CESifo Economic Studies Advance Access published January 13, 2014

CESifo Economic Studies, 2014, doi:10.1093/cesifo/ift017

Portability of Pension, Health, and Other Social Benefits: Facts, Concepts, and Issues

Robert Holzmann*[†‡§‖] and Johannes Koettl[§¶]

*University of Malaya, Kuala Lumpur, Malaysia
[†]CEPAR, New South Wales University, Sydney
[‡]CESifo, Munich
[§]IZA, Bonn
[‖]OeAW, Vienna. e-mail: Robert.Holzmann@um.edu.my; robert.holzmann@gmail.com
[¶]World Bank, Washington, D.C. e-mail: JKoettl@worldbank.org

Abstract

Portability of social benefits across professions and countries is an increasing concern for individuals and policy makers. Lacking or incomplete transfers of acquired social rights are feared to negatively impact individual labor market decisions as well as capacity to address social risks with consequences for economic and social outcomes. The paper gives a fresh and provocative look on the international perspective of the topic that has so far been dominated by social policy lawyers working within the framework of bilateral agreements; the input by economists has been very limited. It offers an analytical framework for portability analysis that suggests separating the risk pooling, (implicit or actual) pre-funding, and redistributive elements in the benefit design, and explores the proposed alternative approach for pensions and health care benefits. This promising approach may serve both as a substitute and complement to bi- and multilateral agreements. (JEL code: D690).

Keywords: acquired rights, labor mobility, migration, individual accounts, bilateral agreements

1 Introduction

The portability of social benefits across professions and countries is an increasing concern for individuals and policy makers. The concern reflects

Final version, as of October 7, 2013. The paper was prepared for the CESifo Venice Summer School 2012 Workshop on ‘Portability of Social Benefits: The Economics of a Critical Topics in Globalization’, Venice, August 16-17, 2012. A first version was presented at the Workshop on ‘Establishing Portability: State of the Art, Key Issues and Next Steps’, Marseille Center for Mediterranean Integration, Marseille, March 10, 2010. The revisions have profited from these presentations and discussions; two anonymous reviewers of the CESifo journal; presentations at the International Organization of Migration (Geneva), the European Center/ Institute for Advance Studies (Vienna), and the Centre of Excellence for Population Ageing Research (Sydney); the many valuable written comments and suggestions by Samia Kazi Aoul-Chaillou, Georg Fischer, Alvaro Forteza, Frank Hempel, Angel Melguizo, Klaus Kapuy, Marius Olivier, and David Warner; a World Bank internal presentation and review process; and research support by Yann Pouget. Amy Gautam edited the paper. All remaining errors are our own responsibility. The paper presents the view of the authors that do not necessarily reflect the views of the organizations with which they are associated.

rising labor mobility as one feature of globalization, visible in increasing transnational labor movements among high-income countries, and an increase in population flows from poor to rich countries and among poorer and less poor countries.[1] Portability concerns exist in many countries also for internal migration, mostly known for China, of its reported 220 million regional migrants, 150 have no meaningful benefit entitlement or if so, it is typically not portable.[2]

The stock of the population (migrants) living outside their countries is still small (estimated at 3.1% of the world population in 2010, or 213 million people; World Bank 2013), and the share has been increasing again since the 1970s, following a dip after its peak post-World War I. But the underlying flows are much higher and less well documented, as an increasing number of people are spending some part of their working life outside of their own country's borders or settle there after retirement. Within countries, there is a noticeable increase in labor mobility across professions and sectors.

International migration from 'South' to 'North' countries is getting the increased attention of policy makers. In the North, the strong inflow of migrants, the projected population aging, and low or even negative labor force growth have heightened interest in migration issues, including the portability of social benefits, as the perspective of returning migrants is politically more palatable. In the South, migration is increasingly seen as a potential development instrument: in the short-term, it can ease labor market pressures among youth and provide valuable remittances; in the medium- to long-term, return migrants contribute to firm creation, employment, and economic growth via human and financial capital.

From a first-best economic point of view, an individual's labor mobility decisions should not be influenced by the lack of portability of social benefits for which he or she has established acquired rights[3], and inhabitation of international mobility is considered by some economists as the source of greatest global economic efficiency costs (Hamilton and Whalley 1984; Moses and Letnes 2004). From a social policy point of view, such

[1] At times we will use a simplifying albeit imprecise abbreviation for these labor movements between rich (North) and poor (South) countries.

[2] Portability is a main concern for Chinese policy makers and various new schemes have been established to this end. But full portability across jurisdictions, and public and private sector, would require a comprehensive reform of their urban scheme. For a discussion and further references see, for example, Bei and Piggott (2012) and Dorfman et al (2013).

[3] In a second best world, it is claimed by some authors that imperfect portability could be welfare-improving in the presence of several market failures (Becker 1964; Lazear 1979; Fabel 1994). While these arguments may have some validity for national labor markets, we doubt that such a human Tobin tax through imperfect portability is relevant in cases of cross-border mobility, as the other involved costs will remain high.

acquired rights are a critical element of the individual's (or family's) life cycle planning and social risk management. From a human rights point of view, an individual has the right to social protection according to national legislation and international conventions and these rights should carry over when he leaves the country or profession. Combined, these perspectives suggest that eligibility to and disbursement of social benefits in payment should not depend on one's chosen country of residency.

Within areas of economic integration such as the European Union (EU), social security coordination has been on the table since 1958. The 50th anniversary of Regulation 3 has given rise to various reviews among experts and academics, including the most recent EU directive 2004/38.[4,5] At the international level, the International Labour Organization (ILO) has pioneered international instruments for migrant workers since the 1930s, created two conventions, and sponsored several conventions/recommendations that provide important guidance for the coordination of social security schemes.[6] The ILO Multilateral Framework on Labor Migration, endorsed by the ILO Governing Body in March 2006, details the principles and guidelines for a rights-based approach (ILO 2009).

These legal and human rights-based considerations are increasingly joined by economic considerations that help underpin the social policy objectives with a more analytical and empirical framework. Examples include: a first framework, data, and good practices on portability regimes (Holzmann et al. 2005b); regional work on social protection management for migrants between EU and North Africa (Koettl et al. 2009); an analysis on the portability of pension rights for the Caribbean (Forteza 2008); and a comprehensive review and analysis of social protection for migrants in the North and South, and the portability linkage (Sabates-Wheeler and Feldman 2011). The economic analysis has recently also been deepened by modeling portability and providing empirical indications of its potential importance (Jousten and Pestieau 2002; Fenge and Weizsaecker 2009; Werding and McLennan 2011).

4 See the special issue of the *European Journal of Social Security 2009*; Pieters and Schoukens 2009; Eichenhofer 2009.

5 The most relevant EU regulation comprises: Council Regulation (EEC) No. 1408/71 of 14 June 1971 and Council Regulation (EEC) No. 574/72 of 21 March 1972, and the new regulations (which enter into force on 1 May 2010): Regulation (EC) No. 883/2004 of the European Parliament and the Council of 29 April 2004 and Regulation (EC) No. 987/2009 of the European Parliament and the Council of 16 September 2009.

6 ILO Conventions No 19, 102 (Article 68), 118, and 157, and ILO Recommendation No. 167 with the model provisions in Annexes 1 and 2.

This work has led to a better understanding of the objectives of portability, the broad portability regimes, and the role of bilateral agreements (BAs) between countries. But we are still far from being able to advise policy makers in the North and South how to ensure portability across countries and professions and from substantiating that this matters. To progress in this direction, this paper sketches a broad picture of portability regimes across regions (Section 2); undertakes a conceptualization of portability, starting with the (domestic) social policy objectives of social benefits compared with the more (international) economic objectives of labor mobility, and offers an analytical framework for portability analysis that suggests separating the risk pooling, pre-funding, and redistributive elements in the benefit design for better portability (Section 3). It applies this conceptual framework to (old-age) pensions (Section 4) and health care benefits (Section 5). The paper concludes by highlighting the key knowledge gaps to cover for a better understanding of portability (Section 6) and a summary of key considerations (Section 7).

2 Facts on Migration and Portability Regimes

This section presents broad estimates of portability regimes that apply to legal and illegal migrants across the world. It builds on an approach developed by Holzmann et al. (2005b) and draws on more recent estimates by Avato (2008) and Avato et al. (2009, 2010). According to Holzmann et al. (2005b), the social protection status of migrants can be classified into four regimes:

Regime I (portability) includes all legal migrants enjoying indiscriminate access to social services in their host country, and home and host country have concluded bilateral or multilateral social security agreements to guarantee full portability of accrued benefits. Regime I is the most favorable in terms of formal social protection for migrants. This status can mostly be found within the EU and between many high-income countries with well-developed social security systems. The agreements, however, have varying depth with regard to benefits covered and rules applied to such benefits.

Regime II (exportability) includes all legal migrants who have access to social services and social security in their host country without a BA between their host and origin country. For example, migrants may receive benefits abroad, but cannot rely on totalization of their contribution periods; i.e., eligible benefits are made exportable but acquired rights are not fully portable. The extent to which benefits are payable abroad is exclusively subject to national legislation, and host and home country do not cooperate when determining and paying benefits. This regime concerns the largest number of international migrants.

Regime III (access exclusion) includes all legal migrants who do not have access to social security in their host country—either because they are excluded or because the host country has no social security system. Access exclusions for non-permanent residents exist, for example, in the Gulf Cooperation Council (GCC) countries in the Middle East, and in Singapore. However, migrants are also not required to contribute to long-term benefits like old-age pensions, thus strictly speaking, they do not lose contributions and may, in principle, contribute to a private scheme elsewhere or remain insured in the home country.

Regime IV (informality) includes all undocumented migrants, who arguably face the greatest challenge regarding their social protection. They have very limited access to social services and social security and are subject to unchecked and unregulated labor market conditions. This regime particularly concerns migrants moving between lower-income countries.

