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Taxing Pensions of an Internationally Mobile Labor Force: Portability Issues and Taxation Option

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Taxing Pensions of an Internationally Mobile Labor Force: Portability Issues and Taxation Options[1]

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Abstract

A rising share of individuals are spending at least some part of their working life abroad and acquiring pension rights. While the portability of pensions and other social benefits has received some analytical attention over the recent decade, limited analytical guidance currently exists on the taxation of retirement provisions within a country, and none for the taxation of internationally portable pensions. For both national and international taxation of pensions, the actual taxation approaches are characterized by a high level of diversity, complexity, and inconsistency within and across countries that risk harming labor mobility and creating fiscal unfairness.

The proposed taxation approach for internationally portable pensions mixes notional front-loaded taxation (as the tax due on contributions/savings is deferred) with actual back-loaded taxation as the taxes are due when the benefits are disbursed (in source or residency country) or when accumulated savings effectively leave the country. This approach promises to broadly establish neutrality for international labor mobility decisions, fiscal fairness of tax revenue around retirement provisions between source and residency countries, and bureaucratic efficiency, including consistency with European Union regulations and most double-taxation treaties.

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I. Introduction

An increasing number of individuals across the world reside outside their home country, at least for some part of their working life or retirement years. While the absolute numbers of individuals or the share in the world or European Union (EU) population that will reside some period (for example, at least six months) abroad during their lifetime are not easily available, reasonable estimates for the share of the EU population ranged between 7 percent and 25 percent in 2013, a non-negligible figure that is trending upward.

While working abroad, these individuals typically acquire rights to social security and private sector benefits that they want take with them when they move, return to their home country, or move to their retirement residency – i.e., they expect and want them to be portable, or else they may reconsider their mobility plan. Among the social benefits most relevant for migrants are long-term pension benefits, as they present a major share of total wealth of individuals during their life and are critical for life-cycle planning. While the portability of public pension benefits among OECD countries has been more or less established, this is much less the case with countries outside this country group, and portability still faces major issues with occupational and private retirement savings instruments that had received tax privileges during accumulation. Yet even if public and private pensions are made fully portable, another surprise may emerge once individuals are retired and in benefit receipt: the pension sent from abroad risks being taxed in a complicated manner ranging from not at all to double taxation in both source and residency countries. Again, this may impact and distort labor mobility and residency decisions while creating undesirable fiscal effects for countries. Good policies to establish pension portability and fair taxation across countries are little explored issues and the topic of this paper.

For a long time, the portability of pensions (and health care benefits) was the exclusive domain of social lawyers, with bilateral social security agreements (BSSAs) the only instrument considered and proposed. The topic has received more attention from economists in recent years and some progress in knowledge and conceptualization has been made (see Holzmann, Koettl, and Chernetsky 2005; Holzmann and Koettl 2015; Werding and McLennan 2015; and papers in a dedicated 2015 issue of CESifo Economic Studies (Holzmann and Werding 2015)). The topic of taxation of a mobile labor force remains the almost exclusive domain of international tax lawyers, with double-taxation treaties (DTTs) the only instruments considered and proposed. To shake this dominance and introduce economics into the discussion, CEPAR – the Center for Excellence in Population Aging Research (Sydney) - and CESifo – the Center for Economic Studies & ifo

Institute (Munich) - joined forces to explore in two staged workshops the topic of taxation of pensions in general and the taxation of internationally mobile pensions in particular.[3]

To explore the topic, to interest researchers, and to offer guidance for policy makers, the structure of this paper is as follows: Section II offers first considerations on the scope of individuals concerned by mobility issues and provides some estimates on the share of the EU population that may be concerned. Section III briefly summarizes the current understanding of issues, concepts, and implementation challenges associated with portability of pensions when individuals move between places of work and to their final residency at retirement. Section IV presents the perceived key dimensions of complexity that surround the taxation of internationally portable pensions: the diversity, complexity and inconsistency of the actual taxation approach, and key economic explanations for why such conceptual turmoil exists at the national and international level. Against this background, Section V proposes a taxation concept for internationally portable pensions that is grounded in the consumption-type treatment of retirement income provisions and that combines front-loaded taxation (i.e., taxing contributions) with back-loaded taxation (i.e., taxing benefits when disbursed) through the deferment of accumulated tax liabilities till the savings are transferred abroad. Finally, Section VI briefly summarizes and proposes next steps.

II. The Scope of an Internationally Mobile Labor Force

For the world as a whole, those residing abroad amounted to over 3 percent of the world population in 2014, representing a mixture non-national and foreign-born individuals (UN 2014). Albeit significant in absolute terms (about 230 million people) and rising, the number of possible individuals concerned may not deserve special attention. The same figure for the EU is 4 percent if measured as non-nationals from outside the EU residing there and potentially returning to their home country. Adding those EU nationals residing in another EU country (2.7 percent), the total share of non-nationals residing in an EU country accumulates to 6.7 percent (Eurostat estimates for Jan 1, 2013; Eurostat 2015). The variance among EU member countries of this figure is large and ranges from just above 1 percent (Lithuania) to 43 percent (Luxembourg). Even higher mobility figures are generally achieved when instead of non-nationals, the data focus on those born abroad (the difference being essentially those who were naturalized). The share of foreign-born (outside the EU) amounted to 6.6 percent of the EU population in 2013, while the share of those born in a different EU country residing abroad within the EU amounted to 3.4 percent, for a total of almost 10 percent of the EU population (Eurostat 2015). The variance across EU countries of this percentage is also high but overall lower, resulting from positive as well as negative differences in the share of nationals residing abroad.

[3]The first workshop was held in Sydney in November 2014 and the second workshop is scheduled for Munich in early September 2015. All papers and presentation will be on the website and a book of selected papers is planned.

Of the two immigrant' types – non-nationals and foreign-born – the first type is quite likely the more relevant to establish a low estimate of individuals concerned by portability. Non-nationals in a country are more likely to move on or return to their home country; otherwise they have an incentive to acquire the nationality of the residency country while working (thus becoming a foreign-born resident), while for retired residents, naturalization offers some but fewer advantages. But some of the foreign-born who were naturalized may have acquired rights from their former home country that could be added to a non-national estimate to establish a high lower bound.

While impressive, these demographic stock variables still underestimate the significance of individuals who are mobile between countries, as an increasing number work for at least some part of their life in at least one other country before moving back home or continuing to another country of work or retirement. The possibility of multiple spells in different or the same country and the absence of relevant data do not allow pinpointing the share of individuals in the EU population that have or will have had at least one relevant migration experience over their life-cycle. Some sense of the magnitudes can be gained from the immigration flow data for the 28 EU countries in 2013, which are disaggregated by same country (i.e., return migration), another EU country, and a non-EU country. The flows of all migrants to EU countries in 2013 amounted to 3.389 million; compared to the EU-wide stock of non-national migrants of 34.070 million, this amounts to almost 10 percent, distributed among return migrants to their own country (2.4 percentage points), EU (3.5 percentage points), and non-EU nationals (4.0 percentage points).

A turnover of 10 percent per year with a migrant share of 6.7 percent in the population can be translated into an estimate of the share of population with at least one migration experience in life. For this, assumptions are needed regarding the relevant active life span (for example, 40 years) and the average length of stay as a migrant (for example, 10 years). Then the mobility stock estimate for 2013 of 6.7 percent (migrants by nationality defined as a percent of population) would translate into a more relevant flow estimate of 4 (i.e., 40/10) times 6.7, or 26.8 percent (i.e., the share of individuals in the population with one migration experience). As the typical age cohort for migration is more likely between 15-30 years of age than a full 20-60 years of age, an average migration spell is likely less than 10 years. Likewise, individuals that go abroad typically have more than one spell on average, so this rough estimate needs to be adjusted downward or upward, as appropriate. Some simple modelling and first estimates that make consistent the results of different data bases suggest that (based on 2013 data) about 20 [+/- 5] percent of the EU population may have lived abroad and are thus potentially affected by the issues of pension portability and taxation. And this share has been rising over recent decades and is conjectured to continue doing so for the time being.

A backward-looking glimpse into the rising importance of pensions paid abroad can be achieved by presenting country examples with data on total pensions, old-age pensions, and the share of those paid abroad for available years. Data are available for Austria, Germany, and Switzerland for 2004, 2010, and 2014 (see Table 1).

