

Who is this, who enters there? – Migration in Italy and its effect on fiscal sustainability and pensions

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Abstract

Our paper estimates the impact of immigration on the sustainability of the Italian public finances using the methodology of Generational Accounting. We take into account socio-economic differences between the main migrants' communities resident in Italy and we present three possible scenarios to reflect the potential economic degree of integration of foreigners in the Italian territory. Moreover, for each scenario we propose several options for migrants concerning both the length of permanence in Italy and the possible collection of retirement benefits. Our results show that the burden of current fiscal policy reduces as integration of the foreign-born increases. If migrants' children are economically perfectly integrated, the fiscal gap is reduced from 71.9 to -15.3 percent of GDP.

JEL-Classification:

E62, H60, J10

Keywords:

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1. Introduction

In the aftermath of the Lehman and Euro crisis, official sovereign debt levels have stood in the focus of the political and public discussions. In contrast, starting from the 1900s academia and think tanks have pointed out that the ability of countries to preserve their current fiscal policy without running into solvency problems and possible default should be – given the drastic ageing of many societies – the far bigger concern. The social safety net established in many countries – and therefore especially pensions, health and long-term care systems – will be under enormous fiscal pressure.

To analyze such intertemporal challenges of public coffers, classic budgetary indicators have only small informational value. However, a quantitative confirmation of the sustainability of current fiscal policy can be achieved via the implementation of *Generational Accounting*. This methodology is used to assess whether government fiscal policies mitigate or exacerbate the economic risks facing different generations (Auerbach et al. 1991; Auerbach et al. 1992; Auerbach et al. 1994; Kotlikoff and Raffelhüschen 1999; Raffelhüschen 1999; Bonin 2001; Hagist et al. 2009).¹

Notably, many authors used the *Generational Accounting* technique to argue that immigration could alleviate fiscal pressure associated with an aging population (Auerbach and Oreopoulos 2000; Bonin et al. 2000; Bonin 2001; Rowthorn 2008). Actually, immigration can contribute to a favorable readjustment in the age structure of the population and, by altering the size and the composition of the labor force in the receiving country, generates tax revenues to finance pensions and welfare services for the elderly (Borjas 1994; Bonin et al. 2000; Bonin 2001). More generally, the fiscal impact of immigration depends on the nature of the tax and benefit system in the host country (i.e. taxes paid by foreigners and welfare benefits and government services they receive), as well as on demographic and economic characteristics of immigrants (e.g., skills, ability to find a work without displacing local workers).

In this paper, we estimate the impact of immigration on the sustainability of the Italian welfare state using the methodology of *Generational Accounting*. In the past, Franco et al. (1994), Cardarelli and Sartor (2000), Coda Moscarola (2001), and Rizza and Tommasino (2010) applied this accounting methodology to Italy although only Coda Moscarola (2001) considered immigration.

We provide new evidences with respect to past research and the novelties can be summarized as follows. We distinguish migrants resident in Italy by their origin country in order to highlight the socio-economic differences between the major communities, namely the Albanian, the Chinese, the Moroccans, the Non-EU citizens, the Romanian and the Ukrainian. Moreover, we include three possible scenarios that reflect the potential degree of integration of migrants in Italy. Additionally, we propose several options concerning both the length of permanence on the Italian territory, and the possible collection of retirement benefits to take care of the well-known phenomenon of return migration, and to take into account potential difficulties in the collection of Italian pensions after emigration.

In our analysis we find that firstly Italy is in a comparable good position from an intertemporal perspective as the *fiscal gap* in the standard scenario is only slightly positive meaning that the external debt is reduced significantly through implicit assets for which mainly the pension reform is responsible. Secondly, we find that integration is a major key for Italy to fortify its sustainable position as complete integration of the second generation of migrants reduces the *fiscal gap* again significantly. Thirdly, we find that the current regime of extreme bureaucratic hurdles for claiming pension benefits for migrants leaving Italy is giving a significant gain for Italy's public coffers. As Italy is per se in a good position, this regime should be reformed to a fairer scheme.

¹ Alongside *Generational Accounting*, it is worthwhile to mention the fiscal sustainability technique developed by Blanchard et al. (1991).

The paper proceeds as follows. Section 2 provides a general overview of the immigration phenomenon in Italy focusing on the migrants' rights to access the Italian social security. Section 3 introduces the methodology of *Generational Accounting* and describes the data used in the analysis, which are general government budget of a certain base-year, age- and sex-specific profiles, budgetary and population projections, and assumptions on growth and discount rates. Finally, Section 4 presents the results of the *Generational Accounting* using different sustainability indicators, and Section 5 provides some policy recommendations and concludes.

2. Immigration in Italy: facts and norms

2.1 Italy as a country of arrival of international migration

In the last decades, Italy has become one of the main countries of immigration in Europe. At the beginning of the 1990s, the foreign population resident in Italy amounted only to 500,000 people (ISTAT 1998). A decade later, in 2001, the 14th Census (ISTAT 2001) registered 1.334.889 foreign individuals. That number increased by 2.5 million people in the following ten years reaching the value of 4,029,145 individuals in 2011 as reported by the 15th Census (ISTAT 2011). At the end of 2014, there were 5,014,000, foreigners residents in Italy (IDOS 2015). According to IDOS (2015), by including Non-EU residents awaiting registration in the Italian registry offices, the total foreign presence in Italy was 5,421,000 people.

These numbers reveal that the incidence of the foreign population on the total population resident in Italy, which jumped from 2.3% in 2001 to 8.1% in 2014, is currently higher than the European average (MPLS 2014e).²

According to IDOS (2015) at the end of 2014, the majority of foreigners resident in Italy (more than 2.6 million) were European citizens. Slightly less than 30% of them come from an EU member state (1.5 million). An additional 20.5% (1 million people) come from Africa, and the 19.3% (969,000 individuals) come from Asia. Foreigners from the Americas were less than 7.7% (400,000 individuals), while those from Oceania together with stateless individuals were only 3000.

Top ten nationalities' share of population increased during the years even though a very high heterogeneity of origin is registered: it takes the top five citizenships to reach the 50%, and the first 16 to capture the 75% of the total number of foreign residents. In particular, the largest foreign community in Italy is the Romanian one (1,131,839 people), followed by the Albanian (490,483 people), the Moroccan (449,058 people), the Chinese (265,820 people) and the Ukrainian (226,060 people).

Foreign population growth among the years slowed the aging process of the domestic resident population. Indeed, while on average foreigners have an age of around 32 years, the Italians are 12 years older with an age of almost 45 years. In particular, in 2014, the 13.9% of the Italian population lies in the age range 0-14. The 21.3% belongs to the age class 15-35 while the 43.4% has an age between 35-64 years. Seniors, i.e. those aged 65 and over account for the 21.4% of total Italians resident in the territory. Conversely, the majority of foreigners resident in Italy lies in the age group 15-39 years. In particular, the 19.2% are below 15 years old, the 34.3% lies in the age range 15-34, and the 43.8% belongs to the age group 35-64. Only the 2.7% of the foreigners resident in Italy is older than 65 (MPLS 2014e).

In the last ten years, the foreign labor supply increased by more than one million individuals. In particular, the number of foreigners employed in the Italian labor market were 1.158.000 in 2005 rising to 2.294.000 in 2014. Nowadays, foreigners employed accounts for the 10.3% of the total employed population (IDOS 2015). According to

² In 2014, the incidence of the foreign population on the total population resident in European Union was 4.1%.

OECD and EU (2015), and IDOS (2015), Italy attracts a large number of labor migrants who came to fill low-skilled jobs not sought after by Italians. According to Fondazione Leone Moressa (2014), MPLS (2014e), and IDOS (2015), more than one third of foreign workers are employed in non-skilled occupations while only seven foreigners out of 100 have a skilled profession. These percentages do not change much with the length of permanence on Italy or with the length of service.³ Moreover, foreign workers are mainly employed in jobs providing services to individuals, unskilled jobs in the industry, construction and hotel sectors. Over-qualification is a great concern. According to IDOS (2015), in 2014 there were 940.000 over-educated foreign workers, which amounted to the 41% of the total foreign occupation, a double share compared to that of Italians. As a result of their low-skilled occupations, in 2014 the net monthly pay of foreign workers was 28.5% on average lower than the one of Italians (958 Euros compared to 1,340 Euros).

Finally, it is worth mentioning that immigrant workers benefit less from welfare policies for two main reasons. First because Italy's total expenditure on social security (with the exception of contributory pensions) is less than the average expenditure of all the other EU Member States, and second because the foreign population, being on average younger than the Italian one, has a disproportionately low share of the public pension and long-term care expenditures (EMN et al. 2014; IDOS 2015). In particular, based on 2014 data, IDOS (2015) estimated that in 2013 foreigners working in Italy paid taxes for 6.1 billion Euros and social security contributions for 10.5 billion Euros, determining a total revenue for the Italian State of 16.6 billion Euros. Nevertheless, the total expenditure of the state for them was only 13.5 billion, which determined a positive balance of 3.1 billion. Moreover, in 2013 the GDP contribution produced by immigrants was equal to 123,072 billion Euros accounting for the 8.8% of Italian GDP.

2.2 The most relevant foreign communities in Italy

As already introduced, the main protagonists of the migratory phenomenon in Italy are the Romanian, the Albanian, the Moroccan, the Chinese, and the Ukrainian communities.

Regarding the socio-demographic characteristics of these communities (MPLS 2014a; MPLS 2014b; MPLS 2014c; MPLS 2014d; MPLS 2014e), the Romanian, the Albanian, the Moroccan and the Chinese communities have a rather balanced gender structure of the population. Notwithstanding, the female share of Romanians is slightly bigger than the male share of the population, and the Albanian and Moroccan are slightly male dominated communities, but with a growing female share during the years as a result of family reunifications and births on the Italian soil. Conversely, Ukrainian community in Italy has an 80% female presence compared to a 20% male presence, highlighting a strong gender polarization. Concerning the age structure of different communities, within the Romanian, Albanian, Moroccan, and Chinese communities the young age bracket prevails with a high incidence of minors characterizing the former three communities (for Albanians and Moroccans it reach one quarter of the total). On the contrary, within the Ukrainian community the old age brackets prevail. Most of the Albanian and Moroccan presence in the Italian territory is connected to family reason while the Chinese, who are characterized by a family migratory model, apply more for residence permits connected to job reasons. Finally, the Ukrainian community with its high female share of around 50 years old tends to apply for residence permits connected to job reasons. Linked to the increase in family reunifications, during the years Italy experienced a remarkable increase of newborn immigrants in the territory.⁴

³ According to CNEL and MPLS (2012) in 2011, there was a reduction in the employment of high skilled workers present for more than 10 years in Italy, and a reduction in the employment of those with higher education. In 2007, it was exactly the opposite. Therefore, it seems that those who stay in Italy for longer periods are the low skilled workers. On the contrary, the migration process of the high skilled workers tends to be a temporary or short-term one.

⁴ According to Italian Law, individuals born in Italy to foreign parents are not Italian citizens by birth (*ius soli* does not apply).

Finally, as regard the mean of permanence on the Italian territory, from ISTAT RFL (2014-2015) we estimate that the average length of stay is around 9.7 years for Romanians, 12.2 years for Albanians, 12 years for Moroccans and Chinese, and 10.5 years for Ukrainians.