It is estimated that there were almost 187 million migrants worldwide in 2000/2001. Eastern Europe and Central Asia had the highest share of migrants, due to the break-up of the Soviet Union. The second biggest sending region was the EU-27 and 'other Europe'. In all regions except Latin America and Caribbean, intra-regional migrants constituted the highest share of all migrants. North America, the EU-27, and 'other Europe' were the biggest receiving regions.[7] Low- and lower-middle-income countries were the biggest migrant senders, supplying about 70% of the world's migrant stock. High-income countries, which hosted 50% of all migrants, only sent 19%. Thus, South–North and South–South migration flows have predominated.

This stands in contrast to the social protection status of migrants. About 23% of global migrants fall under Regime I, mostly originating from the EU-27. Overall, most migrants under Regime I moved between high-income countries (Table 1). In fact, the share of migrants under Regime I increase with the income level of the origin country. Even though some low- and lower-middle-income countries are able to protect their emigrants with social security agreements, the largest sending countries (such as Russia, Mexico, India, Bangladesh, Ukraine, and China)—with emigrant stocks between 6 and 13 million—had until recently concluded next to no bilateral portability arrangements. Moreover, multilateral agreements (MAs) in South and Central America cover merely 27 and 2% of their emigrants, respectively (Avato et al. 2009), and implementation has been rated as not very effective (Forteza 2008). Thus, protecting emigrants through BAs seems to be practiced mainly by high-income countries.

[7] For regional and income country groupings, see World Bank (2009).

Table 1 Global emigrant stock estimates by origin country income-group and portability regime (2000)

Origin country income-group	Regime I (portability)	Regime II (exportability)	Regime III (no access)	Regime IV (informal)	Total	% Global stock
Low-income countries	850,985	36,720,832	5,293,338	10,757,086	53,622,241	29%
% Total	2%	68%	10%	20%	100%	
Lower-middle-income countries	11,312,511	47,224,671	3,476,163	14,473,805	76,487,150	41%
% Total	15%	62%	5%	19%	100%	
Upper-middle-income countries	3,521,212	10,724,671	189,357	7,203,975	21,639,215	12%
% Total	16%	50%	1%	33%	100%	
Non-OECD high-income countries	2,063,914	3,534,415	192,987	57,809	5,849,125	3%
% Total	35%	60%	3%	1%	100%	
OECD high-income countries	24,778,310	3,658,850	291,007	189,802	28,917,969	16%
% Total	86%	13%	1%	1%	100%	
Total	42,526,932	101,863,439	9,442,852	32,682,476	186,515,699	100%
% Global stock	23%	55%	5%	18%	100%	

Note: Country income-grouping according to World Bank 2009a terminology.
Source: Avato et al. 2009.

Poorer countries seem to have less-developed social security systems and, more generally, less-developed social protection frameworks for their residents—nationals and migrants alike. The size of their informal labor market is large, so many workers are not covered by formal social protection. Immigration policy is often geared more toward restricting and controlling migration than securing the statutes of migrants. These factors reduce their ability to negotiate and administer social security agreements.[8]

Moreover, undocumented migration is much higher in poorer countries (Table 2). While many informal migrants may live in high-income countries, very few originate from these countries and many remain in their (poorer) region. These migrants rarely claim any sort of formal social protection and rely primarily on informal social protection networks. In fact, many migrants see migration as a social risk management strategy to escape poverty, and thus, in a way, benefit from migration without any sort of formal social protection.

Based on the available evidence, it appears that the practice of social security agreements is not readily transferable to poorer countries with less-developed and often differing frameworks of social protection.

[8] See Olivier (2009) for a detailed assessment of migrants' social protection status in the Southern African Development Community.

Table 2 Global migrant stock estimates of Regime IV migrants only (undocumented migrants) by origin and host country income-group (2000)

Origin country income-group	Host country income-group					
	Low-income countries	Lower-middle-income countries	Upper-middle-income countries	Non-OECD high-income countries	OECD high-income countries	Total
Low-income countries	3,775,249	3,681,516	781,597	561,591	1,957,132	10,757,086
Lower-middle-income countries	779,250	6,156,610	1,471,782	970,669	5,095,494	14,473,805
Upper-middle-income countries	111,890	531,205	234,206	288,799	6,037,875	7,203,975
Non-OECD high-income countries	1,949	12,663	3,319	2,052	37,825	57,809
OECD high-income countries	11,442	26,805	17,160	8,563	125,833	189,802
Total	4,679,780	10,408,798	2,508,064	1,831,674	13,254,160	32,682,476

Note: Country income-grouping according to World Bank 2009 terminology.
Source: Avato et al. 2009.

Furthermore, to our knowledge, there have been no evaluations of any kind to investigate if and when BAs do actually deliver. Thus, other approaches are needed to improve social protection and portability frameworks.

3 A Conceptual Framework of Portability to Assess and Improve Policy Design

Portability issues for internationally mobile workers (migrants) emerge from the tension between the more domestically oriented social policy objectives linked to traditional social risks and the more internationally oriented economic policy objectives linked to cross-border labor mobility; they reflect more broadly the diverging interests of the host country, the home country, and migrants.[9] A review of objectives and instruments in both areas yields a better understanding of possible trade-offs as does a review of the key policy options to address conflicting objectives. The proposed portability framework builds on the Social Risk Management (SRM) framework that has proven helpful in guiding social policy analysis in both developing and developed countries.

[9] From a political economy point of view, the tensions also reflect the interests of the mobile versus the immobile labor force within and between countries.

3.1 Domestic objectives and instrument design of social protection

Formal social protection instruments to mitigate or cope with risks were developed in the now rich countries in the North over more than 100 years ago, followed by a gradual diffusion to most other countries in the world. Social insurance programs that link benefits to prior contributions typically started out with a narrow focus on sectors (trades), and coverage moved from civil servants to white- and then blue-collar workers, to farmers and the self-employed, and then to the voluntarily insured. The original benefit design had little consideration for mobile workers. While some consolidation has taken place, portability of acquired rights across sectors (in particular between public and private sectors) remains an issue. Resistance to reform of these programs has been driven by the narrow interests of sector members (and the dominance of the many immobile compared with the few mobile members). Portability considerations in design and implementation have entered only slowly, with the rise in labor mobility. But domestic considerations are still given dominance in the social protection area (unless they contradict EU objectives or ratified ILO conventions). The situation is similar, or worse, in countries where benefit eligibility is linked to residency. Portability of benefits is, at first sight, an alien concept.

3.2 Labor mobility objectives and results criteria for portability

A variety of objectives can be raised to support the demand for full portability of social benefits. Ultimately, they boil down to two: fairness and efficiency.

Fairness considerations can be raised at the individual and country levels. If an individual has contributed (mandatorily or voluntarily) to programs to mitigate future risks to allow him or her to smooth consumption across the states of the world, then acquired rights should be portable across time and space as a matter of fairness. Similar considerations apply at the country level. If an individual moves between countries, denying him portability of acquired rights provides a windfall profit for the home country. Its mobile workforce leaves while potentially burdening the new country of residency.

Efficiency considerations of portability are closely linked with the labor market, but go beyond. Full portability should render the labor mobility, labor supply, and residency decision independent of social benefits. In the absence of full portability, individuals (and families) may decide not to migrate or return, or may decide to offer labor in the informal sector, possibly with stark implications for the overall tax revenues and economic growth in home and host country.

To assess whether portability arrangements succeed in delivering on fairness and efficiency considerations, three broad results criteria have been suggested (Holzmann et al. 2005b):

Criteria 1: *No benefit disadvantage with regard to pension and health care* for migrants and their dependents. Movements between host countries or back to the home country should not lead to lower pension benefits or gaps in health coverage than if one stayed in one country.

Criteria 2: *Fiscal fairness for host and home countries*. No financial burden should arise for the social security institution of one country while the social security institutions of the other country benefit from any provisions on portability or the lack thereof.

Criteria 3: *Bureaucratic effectiveness*. The administrative provisions on portability or the lack thereof should not cause a bureaucratic burden for the institutions involved and should be easy to handle for migrants.

3.3 Migration and SRM

Migration is quite likely mankind's oldest, most widespread, and most important risk management instrument: to address risks proactively (e.g., in response to climatic change), to mitigate risks *ex ante* (e.g., in response to expected unemployment or diversification of risks within the extended family), and to cope with risks once they are realized (e.g., in response to natural catastrophes or armed conflicts). The SRM framework proposes three risk management strategies (risk prevention, risk mitigation, and risk coping) and three broad types of risk management arrangements (informal, market-based, and public) to address risks. Conceptually, SRM defines 'Social Protection as public interventions to (i) assist individuals, households, and communities better manage risk, and (ii) provide support to the critically poor' (Holzmann and Jorgensen 2001).

While the emergence of formal social protection instruments has reduced the importance of migration as an informal risk management instrument in the developed world, it remains a crucial informal and formal risk management instrument for the developing world. And both formal and informal instruments are closely intertwined:

- With South to North migration, individuals attempt to address specific risks (poverty, unemployment, diversification needs) but get exposed to new risks and lose access to prior risk management instruments. Hence access to social protection and portability of social benefits becomes crucial for migrants to address risks in host and home countries.

- For (youthful) home countries, labor migration reduces the unemployment pressure for youth, and remittances have proven to be important for addressing idiosyncratic and systemic risks. For (aging) host countries, labor migration supports formal risk management instruments by increasing the labor force and hence the internal rate of return of pension and health care programs, as well as by enhancing the skill profile and supply of health workers.
- Access to and portability of formal SRM instruments for migrants are likely to change the size and composition of migrant flows to host countries, as they have a major bearing on the key choices and decisions by labor migrants (Koettl et al. 2009). Thus, access to and portability regimes of social benefits are a critical instrument of migration management (Holzmann and Pouget 2010, 2012).
- For migrants, portability (of acquired rights) is the interface between social services in home and host countries (Koettl 2006). Such services include health care benefits, long-term social security benefits like old-age and disability benefits, and short-term benefits like social assistance, maternity, and unemployment benefits, and family allowances as well as public housing and education.

3.4 An analytical model for portability considerations

The prior subsections motivated the importance of a more actuarial structure of social benefits to achieve labor mobility while still catering to domestic policy objectives. This subsection provides an analytical framework for how best to achieve this while keeping critical features of mandated social insurance benefits, such as redistribution.

