.4), and Greece (–3.2).[14]

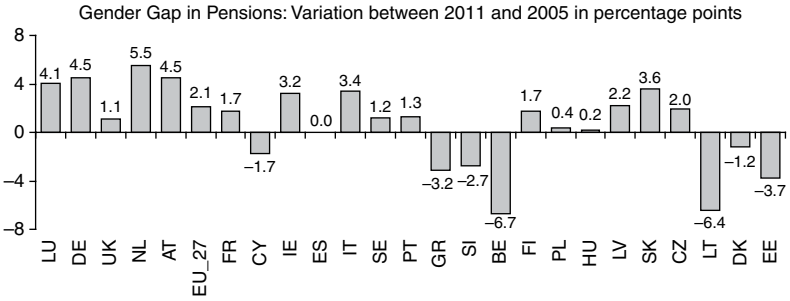

Figure 3.12 Trends in the Gender Gap in Pensions over time.

Source: EU-SILC 2005 and 2011, own estimation. Estimate for IE is based on 2010 data.

Some of these changes may have been prompted by the crisis. Cuts in pensions-in-payment were a feature of the crisis in Greece, a process in which higher pensions were disproportionately affected. A tendency toward earlier retirement would also have affected the situation of those younger than 65. Nevertheless, it is difficult to see a clear pattern partly because in most countries the recession outlasted the period of our data cover. Poland and Germany, for example, are two large countries where the crisis practically did not have an effect and yet their impact is very different, with gender disparities growing in Germany while essentially not changing in Poland. At the opposite pole, Ireland and Greece experienced severe downturns in the period under examination, but again, show opposite (and large) trends. Latvia, over the whole period, shows falls, while Cyprus, though not yet fully into its crisis, shows a decrease in gaps.

The crisis might have affected coverage more than relative pension income, but here again there is no clear pattern, except perhaps for Ireland. According to EU-SILC data, between 2005 and 2011 there were some notable differences in *coverage* in some countries. Denmark shows an important reduction in the coverage gaps over those crisis years (the number of people without pensions was reduced by around 7 pp for both men and women). Smaller advances in making up for coverage gaps can be noted in Portugal (4.3 pp reduction), France (1.7 pp), and Greece (1.6 pp). Much more worrying, though, is the *fall* in coverage among women in Ireland (where the coverage gap increased 6.6 pp). The combined picture can be gleaned from the elderly Gender Gap in Pensions,

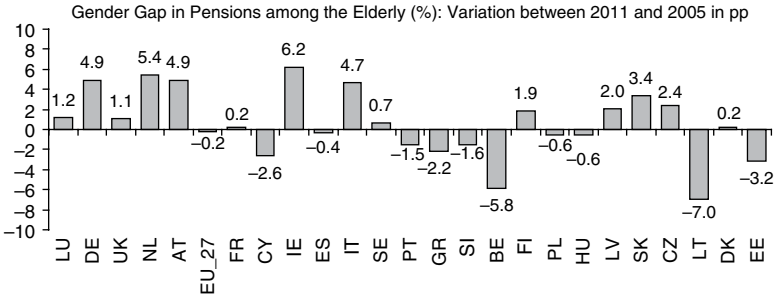

Figure 3.13 Gender Gap in Pensions among the elderly.

Source: EU-SILC 2005 and 2011, own estimation. Estimate for IE is based on 2010 data.

which combines both coverage and pension gap (figure 3.13). The picture differs from the headline pension gap variations over time only for those countries where there was a coverage change. Ireland, for example, registers an *increase* in gender gaps by 6.2 pp.

The overall picture emerging from our analysis of pension gender gaps in this chapter can be summarized in one word: vulnerability. Women in all countries surveyed are subject to wide pension gaps, far wider than what they must have become accustomed in employment. This vulnerability can only be worsened by our other finding—the apparent unpredictability and dispersion of the threat posed: Gaps are very different from one advanced state to the other; their development across age classes entering retirement is highly variable, as is their behavior over time. Possible complacency would thus be doubly damaging: both in disregarding a possibly large threat to women's independency and in missing out deteriorations resulting either from long-term sources or as the unwanted side effects of reforms pursued with other objectives in mind.

The following chapter attempts to investigate the sources of this diversity by relating them to features of *individuals* such as education, income level, career patterns, and marital status. Chapter 6 will go one step further by attempting to bring into the picture system parameters in a more explicit manner.

4

The Gender Pension Gap in Europe: Toward Understanding Diversity

Introduction

The previous chapter explored the aggregate behavior of the gender pension gap across the EU and over time. This chapter tries to examine how that gender pension gap varies according to characteristics of individuals, such as education, income, and marital status. The main object of our interest is the way the pension gender gap results from and reflects key characteristics of the population and their histories. Thus, the focus is on gaps in lifetime pensions in relation to factors explaining their gender dimension. Such are labor market qualifications and career and positions in the income distribution.

Another key point of interest, touched upon in chapter 3, is whether the passage of time is leading to the pension gap becoming wider or narrower. A key such development is the tendency to individualize pensions by abandoning derived rights as well as more structural reforms increasing the extent of occupational and individual initiative in pension income replacement. Though the spread of such occupational (second pillar) pensions in the 1990s would have affected most individuals over 65 only marginally, the effect of such pensions can still be investigated for those countries that have more mature occupational systems.

Are the Pension Gap Differences Due to Lower Education for Older Women?

The diversity in pension gaps observed in chapter 3 may be due to differences in the average experience for men and women.

Pensions are linked to lifetime contributions, which are themselves a function of career earnings. In sample surveys, the variable most closely associated with long-term earning potential[1] is education. Thus, by seeing the effect of education we are getting close to the idea that differences in pensions may reflect differences in the earning potential of men and women.

Men, for example, may systematically have higher pensions if they have more educational qualifications, that is, more "human capital." Figure 4.1 shows that gender differences in education among this older group of Europeans are considerable, with men having progressed further along the educational system everywhere in Europe. A well-known observation, corroborated in figure 5.2 in Bettio et al. (2013), which charts years of education, is that differences are much wider for individuals above 80. Older women are everywhere more likely to have had no more than primary education than men. What is also striking is the wide gulf in educational attainments separating the south of Europe and the rest—a difference which has (thankfully) shrunk decisively among working age cohorts.

Examining education and human capital entails proceeding in the direction of examining possible *determinants* of Gender Gaps in Pensions. Alternatively, it may be seen as an investigation of the extent to which the observed headline Gender Gaps in Pensions is due to composition effects. Given that education differences are the most important determinant of human capital endowments (and hence of income differences), disaggregation of the pension gap by education would be a natural starting point.

Figure 4.2 shows—for all the selected countries and for the EU-27 average—the separate Gender Gap in Pensions according to educational attainment (table A2.1 in the appendix of this chapter shows the corresponding information for all the European countries). The latter is distinguished into primary (or less), secondary, and tertiary. For purposes of comparison, the average (headline) gap is noted in each country. Given that the pension gap for each educational level is calculated relative to men of that *same* educational level (rather than the average for all educational levels), it is perfectly possible for all three gender gaps by education to be below (or above) the *overall* average.[2] For the EU-27, those with primary education exhibit lower gender gaps. In terms of Member States, this applies to Germany, United Kingdom, the Netherlands,

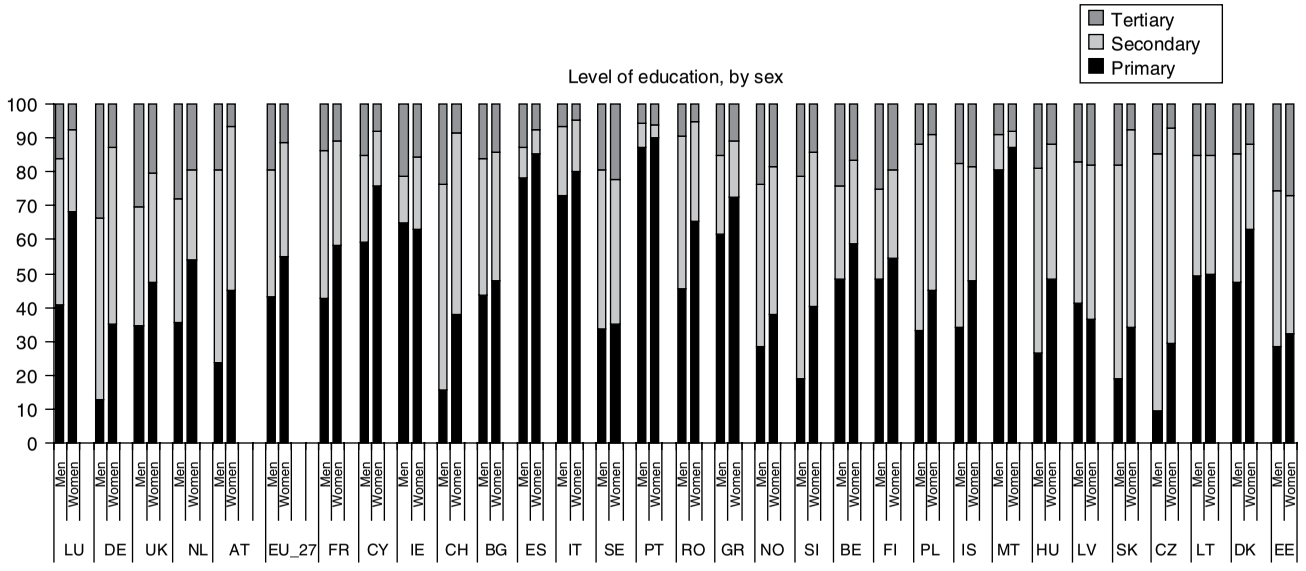

Figure 4.1 Distribution of persons 65+ by level of education and sex.

Source: EU-SILC 2011, own estimation. Estimate for IE is based on 2010 data.

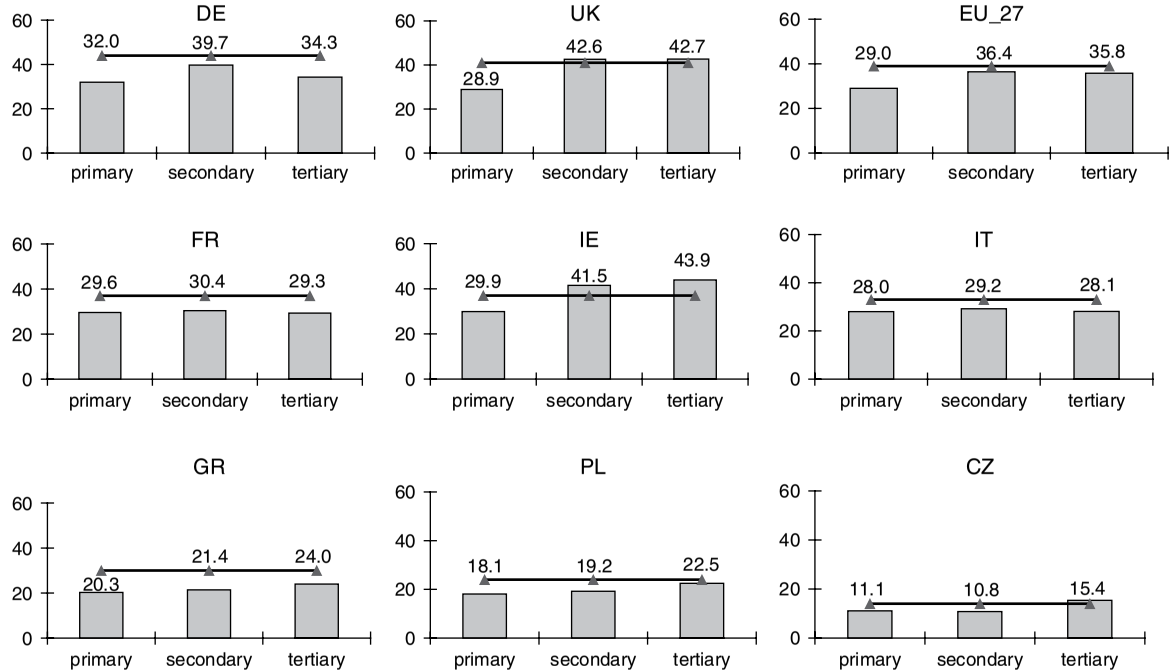

Figure 4.2 Gender Gap in Pensions (%) for selected European countries by educational level, pensioners 65+.

Source: EU-SILC 2011, own estimation.

Cyprus, Ireland, Switzerland, Sweden, Finland, Latvia, and Slovakia. However, there are cases where people with tertiary education exhibit lower gaps than those with primary education, such as in Austria, Spain, Portugal, and Malta. *Higher* education carries a wider gap in the Netherlands, Sweden, Greece, Finland, Poland, Iceland, Hungary, Czech Republic, Lithuania, and Denmark. This could be possibly due to the effects of the second pillar, magnifying underlying earnings differences, or due to greater concentration of women graduates in particular occupations—most notably the public sector which could be acting as a gender leveler.[3]

What is the combined effect of education and cohort? An interesting question is to what extent educationally based differences are shrinking among (the better educated) younger cohorts. The EU-27 average seems to be hinting at such an effect (the difference between gender gaps between primary and secondary education is 14.1 pp for the older group and is reduced at 3.4 pp for the younger group). However, the variation around this average is considerable and sample sizes (especially for university educated women) rather small. The above exercise looked at differences *within* educational classes. We know that the future generation of pensioners will be more evenly balanced in terms of educational achievement. If, at the European level, we will continue to witness a gap profile rising with the average level of education—as the profile currently evident in the EU-27—we may paradoxically expect that growing educational attainment among women will translate to a tendency for the overall gap to *increase*.

How Is the Pension Gap Related to the *Level* of Pensions? Distributional Patterns

So far we have been talking of pension gaps by comparing the average woman pensioner with the average man pensioner. We began to depart from this rule when we considered Gender Gaps in Pensions separately by education category. It is thus important to ask now how pensions are distributed around that pension average.

This exercise is distinct from the previous one, in that, whereas education is linked to potential earnings and long-term factors (*prior* to the filtering by the pension system), looking at the distribution according to pensions is equivalent to looking at final pension outcomes (*after* pension filtering). Education affects pensions chiefly through earnings capacity, with a long time lag.

So, we should not be surprised if the pattern of effects differs between a distribution by education and one by pension level.

One way of doing that is to ask whether we find more or fewer women among individuals who have a lower pension. We thus take the distribution of *men's* pensions for each country and we classify pensioners into three groups: those of low pensions (bottom 33%), middle pensions (between 33% and 66%), and high pensions (top 33%). The distribution of income thus defined *according to men's pensions* is then matched to the women's distribution.

We therefore ask what share of women receives a pension less than the *men's* cutoff point—that is, the amount that the richest man of the bottom 33 percent receives. If the distribution of women is no different from that of men, the answer would be the same as for men, that is, 33 percent; if women are more concentrated among low pensions, their share would be more than 33 percent; if women are pension-richer, it would be less than 33 percent. The result appears as table 4.1 (see Bettio et al. [2013], Figure 6.1 for detail). Thus, for the EU-27 average, 63 percent of women are "squeezed" into a pension range that holds the poorest 33 percent of men (which could be expressed as saying that there are 1.9 times as many pension-poor women as pension-poor men; or for every pension-poor man there are 1.9 poor women).

Among high-income pensioners, women are correspondingly underrepresented—only 12 percent of women reach the pension enjoyed by the richest third of men (for every three pension-rich men there is about one pension-rich woman). This effect—of overrepresentation of women at the bottom and underrepresentation at the top—can be expressed more intuitively by means of odds ratios. Dividing the proportion of men at the bottom (33%) by the proportion of women who are "squeezed" in the same income range can be expressed quite simply as "how many poor women are there for every poor man?," equivalently "how many rich women for every rich man" and "how many middle income women for every middle income man?." Thus, figures over one imply overrepresentation, and less than one, the opposite.

Table 4.1 shows that women are overwhelmingly overrepresented (by a factor close to two) in low pensions and equivalently underrepresented in high incomes. Only in Estonia does the distribution of women follow almost exactly that of men, followed possibly by the Slovak Republic. In Denmark, women

Table 4.1 Distribution of pension income. Three linked odds ratios for pensioners 65+

Country	Number of poor women for every poor man	Number of women in the middle part (33–66%) for every man in the middle part	Number of rich women for every rich man
LU	2.2	0.5	0.3
DE	2.2	0.6	0.2
UK	1.8	0.8	0.4
NL	1.8	1.0	0.2
AT	2.3	0.4	0.3
EU-27	1.9	0.8	0.4
FR	1.9	0.7	0.4
CY	1.9	0.7	0.4
IE	1.7	0.9	0.4
CH	1.7	1.1	0.3
BG	2.2	0.7	0.2
ES	2.2	0.5	0.3
IT	1.9	0.7	0.4
SE	1.9	0.7	0.3
PT	1.7	0.9	0.5
RO	1.8	0.7	0.4
GR	1.5	1.0	0.5
NO	2.0	0.7	0.2
SI	1.6	0.8	0.6
BE	2.0	0.6	0.4
FI	1.3	1.3	0.4
PL	1.8	0.9	0.3
IS	1.0	1.3	0.7
MT	1.6	1.0	0.4
HU	1.4	1.1	0.5
LV	1.5	1.0	0.5
SK	1.5	0.7	0.8
CZ	1.9	0.7	0.4
LT	1.5	1.0	0.5
DK	0.9	1.5	0.6
EE	0.9	1.1	1.0

Source: EU-SILC 2011, own estimation. Estimate for IE is based on 2010 data.

do slightly better than men for low pensions (0.9), but worse for high pensions. At the other extreme—high incidence of lower pensions among women—are Austria, Bulgaria, Germany, Spain, and Luxembourg (all well above two for the bottom third); the same group of countries do badly at the top end—where less than 10 percent of women are able to attain the pension that the top 33 percent of men can attain. A third group of countries, while

overrepresenting women at the low end, come close to parity, that is, 30 percent at the middle.

The above exercise examines whether women are less or more likely to have low (or high) pensions than men. To judge how the pension distributions by gender differ we may also try separately comparing the gender gap for different parts of the pension distribution. If we divide men and women into thirds, we can see how far men's low pensions are greater than women's low pensions—that is, a separate "Tertile Gender Gap in Pensions" The result appears as figure 4.3, where each of the three tertile gaps is shown together with the headline gender gap for each of the 27 Member States and the EU average.

Here, in order to save space, we have reported only eight countries, chosen according to two criteria: (1) the largest in size, Germany, United Kingdom, France, and Italy, and (2) one country for each pension regime typology (defined in Soede and Vrooman, 2008), namely Ireland for *liberal*, Czech Republic for *moderate pension*, Poland for *mandatory private*, and Greece for *corporatist*. These countries constitute a good balance in both gap and coverage.

For the average of EU-27, there is a wider gap for the bottom third, whereas the other two-thirds are close to the average. As shown in table 4.2, this is a pattern followed in many other countries, notably Germany, France, Austria, and Belgium. In contrast, there are some countries where the gender gap for the poorer people is considerably *lower* than the average: Greece, Ireland, Portugal, and Denmark are notable examples. Finally, in the Netherlands, Spain, Italy, Slovenia, and Czech Republic, Gender Gaps in Pensions appear not to differ by income level. An interesting question arises when these results are compared with those in education.

Given the close link between education and income, one would have expected the results of the current exercise to mirror the ones on education. However, this is not the case. Pension systems alter the underlying earnings/income situation most notably by the operation of minima (e.g., the age pension) or maxima (maximum social insurance pension). These results are somewhat at odds with the results for education, giving in some cases a different shape of response. However, this should not surprise us. The pension system does not affect cases uniformly: aspects such as contribution requirements are sufficient to radically transform a relationship based on education (and hence on long-term factors).

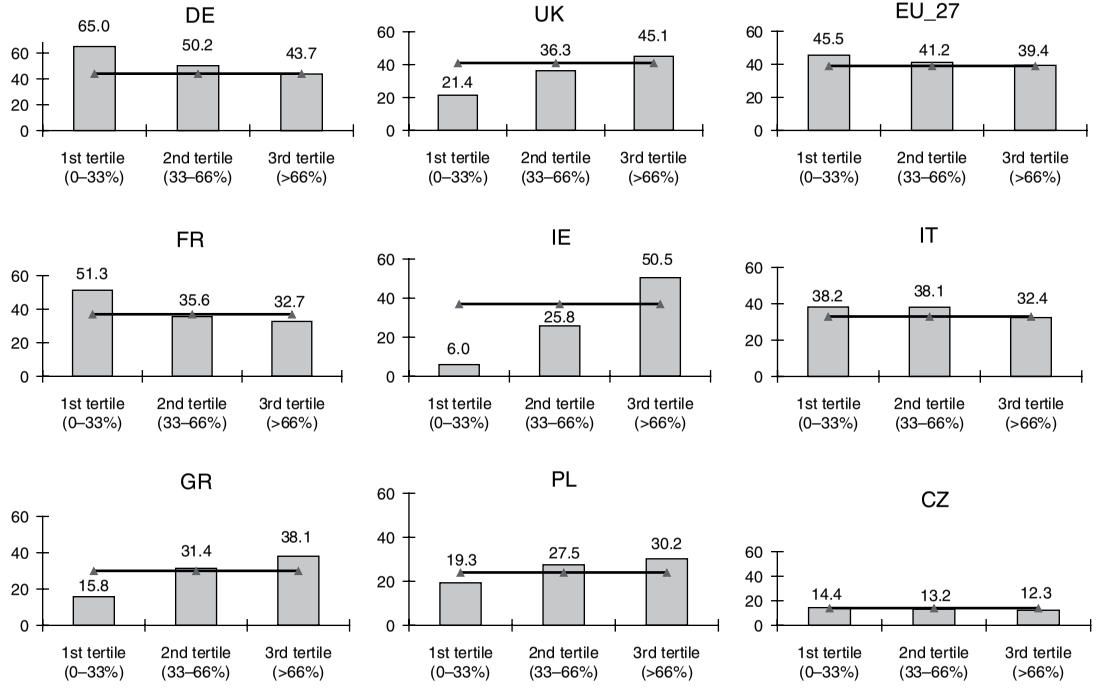

Figure 4.3 Gender Gap in Pensions (%) by pension income tertile, pensioners 65+.

Note: Horizontal lines in red portray the total (overall) country average Gender Gap in Pensions.

Source: EU-SILC 2011, own estimation. Estimate for IE is based on 2010 data.

Table 4.2 Gender Gap in Pensions (%) by pension income tertile, pensioners 65+

Country	Overall GGP (%) 65+	GGP (%) by pension income tertile		
		First tertile: bottom 33%	Second tertile: middle 33%–66%	Third tertile: upper 33%
LU	*46.4*	86.5	55.1	34.0
DE	*44.0*	65.0	50.2	43.7
UK	*41.1*	21.4	36.3	45.1
NL	*40.6*	44.7	46.2	48.1
AT	*40.2*	52.8	45.6	35.0
EU-27	*38.6*	45.5	41.2	39.4
FR	*36.6*	51.3	35.6	32.7
CY	*36.5*	26.8	32.4	47.1
IE	*36.5*	6.0	25.8	50.5
CH	*34.0*	3.5	37.9	40.8
BG	*34.0*	15.8	34.0	39.5
ES	*33.3*	28.5	35.2	36.4
IT	*33.0*	38.2	38.1	32.4
SE	*32.0*	41.0	34.0	36.4
PT	*31.3*	24.6	33.5	30.8
RO	*30.7*	26.8	27.0	28.2
GR	*29.7*	15.8	31.4	38.1
NO	*29.1*	54.4	43.1	35.1
SI	*28.4*	15.3	23.0	21.9
BE	*27.5*	38.4	22.5	24.1
FI	*26.7*	10.3	24.7	31.8
PL	*24.2*	19.3	27.5	30.2
IS	*23.0*	30.8	25.1	29.3
MT	*18.4*	14.4	20.3	17.4
HU	*15.8*	13.6	13.4	20.4
LV	*15.2*	2.1	9.1	22.8
SK	*14.9*	14.4	7.8	21.2
CZ	*13.7*	14.4	13.2	12.3
LT	*12.5*	3.4	12.7	16.5
DK	*11.2*	–3.6	6.7	28.3
EE	*3.0*	–8.6	1.0	5.3

Source: EU-SILC 2011, own estimation. Estimate for IE is based on 2010 data.

DOES TAX MAKE A BIG DIFFERENCE TO THE PENSION GAP?

The data from EU-SILC are reported on a gross of tax basis, that is, before the deduction of income tax and social contributions.[4] An interesting question is whether the deduction of tax alters the Gender Gap in Pensions. In progressive income tax systems, higher pensions would (presumably) be subject to higher marginal tax. However,

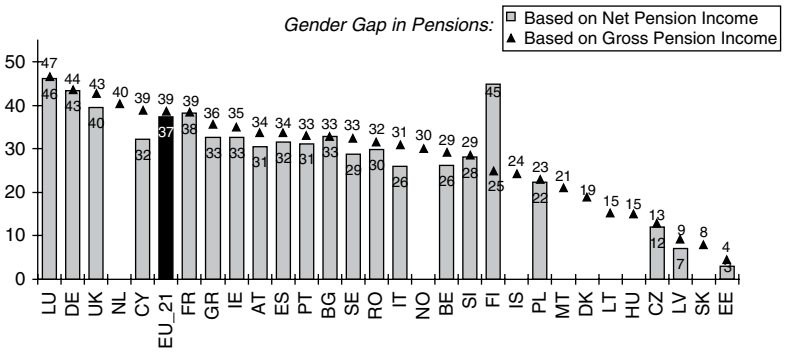

Figure 4.4 Gender Gap in Pensions based on gross and net pension income, pensioners 65+.