By looking at the Italian labor market (Fondazione Leone Moressa 2014; MPLS 2014a; MPLS 2014b; MPLS 2014c; MPLS 2014d; MPLS 2014e; IDOS 2015) we find that these communities are prevalently employed in non-skilled occupations. In particular, Romanian women tend to work as personal careers or domestic employees, in the hotel sector as bartender, waiter and cleaners, contrarily Romanian men are mainly employed in the construction sector as stonemasons and bricklayers. Albanians are mainly employed in the construction industry as stonemasons and in agriculture as mixed crop laborers. Moroccan men are mainly employed in the trade sector as street vendors and operators of retail sales, in construction as stonemasons, and agriculture as mixed crop laborers. The Chinese have a high proportion of self-employed workers and work especially in the trade sector, in the textile industry and the hotel sector. Ukrainian women are mainly employed as personal careers or domestic workers. Workers belonging to the Albanian and Moroccan communities receive a monthly wage that is on average just above 1000 Euros. Conversely, as a result of the specific working sector, all foreign women receive a monthly income far below their respective male part of the population (INPS 2014). Relevant features of each community are summarized in Table 1.

Overall, in our *Generational Accounting* analysis we focus on Romanians, Albanians and Moroccans since they are very radical communities in the Italian territory with stabilization phenomena identifiable through the relevant increase of the share of long term residents (for the latter two), and family reunifications, as well as the considerable incidence of second generations. Moreover, we include the Chinese community since it is consolidating its presence in Italy especially with their propensity toward the development of autonomous enterprises and a family migration model. Finally, even though the Ukrainian community has a recent migratory history (low incidence of residence permits for long-term residents, strong gender imbalance, and scarce incidence of minors), we include it in the analysis because it is an old community implying that Ukrainians are very likely to meet the age requirement for pension eligibility.

Table 1 The most relevant foreign communities in Italy

	Residents in Italy at 1/1/2014	Female (%)	Minors (%)	Mean of permanence in Italy (years)	Main sector of employment M (F)	Average annual income M (F) (Euros)
RO	1,131,839	56.8	26.4	9.7	Construction (Domestic care, Hotel)	11,541 (7,506)
AL	490,483	48	27.5	12.2	Industry, Construction, Agriculture (Domestic care, Hotel)	14,920 (8,815)
MA	449,058	44	30.3	12	Trade, Construction, Agriculture (Domestic care)	13,700 (8,149)
CN	265,820	49	26	12	Self-employed in Trade, Textile industry, Hotel (same as M)	7,593 (6,619)
UA	226,060	79.9	8.8	10.5	Industry (Domestic care)	11,591 (8,070)

Source: INPS 2014; MPLS 2014a; MPLS 2014b; MPLS 2014c; MPLS 2014d; MPLS 2014e; ISTAT RFL 2014-2015; IDOS 2015; Strozza 2015.

2.3 Migrants' access to the Italian Social Security System

During the 1970s and 1980s, Italy experienced a series of pension reforms that, together with the aging population and the slowdown in growth,⁵ boosted the pension expenditure at an unsustainable level (Fornero and Castellino 2001). In order to provide corrections to the Italian social security system and stabilize the long-run ratio of pensions' expenditure to GDP, Italy has gone through several pension reforms over the last decades. Amongst others, the gradual shift to the Notional defined contribution (NDC) scheme,⁶ the revision of the NDC transformation coefficients (which account for the increase of life expectancy), the introduction of an automatic link between life expectancy and pensionable age, the reduction in benefits for future retirees, and the increase in the age at which people can first claim pensions. These measures helped to contain the explosion of the pension spending in the long run. Actually, according to (OECD 2015), the Italian public spending on pensions is forecasted to reduce slightly until 2060.

With the entry into force of the last pension reform, the Fornero reform (Law 213 of December 22nd 2011), all contributions paid after January 1st 2012 are calculated according to the NDC system. Moreover, getting access to the old age pension requires an age of 66 years⁷ in addition to a contribution requirement of at least 20 years. Conversely, being entitled to the early retirement benefit now demand a contribution requirement of 41 years and ten months for women and 42 years and ten months for men. Such requirement gradually raises in line with life expectancy.⁸

As regards social security provisions for immigrant workers living in Italy, the Italian Law establishes that they are the same that apply to Italian workers. However, in the case of repatriation,⁹ the equality of treatment between Italians and migrants is guaranteed only when foreign born accrue autonomously the right to receive a pension, or when they become eligible for retirement by means of the aggregation of social security contributions paid in Italy and in the origin country.¹⁰

Indeed, aiming to strengthen the cooperation between national social security authorities, Italy adopted the Regulation no. 883/2004 and signed several bilateral agreements with third country nationals admitting the aggregation of social insurance periods spent in contracting States to reach the pension eligibility requirements established by national laws. Under this system, the amount of the pension is determined by each country according to its own system of calculation and in proportion to the insurance periods completed under the national legislation (the pro-rata system). The Regulation no. 883/2004 applies to all EU Country members¹¹ and to Switzerland, Norway,

⁵ Aging population implies a lengthening in pensions' payment period, while the slowdown in growth implies a reduction of the amount of contributions used to finance retirees' pensions.

⁶ NDC pensions were introduced in Italy after 1/1/1996. In particular, workers with more than 18 years of contribution at 31/12/1995 would have received a defined benefit (DB) pension; conversely, individuals hired after 1/1/1996 would have obtained the NDC pension. Moreover, workers with less than 18 years of contribution at 12/31/1995 would have obtained a mixed pension, i.e. a benefit computed according to both schemes DB and NDC.

⁷ Starting from January 1st 2012, the age requirement for the old age pension was set at 66 years for all male employees and self-employed and for women working in the public sector. In 2012, employed women in the private sector could retire at 62 while self-employed women were allowed to retire at 63 years and six months. The age requirement is raised up to 66 years starting from 2018, and will continue to raise in line with life expectancy.

⁸ As regards the age requirement, the reform provided a reduction in the pension entitlements for those workers who choose to collect their early pension before the age of 62.

⁹ In the case of repatriation, the requisites to have access to old-age pensions differ with respect to the contributory and non-contributory schemes (Circolare INPS March 14, 2011 n.35). If migrants are entitled to NDC, they can collect their pension when they reach the age requirement provided by law (they do not have to meet the contribution requirement). Conversely, they can receive the DB or Mixed pension only if they satisfy both age and contribution requirements.

¹⁰ Individuals can aggregate contributions of the following types: mandatory, imputed (military service, sickness, maternity, ordinary redundancy fund, unemployment, tuberculosis, mobility), voluntary, and others (redemption of the period of university education, omitted contributions and contributions for an activity carried out in foreign countries with no agreement in force).

¹¹ Countries considered are Austria, Belgium, Bulgaria, Cyprus, Croatia, Denmark, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Leetonia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, United Kingdom, Czech Republic, Romania, Slovakia, Slovenia, Spain, Sweden, and Hungary.

Liechtenstein and Iceland, and is directly applicable by contracting member states. Conversely, bilateral agreements with third country nationals must be ratified by the Italian parliament to become effective.¹²

Obviously, a ‘basic protection’ of the rights of third country nationals applies even if no bilateral agreement on social security is in force. In that case, workers who return to their home country maintain the social security rights already accrued, but they will only be able to enjoy them after reaching the eligibility requirements provided by the Italian law. Moreover, if the contribution requisite is not satisfied, foreign citizens who meet the age requirement may apply for the quota of their pension, which correspond to their reduced contributions (EMN et al. 2014; INPS 2015).

Regarding the major communities in Italy, Romanians have less stringent rules for exportability of social security benefits than Albanians, Moroccans, Chinese and Ukrainians. Actually, Romanians eligible for retirement may demand the payment of benefits abroad. The only exception regards the payment abroad of non-contributory pensions. Social allowances (*pensione sociale* and *assegno sociale*) which are based on age and income rather than contributions paid, and other welfare benefits (such as pensions and allowances in favor of the blind, deaf and disabled people) cannot be exported. Conversely, Albanians, Moroccans, Chinese and Ukrainians are not covered by a bilateral agreement on pensions and for this reason they have a less favorable treatment than Romanians. For them pensions, with the exception of welfare benefits (i.e. non-contributory benefits) and accident insurance benefits are exportable abroad, while benefits related to illness, maternity, unemployment and ordinary redundancy are not.

As highlighted by EMN et al. (2014), foreign workers who usually have a fragmented working career and are often forced to return to their home country due the non-renewal of the residence permit, may be not aware of the possibility of applying for a pro-rata while living abroad. Moreover, it may happened that even those who do know about this system may not know how to apply for it. Actually, according to INPS (2015), at the end of 2014, the 21% of foreign born workers aged 66 and over did not receive any retirement benefit for the contributions paid to the Italian social security (they were 198.430 out of 927.448 individuals).

3. Methodology, data and assumptions

3.1 Methodology

We use the method of *Generational Accounting* following the description by Hagist et al. (2013). As sustainability indicators, we apply the so-called *fiscal gap*, which measures the sum of external (sovereign) debt and implicit debt (intertemporal liabilities). Furthermore, we calculate the *future generations’ burden*, which measures the difference between the generational account of the average living newborn and future generations when only the latter group has to face the burden of closing the *fiscal gap*. In addition we report the *revenue* and *transfer gaps* which state how much current fiscal policy has to be changed (either on the income or expenditure side) to close the *fiscal gap*. All used indicators are defined using an infinite time horizon. In the practical calculation, all relevant variables like population or cohorts’ tax payments are projected for 300 years from the base-year on. Afterwards a geometric series is used to determine the remaining net tax payments. The choice of 300 periods is nearly completely arbitrary and just reflects a good approximation point for our analysis.

¹² So far, Italy has signed and ratified bilateral agreements with: Argentina, Brazil, Canada, Cape Verde, Israel, Jersey, Principality of Monaco, Republic of San Marino, United States, Tunisia, Uruguay, Vatican Holy See, Venezuela and the Republics of the former Yugoslavia, namely Bosnia-Herzegovina, Macedonia, Serbia, Montenegro, Kosovo.

3.2 Budgetary data

Aggregates for revenues are taken from ISTAT (2014c) and aggregate for expenditure are taken from EC (2015a) and Eurostat (2016c). They are based on detailed statistics about tax and social contribution receipts as well as the government expenditure by function according to COFOG, the harmonized classification on the international level.

As shown in Table 2, revenues include taxes on labor and capital incomes, taxes on consumption, property taxes and social insurance contributions. Expenditures refer to government consumption, and thus to general public services, defense, public order and safety, economic affairs and environmental protection, housing and cultural activities. Moreover, health expenditure here is divided into four subcategories, namely the in- and outpatient sector, pharmaceutical expenses, and miscellaneous expenditure. Education is parted in four main categories, namely pre-primary and primary education, secondary education, post-secondary education and higher education. Finally, the social protection expenditure is mostly related to old age pensions, sickness and invalidity pensions, survivor pensions, and family and unemployment allowances. In total, revenues were 781.6 billion Euros while public expenditure altogether made 829.1 billion Euros. This results in a deficit of 47.5 billion Euros. This deficit minus interest payments on the Italian gross financial liabilities made up the primary surplus with 30.5 billion Euros.