In all three countries, the number of all pensions and old-age pensions increased from 2004 to 2013/14 but pensions paid abroad increased at a faster rate. As a result, the share of pensions paid abroad out of all pensions increased by: below 1 percentage point in Austria, reaching 11.8 percent by 2014; over 1 percentage point in Germany, reaching 6.9 percent by 2013; and almost 1 percentage in Switzerland, reaching 10.2 percent by 2014. The lower share in Germany can be explained by country size and the essential absence of guest workers and pensioners living abroad in the former East Germany before unification in 1989. From 1992 to 2013, the number of all pensions increased by 30.3 percent, and those paid abroad by 101.5 percent (i.e., it more than doubled).

Table 1. Total number of pensions and those send abroad, End- December 2004, 2009/10 and 201

Austria	**2004**		**2010**		**2014**	
	All Pensions	**Old-age pensions**	**All Pensions**	**Old-age pensions**	**All Pensions**	**Old-age pensions**
Total 1/	2 041 997	1 114 867	2 219 923	1 494 763	2 310 749	1 615 382
Abroad	225 662	128 396	257 062	172 212	273 035	188 484
in %	11.1%	11.5%	11.6%	11.5%	11.8%	11.7%
Germany	**2004**		**2009**		**2013**	
	All Pensions	**Old-age pensions**	**All Pensions**	**Old-age pensions**	**All Pensions**	**Old-age pensions**
Total 1/	24 253 612	16 647 948	24 932 492	17 541 732	25 164 401	17 687 735
Abroad	1 385 244	930 146	1 577 562	1 094 328	1 724 688	1 219 670
in %	5.7%	5.6%	6.3%	6.2%	6.9%	6.9%
Switzerland	**2004**		**2010**		**2014**	
	All Pensions	**Old-age pensions**	**All Pensions**	**Old-age pensions**	**All Pensions**	**Old-age pensions**
Total 1/	1 334 134	1 234 451	1 470 284	1 373 742	1 585 402	1 492 747
Abroad	124 487	108 316	142 697	128 809	161 135	146 926
in %	9.3%	8.8%	9.7%	9.4%	10.2%	9.8%
Source: National Social Security Institutions						

Thanks to more detailed German data, it is possible to get closer insights into the distribution of pensions paid abroad by world regions and countries, with the latest available data for December 31, 2013 (Table 2). Ninety percent of pensions paid by Germany go to Germans residing at home or abroad; 10 percent go to non-nationals residing in Germany or abroad. Of those pensions paid to Germans, 99 percent are paid within Germany and 1 percent abroad. For non-nationals, the figures are 41 percent and 59 percent, respectively, signaling that less than half of former non-national workers stay in Germany after retirement. The destination countries of German retirees abroad indicate the most preferred locations; most stay in the EU (69 percent, with the top four countries comprising almost two-thirds), or go elsewhere in Europe (14 percent, with Switzerland making-up 84 percent) or to the Americas (11 percent, with the U.S. making-up more than half the share).

Table 2. Germany: Number of Pensions to German and Foreign Insured by Types of Pension and Country of Disbursement, December 31, 2013

Disbursement Country	Pensions: German and	Pensions German	Disability pensions		Old-age pensions		Survivors pensins			Pensions Foreign	Disability pensions		Old-age pensions		Survivors pensins		
		German insured	Men	Women	Men	Women	Widows	Widowers	Orphans	Foreign insured	Men	Women	Men	Women	Widows	Widowers	Orphans
Germany	**23 439 713**	**22 380 596**	**776 598**	**765 526**	**6 701 912**	**9 071 437**	**4 194 588**	**565 486**	**296 647**	**1 059 117**	**69 906**	**73 474**	**397 529**	**297 197**	**166 946**	**19 800**	**33 310**
In % of total/*sub-totals 1/*	**93%**	**95%**	3.47%	3.42%	29.95%	40.53%	18.74%	2.53%	1.33%	**5%**	6.60%	6.94%	37.53%	28.06%	15.76%	1.87%	3.15%
In % of total		**99%**								**41%**							
Abroad	**1 724 688**	**221 766**	**3 532**	**3 374**	**80 458**	**77 765**	**45 989**	**5 079**	**5 530**	**1 502 922**	**17 875**	**9 061**	**672 011**	**389 436**	**386 242**	**19 280**	**8 983**
In % of total/ *sub-totals 1/*	**7%**	**13%**	*1.6%*	*1.5%*	*36.3%*	*35.1%*	*20.7%*	*2.3%*	*2.5%*	**87%**	1.2%	0.6%	44.7%	25.9%	25.7%	1.3%	0.6%
In % of abroad/ *sub-totals 1/*		2/								2/							
EU	**69%**	**51%**	*2.0%*	*2.0%*	*33.7%*	*34.7%*	*22.1%*	*2.8%*	*2.7%*	**72%**	1.4%	0.7%	46.7%	24.4%	24.9%	1.3%	0.5%
Austria		19%	*2.7%*	*3.2%*	*30.8%*	*33.5%*	*24.5%*	*2.3%*	*3.0%*	9%	*3.9%*	*2.0%*	*41.1%*	*30.7%*	*20.6%*	*0.9%*	*0.9%*
France		14%	*1.8%*	*1.8%*	*35.5%*	*35.9%*	*21.5%*	*1.9%*	*1.6%*	6%	*3.4%*	*1.8%*	*38.9%*	*37.9%*	*16.1%*	*1.2%*	*0.7%*
Italy		6%	*0.5%*	*1.1%*	*19.4%*	*52.7%*	*18.7%*	*5.9%*	*1.6%*	33%	*0.9%*	*0.2%*	*52.4%*	*17.8%*	*27.2%*	*1.1%*	*0.3%*
Spain		17%	*1.8%*	*1.7%*	*35.5%*	*38.2%*	*18.1%*	*3.3%*	*1.4%*	19%	*0.8%*	*0.3%*	*51.1%*	*22.4%*	*24.1%*	*1.0%*	*0.2%*
Other Europe	**14%**	**14%**	*1.7%*	*2.0%*	*40.8%*	*35.9%*	*15.4%*	*1.9%*	*2.3%*	**13%**	*1.1%*	*0.6%*	*42.7%*	*18.4%*	*34.7%*	*1.3%*	*1.3%*
Switzerland		84%	*1.4%*	*1.8%*	*43.5%*	*37.7%*	*12.5%*	*1.1%*	*1.9%*	14%	*0.8%*	*0.9%*	*41.1%*	*47.5%*	*8.1%*	*1.1%*	*0.4%*
Africa	**1%**	**4%**	*0.6%*	*0.3%*	*44.4%*	*28.5%*	*21.9%*	*2.1%*	*0.2%*	**0%**	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
South Africa		71%	*0.2%*	*0.1%*	*47.4%*	*28.4%*	*21.5%*	*1.6%*	*0.9%*	14%	*0.1%*	*0.0%*	*44.2%*	*26.0%*	*28.1%*	*1.3%*	*0.2%*
Americas	**11%**	**22%**	*0.4%*	*0.6%*	*34.5%*	*41.5%*	*19.8%*	*1.2%*	*1.7%*	**9%**	*0.1%*	*0.1%*	*36.8%*	*42.4%*	*19.8%*	*0.7%*	*0.1%*
USA		52%	*0.3%*	*0.9%*	*30.9%*	*51.0%*	*14.8%*	*1.1%*	*1.1%*	59%	*0.1%*	*0.1%*	*32.4%*	*47.2%*	*19.3%*	*0.7%*	*0.1%*
Asia	**3%**	**4%**	*0.4%*	*3.0%*	*44.9%*	*12.3%*	*29.8%*	*2.8%*	*6.9%*	**3%**	*0.2%*	*0.1%*	*33.2%*	*39.8%*	*24.1%*	*2.2%*	*0.5%*
Israel		15%	*0.2%*	*0.4%*	*18.9%*	*26.3%*	*48.9%*	*4.3%*	*0.9%*	93%	*0.1%*	*0.0%*	*31.9%*	*41.6%*	*24.1%*	*2.3%*	*0.0%*
Thailand		42%	*4.0%*	*0.2%*	*54.1%*	*4.6%*	*28.5%*	*2.4%*	*6.0%*	1%	*3.9%*	*1.5%*	*56.4%*	*20.5%*	*12.7%*	*1.2%*	*3.7%*
Australia	**2%**	**5%**	*0.9%*	*0.8%*	*45.0%*	*34.1%*	*16.6%*	*2.0%*	*0.7%*	**2%**	0.4%	0.3%	41.7%	36.8%	18.9%	2.0%	0.0%
Total	**25 164 401**	**22 602 362**	**780 130**	**768 900**	**6 782 370**	**9 149 202**	**4 240 577**	**570 565**	**302 177**	**2 562 039**	**87 781**	**82 535**	**1 069 540**	**686 633**	**553 188**	**39 080**	**42 293**
		90%	*3.5%*	*3.4%*	*30.0%*	*40.5%*	*18.8%*	*2.5%*	*1.3%*	**10%**	*3.4%*	*3.2%*	*41.7%*	*26.8%*	*21.6%*	*1.5%*	*1.7%*

Source: Deutsche Rentenversicherung, Rentenbestand am 31.12. 2013, Tabelle 18:00 G

Notes: 1/ Integer values in percent and bold refer to the totals, values with percentage points and in *Italic* refer to pension types to German or foreign pensions, respectively.