3.4.1 *The insurance, saving, and distributive components of social insurance benefits: a motivation*

Essentially all social benefits contain elements of insurance as risk pooling against a specific (group of) risk(s), ‘pre-saving’ or at times a credit/tax mechanism across an individual’s life cycle, and explicit or implicit redistribution within and between cohorts (Holzmann 1990). Disentangling the three is critical for portability. Social insurance (with risk pooling across different risk profiles) and explicit redistribution across cohorts constitute the key elements of ‘solidarity’, albeit this notion is hardly ever defined in such analytical terms. The pre-saving element also exists in unfunded or ‘pay as you go’ (PAYG) schemes. These distinctions are crucial for portability of acquired rights before eligibility. Their application varies across benefit types:

Old-age pension benefits: This benefit clearly distinguishes between saving (pre-funding) and risk coverage. Saving happens before retirement.

At retirement, such accumulations are transformed into an annuity to insure against the uncertainty of death. Accumulations before retirement should be, in principle, straightforward to make portable. Once the benefit is in disbursement, the individual is a member of the risk pool and there are few economic and social policy reasons why receipt of the pension should depend on residency. However, acquired rights and pensions sometimes contain important elements of redistribution that make portability less straightforward. Explicit and implicit redistribution happens at the time of accumulation (through contribution and benefit formulas) and at disbursement (through pooling of different survival profiles).

All other social (cash) benefits insure against a specific risk, and have elements of pre-saving and redistribution in contribution and/or benefit design. Financing is sometimes from general taxes, not earmarked contributions. In addition, the insurer (government or private sector) needs to be able to stop paying when the risk ceases to exist, which is more difficult to verify when payments happen to abroad. These factors render decisions about scope and limits of portability quite complex.

Sick pay: Payment is linked to a short-term risk but payouts typically increase with age and are proportional to wages. This implies some pre-saving, but limited redistributive features in a wage-based contributory scheme. Hence, few issues of transfer of acquired rights should emerge if an individual changes country (or employer), while benefits in disbursement could, in principle, be paid under existing rules. But since verification of preexisting conditions or continued sickness may prove difficult, portability has typically not been established (or proposed). Issues of acquired rights, however, emerge if sickness leads to work-related injury claims or non-work-related disability claims after the individual changes employer or residency.

Unemployment benefits: The benefit payment is linked to a short-term risk and has some pre-saving elements if older workers are more prone to unemployment; redistributive features exist if the unemployment risk is not equally distributed across individuals (professions). Although the pre-saving element supports transfer of acquired rights, this would be difficult to establish in most schemes, given the strong redistributive features of typical unemployment insurance schemes.

Family benefits: Typical benefits in European and some other countries include child care benefits (usually financed through contributions by employers and/or employees but the logic holds when general tax financing is applied). The objective is largely redistributive toward children and families with low income. Conceptually, there is a pre-saving credit/tax element as the transfers (as credit) when young and with children and the contributions or taxes (re-payment) when old and children are out of the house help finance the expenditure. Continued payment of benefits when individuals move abroad would be consistent with the proposed framework. But the pre-saving credit/tax structure invites welfare arbitrage and possible fiscal unfairness may call for restrictions/re-reimbursement.

Health care benefits: Health care benefits contain a major element of redistribution and pre-funding in both public and private schemes. Contributions are typically flat or a fixed share of income, while health care expenditures rise strongly with age. This allows for the accumulation of funds when individuals are younger, from which excess expenditures are paid when beneficiaries are older. This should allow for the portability of health care benefits on retirement, but also the transfer of accumulated funds while individuals are active and changing countries. Critical issues concern the calculation of the transferable funds in view of different risk profiles, differences in health care costs between sending and receiving countries, and the redistributive contribution feature in many countries.

Specific program objectives and design features clearly have a bearing on portability. If portability is considered critical to address fairness and efficiency concerns across space, professions, and time, this may call for changes that force trade-offs between different social policy and economic objectives. For key social programs, the current trend is toward multi-pillar arrangements consisting of basic (and tax financed), mandated (and contribution-based), and voluntary (and premium-based) provisions (such as in old-age and health care benefits). For fairness and efficiency considerations of portability, all pillars need to be considered.

3.4.2 *The insurance, saving, and distributive components of social insurance benefits: a simple analytical model*

In a world of homogenous individuals exhibiting the same risk profile and under full information, individuals would be able to insure themselves against well-specified risks with a fair insurance premium. Portability would not be an issue when moving between countries; individuals would simply buy actuarially fair insurance for each period in the new host country. The insurance component of a one-period benefit with homogenous individuals, without pre-saving and redistribution, has a simple budget constraint:

$$c(a) = b(a)\ p(a) = E[b(a)] \tag{3.1}$$

with c(a) the contribution/insurance premium at age a, b(a) the benefit paid in case of risk realization, p(a) the probability of the risk, and E[b(a)] the expected benefit. The insurance is actuarially fair and the aggregation over (homogenous) individuals ensures budget balance.

If the risk and/or price of the benefit package increase with age, individuals will simply pre-save for future higher contribution payments. But this could also be addressed by levying a contribution above the period insurance costs when individuals are younger, thus building a pre-saving component into the insurance package. In this case, one's contribution at a young age pays for a period insurance component plus a period pre-saving component for future insurance coverage. If pre-saving is introduced, the period budget constraint is extended to:

$$\mathrm{c(a) - E[b(a)] = s(a)} \tag{3.2}$$

with s(a) the period pre-savings available at the end of period a. If moving between countries, the individual now has accumulated pre-savings that he needs to take along to establish portability.

Accumulating the individual savings till an (arbitrary migration at) age ã and using capital letters for the aggregated amounts at this age (measured at end-period) give:

$$S(\tilde{a}) = \sum_{a=1}^{\tilde{a}} s(a)(1+r)^{\tilde{a}-a} = \sum_{a=1}^{\tilde{a}} [c(a) - \mathrm{E}[b(a)]](1+r)^{\tilde{a}-a} = C(\tilde{a}) - B(\tilde{a}) \qquad [3.3]$$

with r the rate of return provided by the system and consistent with the macroeconomic budget balance; C(ã) are the aggregated contributions paid into the system plus the returns received; B(ã) is the aggregated (present) value of the insurance component and is independent of any benefits received.

At the time of migration (the beginning of period $\tilde{a}+1$), the present value of the (expected) future benefits $B^e(\tilde{a}+1)$ minus the present value of any (expected) future contributions $C^e(\tilde{a}+1)$ till the latest possible age of death a^d in the new host country is:

$$\begin{aligned} B^e(\tilde{a}+1) - C^e(\tilde{a}+1) = {} & \sum_{a=\tilde{a}+1}^{a^d} \frac{b(a)p(a)}{(1+r)^{a-\tilde{a}+1}} \sigma(\tilde{a}+1, a) \\ & - \sum_{a=\tilde{a}+1}^{a^d} \frac{c(a)}{(1+r)^{a-\tilde{a}+1}} \sigma(\tilde{a}+1, a) \end{aligned} \qquad [3.4]$$

The present value of the future benefits depends on the survival probability from migration age ã to age a – $\sigma(\tilde{a}+1, \mathrm{a})$, the benefit level b(a), and the probability (risk) of using the benefit p(a). The latter is typically 1 for pension benefits, but below 1 and rising with age for health care benefits.

If the (new) host country has characteristics similar to the (old) host country, the expected present value of benefits minus contributions is positive and needs to be financed with external financing. If the characteristics of both countries are identical, the accumulated and portable savings provide this financing match:

$$C(\tilde{a}) - \mathrm{B}(\tilde{a}) = B^{e}(\tilde{a}+1) - \mathrm{C}^{\mathrm{e}}(\tilde{a}+1) \quad (3.5)$$

Equation [3.5] presents an actuarially fair scheme in which the expected value of future benefits minus future contributions equals the level of savings at each age. If this is not the case, redistribution is taking place in the form of taxation or transfer. Introducing $\mathrm{R}(\tilde{a})$ as the present value of the redistribution component at age $\tilde{a}$ in equation [3.6] completes the exercise; $\mathrm{R}(\tilde{a})$ can be positive (a transfer) or negative (a tax).

$$S(\tilde{a}) + R(\tilde{a}) = C(\tilde{a}) - \mathrm{B}(\tilde{a}) + R(\tilde{a}) = B^{e}(\tilde{a}+1) - \mathrm{C}^{\mathrm{e}}(\tilde{a}+1) \quad (3.6)$$

The left hand side signals the amount of resources at stake when moving across professions or borders. There should be no disagreement that the savings component be portable (at both the accumulation and disbursement stages). There may be some discussion about the portability of the redistributive component, in particular if it is positive. If no savings or distributive components exist, the question of portability should not even emerge.

3.5 Defining portability: scope and other issues

To which social risk management instruments should portability apply? Those based on mandated (public program) contributions and occupational or voluntary (private sector program) premiums (i.e., 'acquired rights')? Those based on needs-based considerations that are tax-financed? The legislation and ruling within the EU and the conventions by the ILO restrict portability on benefits based on acquired rights, albeit not necessarily those contribution-financed but those based on prior length of residency (and general tax payment).

This suggests a definition of portability as the ability to preserve, maintain, and transfer vested social security rights (or rights in the process of being vested), independent of profession, nationality, and country of residency, as specified by two critical elements:

- The full *receipt* of vested and eligible social security rights as well as rights under private sector arrangements (benefits in disbursement, health care coverage), based on acquired rights through prior contributions/premiums or residency criteria in any chosen residency.
- The full *transfer* of social security rights as well as rights under private sector arrangements that are in the process of being vested before eligibility has been established, based on acquired rights through prior contributions/premiums or residency criteria in any chosen residency.