Table 2 Budget of the Italian Government in 2013

Public Expenses (billion Euros)		Public Revenues (billion Euros)	
Government Consumption	243.5	Personal Income Tax (IRPEF)	176.3
Long-term Care	29.1	Corporate Income Tax (IRES)	38.8
Inpatient Medical Services	49.7	Other direct taxes	26.9
Outpatient Medical Services	36.3	Value Added Tax (VAT)	93.8
Pharmaceutical Services	10	Enterprise Tax (IRAP)	32
Other Health-related Expenses	2.8	Municipal Property Tax (IMU)	19.2
Pre-school and Primary Education	21.8	Excise taxes and similar taxes	57.8
Secondary Education	26.5	Other indirect taxes	36.8
Post-secondary Education	1.1	Employers social contributions	148.4
Higher Education	5.4	Employees social contributions	37.2
Other Education-related Expenses	5.1	Self-employed social contributions	28.8
Old Age Public Pension	204	Unemployed social contributions	0.8
Survivors Public Pension	40.2	Capital Income Tax	4.1
Sickness an Invalidity Public Pension	35.7	Other revenues	80.7
Family allowances	21.7		
Unemployment allowances	18.2	<i>Deficit</i>	47.5
Interest Payment	77.9		
<i>Primary Surplus</i>	30.5		

Source: ISTAT 2014c; EC 2015a; Eurostat 2016c.

3.3 Micro profiles

The age- and sex-specific micro profiles are necessary to define the intertemporal budget constraint of the public sector. These profiles are used to distribute the different aggregates of public revenues and expenditures on the cohorts

which live in the base-year and hence to determine the future public revenues and expenditures. The micro profiles stem from various sources. Non age-specific revenues and expenditures like defense are distributed with a flat per capita profile. Public pension profiles are taken from ISTAT (2014a); we allocate separately old-age pensions, survivors pensions, disability allowances (invalidity pensions - *pensioni di invalidità*, and pensions for accidents at work and occupational diseases – *pensioni INAIL*), and non-contributory pensions transfers (disability pensions – *pensioni di invalidità civile*, social pensions – *pensioni e assegni sociali*, and war pensions). Health expenditure profiles stem from the Survey on the Health Conditions and Access to Health Services, which is conducted by ISTAT (2014b); we separately consider pharmaceutical services, in- and outpatient medical services, and general medical services. Moreover, the profile for long-term care stems from the EC (2015a). Education profiles are taken from Eurostat (2016b); we divide between four main categories, namely pre-primary and primary education, secondary education, post-secondary education, and higher education. Most of the other profiles are based on the Household Survey of Income and Wealth (SHIW), which is conducted by Banca d’Italia (2014). In particular, on the revenue side we allocate taxes to different age groups by considering the age and sex distribution of the relevant tax bases taken from SHIW. We allocate social security contributions using labor income, value added taxes using consumption,¹³ taxes on financial income using the age-sex distribution of financial assets, and taxes on real estate income using the value of the properties owned. Italian micro profiles are illustrated in the Appendix.

To specifically account for the peculiar characteristics of the foreign population residents in Italy, we construct micro profiles for the five major communities of migrants, namely for Albanians, Chinese, Moroccans, Romanians and Ukrainians and for Non-EU citizens. Migrants’ profiles are primarily based on information contained in INPS (2014), MPLS (2014a), MPLS (2014b), MPLS (2014c), MPLS (2014d), and MPLS (2014e) and are built by means of a rescaling process of the Italian micro profiles. A particular attention is devoted to the construction of migrants’ pension profiles where, in the rescaling process, we include the community-specific mean of permanence on the Italian territory (see Section 2.2). Health, long-term care, and education expenditure profiles make an exception since are assumed equal to those of Italians. Original data used to build micro profiles for migrants are reported in the Appendix.

3.4 Budgetary and demographic projections

Budgetary projections related to health, education, and long-term care expenditures are taken from official forecasts of the EC (2015a). Differently, budgetary projections related to social security stem from an own model that incorporates EC (2015a) estimates to take into account the existence of different pension schemes (defined benefit, mixed, and notional defined contribution plans).

Regarding demographic projections, for both Italians and foreigners we use the data for the base-year and the assumptions for the developments of fertility, mortality and net migration provided by Eurostat (2016a). We then calculate an own demographic projection for 300 periods (see Section 3.1) using an application of the cohort-component method provided by Bonin (2001).

Projections of annual migrants’ inflows in Italy are taken from Eurostat (2016a), and in order to preserve the different characteristics of the foreign communities under review, we fix their relative share (over the total foreign population) at the one observed in the base-year (MPLS 2014e). Furthermore, in annual migrants’ inflow projections, we grouped the major EU communities, namely Bulgaria, Poland and Germany, and we treat them as Italians. Moreover, in order

¹³ In the SHIW survey, consumption is reported at the household level. Therefore, we construct the age profile for the VAT by allocating consumption to each member on basis of personal income.

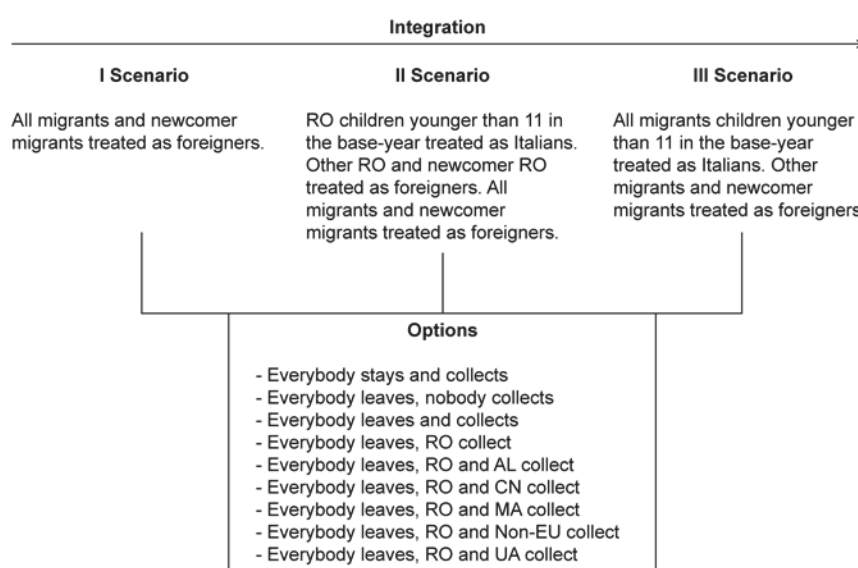
to make clear the effect on the Italian social security system, we assume that Italians and foreigners share the same fertility and mortality rates.¹⁴

Finally, we set a growth rate of 1.5% per annum and a (real) discount rate of 3% per annum to predict the future revenues and expenditures of the public sector and to analyze the sustainability of this system. These assumptions are taken from EC (2015b) as the long-term equilibrium rates (which every economy reaches until 2060 the latest).

4. The role of immigration in the sustainability of Italy's fiscal system

In our sustainability analysis, we include three possible scenarios that reflect the potential degree of integration of migrants in Italy. In the first scenario, we treat all migrants and newcomer migrants as foreigners. In the second scenario, we make a step forward in the integration process of migrants: we treat Romanian children younger than 11 in the base-year as natives, while, due to socio-economic differences with Italians, we continue to treat the rest of Romanian population, newcomer Romanians, and all other migrants as foreigners.¹⁵ Finally, in the third scenario we assume a higher level of integration. In particular, we treat all migrants' children younger than 11 in the base-year as Italians, and, due to socio-economic differences with natives, we consider the rest of migrants and the newcomer migrants as foreigners (see Figure 1).

Fig. 1 Scenarios and Options



For each of the aforementioned scenarios we propose several options concerning both the collection of retirement benefits (see Section 2.3 for discussion) and the length of permanence on the Italian territory (the phenomenon where individuals decide autonomously to return to their country of origin after a period of work in the receiving country is a high relevant feature in practice¹⁶). In particular, we propose two extreme options: in the first one, all foreigners spend their whole life in Italy and collect the pension, while in the second one all migrants leave Italy at the age of 65

¹⁴ We address to future research whether and how differences in fertility and mortality rates between Italians and foreigners affect our calculations.

¹⁵ In the second scenario, we decide to treat only Romanians children as Italians. By belonging to UE, Romanians have freedom of movements, and unlike all the other considered communities, they do not need a residence permit for staying in the Italian territory.

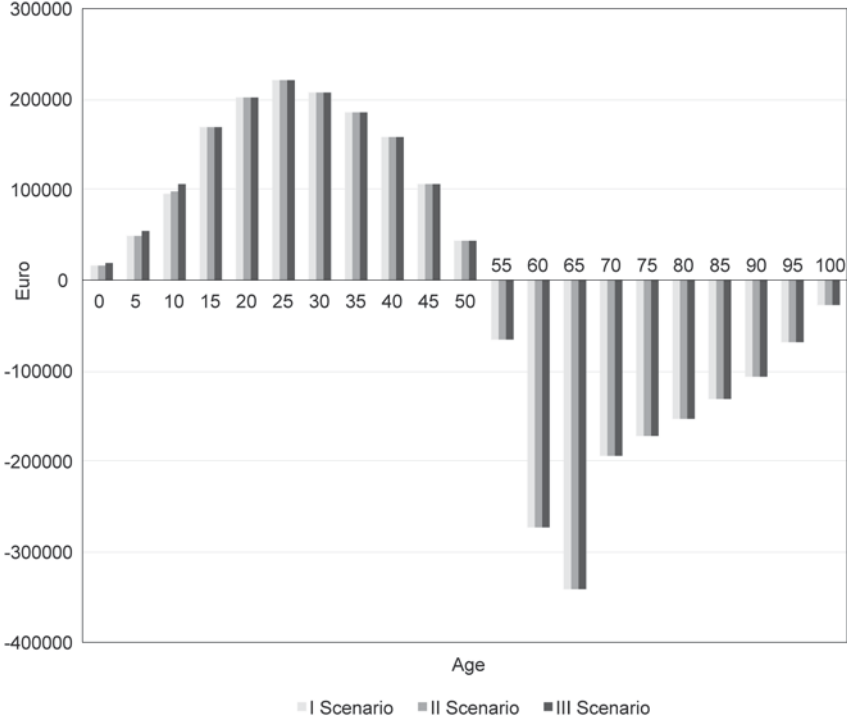
¹⁶ See for instance Borjas and Bratsberg (1994), Dustmann (1996), and Dustmann (2003).

without claiming any retirement benefit.¹⁷ Moreover, we introduce seven intermediate options where all foreigners leave Italy after turning 65, but only selected communities obtain the pension. In particular, for these intermediate options, we first suppose that all foreigners claim the pension, and then we assume that only Romanians collect. Afterwards, we assume that only Romanians and one other community among the Albanian, the Chinese, the Moroccan, Non-EU citizens, and the Ukrainian obtain the pension.