Source: Bettio et al. (2013).

given that most unearned income accrues to couples and is more easily manipulated to minimize the tax obligation, the extent to which marginal tax rates would rise as a result of taking into account other income is likely to be dampened; if tax engineering leads to income from property being taxed at the rate of the poorest partner, it may even correct for gender imbalances. Thus, we would be surprised if the decision whether to use pensions net or gross of tax would make much difference to our calculations. This supposition is largely confirmed by figure 4.4. The average for those Member States where both net and gross pension gaps can be computed is 39 percent for gross income and 37 percent for net income. In most countries, the two figures, as expected, almost coincide. Considerable differences exist only in Cyprus (net –7 pp), Italy (net –5 pp), and Finland (net +20 pp). It is a moot point whether those large differences reflect features of the tax system or are due to problems of the methods used by national statistical authorities to transform net into gross magnitudes. The existence of six EU countries that have produced no data could signal that the process of producing net of tax data is still being developed and is imperfect.

Do Pension Gaps Reflect Broken Careers for Women? What of Labor Force Involvement?

An important hypothesis explaining Gender Gaps in Pensions is that they are, to a large extent, a reflection of women's low and

intermittent involvement with paid labor in the past. In particular, especially in past decades, a large number of women dropped out of the labor force in order to fulfill their family responsibilities. This may have reflected personal choice, but may also have been imposed on them by insufficient child-care facilities, inadequacies in maternity leave, etc.

In order to gauge the effect of "broken careers" using EU-SILC data, it is important to note that what a "broken career" means will be different from one country to the other—that is, it has to be defined according to what is considered "normal" in each country. To define what a broken career means, and to classify women into four categories according to labor force attachment, we have taken a mixed approach. Women with a number of years of employment greater than the median years *for women with at least some employment*[5] in their country were judged *not* to have a broken career problem. To classify the remainder, we note that in those

Table 4.3 Classification of women 65+ according to broken careers status

Country	0–10 years	11–14 years	15-median years	>median years
LU	43.4		7.2	49.4
DE	18.8	6.1	25.4	49.8
UK	14.3	11.1	26.1	48.5
NL		50.3		49.7
CY	43.0	3.5	3.9	49.5
FR	28.6	4.7	17.6	49.1
GR	26.0	1.3	23.1	49.6
IE	46.1		4.3	49.6
AT	20.7	3.6	25.8	49.9
ES	40.4	4.6	5.5	49.5
PT	12.4	2.3	36.8	48.5
BG	1.3	0.5	50.4	47.9
RO	15.4	1.1	35.8	47.7
IT	29.5	2.8	19.4	48.4
BE	39.5	3.4	7.9	49.1
SI	23.9	0.6	29.2	46.3
PL	11.3	1.7	38.3	48.8
MT		52.0		48.0
HU	9.6	1.9	42.4	46.1
CZ	1.8	0.1	49.0	49.2
LV	1.1	0.2	53.3	45.5
SK	4.7	0.5	50.3	44.5
EE	0.8	0.3	57.6	41.4

Source: EU-SILC 2011, own estimation. Estimate for IE is based on 2010 data.

countries that base their system on social insurance principles, the cutoff for being entitled to a pension ("vesting") is usually 15 years. Thus, it makes sense to define three groups: (1) women with years of employment between 0 and 15 (distinguished into two subgroups in table 4.4);[6] (2) those between 15 and the median; and (3) greater than the median. Many (perhaps most) women who have fewer than 15 years' work would have worked after leaving school and at the early stages of building a family; thus, at the age of 65 their involvement in employment may only be a distant memory. Given that many pension systems have vesting requirements, a woman who may have worked in the 1970s for four to five years would, for social insurance purposes, be treated in the same way as someone who has never worked.[7] Both would only receive an age pension, or a means-tested "citizens" pension at 65. This is the reason for aggregating the "never worked" group with those with few years of contributions. Table 4.3 shows the classification of women into the three groups. It further breaks the low category into those with 0–10 and those between 11 and 14 years in employment.

Given that we are dealing with cohorts of older women (born before 1945), broken careers appear to be a major issue: in nine countries, more than one out of four women had been in

Table 4.4 Average years in employment by sex, women and men 65+ in SHARE

Country	Years in employment (entire sample, including zero employment)			Years in employment (for those with *some* employment)		
	Men	*Women*	Gap (*M–W*)	*Men*	*Women*	Gap (*M–W*)
DE	39.6	24.4	***15.2***	39.8	26.7	***13.1***
NL	39.8	16.4	***23.4***	40.5	19.4	***21.1***
FR	35.1	21.1	***14.0***	37.2	25.6	***11.6***
GR	38.6	14.6	***24.0***	41.5	31.7	***9.7***
AT	39.7	19.4	***20.3***	40.6	23.9	***16.7***
ES	43.4	12.8	***30.5***	44.7	22.6	***22.2***
SE	43.1	31.9	***11.2***	43.6	33.5	***10.1***
IT	38.6	14.6	***24.0***	39.6	24.5	***15.0***
BE	39.2	17.3	***22.0***	39.7	22.1	***17.6***
PL	35.9	24.9	***11.0***	37.9	30.7	***7.2***
DK	40.9	29.7	***11.2***	41.2	30.9	***10.3***
CZ	40.1	35.3	***4.9***	40.3	35.6	***4.7***
CH	42.4	21.8	***20.5***	42.5	23.4	***19.1***

Source: SHARE, wave 2 (2006/7) and SHARELIFE (2008/9), own estimation.

employment for *less* than 14 years: Luxembourg, Cyprus, France, Greece, Ireland, Spain, Italy, Belgium, and Slovenia. On the contrary, in most eastern European countries (with the possible exception of Poland and Romania), broken careers (in the sense of a large number of women with fewer than 15 years' work) appear to be less of an issue.

The next step is to apply this categorization in order to compute gender gaps for each gradation of broken career. To do this, and in order to get around the problem that broken careers are an exclusively female issue, the average pension for women in each broken career category is compared to the overall mean pension for all males. (In this way, all three computed Gender Gaps in Pensions have the same denominator.)

We have reported such Gender Gaps in Pensions by broken careers in figure 4.5 for the same eight countries as in figure 4.3, and for the whole EU-27.

In almost all countries, women with working life of less than 14 years exhibit a significantly larger Gender Gap in Pension income. In Germany, for instance, women who had been in employment for less than 14 years appear to have twice as high a Gender Gap in Pension income (64.1%) compared to women with the "median" working life (31.3%). The trend is to be seen also in United Kingdom, France, Ireland, Italy, and Czech Republic. The "dominant pattern" holds with broken careers being associated with greater pension gaps; as years of employment increase past the median, pension gaps shrink. However, in Poland there appears no significant variation across different working life categories. Greece is the main exception where, remarkably, gender gaps are *higher* for women with the "median" working life. This extraordinary result may well be an artifact of the fragmentation of the system into occupational categories, each with very different generosity.[8]

As new cohorts enter retirement, broken careers may be more of an issue (for women who in previous cohorts would have remained out of employment altogether) or less of one (for those women who took advantage of better possibilities to reconcile family and work). For this reason, we reproduced figure 4.5 by cohort; in order to abstract from the equalizing effects of survivor's pensions we excluded widows. The result appears as figure 4.6.

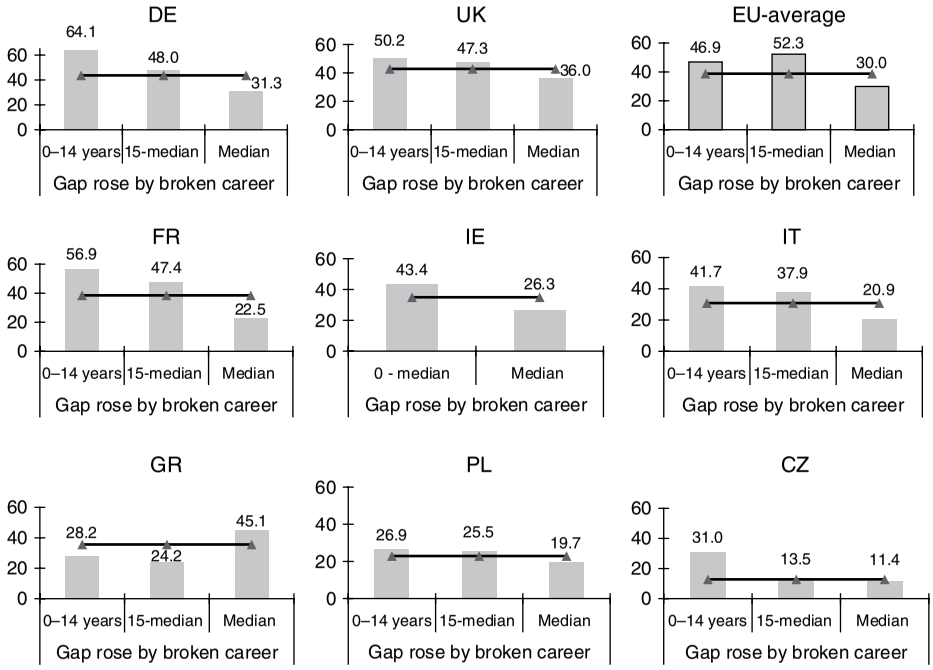

Figure 4.5 Gender Gaps in Pensions (%) by broken career status, pensioners 65+.

Note: Estimate for IE is based on 2010 data; horizontal lines in red portray the total (overall) country average Gender Gap in Pensions (%).

Source: EU-SILC 2011.

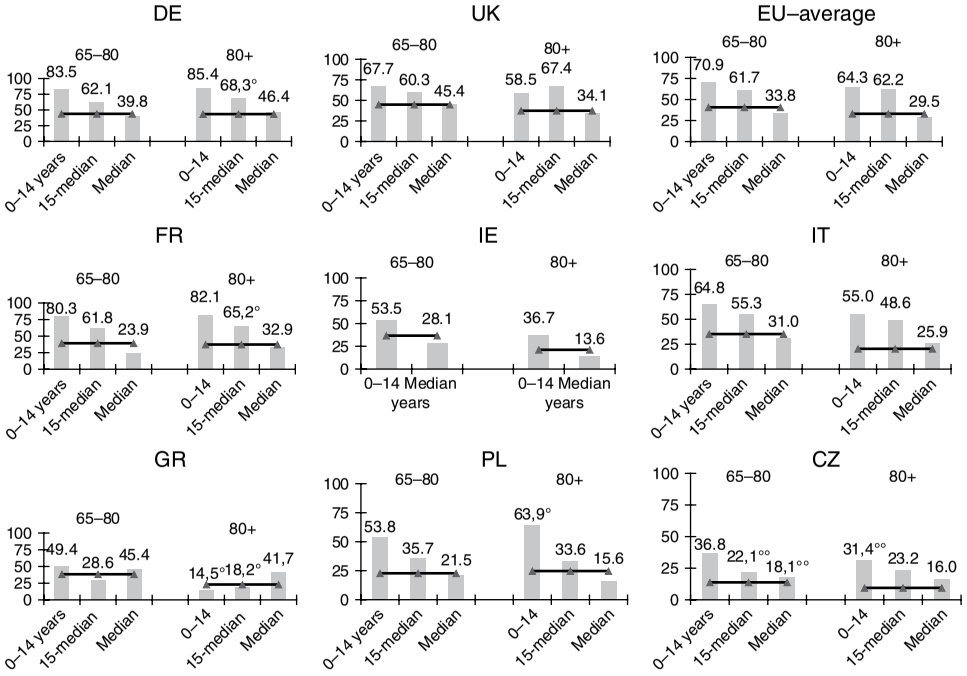

Figure 4.6 The Gender Gap in Pensions (%) by broken career status and age group.

Notes: Pensioners 65–80 excluding widows; and 80+ excluding widows; horizontal lines in red, portray the total (overall) country average Gender Gap in Pensions (%); *Note:* ° indicates that the number between 11 and 30; °° indicates sample size <10 observations.

Source: EU-SILC 2011, own estimation. Estimate for IE is based on 2010 data.

The picture emerging is complex and is difficult to generalize.[9] The finding of the previous exercise that broken careers lead to wider gaps is reproduced for both cohorts. Though the difference is not striking, "working careers" may be seen to matter more in reducing Gender Gaps for the younger cohort. Although not all countries are reported in figure 4.6, this is more noticeable in United Kingdom, Cyprus, Spain, and Belgium, where the Gender Gap in Pensions for women aged 65–80 years is decreasing gradually as we move from working careers of fewer than 14 years to "median" working life careers, while this is not the case in these countries for women aged over 80 years. In France and Germany, the shape of the response is maintained, with a lower gender gap penalty for full careers. Greece, once again, is an outlier. The huge gap (over 85%) for short careers in Luxembourg confirms it as an outlier—most probably due to the classification as a pension of a low universal benefit given to women in recognition for child-rearing ("mama pension").[10]

Given the centrality of the issue of broken careers, it was also investigated using data from the Survey of Health, Ageing and Retirement in Europe (SHARE). In that survey, rather than simply asking a single question about the number of years worked, the working career was followed in detail and each working episode was separately identified. The estimate of years worked is thus likely to be more closely related to the concept used for pension calculations. Table 4.4 shows the years of employment by sex for the 13 countries that participated in SHARELIFE (wave 3 of SHARE). We can see that in all countries women (even if constrained to have entered the labor market, i.e., to have worked sometime in their lives) have shorter careers by a very large margin.[11]

Men tend to have worked for almost 40 years, women between 20 and 30. We may note the large number of women who have never entered the labor market in Greece, Spain, and Italy. However, even ignoring zero values, the lowest year gap is 4.7 years in the Czech Republic and the largest (22.2 years) in Spain. We see large gaps in the Netherlands, Switzerland, Austria, and Belgium (>15 years). Germany, France, Sweden, and Denmark have working differences of around 10 years.

In order to categorize SHARE respondents into groups by degree of attachment to the labor market, women were compared

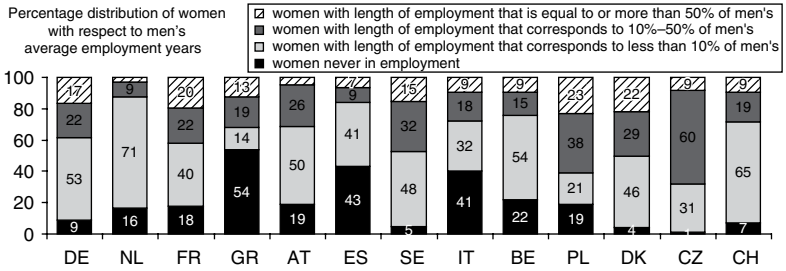

Figure 4.7 Women 65+ by length of employment vis-à-vis the average for men in SHARE.

Source: Bettio et al. (2013).

to men in their own country. Thus, the groups were broken into: no employment, less than 10 percent of *men's* average employment, 10 percent to 50 percent of *men's* average employment, and equal or greater than 50 percent. The classification appears in Figure 4.7: the proportion of women who have never been in employment or who have worked for less than 10 percent of men's average working years exceeds 50 percent in all but two countries (Poland and the Czech Republic), reaching almost 70 percent in Greece, Austria, Italy, and Belgium, and exceeding 80 percent in the Netherlands and Spain.

Figure 4.8 examines the effect on gender gaps of separately identifying the four groups of employment attachment. The penalty exacted by a broken career is all too obvious. Even in Denmark and the Czech Republic (where gaps are lower anyway), the gap for shorter careers is of the order of 15 percent. The most common situation is for the short career gap to be between 40 percent and 50 percent (e.g., Germany, France, and Italy). If survivors' pensions are excluded (not reported here) that penalty becomes even larger, reaching 68 percent in Italy and 62 percent in France. The reverse effect in the Netherlands and Austria is probably due to a small sample size; in contrast, the same effect for Greece corroborates the EU-SILC findings.

SHARE also allows asking whether the employment status makes a difference for gender gaps. It is possible to identify, for those people who have retired, the "dominant" employment status over their working life. In all cases, the widest gaps appear among self-employed (figure 4.9). The public employees in local

Figure 4.8 Gender Gap in Pensions by women's years in employment, pensioners 65+ in SHARE.

Source: Bettio et al. (2013).

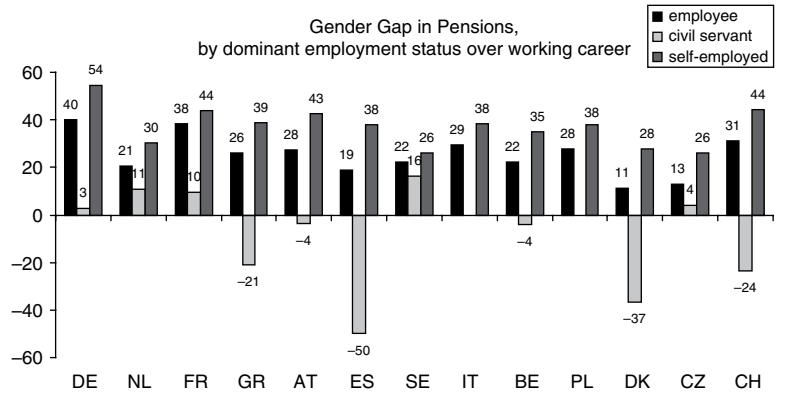

Figure 4.9 Gender Gap in Pensions (%), by dominant employment status, pensioners 65+ in SHARE.

Note: In Italy and in Poland, there is no civil-servant category in SHARELIFE questionnaire.

Source: Bettio et al. (2013).

and central administration ("civil servants"), where they could be identified, have very low or even *negative* gender gaps: given that the civil service has large numbers of low-paid men (working for local authorities) but also a fairly large number of high-paid women (e.g., doctors and magistrates) that result is explainable. Of course, the civil service can also be expected to keep discrimination by gender low.

THE EFFECT OF MULTI-PILLAR SYSTEMS

The tendency in many advanced countries is to move toward "multi-pillar pension systems." These systems supplement state provision of pensions with an additional occupationally based pension, usually financed through prefunding and calculated as a return on accumulated contributions. Typically, each individual would receive two pensions: a pension from the state first-pillar system and a second from the occupational system. Of course, people who wish to do so may add to those pensions an individually negotiated third-pillar pension from an insurance company. Such systems have been in operation since the early 1990s in Switzerland, the Netherlands, and Denmark. Versions have been introduced recently in countries like Sweden, Germany, or Poland, while progressing toward such a system is a reform option in the remaining countries. What effect multi-pillar systems would have on Gender Gaps in Pensions is of major policy significance, by taking part of income replacement out of the ambit of direct public responsibility and subjecting to the logic of accumulating contributions.

Unfortunately, EU-SILC does not allow us to examine pillars 1 and 2 separately. The third pillar (individual pension provision) is separately identified, but is, in most countries, very small.[12] We can only guess at the impact of multi-pillar systems by seeing whether some effects in those countries with mature pension systems are consistent with how the operation of a second pillar may affect the data. The weight of analysis should thus fall on SHARE data. Particular attention must be paid to those countries where the second pillar is relatively mature and would thus have spread even in the older population, which is the focus of this report: Switzerland, the Netherlands, and Denmark are the three cases where we might see what a multi-pillar system would look like once it spreads fully across the population.

Table 4.5 examines the headline pension gap for each pension pillar separately. In the last two columns, it aggregates pension from the first two pillars, and then also adds the third pillar. The three countries with mature multi-pillar systems are shaded. In those countries, the first pillar is gender balanced, in all cases showing a slight advantage for women (negative gender gap). The second pillar, taken on its own for those who have it, yields much larger gender gaps, reflecting the return of contributions. The

Table 4.5 Gender Gaps in Pension (%) by pillar, pensioners 65+ in SHARE

Country	Gender Gap in Pensions, by Pillars				
				Combined income	
	Pillar 1	Pillar 2	Pillar 3	Pillars 1+2	Pillars 1+2+3
DE	34.3	26.4	52.2	36.5	36.4
NL	−3.1	30.6	−7.8	23.1	22.7
FR	32.5	32.8	na	32.9	32.7
GR	29.9	30.1	na	30.5	30.5
AT	30.5	−49.3	21.1	29.4	29.1
ES	26.9	25.7	na	28.7	29.2
SE	14.4	29.2	29.5	15.1	17.0
IT	35.7	32.8	na	35.2	35.2
BE	20.3	−5.3	na	20.9	20.8
PL	23.2	na	na	23.2	23.4
DK	−3.5	43.8	12.2	9.2	12.8
CZ	10.6	48.7	na	10.5	11.5
CH	−4.4	34.8	26.8	23.5	23.0

Source: SHARE, wave 2 (2006/7), own estimation.

third pillar in the Netherlands appears to correct some of the gender effects of the first and second pillars. The *combined* effects of first- and second-pillar systems in the three mature systems are at the low end of country gender gaps (especially for Denmark). This shows that, at least in aggregate, the first pillar is exerting its influence to restrain gender imbalance effects. The effect of the third pillar, given its small size, is minor. A discernible effect *widening* the gender gap exists in Denmark and Sweden.

In earlier work on pensions which attempted to decompose the Gender Gap in Pensions (Bettio et al., 2013: Table 13.1) we found, that *once other factors such as education and marital status were allowed for*, the third pillar increases the Gender Gap in Pensions in two other, relatively third-pillar mature, countries: United Kingdom and Germany. This effect, using SILC data, could operate through coverage effects (more third pillar for those with higher pensions) as well as through higher returns to those with third-pillar pensions.

As mentioned earlier, multi-pillar systems were introduced in some countries in the 1990s and are spreading through their population. Thus, it is important to check how far coverage of the second pillar has progressed through the older population (table 4.6).

Table 4.6 Gender Gap in Coverage (%) by pillar, persons 65+ in SHARE

Country	Gender Gap in Coverage (%)								
	Pillar 1			Pillar 2			Pillar 3		
	Mean Pension		Gap	Mean Pension		Mean	Mean Pension		Gap
	Men	Women	W–M	Men	Women	W–M	Men	Women	W–M
DE	94.0	90.2	–3.8	30.3	13.0	–17.3	4.5	4.0	–0.5
NL	93.2	96.3	3.1	76.8	48.4	–28.4	10.1	7.2	–3.0
FR	99.4	94.2	–5.2	4.7	1.7	–3.1	4.8	3.3	–1.5
GR	82.8	72.5	–10.3	8.7	6.1	–2.6	0.2	0.2	0.0
AT	98.5	88.6	–9.9	11.0	4.9	–6.1	1.8	4.3	2.5
ES	90.1	62.7	–27.4	4.5	1.2	–3.4	1.0	1.4	0.4
SE	94.5	95.6	1.2	64.8	69.0	4.3	21.3	14.9	–6.4
IT	90.1	82.8	–7.3	6.7	3.9	–2.7	0.2	0.1	–0.1
BE	92.9	78.7	–14.2	6.7	2.5	–4.1	2.0	1.0	–1.0
PL	97.4	95.2	–2.2	0.0	0.0	0.0	1.8	1.9	0.1
DK	96.9	97.9	1.0	23.3	16.2	–7.0	21.6	13.7	–7.9
CZ	96.5	98.9	2.4	4.0	5.8	1.8	1.4	0.9	–0.5
CH	93.2	98.0	4.8	60.7	27.9	–32.8	5.7	7.3	1.6

The important point to note is that in those countries with mature multi-pillar systems, there are very important gender gaps in coverage for the second pillar. This is most evident in the oldest of the mature systems (Switzerland) but also in the Netherlands, where gender gaps are of the order of a third. In contrast, Denmark, though overall the spread of the second pillar is more limited, has managed to ensure that the spread is more gender balanced (coverage gap 7%). As second pillars spread to newer generations of pensioners, the combined effect of second-pillar coverage gaps and pension gap can be expected to affect overall gender gaps to an increasingly greater extent.

THE EFFECT OF MARITAL AND FAMILY STATUS

Women's pension and labor force involvement are closely related to the family status of women. Table 4.7 examines the effect on pension gaps of women's *current* marital status—that is, single, married (living in a couple), divorced, and widow. Average pensions for each category of women are compared to the overall mean for men to avoid the problem of low sample sizes.

Table 4.7 Gender Gap in Pensions (%) by marital status, pensioners 65+

Country	GGP (%)			
	Single	Married	Divorced	Widowed
LU	33.5	66.7	43.5	19.4
DE	31.4	62.0	37.7	25.3
UK	21.1	51.1	32.7	17.3
NL	58.4	58.1	47.3	2.0
AT	32.4	52.6	42.9	28.1
EU_27	29.1	49.6	30.0	30.0
FR	32.8	44.3	26.4	21.2
CY	43.7	43.6	51.2	32.8
IE	28.2	48.4	46.0	39.3
CH	22.3	51.2	23.6	21.2
BG	47.3	38.1	34.0	29.1
ES	24.8	40.6	29.0	33.5
IT	33.6	43.2	24.9	29.4
SE	56.6	39.8	31.5	15.5
PT	24.5	31.8	0.9	27.9
RO	-8.3	25.8	12.5	32.3
GR	27.0	33.8	10.2	37.2
NO	46.0	44.7	20.5	15.2
SI	26.8	21.2	5.2	21.9
BE	11.4	35.1	26.0	20.4
FI	28.4	30.4	26.0	16.8
PL	31.9	31.6	22.3	22.3
IS	66.5	26.2	22.2	–13.8
MT	16.2	34.5	17.6	8.1
HU	14.1	20.9	16.7	13.6
LV	24.8	12.8	13.1	16.0
SK	28.6	26.6	26.0	2.8
CZ	31.4	18.0	20.1	4.8
LT	28.8	14.5	12.8	0.2
DK	3.8	22.2	–1.6	–0.3
EE	11.0	1.6	–0.2	–4.0

Source: EU-SILC 2011, own estimation. Estimate for IE is based on 2010 data.