2/ Integer values in percent refer to the regional subtotals.

III. Portability of Pensions: Issues, Concepts, and Implementation Challenges

For pension benefits to become taxable abroad, they first need to be made portable across international borders. This begs the question why one should worry about pension portability before trying to define portability and the operational objectives behind it. The next stage is to identify the main policy instruments to establish portability and its conceptual considerations. Only then can the taxation of portable pensions be well addressed.[4]

III.1 Why worry about benefit portability and the lack thereof?

Two levels of concern can be raised regarding portability - or lack thereof - of pension benefits or, more broadly, of acquired social rights by individuals: (i) concerns at the level of the individual; and (ii) concerns at the societal level (Table 3).

Table 3. Concerns about portability or the lack thereof

Individual Level	**Societal Level**
Impedes/distorts individual labor mobility	Affects resource allocation and growth
Impacts life-cycle social risk management	Affects fiscal fairness between sending and receiving country
Impinges on acquired social rights	Impinges on human rights

Source: Author.

If individuals know or expect that pensions (and other social benefits) cannot be ported to their next country of work or to their future retirement residency, or not to the full extent, they may have second thoughts about going abroad in the first instance. If the salary abroad is sufficiently high and/or the proposed work sufficiently interesting, they may still migrate, migrate for a shorter time span, or migrate indefinitely and not return home. Whatever the decision, lacking or incomplete benefit portability risks impeding or distorting labor mobility at the individual level, with negative implications for individual welfare through lower human capital development, lifetime wealth, and life opportunities.

Reduced/distorted individual mobility quite likely translates into distorted resource allocation and lower economic growth at the societal/macroeconomic level. While the exact mechanism for this is astonishingly little explored, country-specific evidence (for example, in Gulf Cooperation Council countries) and international conjectures (for example, the middle income trap) suggest that impeded national mobility negatively affects growth prospects. At the international level, distorted labor mobility risks affecting resource allocation and growth through lower skills acquisition for nationals (as return migrants), less competitiveness for global talents (as immigrants), and reduced international arbitrage opportunities (including during macroeconomic adjustments).

If individuals are internationally mobile even in the face of incomplete benefit portability, this affects social risk management over their life-cycle for themselves and their families. Outside pensions, it may mean temporary or even permanent loss of health insurance coverage. For pensions, it may mean lower disability or survivor's benefits while the individual is working and lower old-age benefits at a given retirement age or a deferred retirement to recover the losses

[4] For further and fuller discussions on portability issues, see Holzmann, Koettl, and Chernetsky (2005), Holzmann and Koettle (2015), and Holzmann (2015).

associated with incomplete portability. Whatever the consequences and reactions, lower portability negatively impacts individuals' ability to manage risk across their life-cycle.

At the societal/fiscal level, incomplete portability affects fiscal fairness between sending and receiving countries. If acquired rights are not portable, the fiscal situation of the sending country improves, as the net pension obligations are reduced at the expense of the mobile individual. For the receiving country, incomplete portability may, at best, be fiscally irrelevant if future benefits are tightly linked with future contributions. However, in case of benefits geared toward the lower income/lower contribution periods, the receiving country would be negatively affected.

Last but not least, incomplete portability impinges on individuals' acquired social rights, a topic that has received much attention in social and economic development in recent years. The macroeconomic equivalent is the notion of human rights that are violated if portability of acquired rights is incomplete.

III.2 Defining portability and operationalizing the objectives

Before discussing the main policy instruments to address the aforementioned key concerns about incomplete portability, this section offers a definition of portability and operationalizes the objectives.

The proposed portability definition is as follows (Holzmann and Koettle 2015):

Portability of social benefits is the ability to preserve, maintain, and transfer vested social security and private rights or rights in the process of being vested, independent of profession, nationality, and country of residency, with two 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.

The first of these two elements is the one that comes to mind when talking about benefit portability: to receive benefits for which eligibility has been established wherever one lives in the world. The background for the eligibility is (beside age) prior contributions, fulfillment of vesting or residency criteria as for those remaining in the country (i.e., eligible benefits are fully exportable). The contribution or residency requirement means that not all benefits can be exported; in particular, non-contributory benefits paid from general revenues will typically be subject to an exportability ban (such as pension top-ups to achieve guaranteed minimum income in old age).

The second of these elements refers the transfer of rights in the process of being vested before eligibility has been established. Transferring these rights in full can happen (almost) physically when the accumulated resources of a defined contribution (DC) plan are passed on to the new country of residency. It can also happen virtually if the rights are preserved and remunerated in the country of accumulation till eligibility has been achieved.

A crucial aspect of pension portability is linked to the existence of vesting periods (i.e., minimum insurance periods/years as an eligibility criterion) that in many countries are still in the range of 10, 15, or more years. Thus a mobile insured person may have acquired insurance-based rights in different countries that all fall short of the vesting period. Without a coordination mechanism, portability would not exist.

The proposed operational objectives of benefit portability that serve as selection criteria for policy instruments are as follows (Holzmann, Koettl, and Chernetsky 2005, Holzmann and Koettle 2015). A variety of objectives can be raised to support the demand for full portability of social benefits. But 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 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 work force 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 of their home country.

To assess whether portability arrangements succeed in delivering on fairness and efficiency considerations, three broad results criteria have been suggested (Holzmann, Koettl, and Chernetsky 2005; Holzmann and Koettle 2015):

- 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 an undue bureaucratic burden for the institutions involved and should be easy to handle for migrants.

III.3 Approaches to establish portability

Essentially three approaches exist to establish portability. First and most traditional is to develop, sign, and implement a BSSA between two corridor countries. Second, not new but becoming more popular, is to allow for international providers of the benefit service across countries. Third and more radical is to redesign contribution/benefit programs to make them more/fully neutral to mobility. Each is discussed next.

III.3.1 Bilateral Social Security Agreements (BSSAs)

BSSAs are the centerpiece of current portability arrangements between countries. They strive to establish the portability of social benefits between two countries and thereby serve multiple goals, including: defining which social benefits will be coordinated ("material scope"); defining the individuals covered under the agreement ("personal scope"); establishing the depth of coordination (from time-limited exemptions to contribute to the host scheme to exportability of benefits to full-fledged coordination); and establishing coordination on eligibility criteria, benefit calculation, disbursement, service delivery, financing, and processes of application, decision, and information.

Most BSSAs have been established between developed economies, with a limited number of agreements only between key migration corridor countries. While all EU countries now have BSSAs between them, the rules between EU member countries are constrained by the corresponding EU directives, which cover not only social security benefits (i.e., first pillar pensions) but also occupational pensions and personal pensions with more or less precision and (individual, country, and industry) support.

While widespread and overall positively assessed, BSSAs have yet to be evaluated with regard to any proposed objectives. The first BSSA evaluation ever between four corridors of EU and neighboring countries (Austria-Turkey, Germany-Turkey, Belgium-Morocco and France-Morocco) was recently finished (and is summarized in Holzmann 2015). In a nutshell, the four BSSAs work reasonably well overall; most concerns are at the level of administration and information, not benefit coordination.

III.3.2 Facilitating multinational providers

A promising approach is to use the services of multinational (private sector) providers, at least for supplementary benefits in health care and old age. Multinational providers exist and function well for health care benefits; e.g., Van Breda (recently taken over by Cigna), a Belgium service provider, services World Bank staff and retirees residing in Europe, and is also used by the European University Institute. Multinational provider arrangements have been discussed, and sometimes implemented, for supplementary pensions of international workers in multinational enterprises.

In October 2014, the European Commission announced a "new pan-European pension fund" called RESAVER: Retirement Savings Vehicle for European Research Institutions. Once in place, the RESAVER initiative will allow researchers to move freely without having to worry about preserving their supplementary pension benefits. It will enable researchers to remain affiliated with the same pension fund, even when changing jobs and moving between different countries. The European Commission will cover the initial setup costs through a four-year framework contract. In 2015, the employer consortium will prepare the ground for the effective establishment of RESAVER, with the aim of transferring the first contributions as of 2016.[5] The tax treatment is still being worked out.