These criteria raise many questions for which good answers are not yet available:

- Are the acquired rights limited to the actuarial value of own contributions (such as in pensions) or do they extend to the present value of expected benefits based on prior contributions (accrued-to-date liability) that may contain major distributive elements across and within cohorts or may not be financially sustainable?
- Should all, some, or none of the redistributive component of acquired rights be recognized? In a Coasian world of well-defined property rights, issues of portability would not emerge, but property rights are typically not well-defined in social insurance programs.
- How should the acquired rights, and hence the transfer amount, be calculated: backward-looking based on past contributions and one's risk profile under the old institution, or forward-looking based on expected net benefits under the new institution?
- How should the transfer amount be financed in PAYG schemes? While only the net amount (of inflows and outflows) needs to be financed, it could still exceed the available reserves in more traditional pensions and health care schemes.
- As voluntary premiums to private sector programs (in particular, supplementary old-age pensions and health care) are part of SRM and are increasing in importance worldwide, they should be made portable for the same fairness and efficiency reasons. Employer-sponsored programs may contain enterprise-specific human resource policy elements, imposing rational restrictions to portability; how should this be addressed? And as these programs are often tax-privileged, what would an efficient and fair tax treatment for individuals, enterprises, and sending and receiving countries look like?
- What happens in the case of residency-based benefits (such as demogrants[10]) that are tax financed? Should they be included on a pro-rata residency basis?
- Should benefits in disbursement (such as pensions) that contain elements of social assistance and other top-ups (e.g., for housing) also be portable? If so, to what extent? Would indexation apply to these benefits or be restricted to the country of disbursement?

A further set of decisions concerns the scope of social benefits for which portability should apply. In many countries, there is a realm of social

[10] Basic provisions granted because of residency and independent of other income or assets.

benefits that could potentially qualify for portability based on acquired rights. Typically, old-age pension and health care benefits get most of the attention, but the list is much longer (and not yet complete):

- Old-age benefits
- Disability benefits
- Survivor benefits
- Workers' accident and occupational diseases (disability benefits)
- Sick pay and maternity benefits
- Severance pay
- Unemployment benefits
- Family benefits (such as children/family allowance)
- Health care benefits
- Long-term care benefits for the elderly
- Income replacement benefits for the care of children, and sick or elderly people

While fairness considerations warrant making all of them as portable as possible, to avoid biases, only a few benefits may be relevant for individual mobility decisions. Furthermore, the administrative arrangements needed to establish and monitor portability may prove to be very costly, if they can be made to work at all (e.g., unemployment and family benefits). They may work in a regional arrangement (such as the EU) but not across continents.

3.6 Establishing portability: policy options and issues

It is proposed that there are essentially two key aspects involved in establishing portability of social benefits. The first aspect is to change the design to make benefits as portable as possible. The second aspect is to define a range of portability arrangements at the unilateral, bilateral, and multilateral levels. These two aspects are partly substitutive and partly complementary.

3.6.1 *Changing benefit design*

The key feature of this proposal is to move toward a benefit design that distinguishes explicitly between the period insurance element and the pre-funding element of social benefits in addition to making any redistributive action outside the benefit schemes. While this may have limited bearing on the portability of benefits in disbursement, having a clearly identified pre-funding element should substantially ease portability for all social insurance-type benefits, except, perhaps, family benefits. For cash benefits, this is accommodated by the (partial or full) move from a defined benefit (DB) to a defined contribution (DC)-type structure. DC benefits are inherently more portable than DB benefits for two reasons:

- First, accrued rights are better defined under DC schemes than under DB schemes. Under a DC scheme, an individual gets out what he/she paid in (plus interest); and what he/she gets out he/she paid in but not more. This should allow full portability at the accumulation as well as at the disbursement phase.
- Second, in funded DC schemes, the accrued rights are backed by financial assets that are, in principle, fully mobile. Such mobility can also be established in non-financial Notional Defined Contribution (NDC) schemes, as countries need only to transfer (clear) the net value of all bilateral movements. If established at the multilateral (regional) level, any net amount would even further decrease and may be financed out of the reserve (buffer) fund or else through debt instruments that are transferred with the (net) benefits.

The key benefits enhanced by these design changes include:

- Old-age benefits: Moving to DC schemes has no material impact on portability for benefits in disbursement, but allows for easier portability of benefits in accumulation. The amount of the latter is easily established by the individual account value and can be carried with any move between countries (or left in-country if further remunerated). It requires essentially no vesting period and benefits can be fully aggregated.
- Disability benefits: A move to DC schemes would allow governments to separate disability benefits from old-age benefits. As the risk can be independently priced, a distinct scheme can be established to finance benefits if an individual becomes disabled, but also allow him to contribute to the old-age DC scheme. When an individual is young, his disability risk is low but the length of time to pay for the old-age scheme (financed by the disability insurance) is long; the reverse holds for older workers. This should keep contributions fairly flat and hence limit prefunding.
- Survivor benefits: Moving to DC schemes would allow establishing independent rights for the survivor before the plan holder's death and hence full portability (and easier handling of divorces via division of accumulated funds during marriage). Survivor benefits can then be restricted to a short-term DB scheme, with eligibility length depending on the age of children.
- Sick pay: As sick pay already has pre-funding features, the design can be strengthened by allowing accumulation of permissible sick-days per year

(say, 2 weeks) on which individuals can draw for longer sickness, while having part of their unused sick-days compensated when they change employment. The latter could be made transferable to the new employer (and country).

- Unemployment benefits: Moving from DB-type unemployment insurance to a DC-type unemployment savings account (UISA) makes it easier to transfer accumulated benefits (also into retirement) and has conjectured positive labor market effects (Hartley et al. 2010). Of course, DB-type benefits for individuals with high unemployment risks will need to be established ('social pooling'). And if borrowing from the UISA is possible, there needs to be a mechanism to recover these funds (say, from the retirement account).
- Health care benefits: Here also, one could envisage a DC-type structure that separates the prefunding from the period insurance element, but the actual implementation is quite likely to be more complicated.

3.6.2 *Portability arrangements*

There is a range of arrangements that can be used to enhance or fully establish portability; some are already in use. Most portability analysis and discussions focus on BAs, but the scope of the arrangements is much larger and includes the following:

- Unilateral actions (UAs): UAs can be taken by the country where the individual has established acquired rights and can improve portability through full exportability of acquired rights. Examples of UAs include:

  (a) Denying access to the national social security scheme (such as in the GCC countries for essentially all 'expats', and for some categories of foreign workers in Singapore and Hong Kong). As no contributions are levied, the individual can establish his own rights by contributing to pension and health care benefits (for himself and his family) in his home country, as in the Philippines and in Mexico.

  (b) Allowing access on a voluntary basis. In this case, the individual can make a choice between contributing in his host or home country, with the decision depending on benefit design and exportability.[11]

[11] The Philippines and Mexico fall somewhere between example (a) and (b). The Philippines allows workers to contribute to the national pension schemes but independently of access in host country. Similarly, Mexican migrants can get access to health care benefits for a flat-rate premium (for their families left behind or themselves when they return) independent of their insurance in the host country (i.e., USA).

(c) Allowing the exportability of benefits based on acquired rights.

- BAs: BAs are the centerpiece of current portability arrangements between countries. While they can, in principle, cover the whole range of exportable social benefits, they typically focus on long-term benefits such as old-age, survivor, and disability pensions, and to a much lesser extent on health care benefits, if at all.[12,13]

  On pensions, a BA can:

(a) Focus on temporary migrants only (e.g., waving the contribution requirement to the pension scheme in the host country while making such contributions mandatory in the home country).
(b) Cover all (legal or even illegal) migrants who have established acquired rights.
(c) Establish benefits in the case of different benefit types between countries (e.g., residency-based basic and contributory schemes).

  On health care, a BA can:

(d) Provide emergency access to the health care system only.
(e) Provide access to basic health care benefits.
(f) Allow full access to health care benefits with complicated arrangements of compensation.

- MAs: For a group of countries, a general framework of portability for all or a subset of social benefits is established. These general rules are typically supported by further BAs. The best known and developed MA is among the EU member states. MAs have also been established in Latin America (MERCOSUR) and the Caribbean (CARICOM), and one is currently being established between Latin America and Spain and Portugal (Ibero-American Social Security Convention). The EU is also leading efforts to enhance social security cooperation within the Euro-Mediterranean Partnership.[14]

---

12 For some historic and legal background on bilateral agreements, see Strban (2009); for a review of issues of bilateral agreements with non-members within the EU context, see Spiegel (2010).

13 There is no single study (inventory) that captures the content of BAs across the world or even of sub-regions such as Europe, and to our knowledge, there is no single evaluation undertaken that assesses the effectiveness of BAs and MAs.

14 Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Syria, Tunisia, Turkey, and the Palestinian Authorities.

- Multinational providers (MPs): A promising approach may be to use the services of MPs, at least for supplementary benefits. MPs exist and function well for health care benefits (e.g., Van Breda, a Belgium service provider, services World Bank staff and retirees residing in Europe, and is used by the European University Institute). MP arrangements have been discussed, and sometimes implemented, for supplementary pensions of international workers in multinational enterprises. Multinational arrangements may offer further advantages at the level of inter-jurisdictional risk sharing, the transmission of best practices and innovations across countries, and better information on the state of the world of risk realization and ending.

4 Benefit Design and Portability Arrangements—Pensions

This section applies the conceptual framework of the prior section to (old-age) pension benefits. The key purposes are to gain a better understanding on the most critical elements in pension scheme design that impede portability; to identify the role, scope, and limits of portability arrangements to overcome those impediments; and to illustrate the role of benefit design in establishing full portability in a regional setting.

4.1 Actuarial fairness of pension benefits and portability

A key conjecture of Section 4 is that portability can be improved or even fully established if the insurance, savings, and redistribution components can be clearly distinguished within an actuarial framework and agreements between countries established accordingly.

Abstracting initially from redistribution, the actuarial value of old-age benefits under a social insurance approach can be formally defined, the net savings amount/accrued-to-date liability calculated, and portability established.

Equation [3.3] provided a presentation of the (actuarial) saving component for an individual at any arbitrary age ã before retirement under an old-age social insurance scheme. The expected benefit E[b(a)] prior to retirement in an old-age insurance scheme can be a disability or survivor benefit or zero if such benefits are provided via separate schemes that are individually priced. True to a social insurance scheme, the risk profile and hence the insurance component—E[b(a)], B(ã)—reflects the average for the population.