4.1 Generational Accounts

Using the age- and sex-specific micro profiles, and the budgetary and population projections, we calculate *Generational Accounts* of currently living cohorts under the assumption that current policies remain unchanged. In particular, Figure 2 presents the *Generational Accounts* of the total population resident in Italy (i.e. Italians plus migrants) when, under different scenarios, everybody collects their pension and spends their retirement period in Italy. The sinus-shaped pattern is very common in OECD countries with strong Pay-as-you-go systems.

Fig. 2 *Generational Accounts* of Italy 2013 – Everybody stays and collects the pension in different scenario



Irrespective on the scenario, current newborn and individuals aged between 1 and 53 years are net payers to the government while generations from 54 years and over are net receivers.¹⁸ As expected, strong differences among proposed scenarios exist only for children aged 0 to 10 years, i.e. those born between 2003 and 2013. With the low integration assumed in the first scenario, current newborn are expected to pay to the government net taxes for 16,400

¹⁷ The assumption of return migration at age 65 is reasonable and not relevant in determining how much migrants contribute to the Italian social security. Actually, in the construction of migrants’ pension profiles we include the community-specific mean of permanence on the Italian territory that we use as a proxy for the length of contribution to the Italian social security system.
¹⁸ Compared to other analyses from other countries, the Italian newborn is a net-payer (see for example Hagist (2008) who shows that in Austria, France, Germany, Switzerland, the UK and the US, newborns are always net-receivers. This is entirely due to the pension-reform in Italy as if we assume that the old-pension system would be in place, Italian newborns also become net receivers (negative generational accounts).

Euros. Moving integration forward, the same individuals have to pay higher net taxes equal to 16,530 Euros in the second scenario and to 18,139 Euros in the third.¹⁹ *Generational Accounts* are at a maximum of 221,500 Euros in scenarios I and II, and of 221,510 Euros in scenario III, paid by a 27 years old individual. This means that a 27 years old person pays 221,500 Euros more in taxes and contributions over his/her remaining life-cycle than he/she will receive in transfers and subsidies from the Italian general government. The generation of 54 years is the first one which receives more than he/she pays in taxes over his/her remaining life cycle. However, one should keep in mind that *Generational Accounting* is strict forward looking so living generations' accounts are not comparable. Finally, we observe that the major receiver is the generation of 67 years olds: 347,910 Euros in the first scenario and 347,900 Euros in the second and third scenario.

4.2 The fiscal gap and other sustainability indicators

Our first sustainability indicator is the *fiscal gap*. It measures the sum of the *Generational Accounts* for living and future generations, weighted with their (expected) cohort size, set in relation to base-year's GDP. By looking at Table 3, in the reasonable hypothesis where all foreigners decide to migrate back in their origin country, but only Romanians collect the pension from abroad, the *fiscal gap* for the whole Italian public sector is -80.5% in the first scenario, -81.7% in the second, and -89.9% in the third.²⁰ This means that the observed migrants' tendency of leaving Italy without claiming the retirement benefit translates in a huge gain for Italy in terms of higher fiscal sustainability. Notably, the *fiscal gap* reduces as we move integration forward, i.e. if we go from the first to the third scenario. Our second indicator is the *future generations' burden*. To calculate this indicator, the *intertemporal public liabilities* and the number of people in future generations are set in proportion to each other. This indicator implies that the entire adjustment is borne by future generations. The burden for future generations can be illustrated as an absolute difference between the generational account of the base-year and the generational account of the one year after base-year born agent. In the same hypothesis where migrants return to their home countries, but where only Romanians collect the benefit from abroad, the public sector assigns a *future generations' burden* of -33.8 base-year GDP in the first scenario, -33.7 in the second, and -35.0 in the third. One has to keep in mind that changing the assumptions from scenario I to scenario II (and then III subsequently) alters the socio-demographic structure of the population. This is why comparing the above example, the *fiscal gap* shows an improvement (from -80.5 (scenario I, everybody leaves, RO collect) to -81.7) which is also reflected in the *revenue and transfer gap* (from -2.800 (3.165) percent in scenario I to -2.801 (3.173)). Therefore, at a first glance it may be counterintuitive that the indicator *future generations' burden* is decreasing from a (positive) value of 33,800 Euro (scenario I) to 33,700 Euro (scenario II). However, economically this just reflects that the "gain" in the *fiscal gap* from changing the socio-economic structure of children with a migration background is stemming more from higher net taxes paid by future generations than by living ones. To put it in other words, the share of the present value of the sum of higher net taxes (i.e. a better *fiscal gap*) of future generations is higher than that of the living ones in scenario II and III. Therefore, the *future generations burden* (or in this case better future generations' benefit) is higher (respectively the benefit is reduced) between the two scenarios with a higher degree of integration (from scenario I to III).

The future born agent has to carry a lower burden compared to the corresponding living generation. This is also reflected in our last two sustainability indicators, the *revenue and transfer gap*. In the same situation where all

¹⁹ The increasing pattern in net taxes paid when passing from the first to the third scenario is particularly relevant for all the cohorts born between 2003 and 2013. Migrant children pay more in net taxes when are treated as Italians than as migrants.

²⁰ The *fiscal gap* is positive if a government is in debt i.e. if the demographic development puts a burden on public coffers. Hence, a negative algebraic sign imputes a net wealth over the long-term of the country's fiscal policy.

foreigners decide to return to their origin country, but where only Romanians collect the pension from abroad, Italy's government would have to cut all taxes by 2.8% in scenario I and II, and by 2.9% in scenario III. Alternatively, Italy's government could increase all transfers by 3.2% in the first and second scenario, and by 3.3% in the third scenario.

Table 3 Sustainability indicators

	Fiscal Gap (% of GDP 2013)	Future Generations' Burden (mill Euros)	Revenue Gap (%)	Transfer Gap (%)
I Scenario				
Everybody stays and collects	71.9	17.1	2.5	-2.6
Everybody leaves, nobody collects	-98.5	-51.9	-3.4	3.9
Everybody leaves and collects	-18.2	-12.0	-0.6	0.7
Everybody leaves, RO collect	-80.5	-33.8	-2.8	3.2
Everybody leaves, RO and AL collect	-73.2	-31.3	-2.5	2.9
Everybody leaves, RO and CN collect	-76.0	-32.3	-2.6	3.0
Everybody leaves, RO and MA collect	-73.0	-31.2	-2.5	2.9
Everybody leaves, RO and Non-EU collect	-41.0	-20.0	-1.4	1.6
Everybody leaves, RO and UA collect	-76.8	-32.5	-2.7	3.0
II Scenario				
Everybody stays and collects	57.5	12.9	1.9	-2.1
Everybody leaves, nobody collects	-92.9	-46.9	-3.2	3.6
Everybody leaves and collects	-19.4	-12.3	-0.7	0.7
Everybody leaves, RO collect	-81.7	-33.7	-2.8	3.2
Everybody leaves, RO and AL collect	-74.4	-31.1	-2.6	2.9
Everybody leaves, RO and CN collect	-77.2	-32.2	-2.7	3.0
Everybody leaves, RO and MA collect	-74.2	-31.1	-2.5	2.9
Everybody leaves, RO and Non-EU collect	-42.2	-20.1	-1.4	1.6
Everybody leaves, RO and UA collect	-78.0	-32.4	-2.7	3.0
III Scenario				
Everybody stays and collects	-15.3	-7.5	-0.5	0.5
Everybody leaves, nobody collects	-101.1	-39.1	-3.3	3.8
Everybody leaves and collects	-51.4	-20.8	-1.7	1.9
Everybody leaves, RO collect	-89.9	-35.0	-2.9	3.3
Everybody leaves, RO and AL collect	-85.5	-33.4	-2.8	3.2
Everybody leaves, RO and CN collect	-87.1	-34.0	-2.9	3.2
Everybody leaves, RO and MA collect	-85.3	-33.3	-2.8	3.2
Everybody leaves, RO and Non-EU collect	-65.2	-25.9	-2.1	2.4
Everybody leaves, RO and UA collect	-87.5	-34.1	-2.9	3.2

Note: The counter-intuitive result that the indicator *fiscal gap* shows a superior situation in scenario I “Everybody leaves, nobody collects” than in II “Everybody leaves, nobody collects” (-98.5 to -92.9) can be explained as follows. As the Romanian

community in Italy is by far the largest in numbers, the populations differ quite significantly in size between both scenarios. Therefore, the lower *fiscal gap* is due to a smaller population size, especially if all potential pensioners leave Italy. For the indicator *future generations burden*, however, the absolute value of the sustainability is again relevant as in this thought experiment the gap is just closed by future generations. Depending on the sizes of these generations, the outcome could differ from the *revenue* and *transfer gap* (basically depending on the fertility rate). Therefore, it still holds that the situation is superior if in Italy born foreigners are treated as Italians.

5. Discussion of results and policy recommendations

In this paper, we use the methodology of *Generational Accounting* to study the sustainability and the intergenerational effects of the Italian current fiscal policy. Motivated by the important role that Italy is playing nowadays as a country of arrival of international migration, we provide new evidences on the impact of immigration on the sustainability of the Italian welfare state. A particular attention is devoted to the distinction of migrants resident in Italy with respect to their origin country to highlight their specific socio-economic characteristics and then, to estimate the influence that each group has on the sustainability of public finances. Hypothesis regarding the level of integration of foreigners, their length of permanence on the Italian territory, and the possible collection of retirement benefits in case of repatriation are made to create a more realistic analysis that may be used to provide improvements to the Italian social security system.

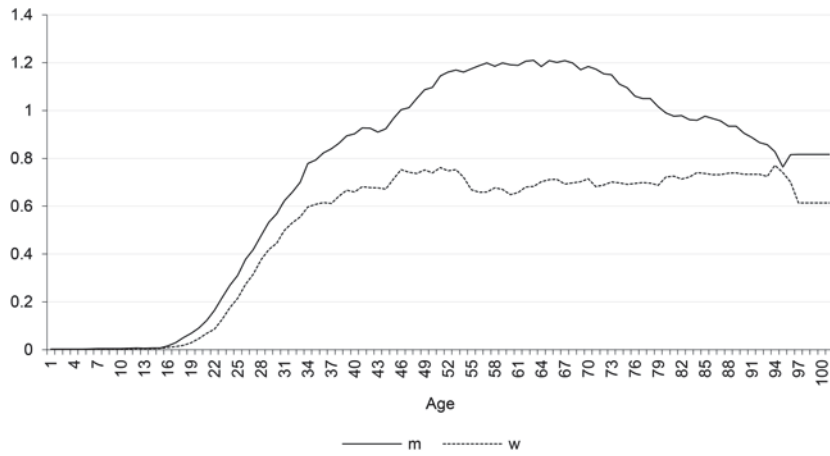
In our analysis, we find that, given the assumptions of the Ageing Working Group of the European Commission (EC 2015a), Italy is from the perspective of fiscal sustainability in a formidable position, as the *fiscal gap* in the standard scenario is only slightly positive. As Moog et al. (2015) are showing Italy is even the European frontrunner given the assumptions used. Nonetheless, if we loosen the assumptions especially regarding health and long-term care expenditures, Italy joins the ranks of European countries with a *fiscal gap* comparable to others on relative good terms.