Single (never-married) women in general face lower gender gaps, as do widows and divorced. Having said that, it is significant that even in this category where broken careers would have lower importance, gender gaps in pensions remain sizable (the EU average being around 29%). In all cases, married women have the widest gaps (EU average 50%). In many cases, this gap even exceeds 60 percent: in Luxembourg it is 67 percent, Germany 62 percent, and the Netherlands 58 percent.

As mentioned, divorced women as a category show a pattern similar to widowed and single women: for the EU-27 average their Gender Gap in Pensions at 30 percent. However, given that, unlike married women, divorced women will have smaller access to their ex-spouse's resources, a given gap will surely translate into a greater welfare problem. The treatment of divorce appears to be very system-specific: Eastern European countries do particularly well for divorced women, there being small differences by family status anyway. Also, Portugal, Spain, and Italy appear to do well for divorced (though the sample for these Catholic countries is very small).

The problem of small sample sizes precludes examining changes over time to how pension systems treat women of different marital status. *Current* marital status is not necessarily a good indicator of the kinds of constraints women have faced over their working lives. The most significant such factor is child-rearing—the number of children that women have raised. Given that this information does not exist in EU-SILC, this question was approached using data from SHARE.[13] The sample of women was divided into those who had no child, those who had one to two children, and those who had three or more.

Figure 4.10 reports the Gender Gap in Pensions of the three groups of women relative to average pensions for *all* men using SHARE data, which allow us to know how many children women have had through their lives.[14] Having children leads to pension disadvantages everywhere, except in Poland and possibly Austria. In most cases, the "motherhood penalty" increases linearly with the

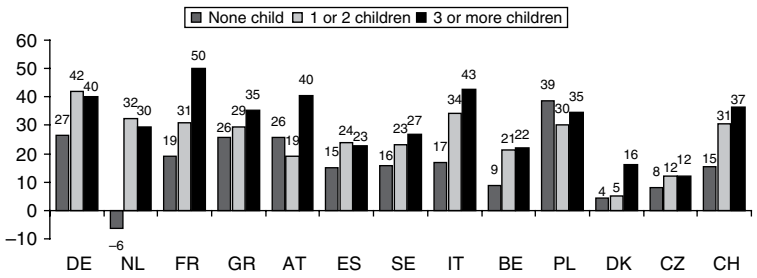

Figure 4.10 Gender Gap in Pensions by number of children, pensioners 65+ in SHARE.

Source: Bettio et al. (2013).

number of children; in France, Austria, Denmark, and Switzerland, there appears to be more than proportionate burden for three children or more children. According to figure 4.10, the most "child-friendly" countries are Denmark and Spain.

Some Tentative Conclusions: A Developing Dilemma

This chapter has examined how gender gaps vary according to sample characteristics that can be thought to influence them. As these change over time, we would expect the gender pension gap to some extent to change with them. One such powerful effect is education, where in each subsequent cohort of women leaving the labor market the educational achievement gap separating men and women is shrinking. This, in some countries at least, could prove a mixed blessing as pensions of those with higher education may be wider than for those lower down the scale. This phenomenon though is by no means universal, as in some countries the effect is in the opposite direction, possibly reflecting the influence of particular sectors, such as the public, which may act as "pension levelers." Going down the list of long-term factors, the tendency of women to retire earlier than men, and well before 65, could be storing gender inequality in future pensions. The other key influences are: how the pension system treats broken careers, and the possible effect of a "motherhood penalty." Those are instances that lead to women's labor market contacts and women's lifetime earnings to differ from men's. The tendency for increasingly larger part of pension remuneration to reflect contribution histories more closely will have the effect of translating these features of women's experience into permanent pension disadvantage.

In this way, a feature of pension systems, which is independently important in maintaining incentives—close linking with contributions—will interact with women's broken careers and child-rearing responsibilities to produce increasingly wide pension gender gaps. As reforms spread through the advanced world, this dilemma is likely to become increasingly common.

5

Benchmarking the Analysis: Europe, Israel, and the United States

Introduction

The treatment of pension gender gaps in the previous chapters has utilized the existence of comparable survey data to characterize pension gender gaps and their key features, using the European countries that participate in the EU SILC survey as a type of gender policy laboratory. It remains to see the extent to which the results derived are corroborated both by other kinds of data and in other advanced countries.

This benchmarking exercise therefore proceeds in four directions. First, it looks at data produced by the administrative machinery responsible for providing pensions; this kind of administrative data is usually the type most often used to characterize gender pension differences. Second, we survey other published work covering some of the same countries, mostly using administrative data. Third, we look outside the EU. We look in some detail at two countries where data comparable to those used allow direct computation and hence comparisons of the same indicators. Finally, we benchmark our results with other published work for the United States and for other parts of the world.

The questions posed in all cases is the extent to which the range of experience covered in the European analysis finds echoes in the rest of the world, and whether, in this way, an analysis with a European focus can be of wider interest.

ADMINISTRATIVE DATA AND SURVEY OF OTHER EU WORK

Most work on gender imbalances in pensions in Europe has used administrative data derived as part of the process of paying out pensions, typically by the pension providers. How far does this type of data allow gender comparisons, and what is its relationship with survey data of the type used? The study by Bettio et al. (2013) asked pension experts from nine countries to use administrative data in order to compute Gender Gaps in Pensions with equivalent definitions to those used on EU-SILC.

Administrative data allow a complementary kind of understanding by examining specific countries in some depth. The national experts were asked to answer a questionnaire relating to features of the data in their country, as well as on institutional details that may shed explanatory light to findings that might otherwise appear opaque. The countries were Austria, Denmark, Estonia, France, Italy, the Netherlands, Poland, Sweden, and United Kingdom. A number of issues, indicative of the type of issue encountered, hindered comparisons in some countries:

- In Austria, administrative data do not include civil servants.
- A number of social-insurance-based systems rely on separate institutes to collect information from pension providers every four years or so; one of their chief duties is to match pensions to individuals, using some kind of unique social security number (France, Sweden). In administrative data, the production of reliable person-level data is not something that will appear automatically.
- In the Netherlands, it is still not possible to match first- and second-pillar incomes in order to arrive at a single pension average. In Denmark, it is possible to match second and third pillars with each other but not with the first pillar. Similar problems were caused by United Kingdom by the existence of large numbers of providers.
- Even in those cases where data existed and cross-tabulation could be produced, the dissemination of the data and production of indicators such as gender gaps are very limited.
- A number of systems exhibit a pervasive "layering" of reforms of different generations, so that different people may be subject to different rules. This appears to be especially an issue in United Kingdom, but was also mentioned in Estonia, Austria, and Italy.

Table 5.1 Cross-checking administrative data

Country	Gender Gap in Pensions (%), persons aged 65+		Prevalence gap (in pp), persons aged 65+	
	Administrative Data	EU-SILC 2010	Administrative Data	EU-SILC 2010
Italy	29.7	30.9	–9.8	–8.1
Estonia	3.4	4.4	–3.3	0.0
Denmark	20.7	18.8	0.5	–0.1
Sweden	36.1	32.5	0.5	0.0
Austria	31.9	33.8	–	–12.3
France	36.0	38.5	–	–2.7
Netherlands	50.9*	40.4	–	0.0
United Kingdom	25.0**	42.8	–	–0.1
Poland	30.5***	22.9	–	–0.7

Notes: * In Netherlands, the reported Gender Gap in Pensions refers to pillars 2 and 3; ** In the United Kingdom, the reported Gender Gap in Pensions refers to pillar 1 and the data are not disaggregated by age; *** Cover only ZUS system (excludes farmers).

Source: Bettio et al. (2013).

Table 5.1 compares administrative and EU-SILC data for the same year (based on Bettio et al., 2013) using equivalent definitions. Where the two sources can be matched (Estonia, Italy), the correspondence appeared to be very close; the same held for France and Austria where correspondence was only possible for the headline gap. However, in the other two multi-pillar systems (United Kingdom, Netherlands), matching of data was very imperfect.

In most cases, however, the only information readily available is aggregates published by the pension providers themselves. It is important to note that, in these situations, the extent of information published by gender is very sparse; in at least one case no information by gender is published at all. In many countries, therefore, administrative data will thus also have to adjust in order to overcome gender blindness.

This inability to address gender issues is not a rule for administrative data. In some cases, researchers are allowed access to administrative records of individuals containing details on contribution histories, employment changes, etc., suitably manipulated to preserve confidentiality.[1] This allows the analysis to probe deeper.

One notable such case is Germany. We saw in chapters 3 and 4 that it was consistently among the countries that exhibited very wide gender gaps. In contrast to other countries, this appears to

have been noted as an important policy concern. The outcome was an initiative of the German Federal Ministry for Labour and Social Affairs to investigate gender imbalances using German administrative data, published as Flory (2011). That study was commissioned by the Federal Ministry and uses administrative data for 2007 based on the ASEAN Supporting Industry Database (ASID) database (Studies on Old-age Pension Schemes in Germany) of all pension funds. Its results are codified in table 5.2.

The estimated *Gender Gap in Pensions* indicator, as is the case with our "headline indicator," is confined to individuals aged over 65, which is the legal retirement age in Germany; people not covered by the pension system were by definition excluded. The ASID database aggregates all pension rights into total individual-based entitlements, that is, the total of all pensions of all pillars and all providers. An interesting point, which differentiates it from EU-SILC, is the ability to net out survivors' pensions.

The key findings of the Federal Ministry study can be summarized as follows: (1) The gender gap in pensions is very large—fully 60 percent; (2) the gender gap is lower in eastern Germany (37%) than in the western part (64%); (3) higher education implies a lower pension gap; and (4) the presence of children widens the gap more in the western part than in eastern Germany. The results by marital status are especially interesting: Germany has a system whereby on divorce the couple's total pension entitlements are aggregated and then split equally. This has the effect of increasing women's entitlements at the same time as reducing men's, which explains the lower gaps for divorced people—a little larger than for singles but far smaller than either married or widowed people.

As regards evidence for other European countries, table 5.2 codifies studies using administrative and other data for Europe in order to benchmark our own data using EU-SILC with equivalent work done elsewhere, throwing light on similarities as well as differences. Vara (2013), based on 2010 administrative data for *Spain,* estimates that the gender gap in contributory public pension income in Spain reaches 39 percent. Bardasi and Jenkins (2010) focus on gender differences in *private* pension income, independently of public pensions, in *United Kingdom* (defined as income from occupational and personal pensions and annuities).

Table 5.2 Gender gap in pensions (%) and gender gap (women–men) in coverage rate: Evidence from other studies in Europe

Study	Data	Income definition	Population	Gender Gap Indicator
Gender Gap in Pensions				
Flory (2011)	German ASID dataset (2007) Ministry for Labour and Social Affairs, **Germany**	Individual retirement income pillars 1, 2, and 3*	Persons aged 65+	**Gender Gap in pensions** (based on mean monthly pension income) = (1–(645/1,595)) = 59%
Vara (2013)	Instituto de la Seguridad Social (2010), **Spain**	Contributory public pension	Pensioners	**Gender Gap in pensions** (based on mean monthly pension income) = 39%
Bardasi and Jenkins (2010)	British Household Panel Survey (BHPS), years 1991–2000, **United Kingdom**	Private pension income**	Persons aged 66+	**Gender Gap in pensions** (based on mean pension income per week in £) = (1–(41/82)) = 50%
*Gender Gap in Pensions among the elderly****				
Bonnet and Geraci (2009)	DREES, Ministère de l'Emploi 2004, **France**	Own rights survivor's pension	Persons aged 65+	**Gender Gap in Pensions among the elderly = 38%**
Bardasi and Jenkins (2010)	BHPS 1991–2000, **United Kingdom**	Private pension income**	Persons aged 66+	**Gender Gap in Pensions among the elderly** (*mean pension per week in* **£**) = (1–(10/59)) = 83%

Continued

Table 5.2 Continued

Study	Data	Income definition	Population	Gender Gap Indicator
Gender Coverage gap				
Flory (2011)	German ASID dataset (**2007**), (**Germany**)	Individual retirement income pillars 1, 2, and 3*	Persons aged 65+	**Gender Coverage gap** (% who receive pension): Women (91%) – Men(98%) = –7 percentage points
Scherger et al. (2012)	German Ageing Survey, Wave 3 (2008), **Germany**	Pension from own employment	Persons aged 65–85	**Gender Coverage gap** (% who receive pension): Women (86%) – Men(96%) = –10 percentage points
>>	English Longitudinal Study of Ageing (2008/09), **United Kingdom**	Basic state pension	Men 65–85; Women 60–85	**Gender Coverage gap** (% who receive pension): Women (94%) – Men(96%) = –2 percentage points
Bardasi and Jenkins (2010)	BHPS 1991–2000, **United Kingdom**.	Private pension income**	Persons aged 66+	**Gender Coverage gap**: Women (34%) – Men(77%) = **–43** percentage points

Notes: * Allocated to the statutory, the occupational or to individual private pension plans; ** Income from occupational and personal pensions and annuities; *** Including zero-income values.

Exploring data from the British Household Panel Survey (BHPS) survey years 1991–2000, they provide evidence suggesting that women aged over 66 years in United Kingdom have private pension income equal to half of the corresponding pension income of men. Bonnet and Geraci (2009) use 2004 administrative data for *France* to document that women aged 65 years or more receive 38 percent less pension income (defined as own rights or survivors' pension income) than men.

Concerning the gender differences in *coverage* rates, Flory (2011) reports that 91 percent of women over the age of 65 in *Germany* receive pensions, while men's coverage rate reaches 98 percent. Scherger et al. (2012), using survey data from the third wave (2008) of the German Ageing Survey (DEAS), report analogous evidence on the gender gap in coverage by the pension system for persons aged 65 to 85 years, documenting that the percentage of women who receive pension income based on their own employment (86%) lags behind by 10 pp the corresponding figure for men of the same age group (96%). For *United Kingdom*, Bardasi and Jenkins (2010) estimate that 34 percent of women and 77 percent of men aged 66 years and over receive private pension income yielding a 43-pp gender gap in private pension coverage. The number of people of both gender without occupational pension coverage is thus very large in that country where that coverage proceeded fastest. The gap between men and women in that is also huge; access to occupational pensions will thus play an increasingly important role in United Kingdom in years to come.

In those systems, like United Kingdom, where a mature second pillar is operating, differences in access to that pillar explain much of the differences in pensions between men and women.

Replicating the Gender Gap in Pensions beyond Europe: Israel

Israel is part of the Survey of Health, Ageing and Retirement in Europe (SHARE) group of countries. Having entered a little after most countries, it conducted the first two waves at a slightly later time; nevertheless, the questionnaire and the survey methodology are those of SHARE and hence fully comparable (Litwin and Sapir, 2008). A characteristic of the Israeli situation is the

presence of three distinct population groups, most readily distinguished by the language of the questionnaire. Hebrew speakers are in the majority and can be expected to have participated in the Israeli pension system for most of their lives, that is, to be mature contributors. Arabic speakers' involvement in Israeli social security is likely to have been more tenuous, due to intermittent employment, different social norms particularly regarding gender, as well as a high prevalence of owner occupation (Litwin, 2009). Finally, Russian speakers are likely to be immigrants who arrived from Russia and the ex-USSR after 1992. Given their relatively recent arrival, they are unlikely to have accumulated extensive social insurance rights.

The Israeli pension system[2] is composed of two tiers. There is a pay-as-you-go (PAYG) first tier system to which all citizens are entitled to, together with mandatory occupational cover. In 1995, "Old Pension Funds," defined benefit (DB) and mostly run by cooperative associations, were closed to new entrants, and were replaced by new defined-contribution (DC) entities, which were less generous. It is probable that the majority of pensioners over 65 would be old pension fund contributors, though some of the younger pensioners could be participating in the new systems.

The basic gender gap findings regarding Israel as well as comparisons with Europe appear in figure 5.1. The gender gap in

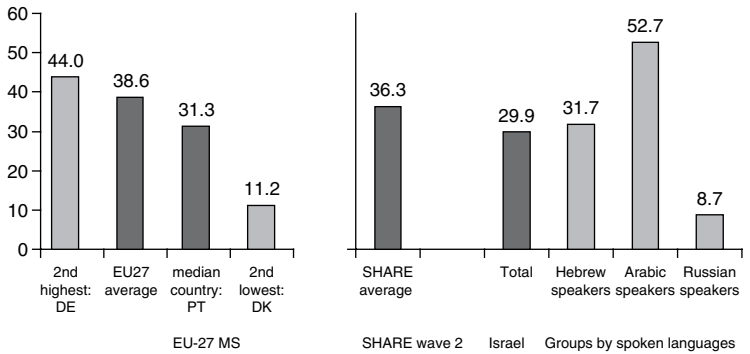

Figure 5.1 Pensioners Gender Gap in *Mean* and *Median* pension (%), pensioners aged over 65 years: Israel vis-à-vis Europe.

Source: EU-SILC 2011 and SHARE (Survey on Health, Ageing and Retirement in Europe), wave 2 (2006/7), own estimation.

Israel is close to 30 percent; as expected, there is wide dispersion among the language groups. Recent immigrants (Russian speakers) show a low gap, while Arab speakers show the widest dispersion. Turning to comparisons with Europe, the average is close to the median country using SILC (PT). However, it is considerably lower than a comparison using SHARE, which, given the common methodology, is more appropriate. The SHARE European average (not including Israel) is 36 percent, six points higher than Israel. Nevertheless, Russian speakers have a lower gap than the second lowest EU country, while Arabic speakers are much higher than the highest EU country.

Given that there is a generalized pension for individuals over 65, one would expect coverage gaps in Israel to be low. This is confirmed by figure 5.2, according to which fewer men than women collect zero pensions. This is presumably due to more men continuing working after the age of 65, a feature more common among the self-employed (Arabic speakers).

The cohort analysis in figure 5.3 shows the familiar pattern of smaller gaps with age, though the effect is considerably sharper in Israel, the gap of the over 80 cohort being almost half that of the younger pensioners. The left panel is for all parts of the samples, and the right panel excludes widowed people in order to abstract from survivors pensions (in the manner of chapter 3). The conclusion

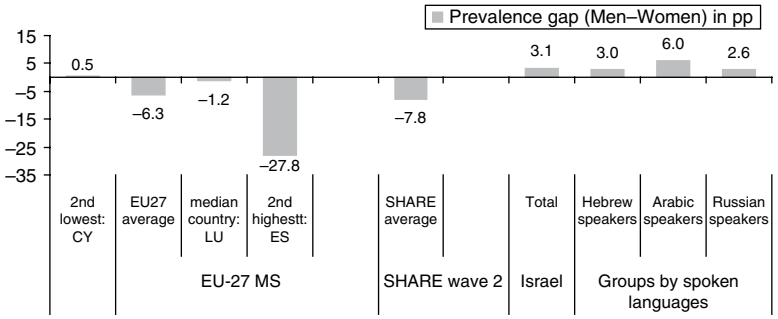

Figure 5.2 Gender Gap in Pensions and Gender Gap in Coverage by the pension system: Israel vis-à-vis Europe.

Note: * refers to prevalence of zero income from pensions. A positive gap implies fewer men collecting pensions.

Source: EU-SILC 2011 and SHARE (Survey on Health, Ageing and Retirement in Europe), wave 2 (2006/7), own estimation.

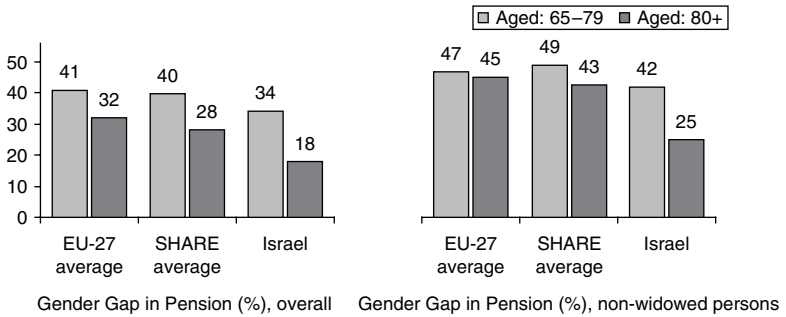

Figure 5.3 Gender Gap in Pensions: cohort analysis: Israel vis-à-vis Europe.

Source: EU-SILC 2011 and SHARE (Survey on Health, Ageing and Retirement in Europe), wave 2 (2006/7), own estimation.

holds irrespective of whether the point of European comparison is with EU-SILC or with SHARE-Europe. An interesting point of departure is that though the cohort difference shrinks decisively in the European data once widowed persons are excluded, in Israel the difference *widens* for both age groups and remains wide. One may conclude from this that Gender Gaps in Pensions may be influenced to a greater extent by selection factors and by past female employment (and immigration) trends. Another possible explanation could be sought in the average age difference between spouses in Israel, which could make widowhood more widespread.

Examining the pension gap by income distribution, figure 5.4 repeats the analysis of chapter 4, where the pensioners were split into three groups according to income and a pension gap computed for each group separately. The left panel shows the tertile gaps together with the overall tertile gap. For the EU as a whole (though there was much dispersion), we found that gaps were wider for the poorer third and close to the average for the other two-thirds of the population. Israel does not conform to this pattern. The poor actually exhibit *negative* pension gaps (men have lower pensions than women), while most of gender dispersion is the result of: (1) wider gender dispersion at the top end and (2) the *general* positioning of men and women in the income distribution. Ireland, Greece, and Portugal come closest to this pattern in the EU, all countries with large groups of the population in receipt of relatively more equal low pensions.

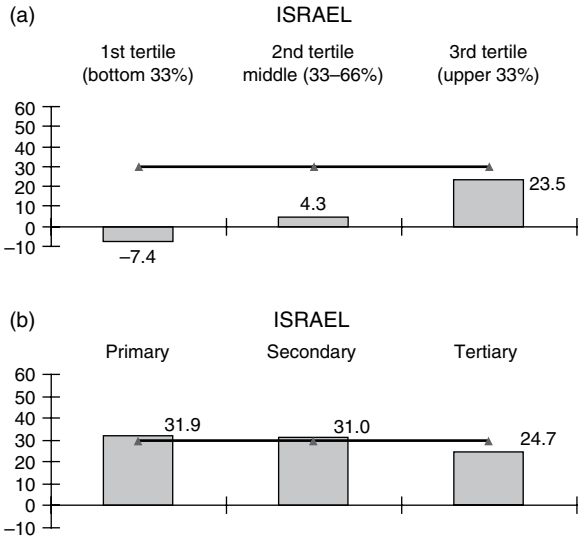

Figure 5.4 Gender Gap in Pensions (%), pensioners aged 65+, by pension income tertile and educational level in Israel.

Note: Men 1st tertile n = 178; Women 1st tertile n = 240; Men 2nd tertile n = 181; Women 2nd tertile n = 254; Men 3rd tertile n = 244; Women 3rd tertile n = 186.

Men primary n = 149; Women primary n = 183; Men 2nd tertile n = 209; Women 2nd tertile n = 253; Men 3rd tertile n = 245; Women 3rd tertile n = 244.

Source: SHARE (Survey on Health, Ageing and Retirement in Europe), wave 2 (2006/7), own estimation.

The other panel of Figure 5.4 repeats the education analysis of chapter 4. Gender gaps are calculated *within* each educational group, leaving the difference with the overall nationwide gap to depend also on gender differences between education groups. In Israel, interestingly, gender differences among those of higher education are considerably *below* the average, while both people with primary and secondary education are not distinguishable from the national average, a shape which approximates more closely that of Belgium.

In conclusion, calculating European-type indicators using SHARE data in Israel uncovers much of the same type of patterns we saw in chapters 3 and 4. Partly owing to implementation delays, it is too early for the data to show a major impact of the 1995 reform, but the impact of that would be an issue to be investigated in the coming years.

REPLICATING THE GENDER GAP IN PENSIONS BEYOND EUROPE: THE UNITED STATES

US Heterogeneity and Europe

Any attempt to benchmark Europe will be seriously incomplete if the comparison does not cross the Atlantic. Though the US institutional framework is considerably different from the EU, there exists richer bibliography, giving rise to the possibility of fruitful comparisons.