With his or her contributions, the individual acquires rights to a stream of expected future pension benefits b(a) from retirement age $\mathrm{a_r}$ onward. Valued at age ã the present value can be written as:

$$B^e(\tilde{\mathrm{a}}) = \frac{B^e(\mathrm{a_r})}{(1+\mathrm{r})^{\mathrm{a_r}-\tilde{\mathrm{a}}}} = \left[\sum_{a=\mathrm{a_r}}^{\mathrm{a^d}} \frac{b(a)}{(1+r)^{a-\mathrm{a_r}}}\sigma(\mathrm{a_r}, a)\right] \Big/ (1+r)^{\mathrm{a_r}-\tilde{\mathrm{a}}} \tag{4.1}$$

with σ the survival probability from retirement a_r to age a.

If the system is actuarially fair, the present value of future benefits will need to equal the value of accumulated savings. Put differently, $B^e(\tilde{a})$ is the acquired right (accrued-to-date liability of the scheme) for an individual at age ã. To be fully financed (and actuarially fair), this amount must be matched by the accumulated value of individual and contribution-based (actual or notional) savings $S(\tilde{a})$.

We can be a bit more specific about the stream of benefits when specifying an initial benefit at retirement $b(a_r)$ that is indexed with an annual growth rate g, and can rewrite the actuarial equilibrium condition accordingly:

$$S(\tilde{a}) = b(a_r)\sum_{a=a_r}^{a^d} \frac{(1+g)^{a-a_r}}{(1+r)^{a-a_r}}\sigma(a_r, a)]/(1+r)^{a_r-\tilde{a}} = b(a_r)G(g, r, \sigma)/(1+r)^{a_r-\tilde{a}} \tag{4.2}$$

where $G(g, r, \sigma)$ is a function of the growth rate (indexation) of pensions, the interest rate, and the survival probability measured from retirement. Setting g and r equal, G can be simplified to the (conditional) life expectation at retirement.

Equation [4.2] can be solved for the initial benefit needed to achieve equilibrium (and indeed, this approach is used by DC systems (fully funded or notional) to calculate the initial annuity).

$$b(a_r) = \frac{S(\tilde{a})(1+r)^{\tilde{a}-a_r}}{G(g, r, \sigma)} \tag{4.3a}$$

The same approach can, in principle, also be used for a DB scheme and a translation of the accrued-to-date liability into an actuarially fair benefit stream. In many cases, however, these will not be the same.

$$b(a_r) = \frac{B^e(\tilde{a})(1+r)^{\tilde{a}-a_r}}{G(g, r, \sigma)} \tag{4.3b}$$

Both [4.3a] for DC schemes and [4.3b] for DB schemes can be used to establish actuarial fairness and hence full portability of old-age pensions across borders. Under equal country characteristics, the individual as well as the sending or receiving country would be indifferent between having the pension paid out in the future by the sending country or receiving it as a transfer and moving the accumulated savings or accrued-to-date liability to the receiving country.

In country systems that are of the Notional Defined Benefit (NDB) type, the actuarial condition as formulated in [4.2] is typically not fulfilled, as the systems exhibit main redistributive features at the level of contributions, at the level of benefits, and their non-actuarial linkage. Hence to achieve balance, a residual redistributive component R(ã) is introduced that can be positive (a transfer) or negative (a tax) for the individual.

$$S(\tilde{a}) + \mathrm{R}(\tilde{a}) = b(a_r)G(g, r, s)/(1 + r)^{a_r - \tilde{a}} \quad (4.4)$$

This redistributive component may represent redistribution within a cohort or generation and hence a deviation from some average that is actuarially fair and financially sound. For example, the benefit formula may favor low-income groups through contributive advantages and flat rates or progressive benefit formulas. In this case, R(ã) is positive for individuals below some reference average and negative for those above. And there are good arguments to make both the savings S(ã) and the redistributive component R(ã) fully portable before retirement and the insurance component B(ã), or what it is left, portable after retirement. They all reflect acquired rights that are financially sustainable. Hence, a transfer will not make the individual, the sending country, or a potential receiving country worse off.

The portability issues become less straightforward if the redistributive component is financially highly unsustainable, and the system needs a comprehensive reform with direct impact on the expected benefit level. In consequence, the acquired rights that are recognized at the time of migration are not well-defined. This is of little consequence if the migrant does or will receive his pension abroad from the former receiving country, as a reform-induced reduction in benefit level would hit him as well. It is potentially different for transfer amounts taken along with migration that include the savings as well as the redistributive component. While there should be little problem for the savings component under a DC scheme, the redistributive component may be an issue if it is large, as this risks leaving the sending country worse off while making the migrant better off compared with the immobile nationals. This issue is prevented with a fully fleshed out DC scheme with a balancing mechanism that ensures solvency.

4.2 Application of benefit design review and portability arrangements in a multi-pillar pension framework

Multi-pillar pension designs are being adopted in an increasing number of countries and a five-pillar concept has been proposed to analyze existing systems (Holzmann et al. 2005a). The presentation here is compressed to three pillars (Table 3): basic pensions, mandated earnings-related pensions (funded and unfunded), and voluntary and funded supplementary pensions. For each pillar, the first column in Table 3 identifies key constraints for portability that result from legal restrictions, benefit design, or taxation rules. The second column identifies the potential losses linked with each constraint. The remaining columns sketch the key actions that can be

Table 3 Multi-pillar benefit design and portability arrangements

Pillars (and benefit types) portability constraints	Potential individual loses	Unilateral action	Bilateral agreement	Multilateral agreement	Multilateral provider
Basic pension: Demogrant/MIG					
Not exportable	Loss in basic pension	Make demogrant exportable on pro-rata basis	Reciprocity; totalization of residency; benefit recalculation	Reciprocity; totalization of residency; benefit recalculation	
Mandated earnings-related benefits (first and second pillar)					
No access to social security in host country (NDB, DC)	From none to access to any pension	Contribution in home country			Contribution to MP
Voluntary access, not exportable (NDB, NDC)	From none to access to any pension	Contribution in home country; reimbursement of contributions	Reciprocity; totalization; benefit recalculation	Reciprocity; totalization; benefit recalculation	Contribution to MP
Access but not exportable (NDC, NDB)	Loss in contribution payment/pension benefit	Make exportable; reimbursement of contributions	Totalization; benefit recalculation	Totalization; benefit recalculation	
Access, exportable with penalties (NDB, NDC)	Loss at the level of penalty	Eliminate penalties	Totalization; benefit recalculation	Totalization; benefit recalculation	
Vesting period (NDB)	From none (if not binding) to loss of any pension	Move to NDC	Totalization	Totalization	
Last salary formula (NDB)	Back-loading gains	Move to NDC	Benefit recalculation	Benefit recalculation	
Non-linear accrual rates (NDB)	Loss or gain depending on accrual rate scale	Move to NDC	Benefit recalculation	Benefit recalculation	
Top-ups not exportable	Loss of top-ups	Grant export	Reciprocity	Reciprocity	
Taxation policy	From gains to none to double-taxation		Reciprocity	Harmonized tax treatment (EET, TTE)	
Voluntary funded benefits					
Vesting period (FDB)	From none to full loss in pension	Move to FDC			Contribution to MP
Last salary formula (FDB)	Loss in back-loading gains	Move to FDC			Contribution to MP
Non-linear accrual rates (FDB)	Loss or gain depending on accrual rate scale	Move to FDC			Contribution to MP
Taxation policy (e.g., different taxation rules; no tax deduction for premium paid abroad)	From gains to none to double-taxation	Allow tax deduction for contributions paid to abroad	Reciprocity	Harmonized tax treatment (EET, TTE); deductibility	

Notes: EET: Exempt, Exempt, Tax; TTE: Tax, Tax, Exempt.
Source: Authors.

taken under the four identified portability arrangements to increase or fully establish portability.

(i) Basic pensions in the form of demogrant exist only in a few countries.[15] Portability should, in principle, not be an issue, as it can be easily established on a pro-rata or threshold basis. Guaranteed minimum income schemes in the form of means-tested social pensions and similar social assistance-type schemes that provide a floor exist in many more countries, including in the developing world[16] (Holzmann et al. 2009). In low- and middle-income countries with typically low coverage, they serve as the main instrument of old-age retirement income for the elderly needy. The higher the income level of countries (and hence coverage rate), the more the minimum income guarantee serves to supplement low contributory pensions. Such guarantees reflect the social policy concerns for low-income groups that are country-specific and needs-based, and as a result are typically excluded from portability. A solution exists in reciprocity contracts between countries. While only the pension based on acquired rights is made portable, individuals get access to the income guarantee when they take residency in another country covered by the agreement (an approach emerging under the 2004 EU directive).

(ii) Making earnings-related pensions fully portable should, in principle, create no obstacles and would be consistent with individual and fiscal fairness. The main constraints emerge due to national decisions to exclude migrant workers from contributing to the scheme or disallowing the export of pensions, design features of pension benefit design, and tax regulations. (Temporary) migrants' lack of access to the host country's pension scheme is not strictly a portability issue, as it allows individuals to contribute to schemes in their home country or save on a voluntary basis. A social policy issue emerges if they cannot or do not want to do so, as they may lack coverage when they are old. Difficult to justify but easier to address is the prohibition of benefit export, or if permitted, the reduction on pensions in payment. The prohibition of export is a case where international rules should become binding to make eligible rights fully exportable. The reduction of exported benefit levels to take account of differences in purchasing power is a more complicated matter—both conceptually and operationally.

15 E.g., Canada, Iceland, Mauritius, The Netherlands, and New Zealand.

16 E.g., Botswana, Brazil, Chile, Namibia, and South Africa.

For mandated earnings-related pension benefits, BAs and MAs are a way to address most fairness and efficiency concerns, although the limited available information and evidence suggest that they are unlikely to comply fully with the fairness and efficiency criteria established earlier. Again, a more actuarial benefit structure (augmented by explicit redistributive features, as deemed useful) would reduce the severity of these concerns.