Moreover, we provide new empirical evidences indicating that enhancing integration of immigrants within economic realm allows greater fiscal sustainability for the Italian economy. Actually, a complete economic integration of the second generation of foreigners, that we simulate in the third scenario of our analysis by treating children with a migration background up to ten years old and future migrants' newborns as economically equal to Italian children, results in a massive improvement of sustainability conditions corresponding to nearly 87 per cent of GDP.

Furthermore, our examination shows that the current regime of extreme hurdles in collecting accrued pension benefits for migrants who repatriate gives Italy an "unfair" fiscal gain that worth around 30 percent of GDP. As most sending countries are poorer than Italy, they and the migrants in question have to care this burden. A possible solution that may help in protecting social security rights of immigrants with no bilateral agreement on social security may be the mandatory enrolment of third country nationals to pension funds (they will not pay Pay-as-you-go contributions to the Italian system). It will be a sort of pro-rata that they will obtain for sure. Another refinement could be the provision of a partial opting-out for young migrants. They can pay a contribution quota to the Italian Pay-as-you-go system and a contribution quota to an individual pension fund. Conversely, old migrants close to retirement may pay contribution to their personal account only.

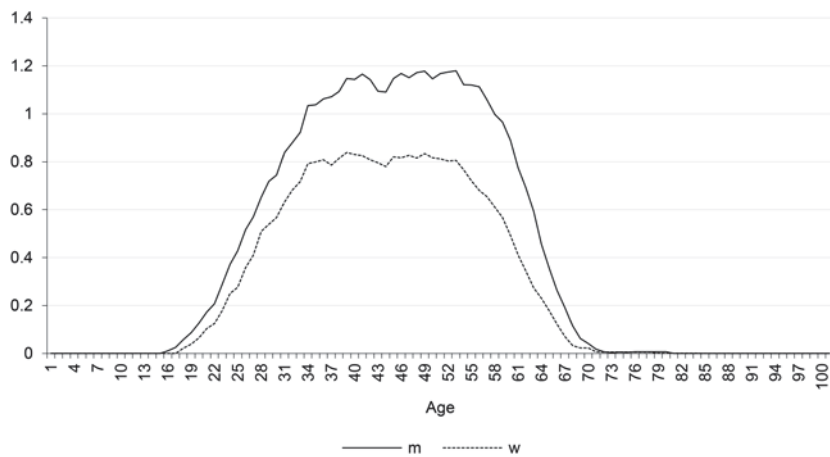
Appendix

Fig. 3 Italian micro profile: Income tax



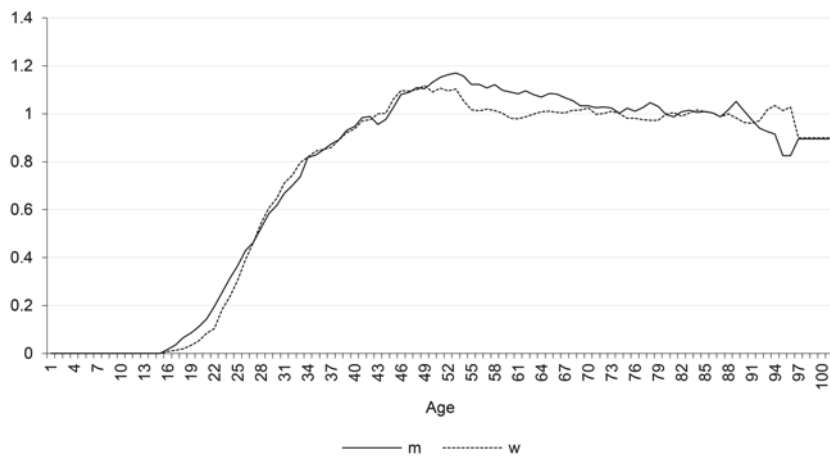
Source: Banca d'Italia, 2014.

Fig. 4 Italian micro profile: Wage tax



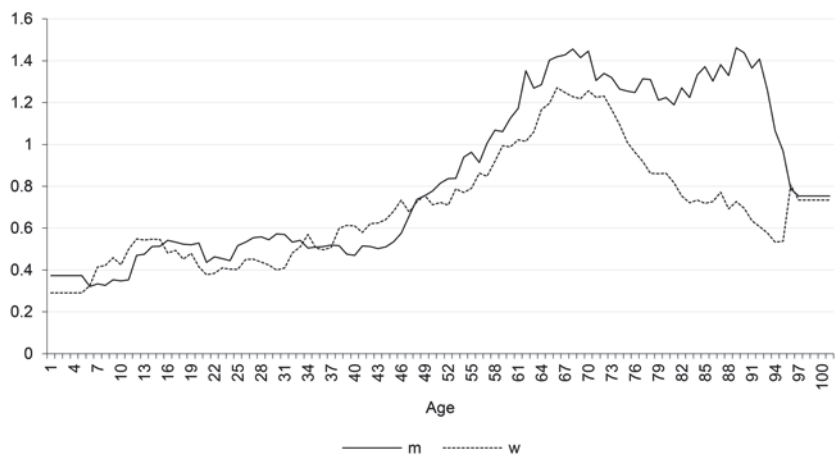
Source: Banca d'Italia, 2014.

Fig. 5 Italian micro profile: Value added tax



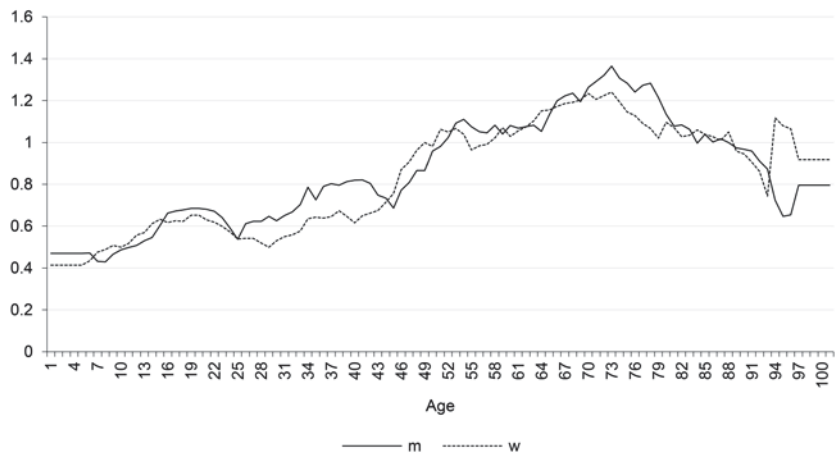
Source: Banca d'Italia, 2014.

Fig. 6 Italian micro profile: Financial income tax



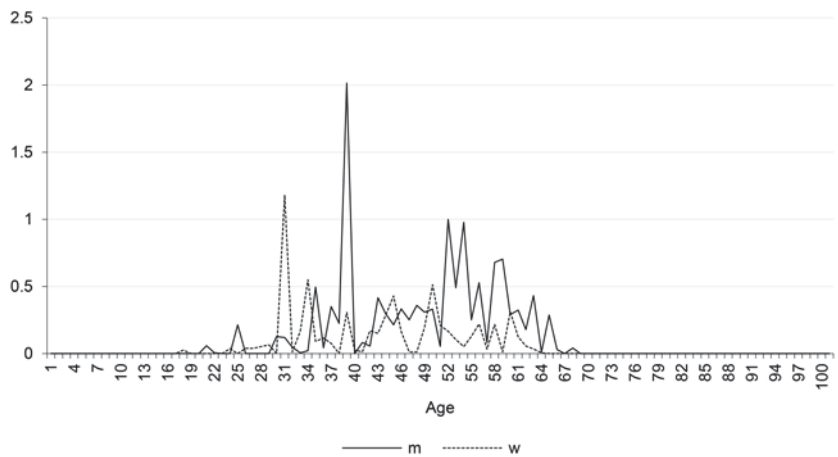
Source: Banca d' Italia, 2014.

Fig. 7 Italian micro profile: Real assets tax



Source: Banca d' Italia, 2014.

Fig. 8 Italian micro profile: Unemployment benefits



Source: Banca d' Italia, 2014.