The main issue to tackle is that of complexity. The US pension system is built around compulsory federal social insurance, inaugurated as part of the New Deal raft of reforms in 1936[3] and similar in design to that of many continental European countries. The social insurance, called "social security", covers the basic risks of old age and disability, and in common with many European systems replaces income depending on contribution histories after the age of 65 (due to increase to 67). Beyond that base exist a large number of different supplementary voluntary schemes usually related to occupational history of the persons involved. Such schemes in the past tended to be final salary; DB schemes underwritten by employers. In order to limit the risk undertaken by employers in their capacity as DB system underwriters, there was a movement to replace such schemes by DC ones. As a result, by 2007 DB plans covered only 17% of the population[4] and DC plans of various kinds 41 percent (Mackenzie, 2010). This shift has been termed by some (e.g., Orenstein, 2009) "the privatization of risk" in the sense that it burdens contributors with most of the longevity and other risks hitherto shouldered by firms and the state. In contrast with the European scene, US pensions other than social security have been based on voluntary schemes introduced by employers, albeit with a substantial tax and other subsidies.[5] A live issue is the low take-up of such voluntary systems, despite the existence of tax encouragement.

What in Europe would be recognized as "second-pillar" (occupational) or "third pillar" pensions come in a variety that continental Europeans may find baffling: accumulation of pension savings into individual accounts may lead through annuitization to regular monthly (or annual payments), which would be recognizable as a "pension" in Europe; it is, however, an option not exercised

by everyone. Most beneficiaries prefer, on their own initiative, to draw down their balances with greater leeway, most frequently as a lump sum. In most schemes, the decision in what form many benefits may be drawn is up to the individual and may be decided upon retirement or perhaps even later.[6] Exploring this heterogeneity is a subject in itself.

In an enquiry essentially focused on Europe, it was decided to cut corners by not seeking to characterize the full variety of the US old age income protection scene. We thus focus on *regular* payments paid to individuals over 65, which Europeans would effortlessly recognize as 'pensions'. Within this total, we distinguish between social security (first pillar) pensions and pensions from all other sources. This leads to a scheme comparable to the approach adopted in the other chapters; it may make unfamiliar reading for those accustomed with the US situation. It is for this reason that we first present our results using the Health Retirement Survey (HRS) and then benchmark our own results with other published US studies.

The HRS Data

The SHARE data that we used as a cross-check and a means to probe deeper into career questions in chapter 4 is a direct descendant of the University of Michigan Health Retirement Survey of the United States (HRS, 2014). The HRS is an interdisciplinary panel survey of individuals aged over 50, which has been conducted in the United States since 1993, funded by the National Institute of Aging. It focuses on a representative sample of more than 26,000 Americans every two years. At the time of writing, it is currently running its 11th wave; that is, someone who first entered the survey in its first wave in 1993 aged 50, at his/her 70th birthday in 2013 would have been interviewed 11 times. The questions asked (as in SHARE) have focused on financial (pension and work) matters, health status, and use of health care and social networks; the panel dimension already provides information about transitions in cases such a retirement, bereavement, illness, etc. The SHARE questionnaire is closely related to that of HRS and combining HRS and SHARE for comparisons is proving a fruitful area of research (Börsch-Supan et al., 2008; Kapteyn, 2008).

To compute the gender gap we used the RAND HRS Data files, which are a cleaned and easy-to-use version of data files from 11 waves of the Health and Retirement Study data. The technical details can be found in Appendix 1 describing the data used. In this chapter, we used variables from the HRS 2010 wave, based on 22,034 individuals (respondents or spouses) living in 14,890 households.

To construct an "individual income from pensions" variable, we need to secure maximum comparability with the EU-SILC variables used in chapters 3 and 4. In a similar fashion to the EU, we examined the computed variable of Total Household income for respondent and spouse. The separate items are "Pension plus annuity," "Social Security Invalidity Plus Social Security Disability," and "Social Security Retirement." To approximate the European data, we have *excluded* "Withdrawals from Individual retirement Accounts."[7] Though such withdrawals represent an important resource for retired people in the United States, they are akin to financial income from personal savings, which in the EU enquiry was excluded from pensions. Only regular payments in the form of annuities qualify; however, given the variety of different kinds of annuities in existence, it is more than possible that some payments classified as annuities would not have been classified as pensions in the EU.[8]

In order to provide some orientation, table 5.3 compares key magnitudes for pensions for the United States and the EU. The key aspect to remember is that pensions of all pillars are less generous in the United States than in the EU. Normalizing by expressing pensions as percentages of gross domestic product (GDP) per capita, men receive 49 percent in the United States, whereas the EU average is 72 percent. For women, the comparison is equivalent—in

Table 5.3 Comparing US and EU pensions for 2009

Persons aged 65+	Mean *monthly* value of total Pension Income		Mean Annual Pension Income as (%) of 2009 GDP per capita	
Country	Men	Women	Men	Women
United States (USD)	1,897	1,317	49	34
EU_27 (EUR)	**1,471**	**903**	**72**	**44**

Source: EU-SILC 2011, own estimation; adapted from RAND-HRS 2010 wave; GDP per capita OECD.

the United States, it is 34 percent of GDP per capita and in the EU 44 percent.

The HRS Gender Gap in Pensions indicator is then defined in a manner directly analogous to the indicator used in chapter 3:

- Sum the three components for each individual older than 65 years. Individuals included in the calculations would need to report a positive value for at least one component.
- Compute the gender gap as (M–F)/M where M stands for average (median) male income from pensions, and F is the corresponding figure for women.

Some Results for the United States

Coverage of public, social security pensions in the United States is essentially democratic; practically all (95%) people over 65 receive a social security pension (figure 5.5). When the base is all retirement income, there is no gender difference given that both men and women are entitled equally. The situation changes once employment-related (second and third pillars) pensions are brought into the picture. Fewer than half of men (40%) over 65 supplement their social security pension with an employment-based pension. The figure for women is nine points lower (31.1%). Less than in one every three older women has access to pension supplementation beyond the state pillar.

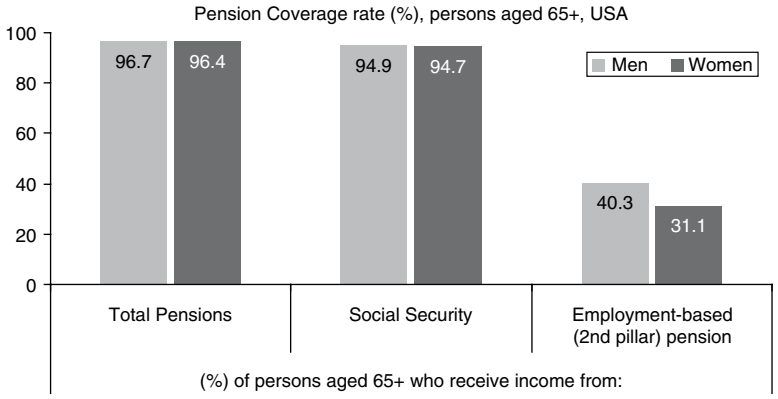

Figure 5.5 Coverage Gender Gap by the pension system in the United States.
Source: Adapted from RAND-HRS 2010 wave.

Turning to the gender gaps in pensions (figure 5.6), the gap in *total* pensions is 30 percent, the median difference being slightly higher at 32.4 percent. These overall figures are, nevertheless, smaller than the equivalent EU figures (mean 39 and median 42) and are roughly comparable with those for Norway.

Looking at social security pensions separately, both the median and mean gap are lowered by 7/8 pp, points well below the EU equivalents. Employment-based pensions for those entitled to them are much more unequal by gender—29.3 percent for the mean and 37.2 for the median gap.

Turning to the pension gaps by age group (figures 5.7 for mean and 5.9 for median gaps), we see that they are larger for

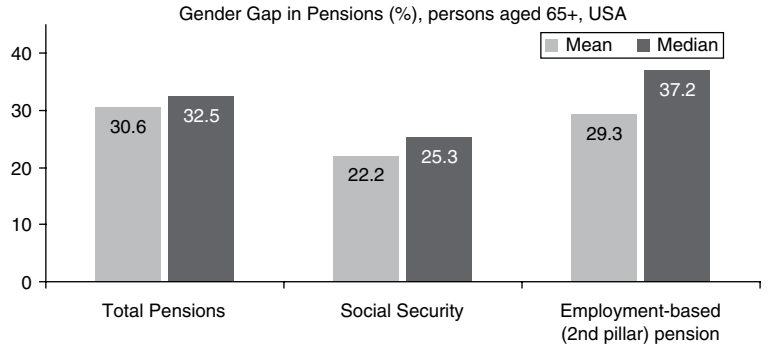

Figure 5.6 Gender Gap in Pensions in the United States.

Source: Adapted from RAND-HRS 2010 wave.

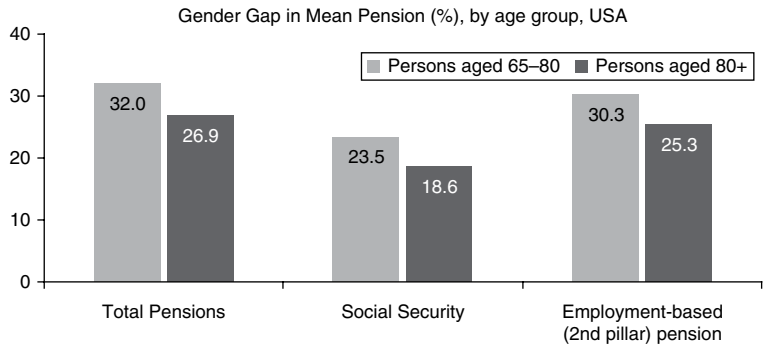

Figure 5.7 Gender Gap in Mean Pension, by age group in the United States.

Source: Adapted from RAND-HRS 2010 wave.

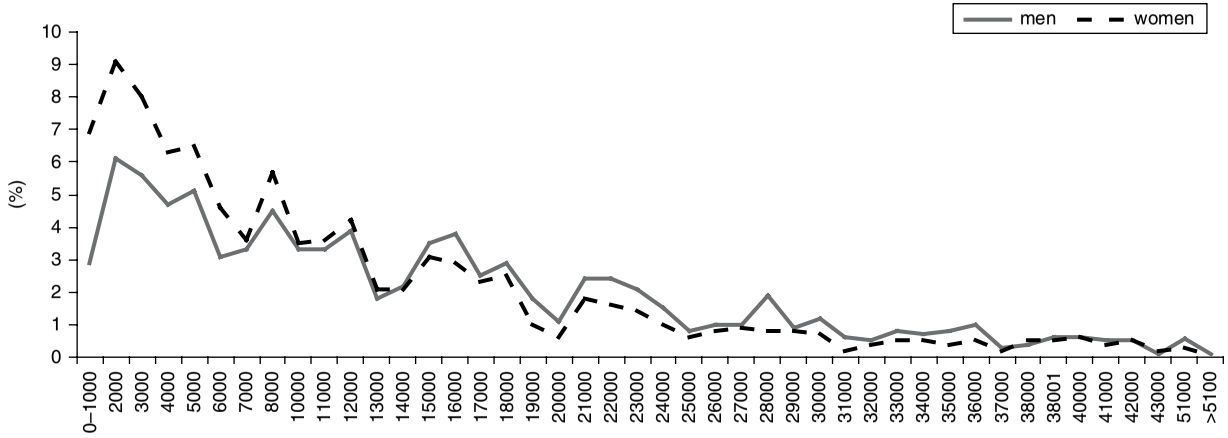

Figure 5.8 Distribution of pension and annuity income by sex, in the United States.

Source: Adapted from RAND-HRS 2010 wave.

the younger group and lower for the older group. This applies to both types of pensions, though it is more marked in employment-linked pensions. The existence of survivors' pensions for social security is one of the reasons for the lower gaps for the older group. The results can be seen as roughly comparable to the EU situation. Focusing on European countries with mature second pillar systems in chapter 3, the US gap is comparable to that in the Netherlands and Switzerland, but considerably higher than Denmark.

Figure 5.9 examines the frequency distribution of annuities (pensions from employment) for men and women. There is a concentration of women in low pensions (less than 10,000 dollars) for women; men are more likely to be found in greater frequency for larger amounts. The source of female disadvantage lies in that range as well as on their far lower coverage for occupational pensions. After differences over the initial range, the distributions for the two sexes are of similar shape.

Finally, figure 5.10 examines some characteristics of the US distributions of gender gaps. Looking at the picture by ethnicity, we see that the overall gender gap has a large component of between-group divergence. The gender gap for each group taken singly is lower than the overall gap. Gaps are lowest for Hispanics (only 12%) and highest for the most prosperous group (white non-Hispanic). The picture by education is not dissimilar for education. Gender gaps are lowest than the overall gap for every

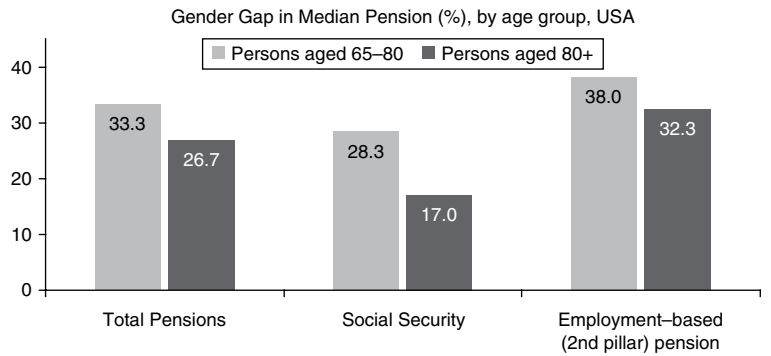

Figure 5.9 Gender Gap in *Median* Pension, by age group in the United States.
Source: Adapted from RAND-HRS 2010 wave.

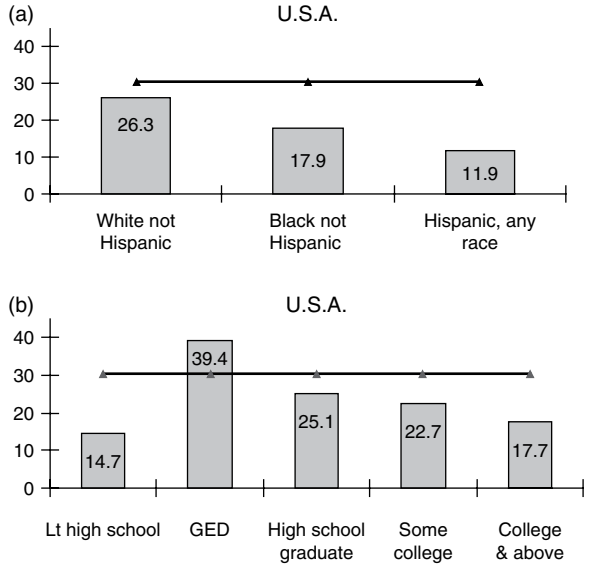

Figure 5.10 Gender Gap in Pensions (%), pensioners aged 65+, by race/ethnicity and level of educational in the United States.

Source: Adapted from RAND-HRS 2010 wave.

group with the exception of those with a General Educational Development (GED) level. The gradual increase of education over time thus could hold some hope for gender gaps shrinking over time.

Recapitulating on the US results, much of the explanation lies in the interplay between the mature social security system, where gender gaps are relatively modest, and the rapidly changing employment pension scheme. The latter is characterized by low participation; for men less than half, for women less than a third have access. It is also marked by wider gender gaps in amounts. These gaps may well be underestimates due to the exclusion of methods of benefit delivery other than pensions. Our approach, moreover, was not able to capture the major source of unease in the US pension scene—the shift of employment-related pensions from DB to DC.

Nevertheless, the US data can be seen to confirm the overall warning about women's independence that the EU data were seen to pose for Europe.

BENCHMARKING: COMPARING WITH US AND OTHER NON-EUROPEAN STUDIES

In sharp contrast to the EU, there exists considerable published academic research on Gender Gaps in Pensions for the United States. In order to benchmark our results, we have surveyed those studies whose approach was (at least roughly) comparable to the one of the present study. We first look at coverage gaps for social security and other employer-linked pensions separately, before proceeding to the pension gaps among pensioners (our headline gap) and the gap defined across the population.

Table 5.4 looks at studies examining gender coverage gaps in receiving social security income among the elderly in the United States. Most of studies employ the Current Population Survey for various years concluding that gender coverage gaps are small (Fisher and Hayes, 2013; Lee and Shaw, 2003) and show no time trend (Hartmann et al., 2011). As regards coverage gaps from occupational pensions (see table 5.5), the emerging picture suggests that gaps are wide—of the order of 17 to 20 pp—indicating also that less than one out of four men and one out of three elderly women in the US women receive this income source. Comparing older (Even and Macpherson, 1994; Johnson, 1999) with more recent studies (Fisher and Hayes, 2013; Hartmann et al., 2011; IWPR, 2011), we see that though the spread of occupational pensions has increased, the differences by gender show no signs of abating—on the contrary.

Table 5.6 looks at those studies where a pension gap is calculated over the entire population of over 65-year-old individuals (i.e., average pension includes also zero values). Those focusing on social security income only lead to a mean gap of around 21 percent. In contrast, examining occupational pensions exclusively leads to far wider gaps (over 50%). This confirms that occupational pensions operate in practice to introduce and widen pension gaps.

Table 5.7 looks at gender gap in pensions as defined in the bulk of this study (i.e., defined over the pensioner population). Evidence on the gender gap in median social security income suggests that elderly women receive 27 percent to 29 percent smaller social security income compared to men; while in the case of total pension income, Fischer and Hayes (2013) the reported gender

Table 5.4 Coverage Gap (W–M) in social security across gender in the United States

Study	Data	Income definition	Population	Gender Gap Indicator
Fischer and Hayes (2013)	Current Population Survey: Annual Social and Economic Supplement (ASEC) **2012, USA**	**Social Security** income	Persons aged 65+	**Gender Coverage gap** (% who receive social security income): Women (85%) – Men(84%) = 1 percentage point
Hartmann et al. (2011)	Current Population Survey (ASEC) **2000, USA**	>>	Persons aged 65–74	**Gender Coverage gap** Women (91%) – Men(87%) = 4 percentage points
>>	>>	>>	Persons aged 75+	**Gender Coverage gap** Women (95%) – Men(93%) = 2 percentage points
>>	Current Population Survey (ASEC) **2010, USA**	>>	Persons aged 65–74	**Gender Coverage gap** Women (86%) – Men(83%) = 3 percentage points
>>	>>	>>	Persons aged 75+	**Gender Coverage gap** Women (94%) – Men(93%) = 1 percentage point
Lee and Shaw (2003)	March Current Population Survey (CPS) 1999–2001	>>	Persons aged 65+	**Gender Coverage gap** Women (90%) – Men(89%) = 1 percentage point

Table 5.5 Coverage Gap (W–M) in occupational (employment-related) pensions by gender in the United States

Study	Data	Income definition	Population	Gender Gap Indicator
Fischer and Hayes (2013)	Current Population Survey **2012**	**Social Security** income	Persons aged 65+	**Gender Elderly Gap** (based on mean income)** = (1–(10,418/13,234)) = 21%
Hartmann et al. (2011)	>>	>>	Persons aged 65–74	**Gender Elderly Gap** (based on *median* income)** = (1–(10,274/13,409)) = 23%
>>	>>	>>	Persons aged 75+	**Gender Elderly Gap** (based on *median* income)** = (1–(11,585/13,864)) = 16%
Fischer and Hayes (2013)	Current Population Survey **2012**	**Pension** income *from employment**	Persons aged 65+	**Gender Elderly Gap** (based on mean income)** = (1–(4,011/9,789)) = 59%
Hartmann et al. (2011)	>>	>>	Persons aged 65–74	**Gender Elderly Gap** (based on *median* income)** = (1–(4,114/8,704)) = 53%
>>	>>	>>	Persons aged 75+	**Gender Elderly Gap** (based on *median* income)** = (1–(3,963/9,261)) = 57%

Notes: *Pension income includes (employment-based retirement income; Veterans' benefits and survivor benefits from a government, company, or union pension); **A "pension" in NEBS is defined to include any regular payment from a worker's employer/union-sponsored retirement plan (not counting Social Security). This includes disability payments from private pension plans but excludes survivor payments, privately purchased annuities, and regular withdrawals from an IRA or Keogh account.

Table 5.6 Gender Gap in Pensions of the elderly (%) in the United States

Study	Data	Income definition	Population	Gender Gap Indicator
Fischer and Hayes (2013)	Current Population Survey **2012**	**Social Security** income	Persons aged 65+	**Gender Elderly Gap** (based on mean income)** = (1–(10,418/13,234)) = 21%
Hartmann et al. (2011)	>>	>>	Persons aged 65–74	**Gender Elderly Gap** (based on *median* income)** = (1–(10,274/13,409)) = 23%
>>	>>	>>	Persons aged 75+	**Gender Elderly Gap** (based on *median* income)** = (1–(11,585/13,864)) = 16%
Fischer and Hayes (2013)	Current Population Survey **2012**	**Pension** income *from employment**	Persons aged 65+	**Gender Elderly Gap** (based on mean income)** = (1–(4,011/9,789)) = 59%
Hartmann et al. (2011)	>>	>>	Persons aged 65–74	**Gender Elderly Gap** (based on *median* income)** = (1–(4,114/8,704)) = 53%
>>	>>	>>	Persons aged 75+	**Gender Elderly Gap** (based on *median* income)** = (1–(3,963/9,261)) = 57%

Notes: * Pension income includes (employment-based retirement income; Veterans' benefits and survivor benefits from a government, company, or union pension); ** Including zero-income values.

Table 5.7 Gender Gap in Pensions (%) in the United States

Study	Data	Income definition	Population	Gender Gap Indicator
Fischer and Hayes (2013)	Current Population Survey **2012**	**Social Security** income	Persons aged 65+	**Gender gap in pensions** (based on median income) = (1–(11,357/15,557)) = 27%
Lee and Shaw (2003)	March Current Population Survey (CPS) **1999–2001**	>>	Persons aged 65+	**Gender gap in pensions** (based on median income) = (1–(7750/11040)) = 29%
Fischer and Hayes (2013)	Current Population Survey **2012**	**Pension** income *from employment**	Persons aged 65+	**Gender gap in pensions** (based on median income) = (1–(9,600/15,600)) = 38%
Johnson (1999)	Current Population Survey **1998** based on Grad (1998)	**Pension** income (from own pension)	Persons aged 65+	**Gender gap in pensions** (based on median income) = (1–(3,679/6,442)) = 43%
Lee and Shaw (2003)	March Current Population Survey (CPS) **1999–2001**	**Pension** income (including **IRAs)**	Persons aged 65+	**Gender gap in pensions** (based on median income) = (1–(5,600/10,340)) = 46%

Notes: * Pension income includes (employment-based retirement income; Veterans' benefits and survivor benefits from a government, company, or union pension); ** A "pension" in NEBS is defined to include any regular payment from a worker's employer/union-sponsored retirement plan (not counting Social Security). This includes disability payments from private pension plans but excludes survivor payments, privately purchased annuities, and regular withdrawals from an IRA or Keogh account.

Table 5.8 Gender Gap (Women–Men) in Coverage by the pension system and Gender Gap in Pensions, evidence from non-European countries

Study	Data	Income definition	Population	Gender Gap Indicator
Gender Coverage gap				
Arza (2012)	Household Survey 2006 in **Argentina**	Old age and survivor's pension	Persons aged 65+	**Gender Coverage gap** Women (67%) – Men(75%) = **–8** percentage points
>>	Household Survey 2007 in **Brazil**	>>	>>	**Gender Coverage gap** Women (80%) – Men(88%) = **–8** percentage points
>>	Household Survey 2006 in **Mexico**	>>	>>	**Gender Coverage gap** Women (25%) – Men(47%) = **–22** percentage points
>>	Household Survey 2007 in **Paraguay**	>>	>>	**Gender Coverage gap** Women (9%) – Men(20%) = **–11** percentage points
Gender gap in pensions				
Takayama (2013)	Ministry of Health, Labour and Welfare, 2010, **Japan**	Pension from Major Social Security (KNH)	Pensioners	**Gender Gap in Pensions** (based on mean monthly pension income in 000s ¥) = (1–(104/(171))= 39%

gap appears to be higher (close to 40%) or even higher according to other studies. The results are comparable to Figure 5.6, which was computed using HRS data. One should also note the differences in the absolute value of pensions and of pension gaps of using different income concepts.

Finally, table 5.8 presents available information on gender differences in pension for other non-European countries,[9] focusing mainly on gender gaps in coverage rates in *Latin American countries* (based on Arza, 2012), as well as gender gap in pensions income in Japan (as reported by Takayama, 2013). The emerging picture *coverage rates* of contributory pensions are very important in Argentina, Brazil, and Paraguay (varying from 8 to 10 pp), while in Mexico the corresponding gender difference exceeds 20 pp. Turning to *Japan*, Takayama (2013) concludes that women are likely to receive a lower amount of pension benefits from social security than men reporting that, in 2010 in Japan, the average monthly old-age benefit for women from the major pension program (KNH) was about 60 percent of the amount for men (i.e., 40% gender gap).

CONCLUSION

This chapter calculated Gender Gaps in Pensions for two non-European countries, Israel and the United States. It also surveyed studies conducted using survey data in Europe, the United States, and worldwide. In every case, we found that the "stylized facts" of the European situation are replicated. Both the absolute figures for the Gender Gap in Pensions and the general outline of the results—how they vary by age group, education, marital status—have found echoes in all the cases where we have tried to benchmark results. The more sobering results, however, come from what inferences we can draw from second-pillar pensions: in the United States, they already account for the lion's share of Gender Gaps in Pensions. The coverage gaps should stand as a warning that the gaps may well grow with time.