III.3.3 Redesigning the contribution/benefit structure

This approach attempts to address the underlying conceptual issues of portability. It suggests that portability can be easily established with a benefit design that distinguishes between the

[5] For details of this evolving program, see http://ec.europa.eu/euraxess/index.cfm/rights/resaver

three components of essentially any social benefit: the period insurance component; the intertemporal savings component; and the redistributive component (Holzmann and Koettle 2015).

- The period insurance component is consumed in any period and thus is not portable and there is no need for it. For (modern) pension schemes, the period coverage under a disability or survivors' benefit program is linked to an old-age pension scheme.
- The intertemporal savings component exists in essentially all social benefit programs to a larger and smaller extent, as period markets do not exist for diverse reasons and pre-saving is advised to take account of rising risk or prices and imperfect markets. For old-age pensions, it is the accumulated financial or virtual capital at any moment. Savings accumulations of almost equal importance also exist for health care programs (funded or unfunded). This saving should be fully portable.
- Social programs also include to a larger or smaller extent a (positive or negative) redistributive component that accumulates over time. Whether such a component becomes portable is a political decision to be settled between countries. If it small or nonexistent, portability is technically and politically much easier.

For pensions, portability is significantly facilitated when moving from a defined benefit (DB) to DC scheme in which disability and survivor's pensions are separately organized and priced. For old-age pensions, the accumulated savings can be easily transferred (whether actual or notional) during the accumulation phase; they do not require any relevant vesting period as under a DB scheme; and annuitization can take place in the last place of work for the total accumulation.

Box 1 sketches an *analytical model* that outlines the portability conditions when the three social benefit components are separated. It is extended in Section V when income taxes are introduced. The model basically suggests that as long as a benefit program is actuarially fair (the accumulated (actual or virtual) savings reflect the balance of accumulated period contributions and expected period benefits), the transfer of this amount at the time of migration should treat fairly both the individual and the sending and receiving countries. In the receiving country, the transferred amount should be equal to the expected contribution – benefit difference (assuming homogenous conditions on both sides of the border). If a redistributive individual component exists (positive or negative), arrangements across all migration flows need to be established and, if needed and agreed, side payments made.

IV. The Taxation of Internationally Portable Pensions: Key Dimensions of Complexity

While the issues of portability of pensions (and other social benefits) received some, albeit still limited, attention by economists over the recent decade, the issue of taxing portable pensions remains largely unexplored by economists while keeping tax lawyers busy. More broadly, how to best tax pensions even at the national level and how to do so in the face of population aging and globalization have not yet attracted much attention from the economics profession. The taxation of internationally portable pensions is still *terra incognita*.

Against this background, this section sketches a limited number of key dimensions to facilitate understanding of the proposal presented in Section V. Section IV starts by highlighting the complexity and inconsistency of taxation at the national and bilateral level, which can be summarized as "anything goes." The next subsection explores the origin of tax issues for earnings-related portable pensions.

Box 1: The insurance, saving and distributive components of social insurance benefits: A simple analytical model on full portability (excerpt)

The insurance component of a one-period benefit with homogenous individuals, without pre-saving and redistribution, has a simple budget constraint:

[1] $c(a) = b(a)\, p(a) = E[b(a)]$

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 assures budget balance.

If pre-saving is introduced to address rising risk or price, the period budget constraint is extended to:

[2] $c(a) - E[b(a)] = s(a)$

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) gives:

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

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 ã+1), the present value of the (expected) future benefits $B^{e(}$ã+1) minus the present value of any (expected) future contributions C^{e}(ã+1) till the latest possible age of death in the new host country is:

[4] $$B^{e}(\tilde{a}+1) - \mathrm{C}^{\mathrm{e}}(\tilde{a}+1) = \sum_{a=\tilde{a}+1}^{a^{d}} \frac{b(a)\,p(a)}{(1+r)^{a-\tilde{a}+1}} \sigma(\tilde{a}+1, a) - \sum_{a=\tilde{a}+1}^{a^{d}} \frac{c(a)}{(1+r)^{a-\tilde{a}+1}} \sigma(\tilde{a}+1, a)$$

The present value of the future benefits depends on the survival probability from migration age ã to age a – σ(ã+1, 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:

[5] $$C(\tilde{a}) - \mathrm{B}(\tilde{a}) = B^{e}(\tilde{a}+1) - \mathrm{C}^{\mathrm{e}}(\tilde{a}+1)$$

Equation [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 R(ã) as the present value of the redistribution component at age ã in equation [6] completes the exercise; R(ã) can be positive (a transfer) or negative (a tax).

[6] $$S(\tilde{a}) + R(\tilde{a}) = C(\tilde{a}) - \mathrm{B}(\tilde{a}) + R(\tilde{a}) = B^{e}(\tilde{a}+1) - \mathrm{C}^{\mathrm{e}}(\tilde{a}+1)$$

Source: Holzmann and Koettl 2015.

IV.1 The fiscal treatment of pension pillars within and between countries: anything goes

To present the complexity of the taxation of pensions at the national and bilateral level, it is useful to differentiate pension pillars, as their tax treatment is typically quite different. To this end, the World Bank's five-pillar structure is used, as it ably captures the complexity of pension schemes' objectives and structures across the world (Holzmann and Hinz 2005).

Table 4 describes each pillar, offers summaries of the tax treatment by domestic tax laws and under DTTs, and makes some pertinent comments. The five-pillar structure builds on the well-known three-pillar structure of public, occupational, and personal pensions but separates a poverty-oriented zero pillar from the consumption-smoothing first pillar and adds a fourth pillar as a memorandum item of public and private arrangements for old age, as their very existence or absence has a bearing on the scope and depth of the other pillars (such as health care, long-term care and housing, or family cohabitation arrangements and community services). Mandated or quasi-mandated funded provisions are defined as a second pillar, as they emerged with the Chilean systemic reform revolution. The third pillar covers occupational and personal pensions, which attract government attention through specific regulations and tax treatment.

To facilitate the presentation, we use abbreviations for: (i) benefit types (DC and DB) and their funding (financial/funded or non-financial/unfunded), and their combination (NDC, FDC, NDB, FDB); (ii) tax treatment of contributions, returns, and benefits (exempt or taxed), and their combination with regard to the tax treatment of contributions, returns, and benefits disbursed (e.g., TEE or EET), with special tax treatments capture with subscripted t (with various super indices); and (iii) country references indicated through international car plate signs.

A review of Table 4 fosters the summary conclusion: anything goes:

First, in all five pillars, the financing and benefits may raise taxation issues that differ from each other. This includes the tax treatment of the basic provisions of the zero pillar and the possible claw-back of demogrants' outlays with the taxation of additional income.

Second, the national tax treatment of each pillar is typically different across countries as is the tax treatment between pillars for individual countries. That is, very limited similarity of pillar taxation exists across countries and across pillars for a single country.

Third, the tax treatment between countries may differ significantly across corridors of the same countries. For example, DTTs may have different approaches for a single country depending on the partner treaty country. [6]

6 The inconsistency of capital taxation in DTTs in the 1960 is noted in the survey article of Auerbach (2009); his article makes no mention at all of the taxation of labor income across borders.

Table 4. The Tax treatment of portable pensions by pillars 1/

Pillar Description	Domestic Tax Treatment	International Tax Treatment as per Double Taxation Treaty	Comments
Zero pillar: Poverty-oriented basic benefits, including demogrant (NZ), means-tested basic pension (AUS), top-ups as minimum pension or income guarantee (most industrialized countries)	Typically untaxed but often part of the tax base (with other income)	Universal pensions need BSSAs and may become taxable in residency country Top-ups are typically not made portable and hence no tax issues arise	Indirectly taxed in case of benefit withdrawals through means testing, phased-in withdrawals for other pension income, and claw-back for additional income under income tax
First pillar: Basic consumption smoothing mandated, earnings-related and unfunded schemes (NDB, NDC)	Predominantly but not uniformly taxed with under EET (17 out of 30 OECD countries, with Germany also a vanishing exception)	Typically residency-based, except for civil servants benefits (source-taxed), source tax in some countries (recently in Germany, formerly in Belgium), and non-taxation in others (Turkey, Portugal)	
Second pillar: Basic or supplementary consumption-smoothing mandated, earnings-related, and funded schemes (FDB, FDC)	Often t/T-E-t/T/E but also TEE or ttE (Australia), with lower ts expressing very low taxation	Typically taxed similar to the funded pillar (if supplementary), else any tax treatment may exist	
Third pillar: Supplementary consumption-smoothing voluntary, earnings-related and funded schemes (corporate and personal; mostly FDC)	Often tax favored which may go as far as E*EE (Malaysia) but includes also TEE (Roth IRA: Poland, U.S.)	Typically residency-based but may also assign the right to tax to both source and residency, hardly ever to source country only	As supplementary retirement saving is rarely transformed into an annuity, the resource transfer across borders cannot be distinguished from dissaving so no or only source taxation on returns may be incurred
Fourth pillar: Memo item for public and private programs such as health care, elder care, public housing, cohabitation and other family support, etc.	Taxation issues may emerge for some programs, such as for contributions to health care and elder care, or the tax treatment of family support and reverse mortgages	Most programs are typically not portable but if they are (such as for some private health care in retirement), tax treatment issues may emerge but are typically not included in treaty	These pillar programs have a bearing on the size of the other pillars and their tax treatment