(iii) Voluntary pension pillars are gaining increasing importance to increase coverage for the uncovered; to compensate for reduced public generosity for the covered, a trend that will continue; and to provide more room for individual retirement decisions, for example, bridging the period to a later retirement age by own saving. The first two policy goals are increasingly supported by direct monetary incentives (i.e., matching contributions; Hinz et al. 2013); the last two aspects are of particular relevance for high-income groups that are typically also more mobile. Portability issues for voluntary pensions prior to retirement are typically linked to DB design in occupational pensions and regulatory and tax issues in both occupational and personal (tax-qualified) pensions. Occupational DB pensions with their vesting and back-loading features that risk impeding within-border mobility have attracted attention for a long time in a country context; with increased mobility across countries, portability issue of occupational pensions have also received more attention, including in the EU (Andrietti 2001). Cross-border portability of occupational pensions is of relevance also for migrants from outside the EU: in a number of EU member countries, occupational pensions are fully part of the national pension system design (such as in France, Denmark, The Netherlands, Sweden, and the UK) and migrants have higher internal-EU mobility than nationals.

Despite this strong interest, progress on the portability of 'supplementary pensions' has been slow and 'has stalled at a time when non-statutory pensions are gaining importance' (Verschueren 2009). The difficulty of coming up with EU-wide regulations is linked with the diversity and complexity of occupational schemes within and across countries, their voluntary nature (policy makers are hesitant to burden employers with complex and possibly expensive regulations), and the political resistance at the EU Council level for more coordination and streamlining. It reflects the persistent tensions between supranational regulation and national pension policy (Guardiancich and Natali 2012). The amended proposal of 20 June 2013 for a 'Directive of the European Parliament and of the

Council on minimum requirements for enhancing worker mobility by improving the acquisition and preservation of supplementary pension rights' has received mixed reactions, as it envisages different vesting periods for mobile and immobile workforce.

4.3 A regional framework for pension portability

To address fairness and efficiency concerns related to the production of and trade in goods and services within regional areas of integration, the value-added tax (VAT) system was created by the (predecessor of the) EU and since implemented in many other countries. The VAT system creates a framework for taxing goods and services that is neutral for domestic production and consumption decisions while allowing countries to fix their own contribution rates and hence allows for an autonomous fiscal policy stance. Development of an equivalent framework should be considered to guarantee freedom of movement of labor across the EU and to inspire neighboring countries to join this approach. A portability framework for pension benefits that creates fairness and efficiency while allowing (member) countries to continue autonomously determining the level of benefits and financing requirements (contribution levels) could emulate the intent and outcome of the VAT system. The proposed key elements of such a framework for pensions (old-age, disability, and survivor) include (Holzmann 2006):

- A multi-pillar pension approach, with NDC schemes at its core and social pension-type (basic) and voluntary (occupational and personal) Funded Defined Contribution (FDC)-type (supplementary) provisions at its wings.
- Full portability of acquired rights across professions within borders (e.g., between civil servants and private sector workers) as well as for all professions across borders. Acquired rights in NDC accounts could be kept in each country, and revalued through the notional interest rate and transformed into a pension at retirement. Alternatively, the individual's account value could be transferred with the mobile worker when he crosses borders to a new job and when a new individual account is created. Between countries, only the net flows for all movers would need to be cleared.
- Countries could decide on the level of overall contribution rate and also a possible split between statutory NDC and FDC schemes.
- For the basic pillar, countries could establish a minimum income guarantee (social pension) and its integration with the statutory earnings-related pension. While such guarantees might not be exportable, reciprocity agreements would establish fairness and efficiency.

- For the voluntary pillar, benefit portability within a common FDC framework would be highly facilitated. A common framework for tax treatment (such as on taxation principles such as Exempt, Exempt, Tax (EET) and cross-border contributions) would be required for complete implementation. Alternatives include the use of MPs for pensions.

5 Benefit Design and Possible Portability Arrangements—Health Care

Health care benefits share a number of similarities with pension benefits but exhibit additional features that render their portability significantly more complex, perhaps explaining why comprehensive arrangements for their portability are still more the exception than the rule. Yet application of the framework developed in Section 3 provides a promising basis to overcome many of the obstacles, and offers an analytical benchmark to facilitate the development of an operational portability approach.

5.1 Similarities and differences between pension and health care benefits

Pension and health care benefits share a *number of similarities*, most importantly:

Prefunding: Health care benefits are also characterized by a major savings component. While some benefits are accessed early in the life cycle, the majority of expenditures are incurred later. With flat or earnings-related contributions, this leads to a major accumulation of savings that typically peaks around the age of retirement.

Redistribution: The redistributive component of health care benefits is quite likely at least as high as that of pensions, and in many cases, much higher. The redistributive elements enter at the level of contributions that in many health care systems are wage-based, while the benefits are risk-based. Redistributive elements also enter at the level of benefit provision through survivor benefits for pensions and health care benefits for family members that are often not separately priced.

Benefit costs: Both benefit types are exposed to differences in the purchasing power/cost of living between home and host countries. This has a potential impact on the relative value of any savings component that may be transferred and the value of goods and services that can be purchased.

Health care benefits exhibit a number of complexities that create main *differences* from pension benefits, most importantly:

Benefit package: Pension benefits are relatively simply structured. The benefit is a monetary amount and once its initial value is established, it typically changes in line with an index formula related to wages and/or prices. Health care benefits are, in principal, open-ended. Even when a basic health care benefit package is defined, it can vary substantially across countries and over time.

Risk profile: The common risk profile across both benefits is the survival probability (related to mortality). In addition, health care benefits depend on health-specific risk profiles (related to morbidity) that vary substantially across individuals.

Family benefits: Both benefit types provide family benefits for dependent family members. However, in the case of health care, the access to benefits may, in principle, be distributed between host and home countries if the migrant's family stays behind.

5.2 Applying the framework to health care benefits

The challenges of portability of health care benefits are the result of asymmetric information, the revelation of an individual's true health risks with age, and redistributive considerations. Otherwise, individuals could purchase actuarially fair insurance in each period (in host and home country) as per equation [3.1] and buy new insurance each time they migrated to a new country. However, as the expected benefit typically increases with age because of higher health risks and more intensive benefit usage, health insurance premiums likewise increase. This could, in principle, be addressed with personal pre-saving. But some individuals move from being a good (low) risk to being a bad (high) risk—often entailing catastrophic costs—so that the premium may eventually become unaffordable if a contracting insurance company can be found at all. Even if it could be financed, pre-saving for a risky event does not allow welfare-optimal consumption smoothing, as at the end, too little or too much will have been saved. For this reason, mandated risk pooling in social health insurance has been established in most countries. The mandated contributions are levied in a flat or earnings-related manner over the life cycle, largely divorced from the individual's risk profile, giving rise to a savings as well as a redistributive component.

Abstracting initially from these complications, the actuarial value of health care benefits under a social insurance approach can be formally defined, the net savings amount calculated, and portability established.[17] Recall again equation [3.3]. In the case of a social health insurance scheme, the risk profile and hence insurance component $B(\tilde{a})$ reflects the average for the population. Any non-anticipated mortality and morbidity changes are reflected in the sustainable rate of return r.

In the receiving (host or home) country, a transferred savings amount serves to balance the difference between the present value of expected

[17] For a more complete analytical treatment of the different risks involved, see the companion paper by Werding and McLennan (2011).

benefits and contribution for the remainder of the life cycle till death ([5.1] as per equation [3.5]).

$$S(\tilde{a}) = \sum_{a=\tilde{a}+1}^{a^d} \frac{b(a)p(a)}{(1+r)^{a-\tilde{a}+1}}\sigma(\tilde{a}+1, a) - \sum_{a=\tilde{a}+1}^{a^d} \frac{c(a)}{(1+r)^{a-\tilde{a}+1}}\sigma(\tilde{a}+1, a) \\ = B^e(\tilde{a}+1) - C^e(\tilde{a}+1) \tag{5.1}$$

with b(a) the price of the health care benefit package at age a, p(a) the probability of its use, and σ the (conditional) survival probability.

Equation [5.1] is the actuarial condition for any age cohort within a country. The new and old risk pool would not be better or worse off by transferring the saving component with the migrant as long as the risk profiles are largely similar, the contributions in home and host countries are levied in a similar manner, the migrant represents a fair selection of both populations, and the benefit package is of similar size and price. Portability of health care benefits could be fully established under these conditions.

Some of these simplifying assumptions are next relaxed one by one to investigate the implications for actuarial fairness and portability, and first considerations outlined.

Different risk profiles: What happens to actuarial fairness and portability if the new member is known to be a bad risk? To ensure actuarial fairness, would this need to be compensated by a higher transfer amount from the home country? In principal yes, but it is not clear whether the bad risk profile necessarily leads to higher expected expenditure, as the expected higher benefits E[b(a)] at all ages need to be assessed against the lower survival probabilities of a bad risk. There is limited empirical research on this topic, but available studies suggest that at least for retirees, being healthy does not lead to lower remaining lifetime health care costs (Sun et al. 2010). Nevertheless, the expected expenditures of bad versus good risks also have to be compared with expected contributions. Ultimately, an analysis of the net balance of expected contributions over expenditures of bad versus good health risks at different ages would have to take into account potential adverse selection issues; bad risks—knowing their true health status—might decide to migrate to countries with better health packages.

Different contribution profiles: Under equal conditions in host and home countries, the contribution profile can be flat over the life cycle, say a given share of average wage or average health expenditures, or a share of the individual wage, leading to a major redistributive component R(ã) at migration age ã:

$$S(\tilde{a})_i + R(\tilde{a})_i = C(\tilde{a})_i - B(\tilde{a}) + R(\tilde{a})_i = B^e(\tilde{a}+1) - C^e(\tilde{a}+1)_i \tag{6.2}$$

The redistributive component can be substantial. Say individual i earns half of the average income for his whole life. As the contribution needed to finance the average benefit package is at the level of the average income payer, $R_i(\tilde{a})$ amounts to the size of his accumulated own contribution effort $C_i(\tilde{a})$. To ensure that neither home nor receiving country is made worse or better off, the redistributive component would also need to be transferred/made portable.

As long as migrants are an unbiased sample of the population in home and host countries, and wage and hence contribution levels are equivalent, neither risk pool would be affected. When migrants are among the lower paid individuals in the host country, as happens when the host country has a well-educated, high-productivity labor force, then the home country receives a larger transfer compared with the expected future benefits. The reverse is true when migrants depart from a lower-income home to a higher-income host country.