Fig. 9 Italian micro profile: Old age pension

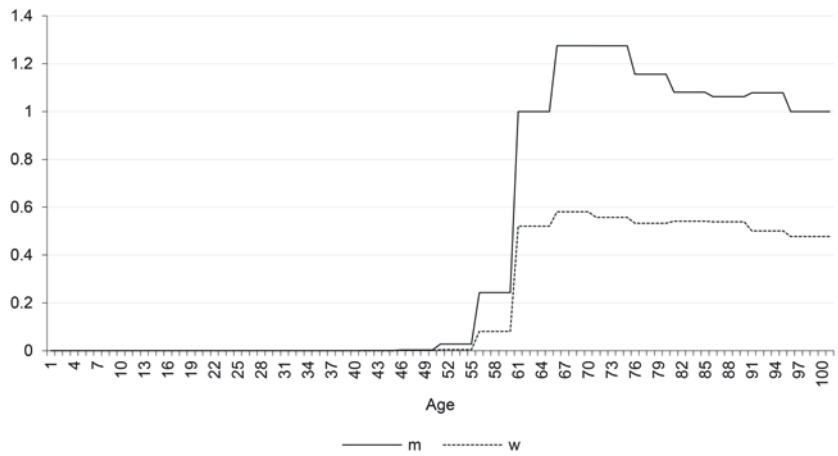


Fig. 10 Italian micro profile: Survivor pension

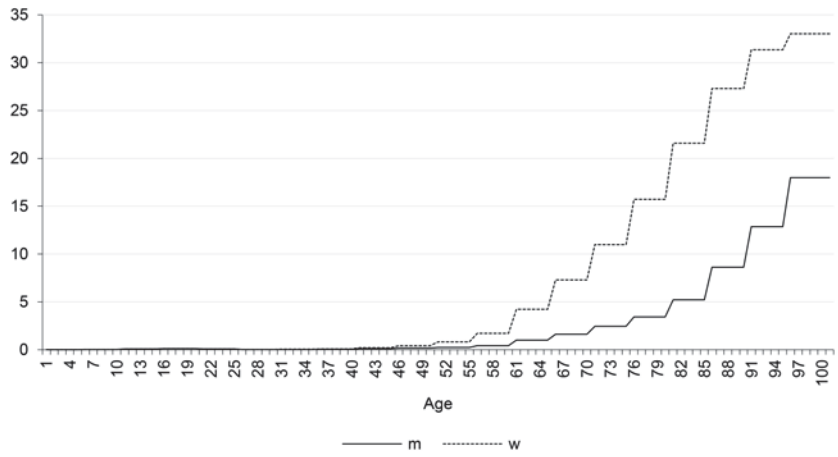


Fig. 11 Italian micro profile: Disability allowances

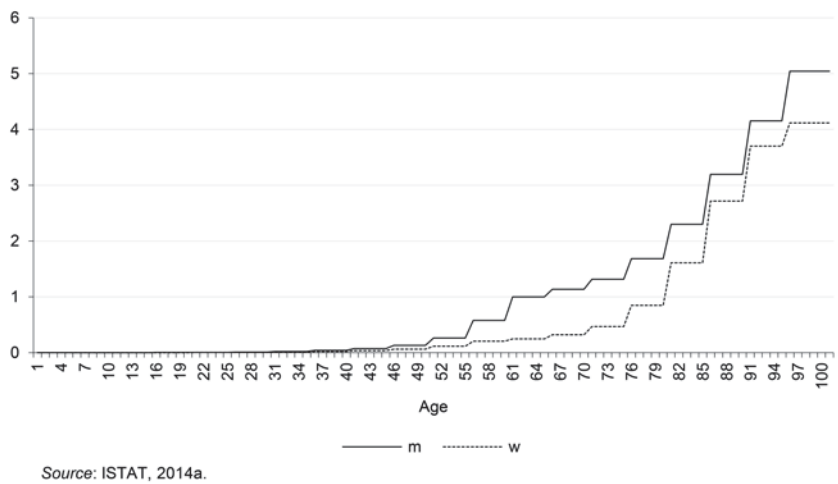
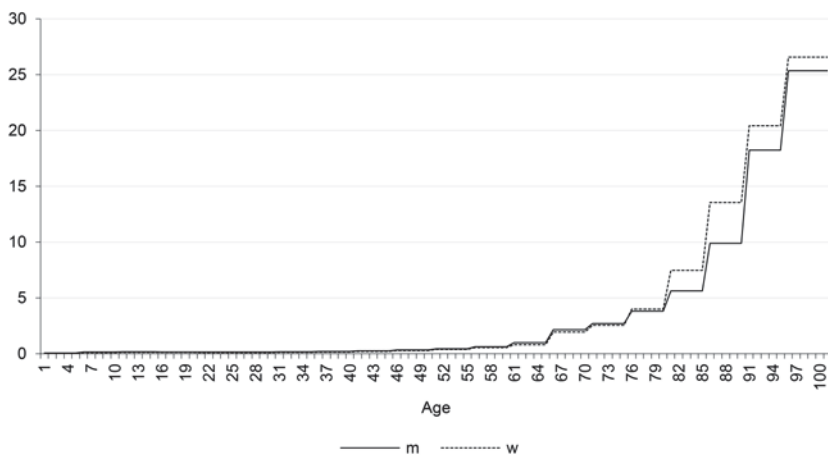
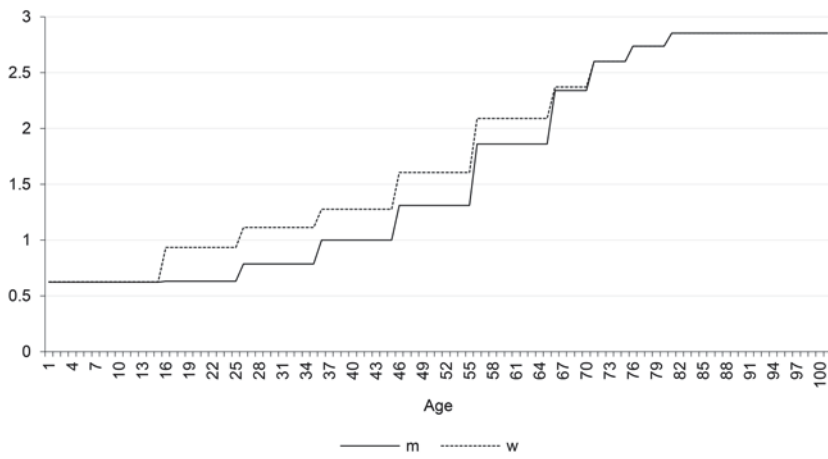


Fig. 12 Italian micro profile: Non-contributory pension



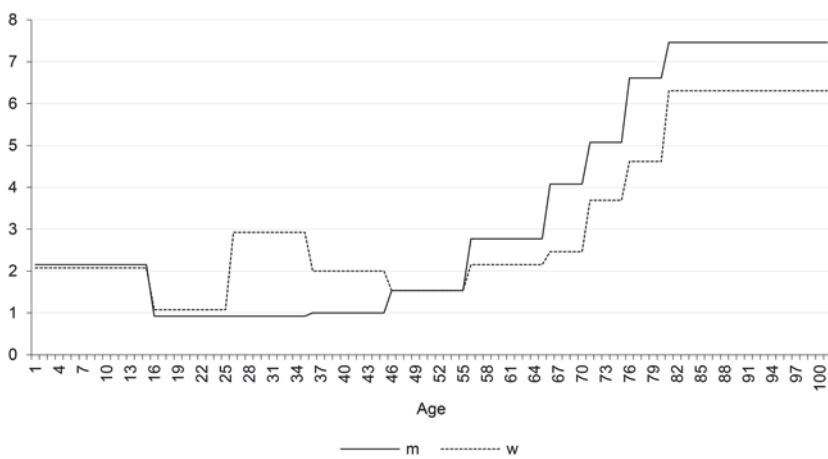
Source: ISTAT, 2014a.

Fig. 13 Italian micro profile: Pharmaceutical services



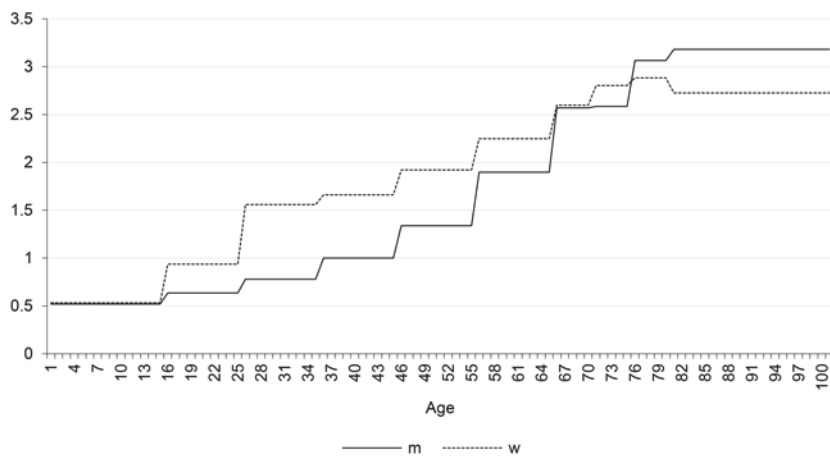
Source: ISTAT, 2014b.

Fig. 14 Italian micro profile: Inpatient medical services



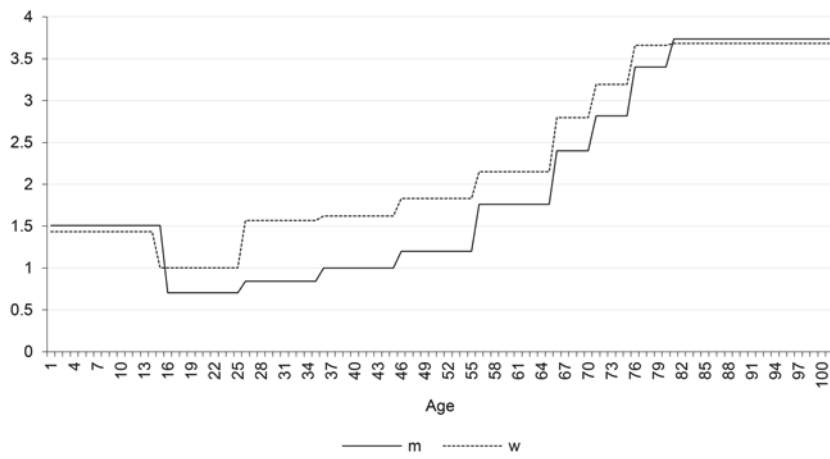
Source: ISTAT, 2014b.

Fig. 15 Italian micro profile: Outpatient medical services



Source: ISTAT, 2014b.

Fig. 16 Italian micro profile: Miscellaneous medical services



Source: ISTAT, 2014b.

Fig. 17 Italian micro profile: Long-term care

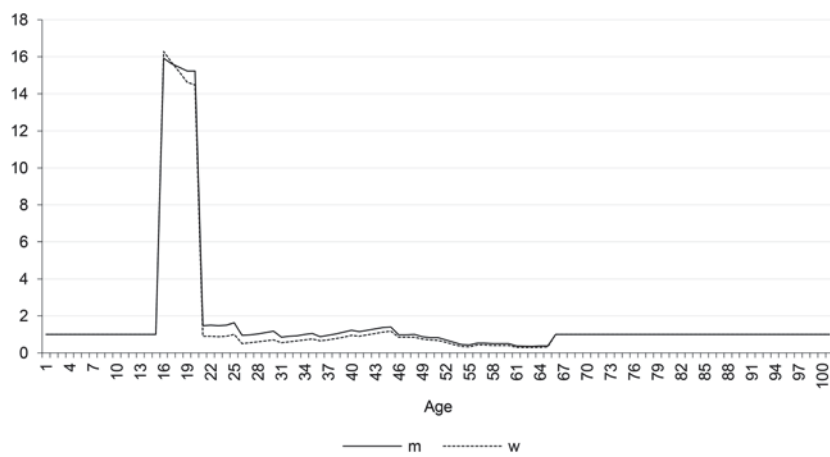
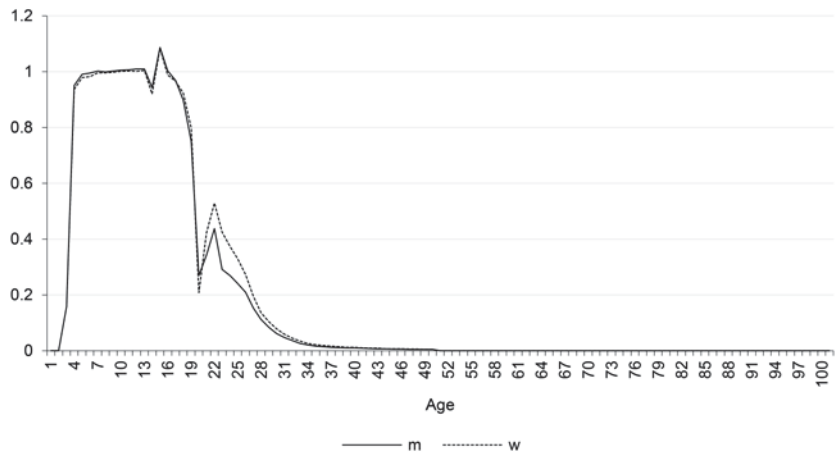


Fig. 18 Italian micro profile: Education



Source: Eurostat, 2016b.