Source: Author, drawing on Genser (2015), Genser and Holzmann (2015), Wellisch et al. (2008), and Yoo and de Serres (2004); **Note: 1/ To facilitate the presentation, we use abbreviations for: (i) benefit types (DC and DB) and their funding (financial/funded or non-financial/unfunded), and their combination (NDC, FDC, NDB, FDB); and (ii) tax treatment of contributions, returns, and benefits (exempt or taxed), and their combination with regard to the tax treatment of contributions, returns, and benefits disbursed (e.g., TEE or EET), with special tax treatments capture with subscripted t (with various super indices.**

IV.2 Possible origins of tax issues for earnings-related portable pensions

Section IV.1 suggests that hardly any other field in public economics has more diversity within and between countries and less conceptual guidance about what should be done. This begs the questions of why and how it can be explained (see Genser and Holzmann 2015 for a rich set of alternative explanations). Section IV.2 presents one key explanation around the limitations of traditional and more modern income taxation concepts to establish fiscal fairness between countries with a mobile labor force. It claims that the diversity of taxation of portable pensions is due to four elements:

- The incomplete move from a comprehensive income tax for retirement saving (unfunded and funded) toward a consumption-type tax treatment;
- The varying scope and composition of tax preferences within and between countries;
- The nonequivalence of front- and back-loaded consumption taxation (TEE and EET); and
- The lack of current taxation approaches offering fiscal fairness across countries.

IV.2.1 The incomplete move from a comprehensive income tax toward a consumption-type tax treatment

The traditional view on income taxation – the Schanz-Haig-Simon (SHS) *broad-based income tax approach* that dominated the view of economists for almost 100 years and well into the 1970s – of how to tax income in a comprehensive manner has a number of advantages. First, it is based on a broad definition of income – the value of consumption and the change in wealth within a period. Second, the broad definition allows low and uniform rates across diverse income sources, thus avoiding discrimination, keeping distortions low, and providing a lid on tax allowances. Third, a broad-based income tax is relatively simple for taxpayers and relatively easy for tax administration.

With respect to the taxation of retirement income, the SHS approach has a number of pitfalls that have contributed to its punctuation and gradual partial demise. First, it is based on annual measurement of income, which penalizes individuals with fluctuating income; more broadly, it does not take account of life-cycle considerations in labor supply and consumption decisions; they came on board only in the 1960s. Second, the approach taxes pension savings according to TTE; i.e., not only are contribution payments and other retirement saving taken out of taxed income, but the returns on savings are also taxed in the period of realization and thus savings are taxed twice. Third, while the issue of realized versus unrealized returns concerns both unfunded and funded systems, in unfunded (non-financial) schemes, the returns are typically never known in NDB schemes – the traditional workhorse of publicly mandated social insurance pension benefits. This changed recently with the advance of NDC schemes (Holzmann and Palmer 2006, 2012, and 2013).

The 1970s brought an important change in the view about the best tax base – income or consumption. While the traditional indirect consumption tax (whether as older, multi-stage turnover or newer valued-added tax) is considered regressive, the theoretical and institutional proposals in the 1970s suggest that an expenditure tax approach that considers individuals across the life-cycle may not need taxation of capital income to be progressive and operationally feasible (Atkinson and Stiglitz 1976; IFS 1978; U.S. Department of Treasury 1977). Arguments for an individual expenditure tax have existed for decades and include the main contribution by Kaldor (1955).

Despite the conceptual advantages of an expenditure tax, no country in the world has ever tried to implement an expenditure tax in full to replace a traditional income tax structure (Auerbach 2010). The scope of transition issues and their financing delayed such an introduction but also raised doubts about some of the conceptual issues, particularly about the prescription in some models of optimal taxation of a zero capital income tax across income strata. Yet with regard to retirement income provisions (whether mandated or voluntary, non-financial or financial), a limited and variable consumption-type treatment of contributions, returns, and payouts has taken hold in most countries. And an expenditure-type treatment of pension benefits in the form of TEE or EET is typically the benchmark for most pension economists.

IV.2.2 The varying scope and composition of tax preferences within and between countries

What explains the scope and composition of tax preferences that vary with the type of participation (mandated or voluntary), the type of funding (non-financial and financial), the benefit type (DC, DB), and also socioeconomic characteristics? Essentially three explanations are offered here for the diversity of arrangements:

First, the diversity of arrangements reflects a diverse set of efficiency and equity concerns by governments that may change over time and differ across countries. For example, the mostly unlimited deductibility of contributions to a mandated first or second pillar scheme is consistent with governments' mandate of providing income support within the limits of a floor and ceiling. For voluntary schemes – occupational and personal - the limits are typically much tighter and change over time. With tight deductibility ceilings, governments want to prevent tax-privileged wealth accumulation from being camouflaged as retirement saving. While unfunded provisions mostly have a back-loaded taxation, funded provisions have both front- and back-loaded taxation that may reflect risk considerations that differ by benefit types, but also considerations of liquidity constraints and concerns of incentives for informality. DB and DC schemes may have different treatments because DC schemes allow returns to be easily taxed while DBs do not. Last and very importantly, preferential tax treatment is a way to incentivize voluntary provisions to comply with specific regulatory objectives or risk losing the privilege. A very effective example is the participation requirement across income strata under the occupational pension schemes in the U.S. tax code (401k).

Second, not only are the objectives of government and individuals reflected in the tax treatment of retirement provisions, but so are those of the financial industry, which is often very powerful and influential. While the argument that tax preferences are needed to increase the demand for voluntary retirement saving is empirically doubtful, lobbying efforts by the financial industry continue to build on the argument. The reduction of generosity with regard to public pensions in recent years and the invitation to individuals to increase their own financial retirement provisions has supported these lobbying efforts.

Third, government-induced changes in tax preferences over time reflect changes in fiscal pressure. In times of tighter budget, tax preferences for voluntary retirement saving are an obvious candidate for reduction as they were established in better fiscal times. As retirement savings contracts run over years, if not decades, and tax changes may affect only new contracts, transitional arrangements are needed, which contributes to the complexity.

IV.2.3 The nonequivalence of front- and back-loaded consumption taxation TEE and EET

A lot of the complexity in pension taxation is introduced by variations in front- and back-loading of taxation across schemes, and sometimes the use of some middle ground. Under the

assumptions of perfect capital markets and strictly proportional tax rates, TEE and EET can be shown to be equivalent. If heterogeneity in rates of return is introduced, then fiscal equivalence requires that the above-normal rate of return needs to be taxed (i.e., TtE), as such taxation takes place in the back-loaded case. This is ignored in the following.[7]

The view of broad equivalence of front and back-loaded taxation is shared by many pension economists (including Whitehouse 1999; Robalino et al. 2005; Huang 2008) but not all (see Romaniuk 2013 for a review). Actually, many more arguments can be found for a difference than equivalence, the most important of which are that:

- Strict equivalence requires not only a constant (marginal) tax rate but also reimbursable (individual) tax credits across the life-cycle; many elderly make incomplete use of a tax allowance or tax credit during decumulation. In actual progressive tax schemes with rising marginal tax rates, allowances, and credits, the effective marginal and average rates differ strongly between work and retirement and thus confer major tax savings to a back-loaded approach.
- The differences in revenue collection/effective tax rates for most countries may be on the order of 3:1 and higher for a given tax system. Even taking account of lower tax rates for comparable revenue targets, higher accumulated rates of mandated contributions and income tax rates during an individual's working life under TEE is bound to affect labor force participation and informality, at least in emerging countries.
- TEE and EET may differ with regard to risk-taking behavior of (funded) DC and DB schemes. Romaniuk (2013) proves that the TEE regime is risk-taking neutral while the EET regime can affect risk taking in the case of DC funds. This theoretical result may explain some of the inconsistencies in empirical research findings and may offer a rational for the taxation trend observed in U.S. pension saving markets toward TEE.
- The EET tax treatment of (voluntary) retirement saving under an income tax system confers tax privileges that can be linked with regulatory requirements that need to be adhered to. This offers opportunities to bring stronger regulation and supervision to the table than otherwise but also adherence to equal treatment and other policy objectives.
- A TEE approach may be considered time inconsistent as the government has incentives to reverse in the future through additional taxation, making this taxation approach non-credible and thus potentially unsustainable.