Different prices of health care packages: So far, it has been assumed that the health care package has the same price in the host and home countries. But richer host countries typically have more comprehensive and expensive packages, even for basic provisions. Hence transferring the full amount of the saving component from a richer host country *h* at retirement would lead to a windfall profit for the poorer home country *m* while leaving the risk pool in the host country unchanged. When migration happens from a poorer home country to a richer host country at mid-career, the reverse may happen and a financing gap in the host country emerges.

$$S_i(\tilde{a})_h \geq B^e(\tilde{a}+1)_m - C^e(\tilde{a}+1)_m \text{iff} \;\; b(a)_m \leq b(a)_h \qquad (6.3)$$

Reducing the savings component to the level of the expected benefits net of contributions in the home (and return) country would leave the home country risk pool unchanged and establish full portability for the migrant, as no impact on the return migration decision should take place. However, if the benefit package in the return country is worse, he may still have an incentive to stay in the host country. This may be an argument to allow for an in-kind or a cash transfer to the returned migrant, either through selective access to the health care benefits in the former host country, to high-quality health care services in the home country (but paid by the host country), or a simple lump-sum cash benefit, up to the aggregated value of the difference in equation [6.3].

Family benefits: Social health insurance provides a major redistributive component through the typically cost-free insurance of dependent family members (mostly spouse and children). The redistributive component for an individual depends on the size of his family and its access to the benefits:

$$R_i(\tilde{a}) = B_i(\tilde{a}) - B(\tilde{a}) \leq\geq 0 \qquad (6.4)$$

Most host countries do not extend health care benefits to family left in the home country, leading to a negative redistributive component. This may be an argument to co-pay up to this amount toward a health care package in the home country.

5.3 Current health portability arrangements

Currently, there are very few BAs or MAs for health care benefit portability. More importantly, there are main obstacles at unilateral level that prevent portability of health benefits; this suggests that considerable progress could be achieved starting out there.

Most countries do not cover treatments abroad without prior authorization. The U.S. Medicare program, which covers health expenditures for retirees, is a good example. Although beneficiaries may have contributed for many years, if they migrate during their retirement, they lose all coverage.[18] Similarly, many EU countries do not cover health expenditures that occur outside the EU. Retirees who, for example, move to a developing country are by and large not reimbursed for health expenditures incurred there.[19] An exception is the Austrian social health insurance system, which grants partial reimbursement for health care costs of out-of-network providers—including all foreign providers. The reimbursement rate, though, is low, at only 80% of what the same treatment would have cost with an in-network provider in Austria. Claims are handed in directly to the Austrian health insurance, which is not very practical for emigrants. There are no reports of any direct contracting with foreign providers.

On the (multilateral) EU level, there are some examples where the same principles developed on EU level have been extended to BAs with non-EU countries. Within the EU, migrants have full access to health insurance in their country of residence, conditional on national legislation.[20] Overall, though, there are no financial flows between countries that reflect a transfer of the aforementioned pre-saving element, except: (i) for essential health care treatments of health insurance members of one country who are on a temporary stay in another country (basically tourists and other

[18] The U.S. Medicare program is actually an example of a health care program where the pre-saving element is more explicit: contributors are not covered by health insurance, but contribute towards health insurance during retirement. In that sense, it is actually more like a pension benefit.

[19] In some cases, retirees who give up residency in the EU but receive a pension from an EU country lose health care coverage in the EU, but their pension might still be subject to health contributions.

[20] In most countries, access to health insurance is conditional on employment. In some countries, it is conditional on residency (where there is a universal health system).

short-term visitors),[21] and (ii) for retirees who reside in an EU country from which they receive no pension. In that case, the health insurance of the country from which the retiree receives his or her largest pension will compensate the health insurance of the country of residence.[22] The same principles have been applied in BAs between Germany and Austria on the one side, and Turkey and the countries of the former Yugoslavia on the other. To the authors' knowledge, there are no other MAs or BAs that cover the portability of health benefits.[23]

6. Closing the Knowledge Gap

While portability is increasingly seen as a key issue for better migration management, and notable progress has been made in our understanding of issues and possible solutions, our knowledge base is still fairly limited. To move to the next stage of portability design and implementation, the main knowledge gaps to be closed include:

Data: For migration in general and portability in particular, there is a dearth of quantitative information. This includes general demographic information about migrants (and their families in host and home countries) as well as their migration and employment status, their access to social protection programs, and possible portability issues for individual migrants before and after return/retirement.

Details on portability arrangements and their functioning and effectiveness: While UAs, BAs, and MAs are public information, no comprehensive yet basic study provides information and analysis on benefits covered, coordination mechanisms for benefits, administrative procedures, etc. To our knowledge, there is no rigorous empirical information on or analysis of their performance. Issues to investigate include the share of processed requests compared with potentially eligible beneficiaries, the portability loss prevented by the agreements, and an assessment of the process of coordination and key issues.

Corridor studies on portability of social benefits: Undertaking a number of corridor studies on benefit portability between countries in the North and South would represent a promising step toward such a results framework. Such studies are not very costly and should

---

21 Essential health care treatments mean emergency treatments and all treatments that cannot reasonably be postponed until return to the home country.

22 For a case study on health care portability arrangements—including financing arrangements—within the EU, see Obermaier (2009) and also Werding and McLennan (2011).

23 See, for example, the agreement between Turkey and Germany from April 30, 1964 (BGBl 1965 II S. 1169).

contribute to the understanding of issues and would help fill some of the knowledge gaps.[24]

Empirical evidence that portability matters: A key tenet for improved portability is that it matters for labor mobility decisions. But the evidence is fairly thin, both in the scope of investigation as well as on the empirical effects. Most of the results are from occupation schemes in the USA and Europe,[25] while investigations of portability issues of statutory schemes within the EU are virtually non-existent.[26] To our knowledge, there are also no relevant studies of mobility issues of portability between the South and the North (both in The Americas and the Mediterranean region).

A formal analytical framework: To render the empirical work and proposed conceptual considerations sound, a comprehensive formal analytical framework may be needed. The starting point could be characterization of a first-best social insurance contract that includes job mobility (and the risks involved, including the risk of having to migrate). Separation of the insurance, pre-savings, and distributive components of social benefits should be folded into this new general analytical framework.

7. Conclusions

The paper provides a fresh look at the international perspective of portability of social benefits, a topic that until now has been dominated by social policy lawyers working within the framework of BAs and MAs. The contribution by economists to the discussion has been limited. This paper offers a conceptual framework grounded in socio-economics for portability analysis and applies the proposed alternative solution of changes in benefit design to pensions and health care. Summing up, several key elements stand out:

First, labor mobility across professions and borders has increased worldwide for various reasons. From a first-best economic point of view

---

24 For first steps in this area see Holzmann et al. (2005b), Abdousalam (2009), and Sabates-Wheeler and Feldman (2011). A project under implementation by the Marseille Center for Mediterranean Integration prepares four corridor studies for Morocco-Belgium/Morocco-France, and Turkey-Austria/Turkey-Germany with results expected for mid 2014.

25 These studies could not find evidence that portability losses in occupational schemes in the USA and Europe caused lower mobility (Forteza 2008).

26 Bonin et al. (2008) assess a small impact of portability on European labor mobility (compared with language skills, job prospects, and culture adaptation). And Aguila and Zissimopoulos (2009) expect from a ratification of the U.S.-Mexico agreement, an increased return migration from older Mexicans. The results by Hooghe et al. (2008) on the drivers for migrants on the selection of European host countries indicate that job opportunities are important, not the size of social expenditure (and, perhaps, portability?).

and for individual labor mobility decisions, from a social policy point and the individual's (or family's) life cycle planning, and from a human rights point of view and an individual's right to social protection, broad portability of social benefits should be established and one's eligibility to and receipt of benefits should not depend on one's country of residence. As such, the paper defines portability as the ability to preserve, maintain, and transfer vested social security rights (or rights in the process of being vested), independent of profession, nationality, and country of residency.

Second, the paper conjectures that issues regarding the portability of social benefits for internationally mobile workers (migrants) emerge from the tension between domestically oriented social policy objectives and internationally oriented economic policy objectives linked to cross-border labor mobility. These tensions reflect more broadly the diverging interests of host and home countries, and those of their mobile and immobile labor forces. As the latter has a large majority, this creates special issues of political economy.

Third, the current approach to address these tensions is through BAs and MAs that cover an unknown set of social benefits with no international inventory of the rules applied, nor any evaluation of their effectiveness. The very limited information available suggests that many BAs focus on old-age pensions and related benefits and very few on health care and other benefits, if at all. At least some these agreements seem not to be operative or effective.

Fourth, the paper proposes a review of the social benefit design and a disentangling of the risk pooling, pre-funding, and redistributive components included with varying importance in each social benefit. For eligible benefits in disbursement, the redistributive component creates obstacles to export across borders. For benefits in accumulation, the pre-funding and redistributive components both create such obstacles. Identifying the pre-funding components of acquired rights and making them transferable across borders would improve portability. BAs and MAs are needed to export redistributive components from the old to the new country of residency (for social insurance benefits) and to address their accessibility in the new country of residency (for social assistance benefits).

Fifth, while the paper presents benefit redesign and inter-country agreements as alternative approaches to establish portability to tease out their scope and limits, the approaches are likely to be reinforcing and complementary. The better the social benefit components are identified, the easier it is for national legislation to allow for the export of benefits in disbursement and the transfer of acquired rights (pre-funding), and for inter-country agreements to focus on reciprocity in the redistributive component.

Sixth, while the risk pooling, pre-funding, and income redistribution components exist in funded and unfunded DB- and DC-type benefits, disentangling these components is facilitated better in the latter (and largely independent of the financing form). Essentially all social insurance-type benefits based on contributions can, in principal, be converted in this direction and their components separated. But not all need to be converted for reasons of portability, as many have limited bearing on labor mobility or life cycle SRM. Yet for a number of benefit schemes, in particular pensions and more recently unemployment benefits, such a benefit redesign is taking place anyway, with limited considerations for portability.