There is an interplay between attempting to increase coverage and the pension gender gap. In an attempt to make participation in nonstate pillars attractive, pensions must offer an adequate return on contributions by linking the value of pensions as closely as possible to lifetime contributions. In doing so, however, they

may well end up amplifying rather than dampening gender gaps in pensions.

This chapter thus leads to an overwhelming conclusion that pension gender gaps, whether caused through coverage effects or through magnifying earnings disadvantages, are common throughout the world. This conclusion comes with a warning that the logic of developments may well be pushing things toward greater and not smaller inequality. However one sees it, the situation in pensions is likely to prove a major challenge to women's independence worldwide.

6

Pension Systems and Pension Disparities

Welfare State Typologies

Different types of welfare states are important determinants of well-being and meeting needs, as they mediate and influence the socioeconomic positions in which individuals find themselves.

A variety of *typologies* and *criteria* lead to different groupings (see table 6.1 for a summary table, borrowed from Bambra, 2007). The pioneering 1990 work, Esping-Andersen's *The three worlds of welfare capitalism*, presented a typology of 18 Organisation for Economic Co-operation and Development (OECD) welfare states based on three criteria: (1) decommodification (the extent to which an individual's welfare is reliant upon the market), (2) social stratification (the effect of the welfare state in alleviating or maintaining inequalities), and (3) the private–public mix (the relative role of the state, the family, the voluntary sector, and the market in welfare provision). This led to the division of welfare states into three ideal-type regimes: (1) *the liberal*, (2) *the conservative*, and (3) *the social democratic*. During the last 20 years, a number of alternative typologies were developed, trying to extend the range of countries included in the original formulation as well as to take into account other important criteria such as gender, politics, and the role of public services.

The integration of eastern Europe naturally introduces a group comprising transition state, where social protection had to be transformed in order to operate as part of a market system (Cook, 2010). There is some discussion about how eastern European states would fit into existing typologies or, indeed, whether their separate classification would make sense in the long term or as simply a transitional group (e.g., Castles and Obinger, 2008). Thus,

Table 6.1 Welfare State Typologies in Europe and the OECD

Author	Measures	Welfare State Regimes			
Esping-Andersen (1990)	18 countries Decommodification Social stratification Private–public mix	***Liberal*** AU, IE, CA, NZ, UK, USA	***Conservative*** FI, FR, DE, JP, IT, CH	***Social Democratic*** AT, BE, NL, DK, NO, SE	
Leibfried (1993)	***15 countries*** Characteristics Rights Basic income	***Anglo-Saxon*** AU, NZ, UK, USA	***Bismark*** AT, DE	***Scandinavian*** DK, FI, NO, SE	***Latin Rim*** France, Greece, Italy, Portugal, Spain
Ferrera (1996)	***15 countries*** Coverage, replacement rates, poverty rates	***Anglo-Saxon*** IE, UK	***Bismark*** AT, BE, FR, DE, LU, NL, CH	***Scandinavian*** DK, FI, NO, SE	***Southern*** GR, IT, PT, ES
Bonoli (1997)	***16 countries*** Social expenditure as % of GDP Social expenditure financed via contributions	***British*** Ireland, UK	***Continental*** BE, FR, DE, LU, NL	***Nordic*** DK, FI, NO, SE	***Southern*** GR, IT, PT, ES, CH

Source: Adapted from Bambra (2007), p. 1099.

specifying the existence of separate "Eastern" model of welfare state appropriate to transition countries is not controversial (Barr, 2005; Ferrera, 2005).

An important development to the typology was the suggestion of an additional ideal type, the Mediterranean or Latin rim (including Italy, Spain, and Greece; see Arts and Gelissen, 2010;[1] Bonoli, 1997; Ferrera, 1996; Leibfried, 1993); other commentators had characterized the situation pertaining in the South as a case of "infant Bismarkian" or "discount edition" of the same (Abrahamson, 1999). However it may be, as Ferrera (2010) notes, these states are particularly deficient in social safety nets, which are traditionally provided by strong family solidarity, while low state administrative capacity prevents the "formalization" of family functions. The 1990s, under the impetus of convergence to the rest of Europe, marked a period of "recalibration and reform" in Mediterranean countries, taking them closer to the European norm.

An extensive critique of welfare state modeling has been articulated on the basis of gender analysis. It has been argued that, while welfare typologies have assumed an overtly genderless approach, it operates as covertly androcentric (Bambra, 2004 and 2007; Lewis, 1992; O'Connor, 1996; Orloff, 1993; Sainsbury, 1999; Trifiletti, 1999). The objection to Esping-Andersen's typology was that it was fraught with limitations, especially in regard to women, welfare, and the family. A number of attempts were made either to "gender" the original typology or to propose new welfare state typologies in which gender acquires a central and more overt role. Among the latter attempts, the defamilization approach examines the extent to which welfare states facilitate female autonomy and economic independence from the family (Bambra, 2004. 2007; Esping-Andersen, 1999).

A major limitation in most typologies of welfare states is that the literature tends to focus at the *overall population or country level*. Little effort has been made so far to examine how different population subgroups (such as women, lone mothers, immigrants, etc.) fare in different welfare regimes (Raphael and Bryant, 2004; Whitehead et al., 2000). This macroscopic viewpoint is evident in another dimension.

The separate "worlds of welfare provision" can be said to affect the different "logics of pension reform" (Bonoli and Shinkawa, 2006), in the sense that they influence the way that common

problems affecting pension systems are perceived and addressed. The general structure of different systems facing common challenges and utilizing a shared toolkit to promote policy diffusion is essentially the approach adopted and advocated by the EU's Open Method of Coordination, a lynchpin of the EU's "Lisbon Strategy' (Papadimitriou and Copeland, 2012). Faced with dire demographic and fiscal prospects, pension reform in advanced countries has essentially proceeded on two planks: first, promoting a different mode of cooperation between public, occupational, and private provision, most frequently in the context of a multi-pillar system assigning clearer responsibilities to each pillar. Second, toward a greater individualization of entitlements and a departure of systems assigning central income-earning responsibility to a primary "breadwinner." In this way, pension reforms, though ostensibly gender-neutral, end up having major gender effects. Frericks, Maier and De Graaf (2006, 2007) argue that recent developments in pillar architecture and pension reform lead to widespread the gender effects in the Netherlands and Denmark. The likely future impacts of reforms built around individualization of entitlements are examined by Price (2007) for United Kingdom, by Vlachantoni (2010) for Greece, and by Steinhibber (2005) for three eastern European countries. Sigg and Taylor (2005) and Pearson and Whitehouse (2009) take a wider view. Jefferson (2005) examines the impact of pension changes on women in Australia, noting that women will have to rely disproportionately on state, first-pillar provision rather than on second-pillar (superannuation) benefits. Condon (2001) examines Canada.[2]

Our own approach so far was to derive a pension analog of the gender gap in earnings, as a simple gender inequity indicator and describe the behavior of this indicator in detail. An obvious question is to ask to what extent does the characterization of countries according to this indicator conform to the typologies mentioned in the literature.

Cluster analysis is an obvious point of departure for any analysis that would start from indicators and lead to a set of classifications, imposing the minimum of theoretical structure. Cluster analysis starts by classifying data points (in our case, countries) on the basis of the predetermined selection criteria. It picks groups ("clusters") to ensure that each point in a cluster is similar to the others in the same cluster and different from points in other

clusters (Bambra, 2007; Gough, 2001). Clustering is used by statisticians in cases where they do not desire to impose structure on the underlying data; the groups are determined by characteristics of the data usually by employing a generalized use of distance. In the case of a single indicator, we may understand clustering as classifying groups according to the extent of total variability explained by classifying countries in groups rather than individually.[3] In our case, and if the countries follow distinct welfare regimes, those should make their influence evident by influencing countries following a particular regime to have similar features and hence form distinct clusters.

The two more commonly used forms of cluster analysis are the *hierarchical* and the *K-means*. The former locates the closest pair of countries and combines them to form a pair, and this continues until all cases are in one cluster. The advantage of this method is that clusters emerge directly from the data, thus facilitating the crystallization of welfare state taxonomies. Its problem (or in some cases, advantage) is that it is a-theoretical.[4]

Figures 6.1 and 6.2 show a clustering analysis applied to two key indicators, first to our "headline measure," the pension gender

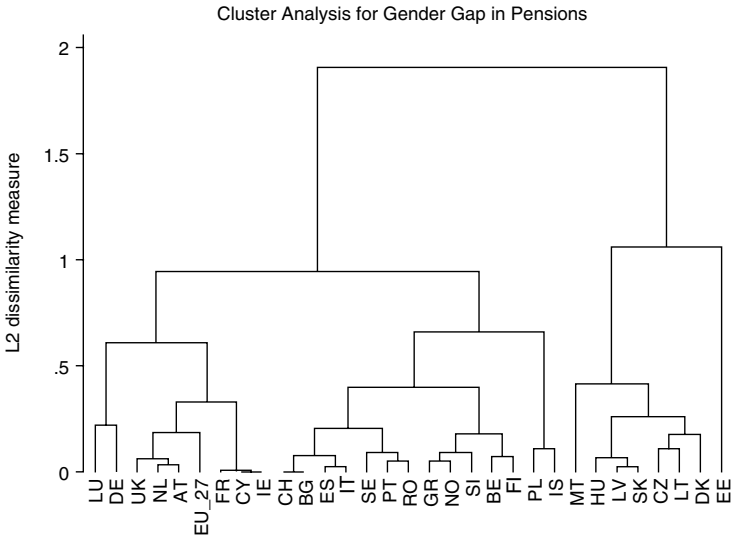

Figure 6.1 Dendrogram at country level based on Gender Gap in Pensions (65+).
Source: EU-SILC 2011, own estimation. Estimate for IE is based on 2010 data.

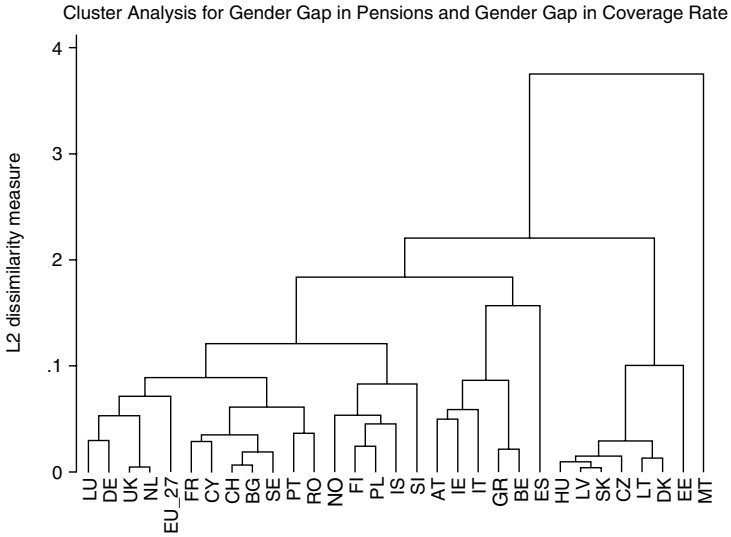

Figure 6.2 Dendrogram at country level based on Gender Gap in Pensions and Coverage gap (Women–Men aged 65+).

Source: EU-SILC 2011, own estimation. Estimate for IE is based on 2010 data.

gap, and second to the pension gender gap combined with the coverage gap. The diagrammatic representation is by means of a "dendrogram" grouping observations by means of similarity. The first, as can be expected, preserves the rankings of our original analysis. The composition of the groups is shown in table 6.2. Estonia is in all cases sufficiently different in order to be classified on its own. Otherwise, there is a tendency for Eastern countries to be grouped together.

Once we add the coverage gap to our analysis (Figure 6.2), and looking at the five clusters, the Eastern group is largely retained. There is a middle group of BE, IT, GR, AT, and IE, which is characterized by a positive coverage gap, due to their systems retaining vestiges of familialism, in the form of retaining an important place for derived rights. The remaining group essentially reproduces the single-variable clusters.

Table 6.2 attempts a correspondence between our groups based on the gender gap and a conventional pension system typology derived from Esping-Andersen's approach applied to pensions (Soede and Vrooman, 2008). The clustering of countries does

Table 6.2 Correspondence between clustering Typologies on based on Gender Gap in Pensions and Coverage Gap

Pension System Typology*	Cluster 1	Cluster 2	Cluster 3
I. The corporatist regime *(DE; FR; AT; LU; GR; PT; ES and FI)*	DE; FR; LU; PT; FI	AT; GR; ES	
II. The liberal *(UK, IE)*	UK	IE	
III. The "modest pension" *(BE; CZ; SK and NO)*	NO	BE;	CZ; SK
IV. The "mandatory private" *(SE; DK; NL; PL; HU)*	SE; NL; PL		DK; HU

Note: * Pension system typology based on Soede and Vrooman (2008). *a Comparative Typology of Pension Regimes*. Centre for European Policy Studies.

not follow any simple recognizable pattern. Nevertheless, no corporatist country is found in cluster 3, while "mandatory private" countries shy away from cluster 2, which represents countries relying on derived rights and thus lagging behind individualizing pension rights

The overall conclusion from the clustering is largely negative. The patterns that emerged from our statistical analysis do not effortlessly fall in groups defined on a priori criteria that do not explicitly cover either pensions or gender. To remedy this, we turn to an attempt to correlate our findings with key pension system features in a more direct fashion.

Key Features of Pension Systems with Gender Implications

The gender gap in pensions as it appears in the 27 EU Member States is the result of a complex interplay of features of past employment histories and institutional features. In this section, we try to see the extent to which a set of system parameters can account for some of the overall picture we derive.

To approach the question, we relied on publications that describe features of the pension system.[5] An important caveat is that we would, ideally, seek information that applied to the time when retirement decisions were taken and current pensions were calculated. An 80-year-old person who retired in his 60s in during the 1990s would have been affected by system parameters from the 1950s on. Typically, the information gleaned refers to

the situation as faced by today's active contributors, rather than appropriate for pensioners. Some of the systemic information may still be relevant, while the information can still be seen as a useful starting point.

The information collected concerns eight relevant dimensions. Each dimension was classified into a smaller number of parameter values by simplifying the categories (see tables A3.1 to A3.3 in the appendix 3). The dimensions are the following:

I. *Existence Low pension protection:* Pension systems typically award pensions in two components specifying additional protection for low-income pensioners. Such protection can take the form of a combination of basic pensions, that is, collected by all citizens over a certain age, minimum pensions in the form of guarantees (usually means tested) that pensions cannot fall beyond a minimum and targeted pensions, in the sense of pensions targeted to specific categories of claimants. Given the large number of combinations, we settled on a hierarchical system. All systems including some basic provision were characterized as (1) *basic*, if minimum provision was included as (2) minimum, and if neither but only targeted as (3) *targeted*. Thus, a country possessing all kinds of protection would appear as basic.
II. *Legal Retirement Age:* Given the centrality of 65 as the age of retirement, we specified two categories: (1) *lower than 65 for women*, (2) *common for women–men*, typically 65. It should be noted that the legal retirement age does not coincide necessarily with the actual retirement age.
III. *Pension structure:* Many pension systems are composed of a two-part structure: a flat rate component and an earnings component. Some may only have an earnings related component, while others may only have a flat rate component. We thus have a four-part structure: (1) *Flat rate means tested and earnings related*; (2) *flat rate non-means tested and earnings related*; (3) *only earnings related component no flat rate*; and (4) *no earnings-related component.*
IV. *Size of minimum relative to the average:* How high is the total of minimum or minimum pension relative to the average pension? Country-values have been grouped as follows: (1) <20 percent; (2) 20–30 percent; and (3) 30+ percent.

V. *Income replacement (gross replacement rate):* Income replacement for a full career for a person earning 50 percent of the average wage: (1) >100 percent; (2) 70–99 percent; and (3) <70 percent. This replacement is usually higher due to the existence of minima, guarantees, and means testing.
VI. *Child care, period of care:* How many years is the maximum allowed for child care? Country-values have been grouped as follows: (1) More than 2 years (or equal to 2 years); (2) less than 2 years.
VII. *Existence of survivors' benefits:* (1) yes; (2) no.
VIII. *Special conditions for survivor pension:* Are there restrictions on collection of survivors' pension for two earner households? (1) No restrictions; (2) depend on spouse income; and (3) absolute max or absolute limit.

Table 6.3 reports the average values of four key indicators for each of the parameter groups of the eight pension system dimensions. The indicators are the headline Gender Gap in Pensions (GGP), the pension gaps for the two age groups 65–80 and 80+, and the difference in percentage points between the GGP and the Gender Earnings Gap. The analysis pursued looks at differences one factor at a time and ignores correlation among dimensions or cases where dimensions may operate in concert. Nevertheless, it is useful as a first step.

The first dimension is the *type of low pension protection*. Basic protection implies the existence of an age pension independent of contributions and comprises six countries (including United Kingdom, IE, and NL); the second group protection built around minimum pension is the largest in size (12 among which DK, EE, BE, ES, and eastern European countries); the final group refers to countries with neither minimum or basic (five countries, namely DE, IT, SE, and AT). The middle group has considerably lower GGP, as well as the smaller difference between GGP and earning gap. The group with basic pension is distinguished by having the largest difference between the younger and the older group. In contrast, the group with minimum protection exhibits the smallest difference by age.

Grouping the countries according to whether women *have lower retirement ages* than men does not produce, as one would have thought higher pension gaps due to longer contribution histories

Table 6.3 Gender differences in pensions by groups of countries as defined by pension system dimensions

		GGP (%) 65+	GGP (%) 65–80	GGP (%) 80+	Diff (in pp) GGP (65+) – Gender Earnings Gap
I. Existence Low pension protection					
(i) Basic (#6)	CZ IE LT LU NL UK	31.8	33.8	24.7	16.0
(ii) Minimum (#12)	BE BG DK EE GR ES FR LV HU PL PT SK	23.0	23.3	21.1	7.7
(iii) Targeted (#5)	AT DE IT FI SE	35.2	36.4	31.6	17.7
II. Legal Retirement Age					
(i) lower than 65 for women (#10)	AT BG CZ EE IT LT MT PL RO UK	25.1	25.5	24.6	10.5
(ii) Common for women and men, typically 65 (#17)	BE DK DE GR ES FR IE CY LV LU HU NL PT SI SK FI SE	29.8	30.8	24.8	14.9
III. Pension structure					
(i) Flat rate means tested + earnings related (#4)	EE LT MT UK	18.8	18.5	19.8	1.5
(ii) Flat rate non-means tested and earnings-related (#3)	CZ DK LU	23.8	24.7	21.0	8.3
(iii) Only earnings-related component no flat rate (#16)	AT BE BG DE GR ES FR IT CY LV HU PL PT RO SI FI	30.4	31.0	28.2	16.8
(iv) No earnings related component (#4)	IE NL SK SE	31.0	33.5	18.5	14.6
IV. Size of minimum relative to the average					
(i) <20% (#5)	BG CZ DK EE LT	14.9	13.8	18.6	–3.7
(ii) 20–30% (#7)	BE DE IT HU PL SK FI	26.6	27.4	23.7	12.3
(iii) 30+% (#11)	AT GR ES FR IR LV LU NL PT SE UK	34.8	36.7	27.3	19.1

V. Income replacement (gross replacement rate)					
(i) >100% (#2)	LU PT	38.9	41.5	29.5	28.1
(ii) 70–99% (#10)	AT CZ DK GR ES FR IT HU FI SE	27.2	28.2	23.8	10.5
(iii) <70% (#11)	BE BG DE EE IE LV LT NL PL SK UK	26.7	27.3	23.8	10.5
VI. Child care, crediting					
(i) No credit (#3)	BG GR LU	36.7	38.3	30.7	24.5
(ii) Based on notional salary (#15)	AT BE DE EE FR IT LV NL PL RO SI SK FI SE UK	29.2	29.7	27.0	14.0
(iii) Subsidies by government (#4)	DK ES LT HU	18.2	17.8	20.0	2.1
VII. Existence of survivors' benefits					
(i) Yes (#14)	LU BE CZ DK EE GR ES IT CY HU MT PL RO FI	25.0	25.6	22.4	11.0
(ii) No (#10)	BG FR IE LV LT PT SI SK SE UK	28.2	28.7	25.3	14.3
VIII. Special conditions for survivor benefits					
(i) No restrictions (#11)	AT BG FR IE LV LT PT SI SK SE UK	29.3	30.0	26.0	14.5
(ii) Depend on spouse income (#11)	CZ DK DE ES IT CY LU HU NL PL RO	29.9	31.3	25.4	15.8
(iii) Absolute max or absolute limit (#3)	BE MT FI	24.2	24.0	23.3	11.6

(the direction of difference being in the opposite direction). On the contrary, the influence of *pension structure*, in the sense of the existence of flat and earnings-related components, is easily visible. The existence of a flat component is associated with lower GGP, by more than ten points compared to countries that do not have a flat rate. There also seems to be a relationship between GGP and earnings gaps. The size of the *minimum pension relative to the average* (dimension IV) is obviously key to keeping a low GGP. A high minimum is associated with higher GGP as well as a larger fall between the two age groups; this implies presumably that conditions of eligibility to the minimum may well have a gender dimension. Higher minima are also associated with higher difference between pension and earnings gaps and hence appear to discriminate against women

High-income replacement for *low pensions* (dimension V) does not seem to affect outcomes. This is counterintuitive, but it is probably due to the fact that women have lower pensions but also fewer contribution years and the two influences could cancel each other out. The apparently large impact of higher involvement (dimension VI, child-care crediting) could be due to the higher priority accorded to this issue in those countries adopting a more generous stance.

Turning to widows' pensions (dimension VII), the very existence of survivors' pension is not enough to lead to a lower average GGP. Nevertheless, in those countries where survivors' pension exist it is sufficient to change the ranking of the two groups for the older group. On the contrary, the existence and kind of restrictions on survivors' pensions in two earner couples (dimension VIII) do not show up in the data, presumably due to the relatively small number of such couples in older groups.

Table 6.4 looks at the impact of our eight dimensions on two other indicators: the average coverage gap and the difference between the GGP for married over those for widowed (to see the impact of survivors). The impact of bereavement in shrinking gaps is most evident for systems with basic pensions (dimension I). This dimension is also associated with low coverage gaps. Not having an earnings-related component (dimension III) leads to lower difference between married and widowed gaps. A high minimum relative to the average (dimension IV) is associated with a higher coverage gap and leads, predictably, to a larger fall

Table 6.4 Gender outcomes in pensions by groups of countries as defined by pension system dimensions

	Diff (M–W in pp) in prevalence of zero pension	Diff (in pp) GGP (65+ widowed) – GGP (65+ married)
I. Existence Low pension protection		
(i) Basic	–2.5	–29.0
(ii) Minimum	–5.4	–10.0
(iii) Targeted	–5.2	–22.6
II. Legal Retirement Age		
(i) Lower than 65 for women	–6.3	–14.3
(ii) Common for women–men, typically 65	–4.4	–17.2
III. Pension structure		
(i) Flat rate means tested + earnings related	–8.6	–20.0
(ii) Flat rate non-means tested and earnings related	–0.5	–27.7
(iii) Only earnings related component no flat rate	–5.5	–10.0
(iv) No earnings related component	–3.5	–28.3
IV. Size of minimum relative to the average		
(i) <20%	0.5	–12.9
(ii) 20–30%	–4.6	–17.0
(iii) 30+%	–6.9	–20.2
V. Income replacement		
(i) >100%	–2.4	–25.6
(ii) 70–99%	–6.8	–14.6
(iii) <70%	–3.0	–19.0
VI. Child care, crediting		
(i) No credit	–5.6	–17.6
(ii) Based on notional salary	–2.8	–17.9
(iii) Subsidies by government	–6.7	–12.8
VII. Existence of survivors benefits		
(i) Yes	–8.2	–13.0
(ii) No	–0.9	–13.7
VIII. Special conditions for survivor benefits		
(i) No restrictions	–1.8	–14.7
(ii) Depend on spouse income or max of the two	–4.6	–19.8
(iii) Absolute max or absolute limit	–17.4	–18.2

in gaps for widowed women. The existence of separate survivors' benefits (dimension VI), interestingly, does not lead to a better situation for widows; presumably in those systems where there is no dedicated survivors' protection, the role of survivors' pension is furnished by other system features (e.g., basic pensions). The *lack* of visible impact of restrictions on widow's pensions is also noteworthy, again due to the small number of cases where these restrictions apply.

CONCLUDING NOTE

When we look at individual system features, some, like the type of minimum pension protection or the existence of survivors' benefits, clearly have an influence. However, the relationships involved are complex and many pension features interact with each other as well as with other aspects of the labor market. The result is that no simple relationships or predictable clusters emerge very readily. An optimistic reading may be proffered for this observation, as there does not seem any *necessary* relationship between a system feature and outcomes. In other words, it is possible to design systems in such a way as to overcome the influence of any single feature.

7

His and Her Pensions: Intra-Household Imbalances in Old Age

Introduction: Looking Inside the Household

According to a well-known argument in economics—the intra-household bargaining hypothesis first introduced by Manser and Brown (1980) and McElroy and Horney (1981)—the partner with the largest bargaining power has the largest say in decisions taken at the household level. Bargaining power crucially depends on the amount and adequacy of resources each partner could muster in case of separation. In old age, pension income is one such key resource. Empirical evidence, however, has not uniformly supported the idea that the partner commanding more monetary resources has the biggest say in household's decision making.[1] Yet the appeal that this line of reasoning continues to exercise is strong as it resonates with the deeply held notion that it matters for economic independence who "brings home the bacon."