IV.2.4 The lack of current taxation approaches offering fiscal fairness across countries

Consistent application of TEE or EET promises to reduce the complexity of taxation within a country. Would it also help to establish fairness across countries? Unfortunately, consistent application of TEE or EET in source and residency countries does not guarantee fiscal fairness between countries, and even less so under varying applications (i.e., TEE/EET or EET/TEE corridor combination).

[7] While static fiscal equivalence requires the taxation of above-normal rates (or the provision of a normal rate allowance in the annual tax declaration), in a dynamic setting it is not clear that this is justified. As a higher rate of return is linked with higher risk, it is the risk-adjusted rate that should matter for portfolio consideration and taxation.

Table 5 offers the individual (I) and country (C) perspectives of the application of taxation standards in the source country (where the benefit eligibility was created and the benefit paid from) and the residency country (where the pension benefit is enjoyed).

Table 5. Expenditure tax standards and taxation outcomes

Work/ Residency country	TEE	EET
TEE	I: Taxed once in work country C: Tax revenue in work country	I: Untaxed in both countries C: No tax revenue in any country
EET	I: Double taxation C: Tax revenues in both countries	I: Taxed in residency country C: Tax revenues in residency country

Source: Author.

From an individual's perspective, the application of the same standard in both source and residency country offers neutrality with regard to mobility decisions and individual fiscal fairness as s/he is taxed only once. The scenario of working in a back-loading country (and paying no taxes for retirement income provisions) while retiring in a front-loading country (and paying no taxes on benefits either) would bias mobility decisions, as would the scenario of being taxed in both countries. This has already raised fears that mobile retirees risk threatening back-loaded taxation as individuals have an incentive to retire in tax retirees' tax heavens (Meier and Wagener 2015).

From a country's fiscal perspective, only the double taxation perspective is *a-priori* acceptable for both countries. A one-sided taxation is attractive only if one is on the receiving side or has balanced migration flows. No taxation in both countries is clearly not an option.

It follows that the common adoption of an expenditure tax standard – either TEE or EET –in both the work and residency country is required to establish neutral labor mobility incentives but is not sufficient to establish fiscal fairness between countries. The latter will happen only with balanced migration and related fiscal flows. While industrialized countries are now simultaneously immigrant and emigrant countries, their net migration flows are not zero over long periods (Eurostat 2015; UN 2014).

Even if net migration flows were balanced over time, the fiscal flows may not be balanced given differences in tax revenue and public expenditure profiles. In this case, labor mobility through immigration or emigration makes at least one country worse off. Nowadays strong and empirically consistent indications exist of fiscal surpluses created during active life and fiscal deficits that emerge and rise with seniority. These consistent data are emerging from the national transfer accounts (NTAs) that cover an increasing number of countries around the world. The data indicate a negative transfer starting around retirement age due to pension receipt, and health expenditure increasing exponentially with age but going well beyond these two programs.[8] Thus effective fiscal fairness between countries cannot be established by focusing only on the tax revenue stream; empirical information is needed on age profiles of both public revenue and expenditure of work and residency country.

[8] For countries of the NTA, see http://www.ntaccounts.org/web/nta/show; for recent information, concepts, and data, see Lee and Mason (2014).

The theory of taxation across borders is concerned with efficiency but not fiscal fairness across countries. As within countries, the idea is to have a tax system that establishes efficiency and maximizes output that in a second step is redistributed across individuals and countries. While such redistribution may partially take place within countries, it does not take place across countries, even in the EU. And while some

dated prescription exists about the taxation of capital income (export versus income neutrality), none is available for the international taxation of pensions and little conceptualization of fiscal fairness has occurred.

V. A Taxation Concept for Internationally Portable Pensions

In light of the many drivers of diversity and complexity of the current taxation of internationally portable pensions and the many policy demands that this taxation aims to accomplish, is there any hope for a taxation concept that complies with the key objectives while delivering in an administratively acceptable manner and within the boundaries of DTTs? What are the operationally possible options and the conceptual alternatives? Section V focuses on a specific proposal that promises to deliver on most (but quite likely not all) dimensions of the many desiderata.[9] The proposal mixes notional front-loaded taxation (as the tax due on contributions/savings is deferred) with actual back-loaded taxation as the taxes are due when the benefits are disbursed (in source or residency country) or when accumulated savings effectively leave the country.

To present the proposal, this section proceeds as follows. It starts out with (i) a brief review of objectives and the selection criteria the proposal should fulfil before (ii) the concept is presented; basically it amounts to an expansion of the portability model of Section III by a deferred tax component. Next (iii), implementation of the concept is sketched and integration with alternative existing country taxation models highlighted. To offer (iv) some magnitude of the amount of deferment and the implication for annuity levels, the results of an Australian tax model are presented. The section ends with (v) a summary of key benefits and a few key conceptual complications.

V.1 Objectives and selection criteria

Three main objectives served as selection criteria for the identified and proposed taxation concept.

First, the concept should allow the best possible compliance with the portability objectives outlined in Section III:

- Labor mobility neutrality; i.e., the taxation concept should not influence mobility decisions in any direction. Everything else equal, if two countries apply the same taxation approach and rates, individuals should be indifferent.
- Fiscal fairness between countries; i.e., countries should neither profit fiscally nor be harmed by the mobility of the individual.
- Bureaucratic effectiveness; i.e., the concept should be implemented with low administrative burden for individuals and administrations.

Second, and linked with bureaucratic effectiveness but different, the concept should have a minimal demand on the revision of DTTs. Such revisions are difficult to initiate and even more

[9] For a presentation and discussion of further taxation options, see Genser and Holzmann (2015).

so to successfully finalize.

Third, the proposal should allow for country flexibility in the use of front- or back-loaded taxation (i.e., TEE or EET). While the common use of the concept across countries would be desirable, it should also work reasonably well if the partner country of a DTT sticks to the inherited approach while calculating and presenting the deferred tax obligations.

V.2 A notional front-loaded and actual back-loaded approach to tax portable pensions

The proposed concept consists of three main components:[10]

(1) A notional front-loading of taxation of retirement income provisions by applying taxation rules as if contributions or saving are paid out of net earnings/income while the actual tax payment is deferred and, together with interest, accumulated in an own account. Thus, formally and legally the approach corresponds to a front-loaded TEE concept. The deferred tax becomes payable in essentially two cases:

- Earliest when the individual moves to a new country and the savings are not kept in the source country/cannot be moved under an equivalent account mechanism to the new residency country.
- Latest when the individual retires and receives benefit payment (in source country or residency country), typically as annuity but can also be lump-sum payments.

(2) A material back-loading of the taxation as the tax payment is due only when the accumulations are disbursed. As a result, the economic effects of the concept are germane to an EET scheme, with the following key implications:

- The consumption-type tax incentives for participation in the schemes are, in principle, retained.
- While the deferred taxes are accumulated in an own account and part of gross saving, they are not disposable income. Possible negative liquidity effects due to borrowing constraints may affect participation in the scheme.

(3) A tax payment mode that establishes (potentially) fiscal equality between a front- and back loading approach:

- For both domestic and foreign recipients of a benefit (annuity), the benefit tax due is calculated as the annuity value of the accumulated deferred taxes plus interest.
- If paid abroad, the residency state can decide the extent to which the tax annuity paid is considered for residency taxation.
- The tax annuity can be compared with the hypothetical tax due on the gross annuity disbursed. Under a constant tax rate, equal applied annuity factors, etc., the tax amounts should match.

The proposed approach can be considered as an extension of the portability model introduced in Section III (Box 2) in which taxes have been added. Thus, under some conditions, individual and fiscal fairness for portability should be guaranteed. Box 2 provides the model extension and balancing condition.

10 The concept is in line with a proposal by Wellish et al. (2008) that comes from the legal corner and confirms its consistency with EU regulation and many DTTs.