Fig. 19 Albania: Employment

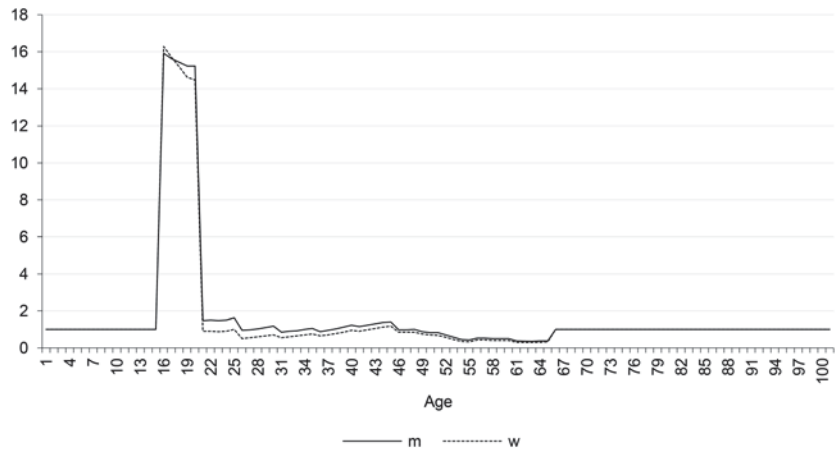


Fig. 20 Albania: Wage

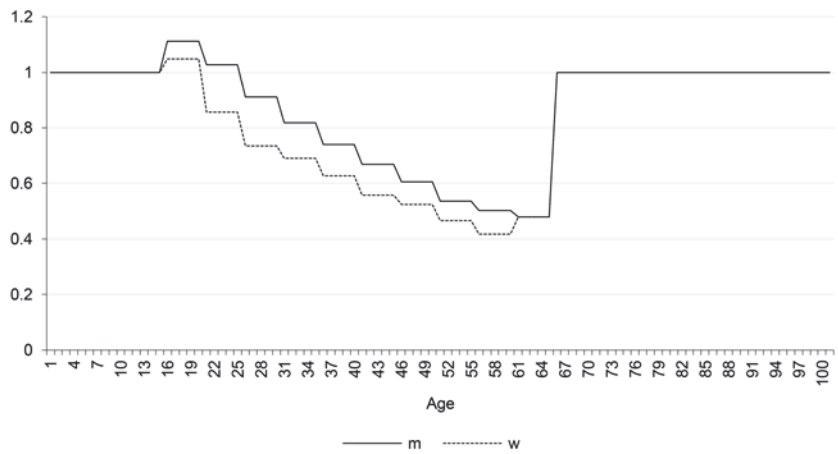


Fig. 21 Albania: Wage*Employment

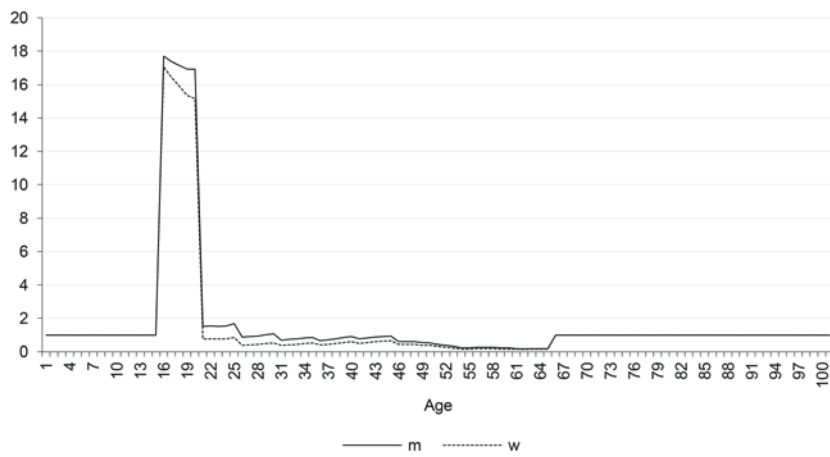


Fig. 22 China: Employment

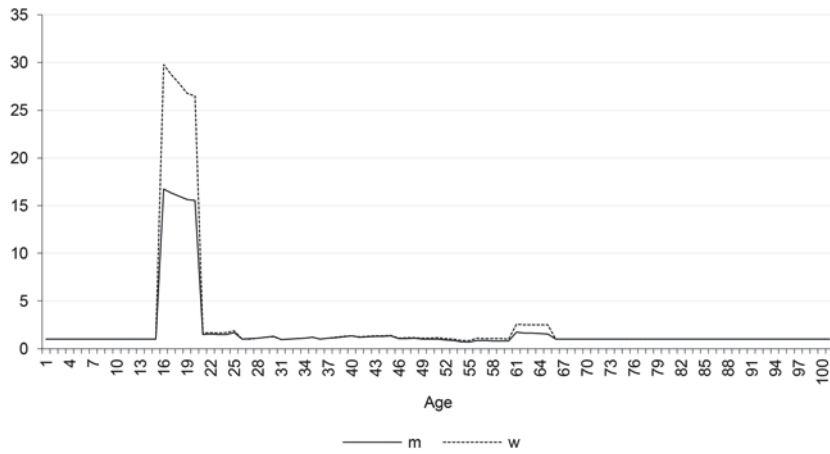


Fig. 23 China: Wage

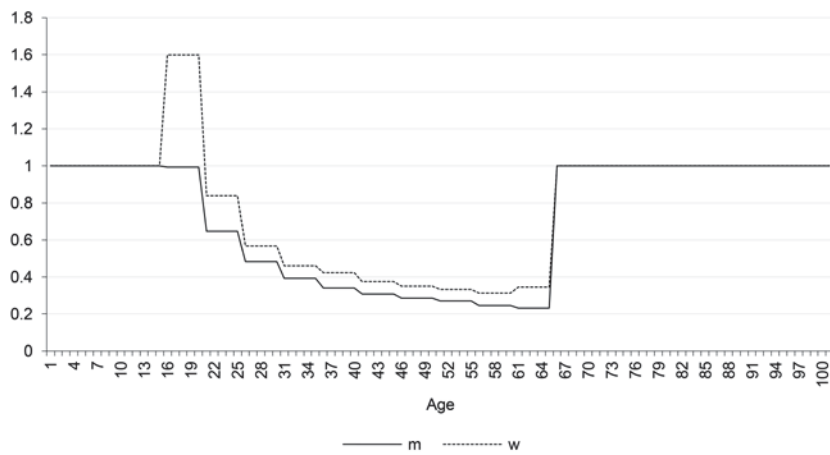


Fig. 24 China: Wage*Employment

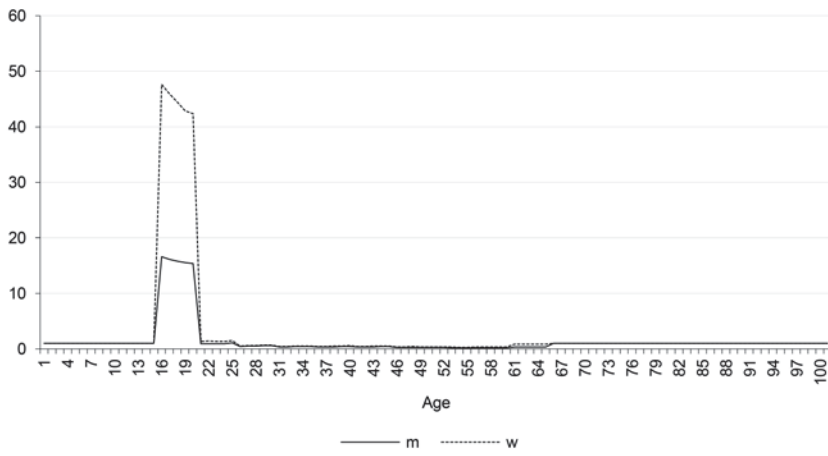


Fig. 25 Morocco: Employment

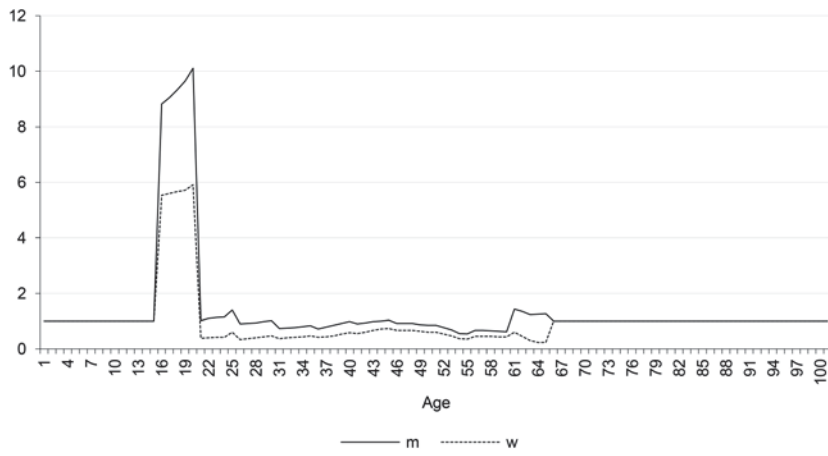


Fig. 26 Morocco: Wage

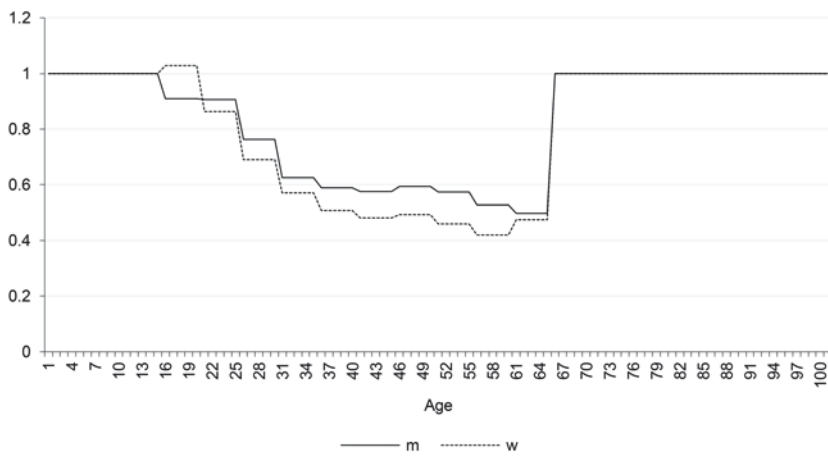


Fig. 27 Morocco: Wage*Employment

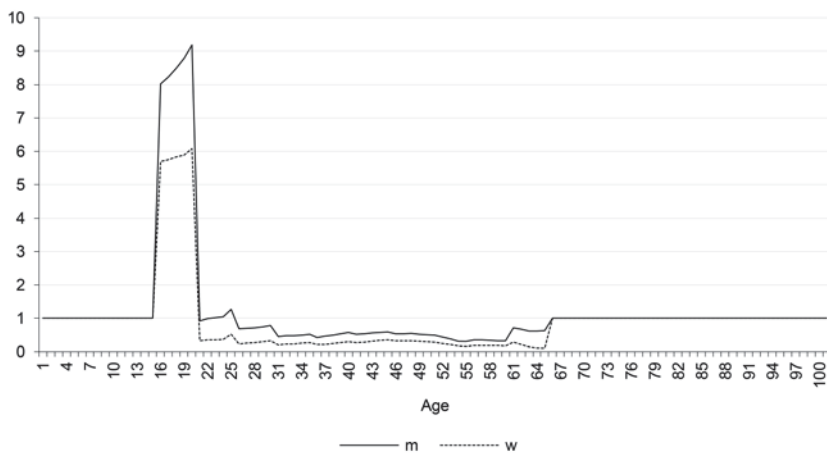


Fig. 28 Non-EU: Employment