The Gender Gap in Pensions (GGP) we have considered up to now does not capture that notion of economic independence in old age fully. So far, we have compared the pension income of the average female pensioner with that of the average male pensioner. An alternative indicator of independence can be computed if we look *inside* the household and compare each woman with her own partner, rather than with the population average. For semantic clarity and consistency, we shall continue to refer to the aggregate gap as simply "the" Gender Gap in Pensions (or *GGP*), while denoting intra-household gaps with *GGP-H*.

From a policy perspective, knowledge of the way the intra-household gap behaves in different types of families is important for targeting social provisions. Most decisions of how to react to changed incentives of, say, the pension system, may be taken jointly by the two partners, but they are likely to depend on the way "her" pension compares to "his."

Additional policy issues the intra-household gap may throw light on are inequality and poverty in old age. At one extreme, a high degree of inequality (poverty) between older households may, in principle, coexist with a fairly equal distribution of (pension) income within households, hence low intra-household inequality. The converse is equally possible, for example, if high-pension men tend to partner with low-pension women, their combined pension amount does not vary excessively from one household to another. In either extremes, the goal of reducing inequality should be kept distinct from that of improving economic independence among women. If we move away from these extremes, improving independence may partly overlap with the goal of reducing inequality, but the two should nevertheless be kept distinct.

Available information on intra-household pension gaps is rather scant—in Europe and elsewhere (EC, 2012)[2]—partly because there exist a number of difficult technical and conceptual problems to overcome. This chapter makes a start and illustrates some basic findings about the intra-household gap, including essential comparison with the aggregate gap we have been examining up to now.

MEASUREMENT

As with measurement of the Gender Gap in Pensions, we propose two basic indicators in order to track gender imbalances in pension income within households, namely the intra-household gender *coverage gap* and the intra-household *pensioners' gap*. Underneath the similarity of concepts and labels there are, however, important differences between the two sets of indicators. The first difference concerns the sample. In analogy with the criteria used for the GGP, we consider the population older than 65. Hence, *the intra-household pensioners' gap* provides a summary measure of pension income disparities within households *where both members are pensioners* (and older than 65). *The intra-household coverage*

rate indicator measures the extent to which more (less) women than men receive no pension among households *where at least one member is a pensioner* (and both members are older than 65).

In analogy with our measurement of the aggregate gap (GGP), both the median and the mean values of the intra-household gap can be computed. However, the mean GGP-H gap can be unduly influenced by extreme values (outliers), with the result of distorting information. In the intra-household context, the extreme value problem is far more severe. To remedy the distortion, a possible technical solution is to trim the mean GGP-H, by removing 3 percent of the households at either extreme of the distribution of households' gaps. In contrast to the mean, the median statistics is robust with respect to outliers and does not change whether we trim it or not.[3] In what follows we shall set out and discuss both the median GGP-H and the trimmed mean version.

Expectations

We may expect the intra-household gap to differ from the aggregate gap in response to interactions among four set of factors—*sample selection, assortative mating, income role specialization, and the institutional design* of the pension system. The term *sample selection* alludes to the consequences of confining analysis to elderly *couples*, to the exclusion of the widows, the never married, and the divorced. Since women in the excluded groups tend to have higher pensions (see table 4.7), we may expect the selection effect to drive the intra-household gap upward. Sample selection will also apply in the case of couples with younger wives, as she might not be yet age-eligible for a pension. "Assortative mating" works in the opposite direction as it implies similarity of characteristics between spouses, including characteristics that matter for one's employment career. It is a long-debated social phenomenon (Vandenberg, 1972) whereby, for example, women graduates tend to meet and marry men graduates, sport-loving females tend to mate with sport-loving men, and so forth. Each scientific discipline uses the term somewhat idiosyncratically, and economists stress education, attitudes, and productivity as key components of similarity.

When people marry, however, the assortative mating effect is likely to be countered by *income role specialization*. By this we mean the tendency for men to "specialize" in market work and for

women to "specialize" in child-rearing and housework. Having married, some women might decide to drop out of paid employment (especially common among older cohorts), leading to a higher pension gap. The rationale for such specialization between paid and unpaid work is disputed within economics as well as outside the discipline (see Becker, 1981, for one of the earliest views and the critique by Bergmann, 1995). Also, income role specialization is much weaker now than in the past. But it still exists and, in Europe, it introduces a North–South gradient in behavior.

Our earlier finding that marriage is still strongly associated with higher pension gaps (table 4.7) indicates that the effect of income role specialization tends to prevail over that of assortative mating. If this evidence is combined with the expectations of a gap-augmenting selection effect, we should find that within-household gaps are larger than aggregate gaps. Superimposed to these three effects, however, *institutional factors* may push intra-household gaps in either direction. For example, the gap may be compressed by providing generous old-age benefits unrelated to labor market behavior. Selection effects may also operate through retirement ages affecting who can be a pensioner depending on his/her age. This way, each country is really a case on its own, while we may also expect to find differentiation among groups of countries characterized by different employment patterns for women as well as among cohorts.

EUROPE

Figures 7.1 to 7.3 display the intra-household coverage rate gap, the median and the (trimmed) mean, intra-household pensioners' gap. In order to facilitate comparisons with earlier work, the ordering of country is that of the headline aggregate indicator, the pensioners' gap in average income. Within elderly couples' households, the coverage rate gap is relatively high, in fact higher than at aggregate level (14.7 pp in figure 7.1 for EU27 compared to 6 pp in figure 3.6). The highest gap countries are the same we found at the aggregate level, namely Austria, Belgium, Greece, Ireland, Italy Malta, and Spain, all of which record intra-household coverage rate gaps higher than 25 pp. In most of these countries, high coverage rates are driven by the fact that relatively few women belonging to earlier cohorts were in paid work.

For the "middle" elderly couple, the *GGP-H is high* in absolute terms and higher than its GGP equivalent (45.1% in the EU27 compared to the 42% of figure 3.2). In fact, the intra-household median gap in pensions dominates the aggregate gender gap in median pension in all the countries except in Estonia, Greece, Ireland, Latvia, Romania, and Slovenia. It is also more dispersed, with the lowest gap country (Estonia) boasting absolute equality (zero gap) while Germany records slightly over 62 percent and Luxembourg an astounding 87.2 percent.[4] Eastern and some Nordic countries tend to have the smallest intra-household gap, some continental countries like Luxemburg, France, and Germany

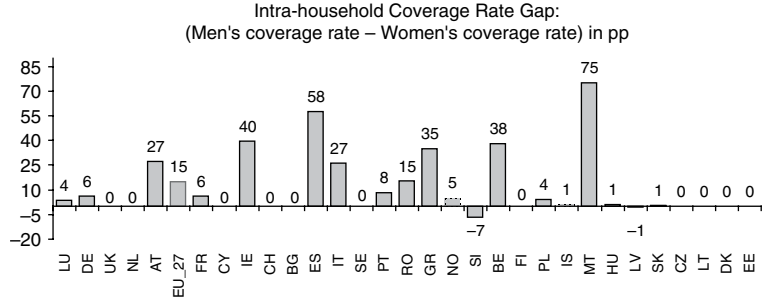

Figure 7.1 Gender Gap in Pension Coverage (%), couples 65+, at least one pension recipient.

Source: EU-SILC 2011, own estimation. Estimate for IE is based on 2010 data.

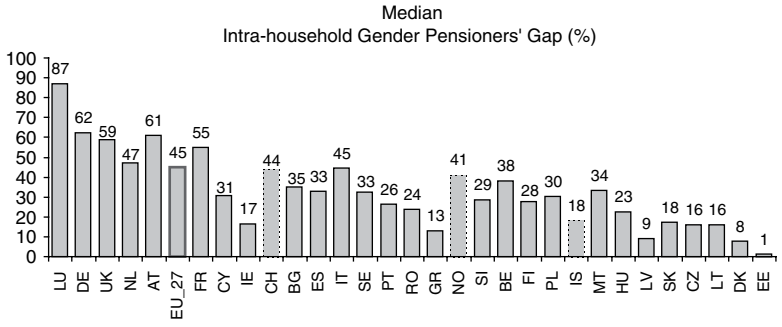

Figure 7.2 Median Intra-household Gap in Pensions (%), couples 65+, both pensioners.

Source: EU-SILC 2011, own estimation. Estimate for IE is based on 2010 data.

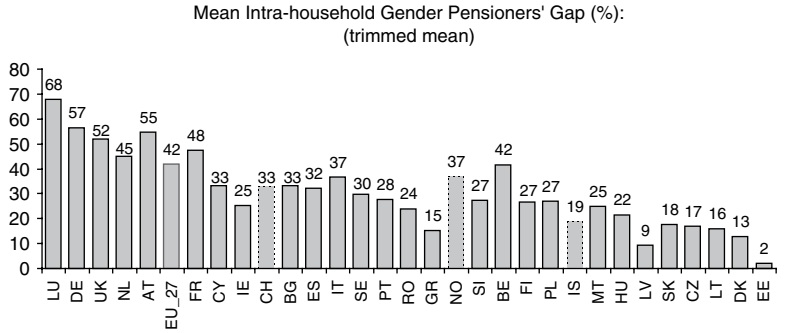

Figure 7.3 Mean Intra-household Gap in Pensions (%), couples 65+, both pensioners (trimmed mean).

Source: EU-SILC 2011, own estimation. Estimate for IE is based on 2010 data.

the highest, but this is also broadly true for the aggregate gap. For the *average elderly couple* in the EU27, the intra-household gap is higher than its aggregate equivalent if the mean is trimmed (41.9% in Figure 7.3 against 39% in Figure 3.1). For some countries, however, such as Greece, the intra-household gap is considerably smaller than the GGP. This is a possible indication of strong assortative mating for couples where both spouses are pensioners (the reference couples for computing the GGP-H).

As noted, the reference subpopulation for intra-household gaps are coresident elderly couples to the exclusion of widowed, never married, and divorced individuals. Because of this exclusion a statistical selection effect may be largely responsible for the finding that intra-household gaps generally exceed aggregate gaps. To remove this effect, we need to compare the (median) aggregate gap and the (median) intra-household gap for the same subpopulation—that of elderly couples of pensioners. Once we do so, the opposite finding obtains: the aggregate gap is as high as 58.4 percent (€15,400 per year for men, 6,500 for women), 13 points higher than the intra-household gap (45.1%; Table 7.1). This is not so surprising in view of the findings of chapter 4. In Europe, widows, divorced, and never-married women tend to have higher pensions for different reasons, from comparatively generous survival pensions for former housewives to higher labor force participation among the divorcees and the never married.

Table 7.1 The Intra-household Gaps (%) in Europe and the United States, persons 65+

		Coverage rate *	Gender Gap in Coverage rate (in pp)	Median pension income (€ p.a.)**	Aggregate gap for couples (%)	Intra-household gap (%)
EUROPE	Men	99.7		15,400		
	Women	85.0	14.7	6,409	58.4	45.1
United States	Men	97.9		18,978		
	Women	96.9	0.9	9,204	51.5	50.0

Note: * Elderly couples with at least one pensioner; ** Elderly couples where both are pensioners.
Source: EU-SILC 2011; HRS 2011; own estimation.

. . . And the United States

The picture is different for the United States, using the Health and Retirement Study (HRS) data of chapter 5 for the total pensions (social security and employment related). Among elderly American couples, both the aggregate and the intra-household gap are high. Like in Europe the latter gap is higher, but the difference is small (51.5 compared with 50.0, table 7.1) indicating that survivor's pensions play less of an equalizing role in the United States. If we look at the coverage rate, however, it is the turn of the United States to compare favorably with Europe. Recall that the intra-household coverage rate gap measures the extent to which more (fewer) women than men receive no pension (in households where at least one member is a pensioner). In the United States, this gap is practically nonexistent (less than 1%) while reaching 14.7 percent in Europe. There may be several reasons for lower coverage among European couples, including pensionable age higher than 65 in some countries[5] and lack of old-age benefits in combination with low female participation.[6]

In sum, the evidence for both the EU and the United States points to larger pension inequalities when she is compared with her partner than with the average or middle male pensioners. In Europe, a large selection effect following the exclusion of non-partnered elderly (widows, divorced, singles) contributes to larger imbalances at household level with respect to the aggregate, but

this does not hold for the United States. Given that three possible effects are at work in addition to the selection effect—the assortative mating, the income specialization, and the system design effects—a fine-grained analysis is needed to conclusively account for the findings for the United States, as well as for Europe. Such an endeavor, however, is outside the scope of this book. The same applies to separating total pensions between the pillars, that is, netting out social security and other pensions.

INDEPENDENCE AND POVERTY AT HOUSEHOLD LEVEL

Whatever the reasons may be, the order of magnitude of pension income inequality between older partners is indisputably large on both sides of the Atlantic. A critical question then is whether high inequality is prevalent in poor households or, on the contrary, characterizes well-to-do households. Again, there are no strong a priori expectations except perhaps for widespread evidence pointing to larger gender differences at the top of the earnings pyramid (Arulampalam et al., 2007; Blau and Kahn, 1996). Our own findings about size of the GGP along the distribution of income are mixed and offer limited general guidance (see chapter 4).

To examine this question, that is, whether more unequal households tend to be also poor, we use simple correlation analysis and compute the Pearson coefficient between the pension gender gap and poverty status. Even taking into account the preliminary nature of this enquiry, the results are more clear-cut than one would expect. Using the conventional, head-count measure of the risk of poverty, the statistical correlation with the household's GGP-H turns out to be *negative* in the vast majority of countries—22 out of 27—implying that the risk of poverty is *lower* for the most unequal couples while poorer households tend to be more equal.[7] But there are important qualifications. First, the estimated coefficient is robust (statistically significant) in the majority of the negative correlation cases—12 out of 22 member states corresponding to Austria, Bulgaria, Germany, Estonia, Greece, Italy, Lithuania, Luxembourg, the Netherlands, Poland, Portugal, and Romania. It is, however, weaker than required for statistical significance in ten other countries, including Cyprus, the Czech Republic, Denmark, Spain, Finland, Ireland, Latvia,

Sweden, Slovenia, and United Kingdom. More importantly, in five member countries the sign of the correlation reverses—implying that poverty is more likely to beset strongly imbalanced couples. This happens in Belgium, France, Hungary, Malta, and Slovakia.[8] A positive correlation is somewhat counterintuitive because when both partners are pensioners (as in our sample), the household is more likely to be poor if both pensions are low, hence if the gap is low. However, there may be features of the pension system that drive this result, for example, when social security benefits for the partner who never worked are low.

Extreme values may confound the results of correlation analysis, calling for some robustness check. Prior to checking robustness, however, we need to discuss the typical distribution of the GGP-H. By construction, the (percentage) GGP_H has an upper bound of 100, while there is no lower bound. If, for example, we were to compare a wife with a pension income of $150,000 per year to a husband only receiving only 5,000$, the percentage household's gap would amount to –2,900. Our calculations of the GGP-H in Figures 7.1–7.3 partly counter that by treating as outliers percentage gaps smaller than –2,000 and dropping them from the sample. However gaps higher than –2,000 are retained, which may unduly influence the correlation with poverty. In order to address this question, we computed correlations coefficients after restricting the sample to couples in the ±100 range gap range. The results are reassuring. Across countries, the sign of the correlation remains the same in the restricted sample except in the case of Slovenia (where it turns from negative to positive). In eight additional member countries, the correlation coefficient gains or loses significance in the restricted sample, with gains prevailing over losses. Overall, this corroborates the previous result that the correlation between poverty and the GGP tends to be negative, although exceptions are not infrequent.

For a visual sense of what such correlations mean, consider the scattergram plotted for our illustrative subgroup of eight European countries in figure 7.4. Each marker (red circle) in a country panel corresponds to an observation (a couple). And each observation is positioned along two dimensions, respectively the poverty indicator on the vertical axis and the size of the intra-household gap on the horizontal axis. The poverty indicator takes value 1 for being poor (the top line along the *y*-axis) and zero for not being

Figure 7.4 Household poverty and the Intra-household Gender Gap in Pensions, couples of pensioners 65+.

Source: EU-SILC 2011, own estimation.

poor (the bottom line). On the horizontal axis, pension gaps are restricted to in the ±100 range. In this range, the correlation with poverty turns out to be negative and significant in Greece, Italy, and Poland; negative, and not significant in the Czech Republic, Germany, Ireland, and United Kingdom; positive in France. Now compare Poland and Greece where the correlation is negative and strong to France where it is positive and strong. In Poland, the upper line where poor couples are positioned thickens in correspondence to small gaps (i.e., gaps values around zero) while it thins out in correspondence to higher (positive) gaps. In simple words, more poor couples are found in the small gap region than in the high gap region. A different factor strengthens the negative correlation in Greece; here, several poor couples display relatively large negative gaps, a possible indication that where "she" receives the larger pension the couple is poor. In France, by contrast, the majority of poor couples are positioned in the high gap region.

Concluding Notes

This chapter has skimmed the surface of a yet unexplored research domain, that of income inequality between elderly partners. Although we raised more questions than we provided answers, two main findings that we obtained are clear. The first is that across Europe and the United States pension disparities between partners tend to be higher than aggregate pension disparities. This is due to the complex interplay among four set of factors: statistical differences between couple and non-couple households, the way the "marriage market" operates, the persistence of gender income roles, and differences in pension system design. In simpler words, the alarm bell for economic independence for women in old age rings even higher when we look inside households. Women in more unequal households might feel more dependent in exercising key choices about their life than those were inequality is lower.

The second finding partly counterbalances that. Women in more unequal couples lose in independence but appear to gain in income security. More unequal couples tend to be less exposed to poverty when their incomes are pooled, at least in Europe. Addressing poverty in old age is not, therefore, tantamount to addressing poor economic independence, if only because the respective population targets are different. Nevertheless, two qualifications must be

stressed. First, two independent work-based pension entitlements remain the most effective shield against poverty in old age, in the same way that a two-earner household prevents poverty in working life. Second, economic independence remains a valid objective, irrespective of other matters. Can we really assume that, say, the fact that "he" receives a pension double than hers does not matter because the household is not poor and all resources are fully shared? And can we really assume that, independently of who brings home what, she has the same say as he does in decisions about what to buy, where to go, or how to organize health care and assistance? Though income is not the *only* thing that matters in bargaining power within the family, it is certainly not irrelevant, even in old age.

8

Looking Ahead: Pension Reforms and Inequality in Old Age

An Overview of the Argument

Whereas gaps in pay and earnings between men and women—the gender pay gap in particular—are regularly followed, studied, and their amelioration is a policy target, its sequel that would be applied to an older population—the gender gap in pensions—was hardly ever mentioned until recently. Very little internationally comparable information exists, while the suspicion remains that gender imbalance could be worse in those countries where less is known about it. The estimates that exist for individual countries are sufficient to generate a sense of unease. They can also signal that information gaps could have important welfare implications, in the sense that important policy areas and initiatives are missed out through being unremarked. That issues of great importance for the independence of older women lack visibility could be interpreted by some as another example of that group of citizens being taken for granted.

This book argued that the gaps in pension entitlements between women and men in advanced countries should be the object of regular monitoring. It examined the argument first for Europe and then extended it wider afield. One efficient way to do this is to track on an annual basis a statistical indicator capturing the gender gap in pensions. *This indicator should be equal to the percentage by which women's average pensions are smaller than men's average pensions, calculated for pensioners over 65 years of age.* Such a simple indicator would be comparable between countries and should be in a position to chart changes from year to year. The ready availability of such an indicator would, of itself, provide visibility for the problem. International comparability is an important feature, acting to

prevent complacency; benchmarking with other countries can maintain an idea of how things could be otherwise. Having established key differentiations, a better understanding of their underlying causes will come about. Constructive use of statistical information should lead to an improvement in data and definitions that could deal with many of the technical issues noted in this book. The final reward would be a detailed understanding of policy initiatives that can ameliorate problems and possibly prevent them.

The key characteristic of pension gender differences is their complexity. In the pensions of today's older generation we see at the same time the legacy of past imbalances and the premonitions of future problems, some of which unwanted consequences of reforms undertaken in the past. The year-on-year problems caused by the economic crisis add a further twist. The situation affecting today's older population is due to a mixture of all three classes of factors. We saw, in the case of the EU Member States, that the mixture of factors is different in different places, and may be moving in different directions over time. Our brief look at the world at large confirmed and amplified the impression gleaned from the European data.

Taking this diagnosis as a starting point, this report argued that, in order to base initiatives on a sound foundation, the first step should be to benchmark the current situation facing the older population of the Member States of the EU. To do this, it is imperative that information is derived from a comparative data source. Administrative data may be more familiar to local users, but their use in comparisons raises a host of questions and could complicate rather than enlighten the issue.

Thus, having established the motivation for a gender gap in pensions indicator, we proceeded to a number of statistical exercises, designed to establish a statistical starting point for the analysis. This involved supplying robust stylized facts about particular issues, but also charting the degree of complexity that would otherwise cloud judgments.

FINDINGS OF THE GENDER PENSION GAP ANALYSIS: TOWARD STYLIZED FACTS

The statistical analysis proceeded in a series of structured lines of enquires. The easy availability of a comparative data source allowed us to treat the EU as a kind of institutional laboratory,

allowing consistent comparisons between countries of different institutional makeup and stages of progress in gender equality. Each step was designed to investigate particular aspects or questions and may have undertaken and presented more than one statistical exercises. On occasion more than one data source was used to approach the same question. In summary the results are as follows:

How Wide Is the Pension Gap in Europe?

Our central estimate of Gender Gap in Pensions—what we termed the "headline indicator"—is very wide. *The EU-27 average is 39 percent.* The two highest figures are for Luxembourg (46%) and Germany (44%). At the other extreme, Estonia is lowest (3%) followed by Denmark (11%). A large number of countries are around 30 percent, while fully 15 out of the 27 have gender gaps in pensions greater or equal to 30 percent.

This exceeds by more than three-fifths the earnings gap indicator (equal to 23%). However, there is no simple relationship between the two figures. Suffice it to say that Estonia (lowest pension gap) also has the second *highest* earnings gap. Indeed, it is possible that two separate relationships exist: one where high pay gaps coincide with lower pension gaps, typical in eastern Europe; and one where a large earnings gap is associated with a large pension gap. This can be taken as an indication that pensions may *dampen* preexisting inequality, but may also *widen* it, sometimes as an unwanted side effect of system design features. Extending the analysis outside the EU by calculating equivalent indicators in Israel and the United States confirmed this overall complexity.

Who Has a Pension? Coverage Effects and the Elderly Pension Gap

Pension gaps may also be calculated for the total population over 65, what we called "the elderly pension gap." In some or possibly most countries (e.g., Germany, the Netherlands, and Denmark), this makes for little difference, as all elderly people are drawing some kind of pension. However, in a large subset of countries there are large numbers of women who have no pension, probably because they have not accumulated sufficient rights for their own

pension, or because they are thought to be dependents of their husbands. These countries are Malta (coverage gap 34%), Spain (27%), Belgium (17%), and Ireland (16%), while seven countries have coverage gaps greater than 10 percent and eight countries greater than 5 percent. Allowing for people with no pensions predictably has a large effect on computed pension gaps. The country with the largest elderly pension gap is Spain (52%), followed by Malta (49%), hence altering the country rankings considerably. Turning to the world outside advanced countries with less advanced systems of social protection, such as Latin America, who has a pension (and who does not) remain an overwhelming concern (OECD 2013:20).

Is the Pension Gap Tending to Rise or Fall? Cohort Analysis

The pay gap in all developed countries and in Europe has been shrinking in the past 20 years, although progress may have stalled in recent years. Is this mirrored in pensions? A cautionary note must be sounded from the United States, where an equivalent reduction in pay gaps was associated with apparent immobility in pension gaps (Even and Macpherson, 2004), despite (or possibly because) considerable policy activism.

If we compare pension gaps of those aged 80+ with those aged 65–80, we see that pension gaps are considerably *lower* for the older group. However, this may be due to the equalizing effect of survivors' pension collected by widows, combined possibly with the differential longevity of better-off women. Indeed, excluding widows from the analysis reduces the difference, but does not obliterate it. A similar exercise using data from the Survey of Health, Ageing and Retirement in Europe (SHARE) leads to a mixed picture: In Greece, Denmark, the Czech Republic, and Austria (and possibly in Germany) younger people's pension have *higher* gaps. In contrast, in France and Spain the opposite is the case, while in Italy and Belgium (and possibly in the Netherlands) differences are small. In any case, it is obvious that the existence and design of survivors' pensions are a factor of key importance for the older group. The trend toward individualizing pension benefits, by abandoning special survivors' protection, would have the side effect of doing away with an equalizing influence at older ages. The introduction of supplementary nonstate pensions has a

similar consequence of individualizing benefits. This may make those pensions more attractive to contributors, but interacts with sources of women's disadvantage such as broken careers to introduce new sources of inequity.

Thus, there are long-term forces, mainly from the labor market, pushing for greater equality at the same time as other forces, mainly from pension design, could be pushing in the opposite direction. The net outcome of this opposition is not yet decided. Our data capture the transition half way, so that the jury is still out.