Box 2: Extending the portability model with taxation

Actuarial balancing condition (see Section IV), without benefits prior to exit and no redistributive components, and tax:

[1] $$C(\tilde{a}) = S(\tilde{a}) = B^{e}(\tilde{a}+1) = \mathrm{B}^{e}(R;\tilde{a}+1)$$

Actuarial balancing condition with income tax, differentiation between gross and net benefits, and tax expenditure E (i.e., deferred tax) through tax-exempt contributions and returns,

[2] $$Sg(\tilde{a}) - \mathrm{E}(\tilde{a}) = Sn(\tilde{a}) = \mathrm{Bn}^{e}(R;\tilde{a}+1) = \mathrm{Bg}^{e}(R;\tilde{a}+1) - \mathrm{T}^{e}(R;\tilde{a}+1)$$

With the fiscal condition that deferred tax at retirement needs to equal expected income tax on gross retirement benefits (as lump-sum, phased withdrawal, or annuity):

[3] $$\mathrm{E}(\tilde{a}) = \mathrm{T}^{e}(Bg;R;\tilde{a}+1)$$

Source: Author

V.3 Implementation and consistency with country regulations

Implementation of the concept is straightforward and a presentation should put some meat on the dry bones of the Section V.2.

(1) Participants in any contributory retirement income scheme have an individual account in which the taxes due and interest are recorded and accumulated. Thus it works for both DC and DB schemes, financial or non-financial. However, the full logic is more visible when a DC concept is applied, allowing for easy distinction between net and gross savings accumulations.

Table 6 offers the calculations for an individual who starts out earning €5000 a year and contributes 20 percent to the scheme while the (average) tax rate is 15 percent. A wage growth of 3 percent and an equal level of interest rate are assumed (but neither assumption impacts the following conclusions). In the deferred tax model, the accumulated savings (net of deferred tax) after 45 years amount to €165.215; the deferred tax amounts to €24.782 , for a total gross saving of €189.998. The corresponding annuities are €6.609, €991, and €7600, respectively (assuming a life expectancy of 25 years and that the interest rate equals earnings growth with benefits indexed to earnings).

Table 6. Deferred taxes and accumulated amounts (€)

Year	Gross Earnings	Annual contribution	Accumulated (net) savings	Interest received	Annual tax (gross) due	Annual deferred tax	Deferred tax	Interest on deferred tax	Accumulated gross savings
t	5 000	1 000	1 000	0	750	150	150	0	1 150
t+1	5 150	1 030	2 060	30	773	155	309	5	2 369
t+2	5 305	1 061	3 183	62	796	159	477	9	3 660
t+44	18 357	3 671	165 215	4 705	2 754	551	24 782	706	189 998
Annuity (LE 25 y)			6 609				991		7 600

Source: Author.

The values of annuities and earnings in the last period allow the calculation of the gross and net replacement rates for the individual for both the deferred tax approach and an EET taxation approach; both are similar but not fully equivalent (Table 7).

Table 7. Replacement rates under deferred and EET taxation

	Deferred taxation		EET taxation	
Gross RR	41.4	1/	36.0	2/
Net RR net of tax	42.4	3/	34.8	4/
Net RR net of tax& contributions	55.4	5/	45.0	6/

Source: Author.

Notes: 1/ Annuitized gross accumulation to gross earnings in last period. 2/ Annuitized net accumulations to gross earnings in last period. 3/ Annuitized net accumulations to gross earnings minus total tax in last period. 4/ Annuitized net accumulations minus tax on annuity to gross earnings minus total tax in last period. 5/ Annuitized net accumulations to gross earnings minus total tax and contribution in last period. 6/ Annuitized net accumulations minus tax on annuity to gross earnings minus total tax in last period.

The differences emerge, as in the deferred taxation case, the savings are taxed with full rate and then deferred; i.e., annual savings times the tax rate. In the EET case, savings remain untaxed as the tax is levied only on the earnings net of savings. This results in a nominally higher replacement rate for the deferred taxation, as all taxes are already accounted for, whereas under the EET taxation, the taxes are still due. If under the latter case the individual saves the lower tax burden during activity/higher net earnings and annuitizes the accumulated saving at retirement, the same total net annuity emerges.

(2) When an individual migrates to another country before retirement but his/her accumulations remain in the country, the tax deferment is retained and hence no taxes are due. Thus for most public schemes and many private retirement schemes, taxation only kicks in upon disbursement.

When disbursement of the benefits abroad takes place after retirement, the tax annuity is annually payable as a deferred tax liability to the source country, not as a source tax on

benefits. With such a reframing, this approach is considered consistent with EU regulations and most DTTs (Wellisch et al. 2008). An alternative approach would be to include the annuity value into the tax base, including other taxable income, and to correct the overall tax due for the deferred tax due. This makes the approach closer to a source taxation of benefits and thus vulnerable to legal disputes; it also creates issues if the tax due under this approach is higher or lower than the annuity value.

The residency country has to decide the extent to which it taxes the net benefits transferred and if so how, and the extent to which it accounts for the taxes already paid in the source country. If the country does not tax pension benefits at all (such as in Portugal and Turkey) or also taxes under TEE or deferred taxation rules, few issues should emerge (except some potential retiree may now change his/her mobility decision). If the country follows the residency principle of income taxation, including pensions, then double taxation will emerge unless softened by unilateral concessions or provisions in the DTT.

When individuals migrate before retirement, the location of the accumulated savings also changes, and if the receiving country offers no institutional set-up that enables one to prolong the tax-deferred status, then the deferred taxes will have to be paid; this means that only the net savings accumulations can be transferred. Thus the deferred tax effectively becomes an exit tax on exported retirement savings that were granted tax privileges under a comprehensive income tax approach. In the destination country, the transferred savings are already net of taxes (including on new accumulations at a standard rate of return), and thus should not be taxed when disbursed at retirement. This may be technically feasible but may thereby contradict the taxation rules of the destination country. Thus to prevent this exit tax from becoming an obstacle for labor mobility, one may need to keep the deferred status in the new country also and find a way to split the deferred taxes at retirement. In a similar direction are the current attempts to create the aforementioned centrally situated European Pension Fund, which serves researchers and teaching staff across Europe and thus avoids mobility and coverage issues.

V.4 Magnitudes of deferred taxes and tax expenditure

Section V.4 provides information about the magnitude of deferred taxes and tax expenditure based on an Australian country tax model. A second purpose is to outline some of the methodological considerations when undertaking such estimations while offering a bit more information of the working of deferred taxes and tax expenditure of the proposed approach and in comparison to other approaches.

First, the magnitudes of such estimations depend critically on the benchmark applied: Is it a comprehensive income tax TTE, and what are the investigated taxation alternatives: T*T*E (as in Australia), the front-loaded consumption tax approach TEE, or the back-loaded approach EET? The estimation herein uses the comprehensive income tax as benchmark. Second, the magnitudes and differences depend critically on the assumed compound/discount rate applied and possible differences in the application for different variables; for this estimation, constant rates are used. Third, many other assumptions are relevant for the outcome, such as the shape of the assumed earnings profile, the differences across income strata, etc. Finally, the results depend critically on the detailed mapping of the legal rules as well as on assumptions regarding the sequence of tax preferences used in the presence of thresholds and varying marginal tax rates across income strata.

Summarized in Table 8, the results are based on a spreadsheet model that maps the Australian

tax system to estimate the tax expenditure under the current T*T*E approach against the benchmark of the comprehensive income tax.[11] In addition, the tax expenditure of the front- and back-loaded TEE and EET are presented and comparisons across income strata provided. For each taxation approach, the estimations are done for three earnings data points: half the average, average, and twice the average income, corresponding roughly to AUS$37.500, AUS$75.000, and AUS$150.00. The first three columns present the value of tax expenditure (on contributions, on investment returns, and the total); the next three columns, the taxes paid (on contributions, on investment returns, and the total); and the next two columns, the accumulated savings (the superannuation – the Australian mandated funded pensions – accumulated at age 67, the gross saving GS as sum of taxes paid and superannuation accumulation). The next three columns' variables show them as a percent of gross saving (total tax, total tax expenditure, and the sum). The last four columns provide information on a hypothetical annuity (annuity value in AUS$, net replacement rate in percent, average tax rate on annuity in percent, and tax on annuity in AUS$).

The estimations offer a rich information set, with the key results as follows:

- Using the existing tax structure without any preferences as the TTE benchmark would amount to huge tax payments, with the accumulated taxes around 50 percent of gross savings (44.2 percent for half and 53.5 percent for twice the average income).
- The Australian tax scheme offers some preferences for contributions and investment returns and leaves disbursement untaxed (T*T*E). This results in significant tax expenditure and reduces the taxes paid to less than half compared to the TTE benchmark. The total taxes paid in percent of gross saving are reduced to 19 percent across income strata.
- A front-loaded TEE regime would increase the taxes paid on gross savings compared to the current T*T*E taxation to 21 percent, 24 percent, and 27 percent, respectively. A back-loaded EET regime would by definition eliminate any taxes on gross saving, as only annuities are taxed.
- As a result of the different taxation approach, the net replacement rate is the lowest under the TTE and the highest under the EET approach, with both T*T*E and TEE somewhere in the middle and not too different. Under an EET scheme, those with half the average income would remain untaxed; the average income earner would be lightly taxed (5.8 percent); and even those with twice the average income would have an average tax rate on the annuity of only 16.3 percent.
- The results indicate that an actual tax system, such as the Australian, is quite different from a comprehensive income or back-loaded consumption-type tax system, while it is close to a front-loaded one in tax revenue and income replacement effects. They also reinforce that under a progressive income tax structure, front- and back-loading of tax preferences lead to quite different results. In fiscal and redistributive terms, TEE is not equal to EET.