Seventh, the separation of risk pooling and pre-funding is investigated for old-age pensions and health care benefits. For pension benefits, such a scheme (the NDC) already exists, has been introduced in a number of countries[27], and is under implementation in others. The paper expands the application within an economic area of integration (the EU) to establish full portability across borders (and professions). For health care benefits, the application of the approach has been analytically investigated for privately provided health care within countries, but never for publicly provided health care across borders. The analysis suggests that it is feasible in principle, but there are a number of issues and questions for which good answers are not yet available.

Finally, the proposed conceptual framework is only the beginning of an intellectual voyage and many empirical and theoretical issues still need to be addressed. They include filling critical data gaps, understanding how current BAs and MAs actually work, conducting in-depth corridor studies, investigating empirically for which benefits portability really matters and why, exploring the political economy of the approach, and developing a formal analytical framework to improve conceptual clarity and allow *ex ante* evaluations.

References

Abdousalam, D. (2009), *Access to Pension Benefits for Returned Migrants: A Corridor Case Study for Mali-France*, World Bank, Washington, DC, Mimeo.

Aguila, E. and J. Zissimopoulos (2009), "Labor Market and Immigration Behavior of Middle-Aged and Elderly Mexicans", Working Paper WR-726, RAND, Santa Monica, CA.

Andrietti, V. (2001), "Portability of Supplementary Pension Rights in the European Union", *International Social Security Review* **54**, 59–83.

[27] Such as Italy, Latvia, Poland, Sweden, and Poland, see Holzmann et al. 2012.

Avato, J. (2008), "Portability of Social Security and Health Care Benefits in the United Kingdom", Background Paper for joint IDS/World Bank research project. Mimeo, http://siteresources.worldbank.org/INTLM/Resources/390041-1244141510600/Avato-UK.pdf (last accessed 4 January 2014).

Avato, J., J. Koettl and R. Sabates-Wheeler (2009), Definitions, Good Practices, and Global Estimates on the Status of Social Protection for International Migrants, Social Protection Discussion Paper No. 0909, World Bank, Washington, DC, http://siteresources.worldbank.org/SOCIALPROTECTION/Resources/SP-Discussion-papers/Labor-Market-DP/0909.pdf (last accessed 4 January 2014).

Avato, J., J. Koettl and R. Sabates-Wheeler (2010), "Social Security Regimes, Global Estimates, and Good Practices: The Status of Social Protection for International Migrants", *World Development* **38**, 455–66.

Becker, G. (1964), *Human Capital: A Theoretical and Empirical Analysis*, Colombia University Press, New York.

Bei, L. and J. Piggott (2012), "Meeting the Migrant Pension Challenge", *Paper Presented at the CESifo Venice Summer School 2012 Workshop on "Portability of Social Benefits: The Economics of a Critical Topics in Globalization"*, Venice, Italy, August 16-17, 2012.

Bonin, H., W. Eichhorst, C. Florman, M. O. Hansen, L. Skiöld, J. Stuhler, K. Tatsiramos, H. Thomasen and K. F. Zimmermann (2008), *Geographic Mobility in the European Union: Optimising its Economic and Social Benefits*, IZA *Research Report* 19, Institute for the Study of Labour, Bonn, Germany.

Dorfman, M., R. Holzmann and World Bank Team (2013), *China's Pension System—A Vision*, World Bank, Washington, DC.

Eichenhofer, E. (2009), *50 Jahre Nach Ihrem Beginn – Neue Regeln für Die Koordinierung Sozialer Sicherheit. Jahrestagung Des Europäischen Instituts für Soziale Sicherheit (EISS) 26./27. September 2008*, Erich Schmidt, Verlag, Berlin, Germany.

Fabel, O. (1994), *The Economics of Pensions and Variable Retirement Schemes*, Chichester, Wiley.

Fenge, R. and J. von Weizsaecker (2009), "Public Pension Systems and Distortions of Intra-EU Mobility: The Lodge Test", *Journal of Pension Economics and Finance* **9**, 262–79.

Forteza, A. (2008), *The Portability of Pension Rights. General Principles and the Caribbean Case*, Social Protection Discussion Paper, No 0825, The World Bank, Washington, DC, http://siteresources.worldbank.org/

SOCIALPROTECTION/Resources/SP-Discussion-papers/Pensions-DP/0825.pdf.

Hamilton, B. and J. Whalley (1984), "Efficiency and Distributional Implications of Global Restrictions on Labour Mobility", *Journal of Development Economics* **14**, 61–75.

Hartley, G., J. van Ours and M. Vodopinec (2010), *Incentive Effects of Unemployment Insurance Savings Accounts: Evidence from Chile*, IZA Discussion Paper Series No. 4681, IZA, Bonn, Germany.

Hinz, R., R. Holzmann, D. Tuesta and N. Takayama (eds.) (2013), *Matching Contributions for Pensions: A Review of International Experience*, World Bank, Washington, DC.

Holzmann, R. (1990), "The Welfare Effects of Public Expenditure Programs Reconsidered", *IMF Staff Papers* **37**, 338–59.

Holzmann, R. (2006), "Toward a Reformed and Coordinated Pension System in Europe: Rational and Potential Structure", in R. Holzmann and E. Palmer, eds., *Pension Reform: Issues and Prospect for Non-Financial Defined Contribution (NDC) Schemes*, World Bank, Washington, DC.

Holzmann, R., R. Hinz and World Bank Team (2005a), *Old-Age Income Support in the 21st Century: An International Perspective on Pension Systems and Reform*, World Bank, Washington, DC.

Holzmann, R. and S. Lau Jorgensen (2001), "Social Risk Management: A New Conceptual Framework for Social Protection, and Beyond", *International Tax and Public Finance* **8**, 529–56.

Holzmann, R., J. Koettl and T. Chernetsky (2005b), "Portability Regimes of Pension and Health Care Benefits for International Migrants: An Analysis of Issues and Good Practices", Social Protection Discussion Paper, No 0519. Paper commissioned by the Global Commission on International Migration.

Holzmann, R., E. Palmer and D. Robalino (eds.) (2012), *NDC Pension Schemes in a Changing Pension World, Volume 1, Progress, Issues, and Implementation*, World Bank, Washington, DC.

Holzmann, R. and Y. Pouget (2010), "Towards an Objective-driven System of Smart Labor Migration Management", Economic Premise 42, World Bank, Washington, DC.

Holzmann, R. and Y. Pouget (2012), "Social Protection for Temporary Migrant Workers: What Programs Serve them Best?", I. Omelaniuk, ed. (2012), *Global Perspectives on Migrant and Development: GFMD Puerto Vallerta and Beyond, A Publication by the Global Forum on Migration and Development*, pp. 61–85, Springer, New York-Heidelberg.

Holzmann, R., D. Robalino and N. Takayama (eds.) (2009), *Closing the Coverage Gap: The Role of Social Pensions*, World Bank, Washington, DC.

Hooghe, M., A. Tappers, B. Meuleman and T. Reeskens (2008), "Migration to European Countries: A Structural Explanation of Patterns, 1980–2004 (1)", *International Migration Review* **42**, 476–504.

International Labour Organization (2009), *Protecting the Rights of Migrant Workers: A Shared Responsibility*, ILO, Geneva, Switzerland.

Jousten, A. and P. Pestieau (2002), *Labor Mobility, Redistribution, and Pension Reform in Europe*, NBER Chapters in Social Security Pension Reform in Europe, pp. 85-108. National Bureau of Economic Research, Inc, Cambridge, MA.

Koettl, J. (2006), *The Relative Merits of Skilled and Unskilled Migration, Temporary and Permanent Labor Migration, and Portability of Social Security Benefits*, Social Protection Discussion Paper Series, No. 0614, The World Bank, Washington, DC.

Koettl, J., M. Morghandi and A. Van der Bosch (2009), *Social Protection Management for Migrants: The Case of EU and North Africa*, World Bank, Washington, DC, Mimeo.

Lazear, E. (1979), "Why is There Mandatory Retirement?", *Journal of Political Economy* **87**, 1261–84.

Moses, W. J. and B. Letnes (2004), "The Economic Costs to International Labor Restrictions: Revisiting the Empirical Discussion", *World Development* **32**, 1609–26.

Obermaier, A. (2009), *Cross-Border Purchase of Health Services. A Case Study on Austria and Hungary*, Policy Research Working Paper, No. 4825, World Bank, Washington, DC.

Olivier, M. (2009), *Regional Overview of Social Protection for Non-Citizens in the Southern African Development Community (SADC)*, Social Protection Discussion Paper, No 0908, http://siteresources.worldbank.org/SOCIALPROTECTION/Resources/SP-Discussion-papers/Labor-Market-DP/0908.pdf (last accessed 4 January 2014).

Pieters, D. and P. Schoukens (eds.) (2009), *The Social Security Co-ordination Between the EU and Non-EU Countries*, Intersentia, Antwerp/Oxford/Portland.

Sabates-Wheeler, R. and R. Feldman (eds.) (2011), *Migration and Social Protection: Claiming Social Rights Beyond Borders*, Palgrave Macmillan, New York.

Spiegel, B. (2010), *Analysis of Member States' Bilateral Agreements on Social Security with Third Countries*, DG Employment, Social Affairs and Equal Opportunities, European Commission, Brussels.

Strban, G. (2009), "The Existing Bilateral and Multilateral Social Security Instruments Binding EU States and Non-EU States", D. Pieters and P. Schoukens, eds., pp. 85–113.

Sun, W., A. Webb and N. Zhivan (2010), *Does Staying Healthy Reduce Your Lifetime Health Costs?* Issue in Brief No. 10-8, Center for Retirement Research at Boston College, Chestnut Hill, MA.

Verschueren, H. (2009), "New Provisions in Regulation 0003/2004 on Pensions and on Non-contributory Benefits", In *50 Years of European Social Security Coordination*, European Institute for Social Security, Leuwen.

Werding, M. and S. McLennan (2011), "International Portability of Health Care Benefits: Concepts and Experience", SP Discussion Paper Series No. 1115, World Bank, Washington, DC.

World Bank (2009), Country Classifications, http://go.worldbank.org/D7SN0B8YU0 (last accessed 4 January 2014).

World Bank (2013), World Development Indicators, http://wdi.worldbank.org/table/6.13 (last accessed 2 October 2013).