Effects of Education and Lifetime Income

Education is a key determinant of lifetime chances and is thus closely linked to lifetime income (what economists call "permanent income"). Given that we know educational attainment of future pensioners will rise, if gender gaps rise with education this could signify that pension gaps will rise in the future. However, the picture emerging from the data is very mixed. Though in the EU average the higher the education, the larger the gender gap, this is not a picture which holds in all countries. In some it does (Sweden, United Kingdom, the Netherlands), in some the opposite holds (Spain, Austria, Portugal), while in others most of the gender effect comes from differences between and within educational categories (Germany).

How Are Pensions Distributed?

Pension gaps focus on average pensions; however, a linked issue of importance is how pensions are distributed around the average. Predictably, women are greatly overrepresented among lower pensions and underrepresented in higher pensions. Fixing the pension level to that of the poorest third of men, we see that for every poor man, we have almost two poor women. Denmark is the country where women's distribution comes closer to men's, while the Netherlands is at the other extreme. Even when the linked issue of calculating separate gaps for each third of the distribution is examined, there are some countries where that is rising with income (Ireland, Portugal, Denmark) and some where it is falling. In general, the link of pension gaps with level of pensions appears to be a systemic characteristic that operates in different ways in different parts of Europe.

Can We Discern Trends in the Pension Gap Over Time?

Comparing points six years apart (2011 and 2005), we again see a mixed picture. Whereas on average there is a widening of gaps (by 2.1 pp), this masks opposing trends—from improvements in Belgium (–6.7), and Greece (–3.2) to deterioration in the Netherlands (5.5), Germany (4.5), Austria (4.5). However a cautionary note is in order since the reference period is relatively short and some of the countries registering large variations feature small sample size in the source data set (EU-SILC). This is a statistical source of variability that may interact with "real" trends.

Pension Gaps and Broken Careers

Women have worked for fewer years than men. In general, shorter careers are associated with larger pension gaps, though that relationship is not simple or one to one. In some cases, gaps rise and then fall. Between the world of work and that of pensions, the operation of the pension system in some countries can correct for broken careers and in others exacerbate them. Compensating women for times out of the labor force has been introduced in most countries too late to have a discernible impact on pension gaps of today's over-65 pensioners. Distinguishing "dominant job" during one's working life, the lowest gender gaps are met in the public sector (where they might even be negative), and the largest among the self-employed. If public retrenchment leads to smaller importance of these "leveling sectors" in the future, this could add a further tendency for pension gaps to rise over time.

The Effect of Multi-Pillar Systems: Some Indicative Results

Our focus on people 65+ means that in most countries the effects of multi-pillar reforms are not visible. However, in Denmark, the Netherlands, and in Switzerland, the second pillar is sufficiently mature to enable some analysis, using data from SHARE. In those countries, gender gaps of the public pillar on its own are negative; the addition of the occupational pillar is heavily imbalanced by gender. Thus, the composite of the two pillars has a wider gender

gap than the public pillar. The second pillars in those countries also display a very significant *coverage* gap. The US picture sounds a warning for the type of dangers ahead. The overall picture is marked both by wide coverage gender gaps for employment-linked pension protection and by gaps in pension amounts for those who have access to such pensions. In the United States, inequality of access to this type of old-age protection is already seen as a major threat to income independence of old age. Though the pension scene there regarding nonstate pensions is considerably different from Europe, the warning sounded is more than clear.

Gender Gaps by Marital Status: Is There a Motherhood Penalty?

Gender gaps are narrower for single women; even so, though, they remain of considerable size. Gender gaps are widest for married women, while divorced women are somewhere in the middle. However, there are very marked national differences, due to institutional features, but also individual behavior. Using SHARE data, a very clear and strong relationship is apparent between the number of children raised and the gender gap. This relationship is strongest in France and weakest in Denmark. Compensation mechanisms for child-rearing matter (D'Addio 2012) but came too late to make a difference for the pensioners over 65, which were the focus of our interest; however, the warning remains.

Relating the Gender Gap to Pension System Features

When we looked at individual system features, some, like the type of minimum pension protection or the existence of survivors' benefits, clearly have an influence. However, the relationships involved are complex and many pension features interact with each other, as well as with other aspects of the labor market. The result is that no simple relationship emerges very readily. An optimistic reading may be proffered for this observation, as there does not seem any *necessary* relationship between a system feature and outcomes. An exception is the operation of citizen's pensions which essentially do away with coverage gaps. In other words, it is possible to design systems in such a way as to overcome the influence of any single feature.

The Intra-Household Gender Gap in Pensions

The unit of measurement for the headline indicator, the gender gap in pension income, is the individual. The comparison here involves judging the average pension for women against the average for men. However, a gender gap indicator for pensions can also be meaningfully computed at the household level. By looking inside the household, we compared each woman with her own partner and generated a distribution of household gaps. The median and the trimmed mean of this distribution turned out to be the most robust indicators for the intra-household gender gap in pensions.

We found that the intra-household gap is higher than the aggregate gap in the EU as a whole and in the majority of its member countries. This follows from interactions involving the institutional design of the pension system and a number of other influences: statistical factors—the intra-household and the aggregate gaps are measured on different subgroups of the elderly population; behavioral processes—who marries whom and who earns the most within families. In particular, the median intra-household gap is 4 pp higher than its aggregate equivalent in the EU_27 (45% against 42%) and over 18 pp higher in four countries. In only six member countries, the median gap is lower within households than in the aggregate.

We also found an association between the size of the intra-household gap and the risk of poverty. In the majority of (though not in all) European countries, couples at risk of poverty tend to be more "equal," in the sense of displaying smaller disparities in pension between partners. In six countries, however, the opposite occurs. Overall, the results echo evidence that large gender gaps in earnings tend to prevail at the upper end of the earnings distribution and suggest that women in more unequal couples could lose in independence but gain in income security.

How Does Europe Compare with Other Countries?

The diversity of experience in pension design and reform that Europe offers was a key motivation for this study. The European focus would be justified by benchmarking European findings with those of other advanced countries outside Europe. We calculated gender pension gaps for two non-European countries, Israel and the United States, and reviewed studies conducted using survey

data in Europe, the United States, and worldwide. In every case, we found that the "stylized facts" of the European situation are largely replicated. Both the absolute figures for the gender pension gap and the general outline of the results—how they vary by age group, education, and marital status—have found echoes in all the cases where we have tried to benchmark results. The more sobering results, however, come from what inferences we can draw from second-pillar pensions: in the United States, they already account for the lion's share of gender pension gaps. These coverage gaps should stand as a warning that the overall pension gaps may well grow with time.

However one looks at things, pension gender gaps are already a threat to women's independence and could prove a greater one in future.

Policy Lessons

Gender gaps in pension are an important issue both for welfare and, but chiefly, for the independence of the older generation—both women and men. As those newer and larger generations of pensioners, who will have experienced the benefits of greater gender balance in employment, enter pensionable age, they might find the situation awaiting them in the pension system increasingly constricting. The fear is that, individuals accustomed to economic independence in their daily affairs might be confronted with a pension context presuming dependence. What has been gained in the labor market may be reversed in pensions.

Is the Danger of Backtracking in Women's Independence Unfounded?

The worrying fact is that, in most European and advanced country contexts, we are only now moving toward giving a convincing answer to this question—one way or another. The statistical analysis showed that gender gaps in pensions are unexpectedly wide—many times wider than pay gaps. One especially unsettling issue concerns the lack of visibility and awareness of the problem. This is partly due to problems in national administrative data but is certainly aided by lack of information benchmarking national situation against international norms.

This book made a start in this direction. What it uncovered are wide gaps in most countries, a wide dispersion of gaps across Europe and elsewhere in the world, but also an overwhelming complexity especially when trying to relate observed behavior to causal influences. A key part of this complexity is to do with the cohort effect: what is observed for today's older population 65+ may not hold when they are replenished by those who today are in their forties. We know that the older generation in future decades will be more educated, more likely to be employed, and will have benefited from all the improvements of the heyday of the welfare state of the 1970s to 2000s; so many of the factors behind today's disadvantage will gradually decrease in importance. However, especially in recent decades, women may be more exposed to more flexible forms of employment with a less stable attachment to particular jobs or employers. The danger is that this greater flexibility carries with it differentially smaller access to adequate pensions. An additional risk for Europe is the growing importance of part-time work. Part-time employment has grown three times as much as full-time among European women since the turn of the century (29.3% against 9.4% between 2010 and 2013 in the EU27: Eurostat online database). With the latest waves of pensions reforms often tightening the link between social security contributions and pension amount, the gains in part-time employment may counterbalance the gains in the employment rate among younger generations, at least in part.

A key area of ignorance is how the population responds to the oftentimes radically altered incentive structure embodied in reformed pension systems. It is true to say that reforms aim to substitute individual responsibility for what was previously guaranteed by the state. The extent to which individuals will be ready to take advantage of this is still unknown (Clark et al., 2012). Who will take advantage of the new possibilities and who will not are also as yet largely unknown. There is a very real danger, though, that these shortcomings will in the future be conduits introducing new kinds of gender imbalances to pensions. For this reason, gender must not be absent from policy packages preparing and educating individuals to navigate the new pension scene.

What is certain is that wide gender gaps in pensions are the outcome of a series of overlapping factors, at least some of which are due to unforeseen and unanticipated consequence of policy

decisions made in other contexts. What is also certain is that in many, if not most, cases simply relying on improvements in pay and earnings gaps of the working generation to percolate through to pensions would be insufficient.

When a new concern enters policy "radar screens," understanding proceeds in three steps. The first stage is awareness—simply to have the issue visible. With the second phase comes amelioration—correcting the worse consequences, after the fact. By the third phase, the source of the problem is sufficiently well understood to proceed to prevention of the underlying source of the problem.

In the case of gender gaps in pensions, we are still in stage one—visibility of the issue and an ability to grasp its complexity. It is in this first stage that the EU, as an international entity already heavily involved in both gender balance and ageing issues, can play a decisive role. The EU can act to place the issue on the agenda and through benchmarking to galvanize the type of national initiatives that would be in a position to deal with actions ameliorating the worse effects but also acting to prevent the underlying causes giving rise to the issue. A European initiative on pension gender balance would reverberate internationally and would help to place the issue of pension gender gaps in the agenda of other advanced countries.

The book uncovered wide gender gaps in pensions. It also uncovered particular instances where developments were in the direction of making matters worse in a relatively short period of five years. Examination of the national differences in experience uncovered very few "easy generalizations." For instance, Denmark and the Netherlands have opted for a stronger second pillar; however, this choice did not translate, at least in our analysis, into consistent clustering of these two countries. The worries about gender impacts and unpredictable effects may be exacerbated as the economic crisis and the need for retrenchment affect pensions in as yet unforeseen ways.

The study can, nevertheless, hint at the existence of policy alternatives that, by compensating disadvantage, end up perpetuating it. Such would be measures encouraging women to leave the labor market early, with the consequent permanent reduction of pensions and increase of the poverty risk of single women. Policies that mitigate disadvantage—relying on survivors' pensions, on "married

bonuses" to men's pensions—can also fall in this category. In contrast, policies that attack the root cause of disadvantage, such as credits for child-rearing, can be thought to operate toward creating a level playing field between men and women. The one policy lesson that—at this early stage—can be repeated is: vigilance.

DIRECTIONS OF FUTURE WORK

Work to date essentially dealt with description of the underlying situation, starting with the 27 plus 3 European countries that produce EU-SILC data. This was extended internationally where comparable data could be used, the United States and Israel. We proceeded through a factor-by-factor analysis (which would be useful should amelioration of the worse problems be the desideratum). We observed clustering of countries, but the identity and membership of the clusters are shifting and did not appear to follow any simple organizing principle. For example, the three EU countries with relatively mature second-pillar systems, United Kingdom, the Netherlands, and Denmark, were seldom found in the same grouping, hence precluding any easy generalizations about the effect of multi-pillar systems. The modeling of system features, which was begun in chapter 6, was only a first step in explaining intercountry differences. Success in this direction would probably necessitate modeling the interaction of systemic features with characteristics of individuals, which necessitates both richer data and a richer description of systems.

These observations imply two separate directions—one for policy discussion and policy formation and another for research. As for other work affecting the different EU Member States in different ways, once sufficient visibility is given to a benchmarking exercise centrally, the question can be put to each Member State to "respond" by explaining and projecting its own national issues and explanations. This kind of generated "structured dialogue" has been undertaken with some success in similar issues within Europe. Its principal benefit in initial stages is to highlight an issue of concern and bring it to the limelight. This approach would help most where the problem is least acknowledged, which for most countries is the situation pertaining to pension gender gaps.

Research needs to go beyond simple description in order to ask analytical questions.

In the field of taxation and policy on social benefits, the EUROMOD model has aided policymaking and has proved itself invaluable for evidence-based policy formation. It uses micro data combined with detailed modeling of the tax and benefit systems to produce national models which are both comparable and can be used to simulate particular changes. To proceed in a similar direction in the field of pensions would require data far richer than SILC, given that detailed information on past characteristics of the sample would be needed. In the United States, the Health Retirement Survey (the precursor and model for SHARE) has been utilized for such purposes. Apart from data, we need to research how individuals respond to changed incentives, which needs to utilize among others international experience.

A fuller set of data would allow enriching the analysis by a formal clustering exercise based explicitly on system parameters. In this way, we could identify the effectiveness of, say, child-rearing credits or the impact of more part-time working as D'Addio (2012) has begun doing using the OECD model. An additional research avenue is to expand the exercise we carried out in previous work (Bettio et al., 2013) of decomposing pension gaps in order to estimate how much of the gaps can be "explained" by the factors we know (system design and difference in individual characteristics). The third possible direction is to attempt to link more closely the situation in the labor market and that in pensions through a better understanding of the transition from work to retirement—the sample selection issues that we kept meeting throughout the report. Those kinds of issues are especially important on intra-household effects, which supply the fourth direction: the decision how to react to, say, lower accrual rates (less generous pensions) is a decision taken at the level of the household. Understanding the dynamics of these effects may hold the key to the policy conundrum: how can we have sustainable pension systems which serve adequately the social functions for which pensions systems exist in the first place?

General Conclusion

The world is entering a stage where ageing would be an everyday fact in all advanced societies. More and more people will rely on pensions as their chief source of sustenance. Who has a pension and what kind of pension would be the questions that will

determine the independence of women and men in the coming decades. Cohorts of women accustomed to far greater equality and independence while working will enter pensionable age expecting their gains to continue even after retiring.

This book has sounded a warning that their expectations may well be disappointed. Current pension gender gaps are far wider than earnings or pay gaps in employment. The naive expectation that gains in the world of work will be automatically transferred to the world of pensions is unfounded. This is caused by influences from two opposing directions. In some countries, unreformed pension systems, designed many decades ago, presume that male workers tend to be the main breadwinners, and are structured likewise. In other countries, pension reforms have moved structures toward greater individualization of rights. This, paradoxically, may hurt women in generations "caught in the middle"; moving away from survivors' pensions would do away with potent equalizing factors in most countries. The *second* set of reforms are those instituting closer links between lifetime contributions and pension entitlements, most commonly in promoting supplementary occupational or private pension cover. These provide incentives to better one's own situation. However, they leave two caveats: First, the transitional generation may not have the time necessary to respond. Second, features characteristic of female employment patterns such as motherhood, part-time work, or broken careers interact with pension system design to yield systematically smaller access to pensions and lower pensions for those who have one.

Women's independence in ageing societies is thus threatened, paradoxically, by both too little and too much reform. Unless the matter of differential gender entitlements to pensions is treated as an issue in its own right, the lack of visibility of pension gender gaps is likely to lead to women being a kind of collateral damage of good intentions of reformers Women's indisputable gains in independence, possibly one of the crowning achievements of the last century, could be in danger once the paycheck is replaced by the pension entitlement.

This book has consistently argued that the chief concern raised by large gender disparities in pensions is economic independence. Yet, the link with economic inequality deserves at least a quick mention in times of rising disparities in income and wealth. At country level we often found gaps to be larger in the richest

nations, although there are many exceptions. At the household level we found poor households to be more gender equal in pension income in the majority of (European) countries, although here too there are numerous instances to the contrary. Clearly then, gender differences in pension are a facet of economic inequality. At the same time we argued that the higher gender disparities in better off families may imply some trade-off for women between income security and economic independence.

Some may find this trade-off reassuring. The truth is that we do not really know enough to be confident. Recent research has uncovered that several European countries exhibit large gender gaps in wealth in the population over 60 years of age (Sierminska 2014) although elder women tend to be poorer in income than in assets (Gornick et al. 2009). For most countries, however, we still do not know to what extent wealth adequately compensates for income in old age across different income groups.

Others may take the above trade off to mean that focusing on gender disparities in pensions rather than targeting low pensions for both men and women is yet another instance of elite feminism. That may be so, but this book has shown how comparatively lower pensions for women (and some men) is a problem that cuts across income groups, though at varying intensity. Once a problem that concerns the vast majority of families has won the spotlight, all stand to gain.

DEFINITION OF THE GENDER GAP IN PENSIONS IN EU-SILC

We define the Gender Gap in Pensions as:

$$\left(1-\frac{\textit{women's average pension income}}{\textit{men's average pension income}}\right)\times 100 \qquad (1)$$

In order to define both *women's* and *men's average pension income*, we take into account the following assumptions:

1. We consider the subsamples of individuals in the EU-SILC UDB p-file who are 65 years old at the beginning of the income reference period (t-1) of the EU-SILC wave concerned (t).
2. Among the subsample of individuals in (1), we select those who have "at least" one positive income value of old-age benefits (PY100G), regular private pensions (PY080G) or survivors' benefits (PY110G).
3. By denoting "F" the women in subsample (2), and "M" the men in subsample (2), formula (1) can be rewritten as follows:

$$\left(1-\frac{\dfrac{\sum_{i:1}^{F}\left(PY\,080\,G_i+PY\,100\,G_i+PY\,110\,G_i\right)w_i}{\sum_{i:1}^{F}w_i}}{\dfrac{\sum_{j:1}^{M}\left(PY\,080\,G_j+PY\,100\,G_j+PY\,110\,G_j\right)w_j}{\sum_{j:1}^{M}w_j}}\right)\times 100 \qquad (1\text{ b})$$

where w_i is the personal cross-sectional weight of female i (SILC variable PB040), and w_j is the corresponding weight for male j.

Share as a Source of Information: Description of the Pension Variables in Share Wave Data

SHARE covers individuals aged 50+ providing information for pensions (distinguishing types of pensions, on careers, family, and an ability to relate economic conditions to other dimensions of well-being such as health and family). SHARE wave 1 was collected in 2004 and wave 2 (with the addition of new countries) in 2007. SHARE wave 3 (SHARELIFE) is a specialized retrospective questionnaire covering career experiences; it thus has richer information on broken careers, changes of occupation, marital changes, etc. SHARE does not exist for all member states but is available for a cross section covering a wide range of pension experience. Tables A1.1 to A1.3 present the description of the pension variables of SHARE wave 2 that were used in the analysis of the present report for pillar 1, pillar 2, and pillar 3, respectively

Table A1.1 Description of the pension variables, SHARE wave 2, pillar 1 (statutory pensions schemes)

Variable's Name	Code in the Questionnaire	PILLAR 1: STATUTORY PENSIONS SCHEMES
pen1v	ep078_1	Monthly public old-age pension, previous year
pen2v	ep078_3	Monthly public early or pre-retirement pension, previous year. *In Sweden, it refers to invalidity and disability pension*
pen3v	ep078_4	Monthly main public disability insurance pension, or sickness benefits, previous year. *In Sweden, it refers to the survivor pension*
pen4v	ep078_6	Monthly public unemployment benefit or insurance, previous year. In *Sweden, it refers to occupational pensions for blue-collar workers in the private sector*
pen5v	ep078_7	Monthly public survivor pension from partner, previous year. *In Sweden, it refers to occupational pensions for white-collar workers in the private sector*
pen7v	ep078_9	Monthly war pension, previous year. *In Sweden, it refers to occupational pension for workers in municipalities, in counties or in the government*
pen12v	ep078_2	Monthly public old-age supplementary pension or public old-age second pension, previous year
pen13v	ep078_5	Monthly secondary public disability insurance pension, or sickness benefits, previous year
pen14v	ep078_8	Monthly secondary public survivor pension from spouse or partner, previous year
pultv	ep078_10	Monthly public long-term insurance payments, previous year

Table A1.2 Description of the pension variables, SHARE wave 2, pillar 2 (occupational pensions)

Variable's Name	Code in the Questionnaire	PILLAR 2: OCCUPATIONAL PENSIONS
pen8v	ep324_1	Monthly private (occupational) old-age pension, previous year
pen9v	ep324_4	Monthly private (occupational) early retirement pension, previous year. *In Sweden, it refers to unemployment insurance benefits*
pen10v	ep324_5	Monthly private (occupational) disability insurance, previous year. *In Sweden, it refers to sickness benefits*
pen11v	ep324_6	Monthly private (occupational) survivor pension from partner's job, previous year
pen15v	ep324_2	Monthly occupational old-age pension from a second job, previous year
pen16v	ep324_3	Monthly occupational old-age pension from a third job, previous year
pen17v	ep324_5	*(only in Sweden)*—Monthly private (occupational) disability insurance, previous year

Note: The national exceptions were allowed by subtracting (e.g., Swedish data).

Table A1.3 Description of the pension variables, SHARE wave 2, pillar 3 (individual supplement provision)

Variable's Name	Code in the Questionnaire	PILLAR 3: INDIVIDUAL SUPPLEMENTARY PROVISION
reg1v	ep094_1	Monthly life insurance payment received, previous year
reg2v	ep094_2	Monthly private annuity or private personal pension, previous year
reg3v	ep094_2	*(only in Greece)* Monthly private health insurance payment received, previous year
reg4v	ep094_3	Monthly alimony received, previous year
reg5v	ep094_4	Monthly regular payments from charities received, previous year
prltv	ep094_5	Monthly private long-term care insurance payments, previous year

HRS as a Source of Information: Description of the Pension Variables in *HRS* 2010 Wave Data

To compute the gender gap we used the RAND[1] HRS Data files, which are a cleaned and easy-to-use version of data files from 11 waves of the HRS data, including five entry cohorts: the original 1992 HRS cohort; derived variables covering a broad, though not complete, range of measures have been constructed by RAND. In this chapter, we used variables from the HRS 2010 wave, based on 22,034 individuals (respondents or spouses) living in 14,890 households.

To construct an "individual income from pensions" variable, we need to secure maximum comparability with the EU-SILC variables used in chapters 3 and 4. The sum of three SILC variables, old age benefits (PY100G), regular private pensions (PY080G), and survivors' benefits (PY110G), gave us "total household income" (considering the pensioners only) variable. In a similar fashion, we examined the computed variable of total household income for respondent and spouse (H10ITOT "Total HHold / R+Sp only"). Components of this total are reported separately for the respondent and his/her spouse. The separate items are "Pension plus annuity," Social Security Invalidity Plus Social Security Disability, and Social Security Retirement. To approximate the European data, we have *not* considered "Withdrawals from Individual retirement Accounts."[2] Though such withdrawals represent an important resource for retired people in the United States, they are akin to financial income from personal savings, which in the EU enquiry was excluded from pensions.