11 For more details on the model's assumptions and results, see Chomik and Piggott (2015).

Table 8. Tax expenditure under different taxation approaches

Tax Regime TTE: Benchmark

Yearly Income	In AUS $	Tax Exp on Contribtion	Tax Exp on Returns	Total Tax Exp	Total cont tax paid	Total inv returns tax paid	Total Taxes paid	Super accumuled at 67	Gross Saving (GS)	Total tax in % of GS	Total tax exp in % of GS	Total tax and tax exp in % of GS	Net Annuity at 67	Net replace-ment rate	Avg tax rate on AN	Total tax on AN
0.5 of Average	$37 500	$0	$0	$0	$61 643	$88 356	$150 000	$189 077	$339 077	44.2%	0%	44%	$7 272	19%	0.0%	$0
1.0 of Average	$75 000	$0	$0	$0	$141 397	$158 521	$299 918	$302 116	$602 034	49.8%	0%	50%	$11 620	15%	0.0%	$0
2.0 of Average	$150 000	$0	$0	$0	$302 341	$297 732	$600 073	$522 578	$1 122 651	53.5%	0%	53%	$20 099	13%	0.0%	$0

Current Tax Regime T*T*E

Yearly Income	In AUS $	Tax Exp on Contribtion	Tax Exp on Returns	Total Tax Exp	Total cont tax paid	Total inv returns tax paid	Total Taxes paid	Super accumuled at 67	Gross Saving (GS)	Total tax in % of GS	Total tax exp in % of GS	Total tax and tax exp in % of GS	Net Annuity at 67	Net replace-ment rate	Avg tax rate on AN	Total tax on AN
0.5 of Average	$37 500	$10 961	$83 353	$94 314	$30 459	$27 149	$57 608	$251 738	$309 346	19%	30%	49%	$9 682	26%	0%	$0
1.0 of Average	$75 000	$71 103	$187 634	$258 737	$60 919	$54 298	$115 217	$503 476	$618 693	19%	42%	60%	$19 364	26%	0%	$0
2.0 of Average	$150 000	$178 756	$424 663	$603 419	$121 838	$108 596	$230 434	$1 006 951	$1 237 385	19%	49%	67%	$38 728	26%	0%	$0

Tax Regime TEE

Yearly Income	In AUS $	Tax Exp on Contribtion	Tax Exp on Returns	Total Tax Exp	Total cont tax paid	Total inv returns tax paid	Total Taxes paid	Super accumuled at 67	Gross Saving (GS)	Total tax in % of GS	Total tax exp in % of GS	Total tax and tax exp in % of GS	Net Annuity at 67	Net replace-ment rate	Avg tax rate on AN	Total tax on AN
0.5 of Average	$37 500	$0	$101 926	$101 926	$61 771	$0	$61 771	$239 134	$300 905	21%	34%	54%	$9 197	25%	0%	$0
1.0 of Average	$75 000	$0	$205 064	$205 064	$142 526	$0	$142 526	$444 167	$586 693	24%	35%	59%	$17 083	23%	0%	$0
2.0 of Average	$150 000	$0	$422 302	$422 302	$315 838	$0	$315 838	$838 240	$1 154 078	27%	37%	64%	$32 240	21%	0%	$0

Tax Regime EET

Yearly Income	In AUS $	Tax Exp on Contribtion	Tax Exp on Returns	Total Tax Exp	Total cont tax paid	Total inv returns tax paid	Total Taxes paid	Super accumuled at 67	Gross Saving (GS)	Total tax in % of GS	Total tax exp in % of GS	Total tax and tax exp in % of GS	Net Annuity at 67	Net replace-ment rate	Avg tax rate on AN	Total tax on AN
0.5 of Average	$37 500	$41 420	$142 100	$183 520	$0	$0	$0	$339 248	$339 248	0%	54%	54%	$13 048	35%	0.0%	$0
1.0 of Average	$75 000	$132 021	$313 847	$445 868	$0	$0	$0	$678 495	$678 495	0%	66%	66%	$24 595	33%	5.8%	$39 019
2.0 of Average	$150 000	$300 594	$703 605	$1 004 199	$0	$0	$0	$1 356 990	$1 356 990	0%	74%	74%	$43 681	29%	16.3%	$221 275

V.5 Benefits of the proposed approach and conceptual issues

Section V ends by highlighting the key benefits of the proposed TEE approach with deferred tax payment and by indicating a few conceptual issues that need further exploration.

The key benefits can be expressed by the following three characteristics:

- Recording taxes due but deferred, but also the taxes already paid, and the net amount of savings accumulation across an individual's life-cycle offers very useful transparency on tax expenditure, revenue claims, and revenue received and thus also about the fiscal distribution across individuals and groups. This is useful even in the absence of portability considerations but is crucial if fiscal fairness across individuals and countries should be established.
- Recording and sharing information between countries would greatly facilitate the establishment and periodic review and adjustment of BSSAs as well as bilateral DTTs. Without this information, it will be essentially impossible to establish the magnitude of tax revenues at stake, deferred, and expected, and to thus guide negotiations and decisions.
- The availability of data at a national level would allow easier assessment of gross versus net implicit public pension liabilities. By 2017, the EU will have all member countries publish data on (gross) implicit pension liabilities as System of National Accounts (SNA) satellite accounts. Currently only gross liabilities are known (and one simple and dated country study from the early 1990s). The revenue content of pension claims/liabilities gains importance with aging populations.

For the reliable estimation of individual and national (deferred and paid) revenue data, a number of conceptual and operational issues will need further elaboration, including:

- How to calculate and assign the actual or deferred taxes on employers' mandated or voluntary retirement savings contributions: In most countries, part of the contribution and saving efforts for individuals is financed by employers that often but not always can deduct the related expenditures from their corporate or personal income tax. For fair comparison across individuals, this requires assumptions on how employers' contributions and tax incidence affect the individual, and this may vary across sectors.
- A comparison across individuals of their taxes over the life-cycle requires the application of appropriate rates for discounting and compounding. Should the choice rely on realized rates of financial assets, and which, with implications for estimates' variability in the face of rate fluctuations? Or should it rely on derived steady-state rates? Should there be differences in the rates for unfunded and funded schemes and their rates of return? Or should the discount rate reflect the risk of income streams and not the risk of the matching assets?
- Which convention should be applied to calculate deferred tax/granted tax exemptions by benefit type and tax treatment? How to slice-in the deductions for contributions and returns: Upstream from mandated and unfunded to voluntary and funded provisions, or reverse? Or proportional to the amount accumulated in a specific year?

VI. Summary and Next Steps

The need is strong to strengthen the analytical foundations for taxation of pensions in a world characterized by population aging, globalization of capital and labor, and a rising share of

individuals spending at least some part of their working life abroad and acquiring pension rights. Limited analytical guidance currently exists on the taxation of retirement provisions within a country, and none for the taxation of internationally portable pensions. For both national and international taxation of pensions, the actual taxation approaches are characterized by a high level of diversity, complexity, and inconsistency within and across countries, which risks harming labor mobility and creating fiscal unfairness.

The proposed taxation approach for internationally portable pensions mixes notional front-loaded taxation (as the tax due on contributions/savings is deferred) with actual back-loaded taxation as the taxes are due when the benefits are disbursed (in source or residency country) or when accumulated savings effectively leave the country. This approach promises to establish broadly neutrality for international labor mobility decisions, fiscal fairness of tax revenue around retirement provisions between source and residency country, and bureaucratic efficacy, including consistency with EU regulations and most DTTs.

Yet the proposed approach is quite likely only the beginning of a long journey, as many conceptual and operational issues need further elaboration, and other and more convincing approaches may be brought to the table. Overall, it seems important to think innovatively and jointly about a tax cum pension system[12] that aligns an empirically-based life-cycle approach of pensions with an operational life-cycle treatment of taxation, at least for retirement purposes and perhaps beyond.

[12] The Merrlees report (see Merrlees et al 2001 for a summary) and Diamond (2011) amongst other have made some suggestions in this direction.

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