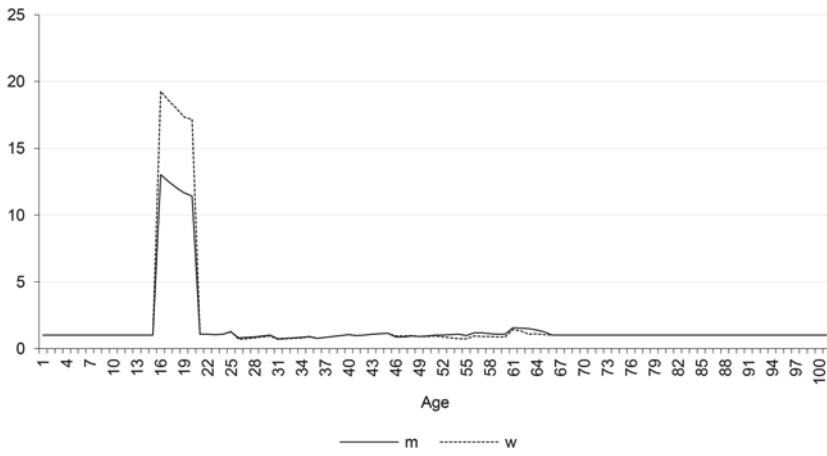


Fig. 29 Non-EU: Wage

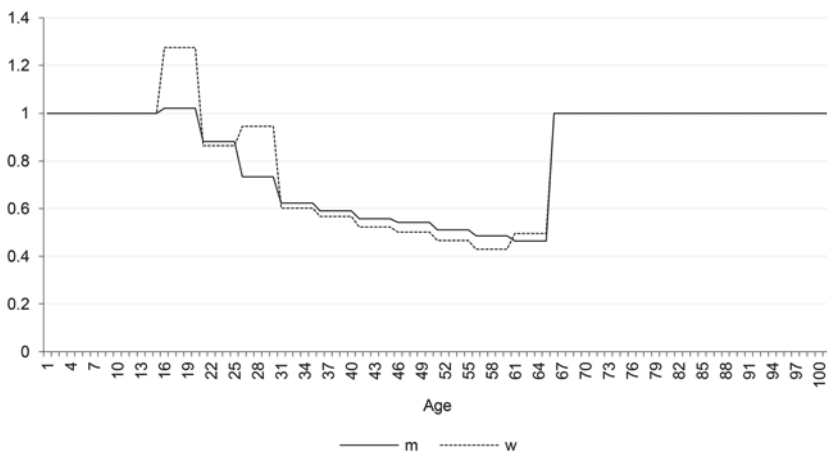


Fig. 30 Non-EU: Wage*Employment

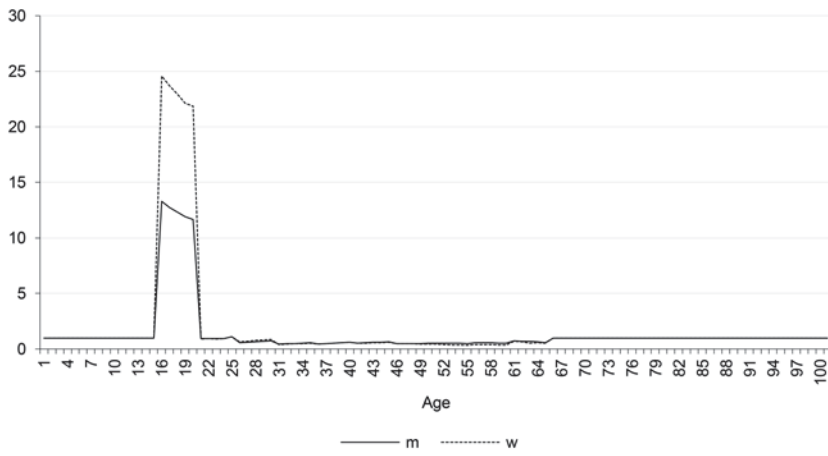


Fig. 31 Romania: Employment

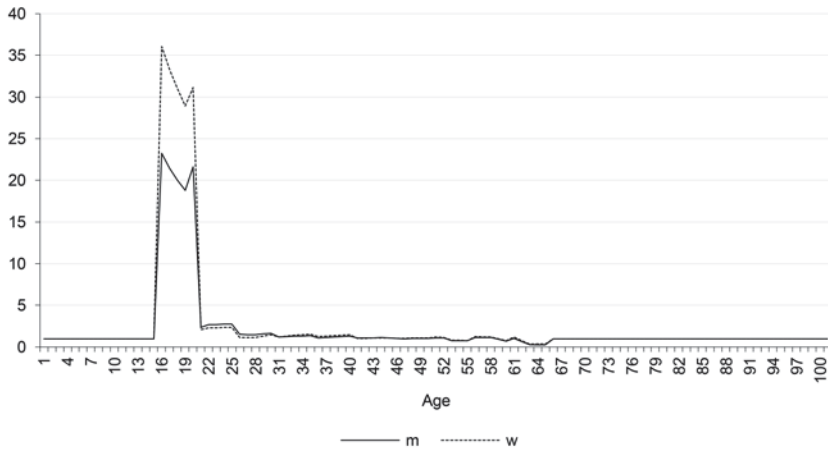


Fig. 32 Romania: Wage

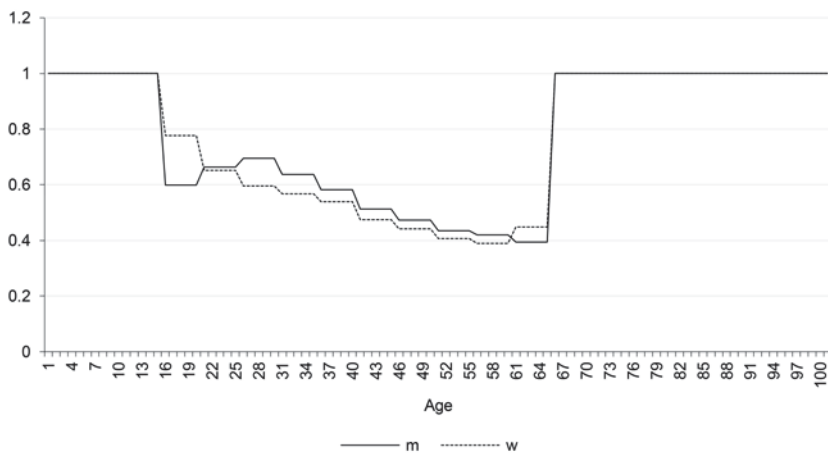


Fig. 33 Romania: Wage*Employment

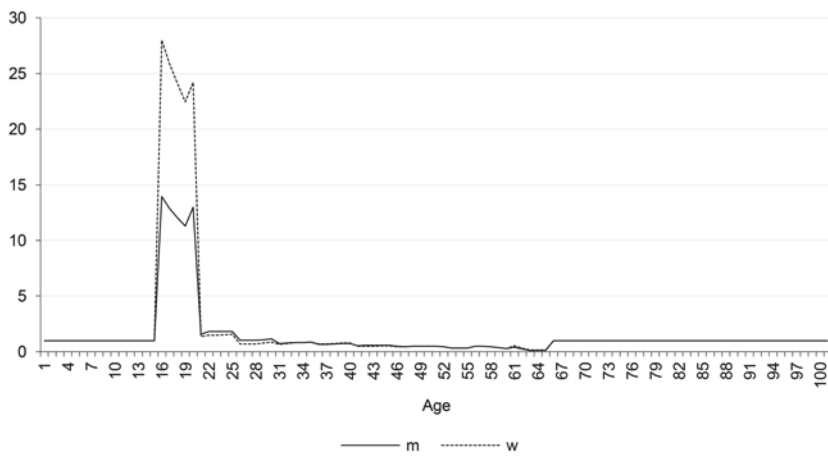


Fig. 34 Ukraine: Employment

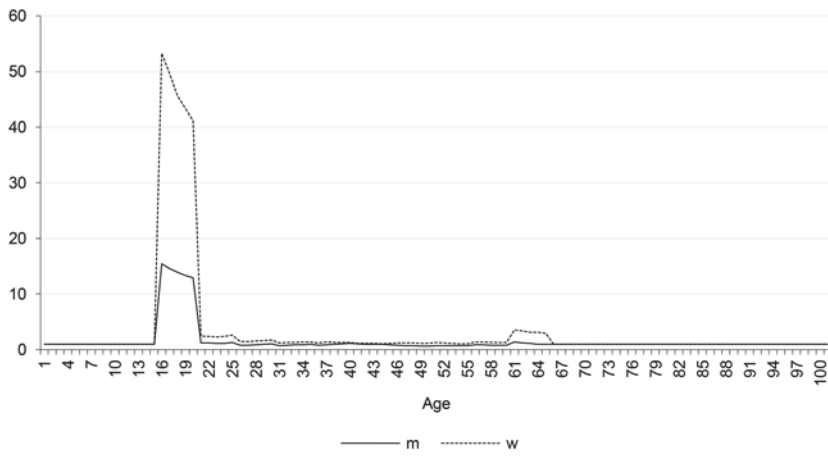


Fig. 35 Ukraine: Wage

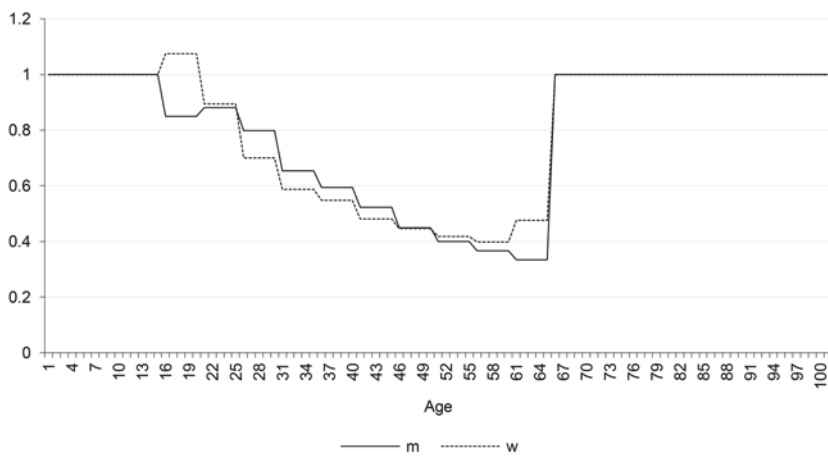
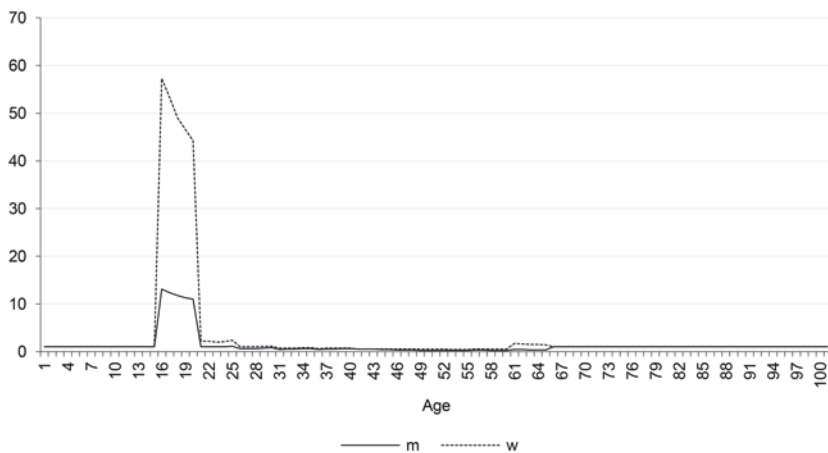


Fig. 36 Ukraine: Wage*Employment



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