Thus, in technical terms we have used H10ITOT "Total HHold / R+Sp only") and its following subcomponents:

- *R10IPENA (for the respondent)—W10 Income: R Pension + Annuity*
- *S10IPENA (for the spouse)—W10 Income: Sp Pension + Annuity*
- *R10ISSDI (for the respondent)—W10 Income: R SSI + SS Disability*
- *S10ISSDI (for the spouse)—W10 Income: Sp SSI + SS Disability*
- *R10ISRET (for the respondent)—W10 Income: R SocSec Retirement*
- S10ISRET (for the spouse)—W10 Income: Sp SocSec Retirement

Appendix 2

Table A2.1 Gender Gap in Pensions (%) by level of education, pensioners aged 65+

Country	Overall GGP (%)	GGP by level of education		
		Primary (%)	Secondary (%)	Tertiary (%)
LU	*46.4*	39.2	39.0	37.8
DE	*44.0*	32.0	39.7	34.3
UK	*41.1*	28.9	42.6	42.7
NL	*40.6*	23.9	31.4	45.4
AT	*40.2*	32.5	31.0	18.7
EU-27	*38.6*	29.0	36.4	35.8
FR	*36.6*	29.6	30.4	29.3
CY	*36.5*	21.9	43.5	22.9
IE	*36.5*	29.9	41.5	43.9
CH	*34.0*	17.2	30.5	31.1
BG	*34.0*	32.4	34.6	32.0
ES	*33.3*	29.7	40.0	18.0
IT	*33.0*	28.0	29.2	28.1
SE	*32.0*	26.1	31.5	39.0
PT	*31.3*	27.3	34.9	6.1
RO	*30.7*	22.4	16.6	19.5
GR	*29.7*	20.3	21.4	24.0
NO	*29.1*	22.8	25.6	25.2
SI	*28.4*	15.2	13.7	15.7
BE	*27.5*	25.6	22.8	24.3
FI	*26.7*	17.6	24.2	30.7
PL	*24.2*	18.1	19.2	22.5
IS	*23.0*	13.4	12.6	41.5
MT	*18.4*	20.4	15.4	–12.0
HU	*15.8*	9.7	5.2	15.8
LV	*15.2*	8.8	18.8	19.2
SK	*14.9*	–0.4	18.4	7.9
CZ	*13.7*	11.1	10.8	15.4
LT	*12.5*	11.4	9.9	19.3
DK	*11.2*	6.7	3.4	13.1
EE	*3.0*	2.9	1.9	4.0

Table A3.1 Summary of pension parameters for pension systems: Low pensions protection

	Public pension system		Legal age of retirement*	Type of age pension**	Total minimum as % of average earnings	Theoretical replacement rates			
	Low income protection	Type of pension				50% average 1	Average 2	150% Average 3	(3)/(1)
(AT)	T	DB	65/60	mt+er	37	78.3	78.3	78.3	1.0
(BE)	T+M	DB	65	mt+er	23	61.6	37.3	31.9	0.5
(BG)	T+M	DB/DC	63/60	mt+er	14	49.7	49.7	49.7	1.0
(CZ)	T+M+B	DB	62/57–61	fr+er	12	70.5	44.4	31.7	0.4
(DK)	T+M	DB+DC/DC	65	fru+er		82.4	43.3	30.3	0.4
(DE)	T	Points	67	er	24	47.3	45.8	45.8	1.0
(EE)	T+M	Points/DC	63/62	fr+er+mt	14	58.4	51.6	49.4	0.8
(GR)	T+M	DB	62 or 67	mt+er	40	84	84	84	1.0
(ES)	M	DB	65	er	33	80.1	80.1	80.1	1.0
(FR)	T+M	DB+Points	60 or 65	mt+er	31	84.2	49.4	47.3	0.6
(IE)	T+B	–	65	mt+fr	31	61.3	30.6	20.4	0.3
(IT)	T	NDC	66/62 or 63	mt+er	22	78.8	78.8	78.8	1.0
(CY)			65	mt+er					
(LV)	M	NDC	62	mt+er	33	63.6	58.2	58.2	0.9
(LT)	B	DB/DC	62/60	fr+er+mt	17	69.9	53.4	47.8	0.7
(LU)	T+M+B	DB	65	fr+er	46	115.5	101.9	97.4	0.8
(HU)	M	DB/DC	62	er	22	75.4	75.4	75.4	1.0
(MT)			61–65/60–65	fr+er+mt					
(NL)	T+B	/ DB	65	mt+fr	34	68.7	68.3	68.3	1.0
(PL)	M	NDC	65/60	er	24	56.9	56.9	56.9	1.0

(PT)	T+M	DB	65	er	44	103.1	66.7	65.9	0.6
(RO)			64/59	er					
(SI)			65	er					
(SK)	M	Points	62	fr	22	48.6	48.6	48.6	1.0
(FI)	T	DB	65	mt+er	21	80	71.5	71.5	0.9
(SE)	T	NDC	61	mt+fr	34	87.8	64.8	64.6	0.7
(UK)	T+M+B	DB	65/60	fr+er+mt	33	67.4	37.1	29.3	0.4

Notes: Low-income protection: T = Targeted; M = Minimum; B = Basic

Type of pension: DB = defined benefit; DC = defined contribution

Type of age pension: mt. = means tested; er. = earnings related; fr. = flat rate; fru. = flat rate universal. Second age refers to women (if separate age exists)

Theoretical replacement rates: expressed as a ratio of the pension over the final earnings a worker had before retirement

Total minimum = total of T, M, and B if they coexist as % of average earnings

Source: *Whitehouse, 2007; *MISSOC database (2013–01–01); ** Social Security Administration, 2012.*

Table A3.2 Summary of pension parameters for pension systems: Special conditions for maternity and child care

	Child care	
Country	Period of care (in years)	Type of crediting of contributions
AT	–4	Contribution on fixed amount
BE	–3	na
BG	–4	Exempt from social insurance
CZ	–4	Exclude from assessment base
DK	–1	Double the amount of contribution
DE	3 /child	Contribution subsidy
EE	3 /child	Contribution subsidy
GR	3 /child	Counts toward qualifying
ES	–2+ maternity	–
FR	All up to age 3	–
IE	All up to age 12	Exclude from assessment base
IT	–2	+15 years
LV	1.5	Contribution subsidy
LT	3	Contribution on part of pension
LU	–4	Counts toward qualifying
HU	3 s/child	Contribution subsidy
MT	na	–
NL	–	As unemployment
PL	–6 months	Contribution subsidy
PT	Maternity	Contribution on recent pay
RO	Maternity	Contribution subsidy
SI	–	Contribution subsidy (min wage)
SK	All up to age 6	60% of previous
FI	–3	Contribution on fixed amount
SE	All up to age 6	Contribution on recent pay
UK	All up to age 16	Counts toward qualifying

Source: Holzmann, R., Palmer, E., and Robalino, D. (Eds.). (2012). Nonfinancial Defined Contribution Pension Schemes in a Changing Pension World. © World Bank, 2012. http://hdl.handle.net/10986/9378 License: Creative Commons Attribution license (CC BY 3.0 IGO).

Table A3.3 Summary of pension parameters for pension systems: Special conditions for survivors' pension

Countries	Survivor pension	Special conditions for survivor pension
AT	√	Max on total income
BE	√	Max 110% of own pension
CZ	√	Max of two pension + 50% of spouse's earnings-related pension
DK	√	Fixed max and sliding scale
DE	√	Total earning points
GR	√	Restrictions based on age
ES	√	Overall pension maximum
IT	√	Progressive reduction based on total income
CY	√	Maximum based on own earnings
LT	√	–
LU	√	Max on total income
HU	√	Reduction of 70% if own pension
MT	√	Earnings in addition to pension up to minimum wage
NL	√	Percentage reduction up to max
PL	√	Reduced/suspended pension depending on total income
PT	√	Max of pension
RO	√	Max of pensions
SI	√	Reduced pension depending on total income
SK	√	
FI	√	Reduced up to a maximum

Source: *MISSOC database (2013–01–01); Social Security Administration, 2012.*

Notes

1 Women, Old Age, and Independence: Why Investigate Yet Another Gender Gap?

1. See, for example, Joint Reports on pensions 2003, 2006.
2. As Goldin (1993) summarizes, "when economists speak of the 'gender gap' these days, they usually are referring to systematic differences in the outcomes that men and women achieve in the labour market. These differences are seen in the percentages of men and women in the labour force, the types of occupations they choose, and their relative incomes or hourly wages." Thus, one can distinguish distinct notions of participation gap, pay gap, and earnings gap.
3. See, for example, European Commission (2012a) "Report on Pension Adequacy in the EU 2010–2050"; COM (2010a, b).
4. On pension reform, see the excellent book Barr and Diamond (2010).
5. 'A crucial distinction in pension reforms is between (1) the state when a reform is fully operational—"mature"—in the sense that all have participated in the new system both as contributors and as beneficiaries and (2) the transition toward full operation, when changes are gradually introduced and special dispensations are made for people who have contributed most of their lives to the old system. These dispensations may often be more generous than the new situation; they are also frequently ad hoc, in the sense that they do not strictly follow from the logic of *either* the old *or* the new system. This feature could imply that "grandfathered" populations may be *more* at risk, as they are more dependent on the good will of system operators.
6. One wonders to what extent grand*mothers* receive this solicitude.
7. There is a tendency for the social component to be separated out or to be means tested.
8. "Europe 2020" is a key policy orientation policy document adopted by the EU Heads of State describing key policy directions to 2020. It is the sequel of the so-called Lisbon Strategy adopted in 2000 and charting the period to 2010 (Armstrong, 2012).

9. The conclusion in Munnel and Sass's (2008) study of the United States is that demand for labor factors on behalf of employers was responsible for the fall in average retirement ages in the 1970s.
10. An interesting observation was that some thrifty Northern pension funds had been investing in high-yield Southern sovereign debt (used to finance, inter alia, unsustainable pensions). They were hit hard once those debts, in the Greek case, lost 75 percent of their value—a case where pension implicit debt was de facto mutualized.
11. Inadequate indexation erodes the real value of pensions outside the euro area. Greece post-memorandum is a case in point, where pensions in payment were cut ten times in three years (Tinios, 2012).
12. Public pensions are a part of social policy, whereas the regulation of occupational pensions, as part of the remuneration package, is subject to a different type of intervention by the EU.
13. Commission of the European Communities (2001).
14. On types of pension systems, see Barr and Diamond (2010). Esping-Andersen (1990) is the most influential categorization of social protection systems.
15. There have been three Joint Reports on Pensions in 2003, 2006, and 2009. Tinios (2012) provides an overview of its application to 2010.
16. Such a viewpoint would come naturally if pensions were seen in the context of saving as a kind of asset accumulation. The social policy view could also be justified on more philosophical grounds in terms of certain differentiations in treatment (e.g., based on a statistical observation of longevity) being inadmissible a priori.
17. That is, conversion factors which do not take account of women's longer life expectancy and hence calculate lower annuities for women for a given stock of contributions.
18. Such are provisions encouraging exit of women from the labor market with few years of contributions, hence leading to permanently low pensions.
19. Indicators Subgroup of the Social Protection Committee (2009).
20. COM (2010a) 2020 final.
21. European Commission (2012b), "The 2012 Ageing Report" (http://ec.europa.eu/economy_finance/publications/european_economy/ageing_report/index_en.htm).
22. European Commission (2012c) "Report on Pension Adequacy in the EU 2010–2050."
23. The Ageing Report makes clear that the largest contribution to expenditure restraint comes through falls of the "benefit ratio," that is, the size of the average pension relative to the average wage.

If the pension bill is contained by more people working longer, the fall in the benefit ratio may not necessarily lead to lower average pensions.

2 Concepts and Literature

1. The accession of Croatia in 2014 added the 28th member state. However, the version of EU-SILC available and used in the book does *not* to include Croatia. So, rather anachronistically, we are limited to refer to EU-27 when subsequent versions of the data to be released in late 2014 would be referring to EU-28.
2. Social benefits are defined as transfer payments that meet one of two criteria: coverage is compulsory and/or it is based on the principle of social solidarity (i.e., eligibility is collectively decided and is not decided, as in life insurance, on individual risks).
3. In the latter case, the separate SILC variable on survivors' pensions (PY110G) refers to payments to individuals *under* 65 years of age.
4. The Survey of Health, Ageing and Retirement in Europe (SHARE) is a multidisciplinary and cross-national panel database of micro data on health, socioeconomic status, and family networks. The first wave (2004/5) of SHARE covers more than 30,000 individuals aged over 50 in 12 European countries, while in the second wave (2006/7) further data have been collected in Czech Republic, Poland, as well as Ireland. SHARELIFE is the third wave of data collection for SHARE, which focuses on people's life histories. Almost 30,000 men and women across 13 European countries took part in this round of the survey.

   The SHARE data collection has been primarily funded by the European Commission through the 5th Framework Programme (project QLK6-CT-2001–00360 in the thematic programme Quality of Life), through the 6th Framework Programme (projects SHARE-I3, RII-CT-2006–062193, COMPARE, CIT5-CT-2005–028857, and SHARELIFE, CIT4-CT-2006–028812), and through the 7th Framework Programme (SHARE-PREP, N° 211909, SHARE-LEAP, N° 227822, and SHARE M4, N° 261982). Additional funding from the US National Institute on Aging (U01 AG09740–13S2, P01 AG005842, P01 AG08291, P30 AG12815, R21 AG025169, Y1-AG-4553–01, IAG BSR06–11, and OGHA 04–064) and the German Ministry of Education and Research as well as from various national sources is gratefully acknowledged (see www.share-project.org for a full list of funding institutions).
5. The exclusion of this group of the population is a source of difference with administrative data.

6. SHARE uses devices such as proxy interviews to get around this problem.
7. All these considerations mean that one cannot take as random who is a pensioner and who is working. In technical terms, the sample is endogenous and any simple observations derived from it can be seriously misleading. Correcting for this endogeneity is technically possible, but would greatly complicate the interpretation of the indicator, while also making it contingent on the model used to correct for endogeneity.
8. Even if the latter is not 100 percent, the "missing percent" is very small and is unlikely to pose a major problem in calculations.
9. Objections to this choice may be raised by pointing that, in countries with a retirement age of 60, the cutoff of 65 will have a different meaning than the same age in a context where retirement takes place at 67. Nevertheless, the tendency of retirement to converge means that the alternative of having a cutoff varying according to the general retirement age in each member state would add the cost of complication and add very uncertain benefits.
10. In France, women who draw only a survivor's pension as a derived right are excluded from the definition of "pensioner" used in official statistics.
11. This definition may *include* people whose main source of income is not pensions (e.g., income from property), as well as others who may still be working and simultaneously drawing a pension—though the latter group is small for the over-65s.
12. Such benefits, which may be called "pensions," ought not to be included in the definition of pensions. It is to be hoped that SILC definitions will ultimately be cleared of such ambiguities.
13. The alternative of intervening in the SILC definitions and deciding how low a "real" pension can be is clearly unworkable. This is an example of the kind of adjustment that has to be undertaken by the organizations providing pensions at the national level.
14. We must recall that, due to using SILC data, "pensions" in this case includes survivors' pensions of individuals who were not themselves active contributors to the pension system.
15. In multi-pillar systems, each pillar would produce statistics taken its coverage as given. What we will have is a series of "pensioner's gap" for each system taken on its own; it would be impossible to reproduce the national coverage statistics for each pillar separately. It would be especially hard to aggregate coverage statistics in fragmented systems (especially multi-pillar ones) if the statistics are not produced by some central body. This is an important point to do with the governance of a multi-pillar system: system adequacy can only be judged if some statistics are produced centrally.

16. Some national systems do not produce statistics by gender, hence obscuring the question totally.
17. The persistence of an achievement gap is somewhat paradoxical, in economic theory terms: a preferential demand for lower-paid women should drive their wages up until they reach the level of men's. Chichilnisky (2008) explains this seeming paradox by bringing in the economics of the family and the necessity for women to engage in housework.
18. For recent comparative studies on the gender wage gap in the United States and in Europe, see Arumpalam et al. (2007); Blau and Kahn (2003); Brainerd (2000); OECD (2008a); Olivetti and Petrongolo (2008); Pastore and Verashchagina (2011); and Plantenga and Remery (2007).
19. Discrimination refers to persistent wage disparities between clearly identifiable labor segments with equal productivity potential (Cain, 1986 cited in Bettio, 2008, p. 171).
20. There is an interesting debate on whether the narrowing of the gender gap remained stalled since the late 1990s (see Goldin, 2006) and more recently Bettio (2008) and ITUC (2012).
21. This is the horizontal segregation. From the point of view of lower wages producing the gender wage gap, more important perhaps is the hierarchical or vertical segregation.
22. In the United States, Levine et al. (1999) provide evidence suggesting that 85 percent of the retirement income gap can be attributed to differences in lifetime labor market earnings, years worked, and occupational segregation by gender.
23. Though the number of women covered increased, those covered for pension had fewer contributions, probably due to lower labor market attachment. This feature allows them to be more optimistic about the future.
24. For instance, Frericks et al. (2009) compare Denmark with the Netherlands; Balchin and Finch (2006) look at the United Kingdom; Zajicek et al. (2007) at Poland; Siegenthaler (1996) compares France, Germany, the Netherlands, Sweden, Switzerland, and the United States; Bonnet et al. 2006 look at France.
25. Given women' greater longevity, using a unisex actuarial table to convert a lump sum to an annuity, as is done in prefunded pensions, may be interpreted as advantageous to women. However, the same issue can be approached as an issue of gender balance in the labor market—as the US Supreme Court examined it—in which case unisex tables are a logical conclusion. In all EU second pillar systems, to date, unisex tables have been applied.
26. See www.hrs.org

3 Gender Gaps in Pensions in Europe

1. The intra-household gap is an issue addressed in chapter 7.
2. This is, however, is achieved at the cost of further distancing the indicator from published administrative data.
3. A large divergence of mean and median is a sign of lack of symmetry in the distribution of individual values. Such would be caused by a concentration of large (or small) pension.
4. The at-risk-of-poverty rate is a structural indicator used by the EU, using EU-SILC data. The threshold ("poverty line") is defined as 60% of median equalized household income.
5. In the study of ageing, a key distinction is between *age* groups and *cohorts* (i.e., people born at a particular time period): Today's 60-year-olds (born around 1950) may behave differently than the 60-year-olds of 1990 (who had been born around 1930). At any one time, however, the two concepts coincide. One should always be careful of making generalizations based solely on age, as these may be due to a cohort effect and hence not hold in the future.
6. For details on the Structural of Earnings Survey, see chapter 2: section 2.4.
7. Disability pensions paid to people over 65 should be classified as pensions; this appears not to be the case for Slovenia and the Czech Republic. If such pensions are reclassified, the "anomaly" disappears. However, in subsequent tables the EU-SILC practice is preserved.
8. This would be the case if women earning above average were more likely to participate in employment.
9. The seeming anomaly for Slovenia is due to the issue of possible misclassification of disability pensions noted earlier.
10. In the United States, a large improvement in pay gaps over 50 years had no effect on pension gaps (Even and Macpherson, 2004). The reason was differential participation of women to second pillar employer-sponsored pensions.
11. This would be strictly not problematic if widowhood was completely random. However, we know that the average difference in age among spouses is not random and could hence "contaminate" our results.
12. The group of pensioners below 50 is not examined at all, as it would be dominated by disability pensioners and is likely to be even more heterogeneous.
13. They would exclude those women who will receive a higher pension later and are not included in the under-65 pension data.
14. For small European countries yearly gaps tend to be less precise, hence more variable, due to small sample size. Our commentary, however, is based on analysis of the entire time series rather than merely the end years displayed in figure 3.12. Nevertheless, caution is needed in interpreting gaps observed over merely six years.

4 The Gender Pension Gap in Europe: Toward Understanding Diversity

1. Corresponding to what economists call "permanent income"—that is, disregarding short-term fluctuations and chance factors.
2. Chapter 7 compares the gap inside households, that is, the tendency of assortative mating—graduates marrying other graduates, etc.
3. It is often found that the higher the earnings, the higher the gap, and the lower the earnings, the lower the gap. These results are echoed here and could be due to the same underlying causes: the glass ceiling in career and earnings at the top, whereas at the bottom there is less scope for differentiation.
4. In some Member States, the data as collected in the questionnaire may be net of taxes, if that is a more familiar way of expressing pensions. In that case, the data are converted into gross magnitudes by applying a tax model. This is done by each national statistical institute before the data are communicated to Eurostat.
5. The (unweighted) median value of years in paid work in the EU as a whole (but excluding Sweden, Denmark, and Finland, which do not report this variable in the SILC survey) is 28 years for men, 21 for women, with little change if we average out the single country's median values in lieu of calculating the median at the aggregate EU level. For women, however, there is considerable dispersion across countries: from 10 years in Malta and 16 in the Netherlands to 29 years in the Czech Republic and 30 years in Hungary.
6. If the years worked data were of better quality, or if there could be access to administrative data, it would have made sense to distinguish "no work" with even a small number of years.
7. A recent judgment of the Court of Justice of the European Union in Case C-385/11 ruled that Spanish legislation on contributory pensions discriminates against women on account of the higher prevalence of part-time work and is thus contrary to Council Directive 79/7/EEC. http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:62011CJ0385:Es:NOT
8. A short career may be a marker for employment in the government sector (with generous pensions); a long career may be a proxy of agricultural employment.
9. In many instances (noted by asterisks), the data rely on only a few observations.
10. A sensitivity analysis was also conducted, altering the definition of what a full career is by ±10 percent of each country's median. Once individuals of longer career were identified as full, the EU average gap estimated fell. However, there were many exceptions.
11. It may be objected that women have short careers because they have also retired before men. However, if we calculate years of employment

before age 50 (which would largely do away with this problem), the large differences remain.
12. The third pillar is essentially a means of savings; it is hence debatable whether much is gained by aggregating with the other two.
13. The number of children exists for couples of working age whose children are cohabiting. In an older population, such as the one we are dealing with here, grown-up children will not be known.
14. SILC identifies children living in the household; for the age groups concerned these are likely to be grandchildren.

5 BENCHMARKING THE ANALYSIS: EUROPE, ISRAEL, AND THE UNITED STATES

1. In the case of SHARE in Germany in w5 it was possible to link, on an experimental basis, administrative data to survey responses. Interestingly, recall questions answered by the respondent were not infrequently more accurate than records.
2. For a short description of the Israeli pension system, including private pensions, see OECD (2011).
3. For a short comparative description of public pensions, see Whitehouse (2007). Developments in occupational and other private pensions are surveyed, inter alia, by Mackenzie (2010), pp. 248–253.
4. Cash balance plans which allow the total entitlement to be drawn as a lump sum are classified as DB plans; the true proportion of DB plans are thus below 17 percent.
5. The US system thus shares common features with United Kingdom situation, which is heavily reliant on occupational pensions, with the chief difference that, other than the tax subsidy, there is no state superannuation (income replacement) system.
6. There are many different kinds of annuity, which can be tailored particular individual circumstances or risk. It is typically up to the individual to select whether to include survivors' benefits or not. Mortality enhancement allows individuals with lower life expectancies to draw down their savings at a faster rate.
7. In other words, we have not taken into account variables from original HRS–FAT files, as MQ162, MQ165_1 to MQ165_3, and so on. Note that HRS-RAND_M variable H10ITOT variable does not include withdrawals from IRAs, which supports our reasoning.
8. This is not a purely theoretical issue. In the 2010 HRS sample, three women have annuities well in excess of $1 million; their inclusion in the sample is sufficient to alter the mean gender gap considerably (though not the medians). It was decided to exclude these cases on

the grounds that, if EU SILC rules had applied, those payments would not have been considered as "pensions."
9. For summary descriptions of these pension systems, see Whitehouse (2007).

6 Pension Systems and Pension Disparities

1. In the case of East Asian welfare states (South Korea, Taiwan, Honk Kong, Singapore, and Japan), a similar development led to the suggestion of the Confucian variant of ideal-type welfare state.
2. Vlachantoni and Falkingham (2011) look at three East Asian societies, Japan, Malaysia, and Vietnam, and focus on the interplay between formal pension system and informal family-based solidarity.
3. It is therefore linked to the question of relating to variability within groups to that between groups.
4. This is the reason why it is often accompanied by K-means cluster analysis. This enables the a priori specification of the number of clusters to be formed, and hence, once selection criteria are decided, it allows the testing of the number of types of welfare regimes suggested by the welfare state modeling literature.
5. Such is the MISSOC database (2013–01–01).

7 His and Her Pensions: Intra-Household Imbalances in Old Age

1. For example, the gender deviance neutralization hypothesis has challenged this view by maintaining that the allocation of housework between him and her does not respond solely to their respective earnings but also to the perceived needs to preserve sexual identity. For a recent review about research on this hypothesis, see Sullivan (2011).
2. EC (2012), Pension Adequacy in the European Union 2010–2050. Report prepared jointly by the Directorate-General for Employment, Social Affairs and Inclusion of the European Commission and the Social Protection Committee.
3. The Gender Gap in Pensions, our headline indicator, takes the ratio between two mean pension amounts (a mean difference at the numerator and the mean value for men at the denominator). In contrast, the mean intra-household Gender Gap in Pensions takes the average of a distribution of ratios, each ratio representing the gap in a given household. Such distribution is "right censored" at 1 (the woman cannot draw less than zero pension and with zero pension the gap is 1, i.e., 100%) and skewed to the left with negative values

theoretically unbounded. For example, if the wife receives 500 and the husband receives 100, the gap is –4 (i.e., –400%). This skewness is the source of the distortion and calls for trimming. Symmetric trimming limits the arbitrariness entailed by any correction. The median of a distribution of ratios (the household gaps) is not unduly affected by outliers as it counts the number of households rather than the value of each household's gap. Not only, therefore, is trimming not required, but, by construction, also the median does not change with symmetric trimming because the same share of households is removed on either side.

4. Luxembourg's high figure must be seen with caution because of the small sample size.
5. The statutory minimum retirement age was set higher than 65 years of age for at least some men, women, or both in only three member countries: Ireland, Sweden, and Finland. The possibility to retire later than the minimum exists for all systems, while there are routes of retirement at ages below the minimum for particular occupations or situations, such as disability pensions. In any case, what is important here is actual retirement decisions which may well be later than the statutory age, especially for the self-employed and the professions.
6. In 2010, the female employment rate for the EU27 as a whole was 58 percent compared to 62 percent in the United States.
7. The poverty indicator is given value 1 when the household is poor, zero otherwise. A negative correlation thus arises whenever households with *higher* gaps between partners are assigned the lower value of the poverty indicator (zero).
8. For the non-EU countries in our data set—Switzerland, Norway, and Iceland—the correlation is also negative and significant.

APPENDIX 1

1. The RAND Corporation is a research organization that develops solutions to public policy challenges to help make communities throughout the world safer and more secure, healthier, and more prosperous. RAND is nonprofit, nonpartisan, and committed to the public interest (http://www.rand.org/about/glance.html).
2. In other words, we have not taken into account variables from original HRS–FAT files, as MQ162, MQ165_1 to MQ165_3, and so on. Noted that HRS-RAND_M variable H10ITOT variable does not include withdrawals from IRAs, which supports our reasoning.

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