Unchanging fortunes: top earners mobility in Italy

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Very preliminary draft. Please do not quote

Abstract

The increased income inequality and the upward trend of top income shares in most developed countries are at the core of the recent economic debate. In this article we focus on top earners in Italy and, using longitudinal administrative data released by the National Institute of Social Security (INPS), we explore, through descriptive statistical tools, the characteristics and the mobility of top earners along the earnings distribution over the 1990-2012 period. The main novelty of this article regards indeed its focus on top earners mobility, an issue usually neglected by the literature on top incomes. As concerns characteristics of top earners in the observed period, we show an increase in inequality at the top of the earnings distribution and find that the top earnings group has been characterised by a rising average age, a mild increase in the female share and an overwhelming presence of private employees. As concerns top earners mobility, we find evidence of low mobility at the top of earnings distribution in the short- and medium run.

JEL codes: D3, D63, J31, J62

Keywords: earnings distribution, intra-generational mobility, top inequality, Italy

1. Introduction and motivation

An increasing attention has been recently devoted to the issue of income concentration at the top of the distribution. Following the pioneering studies of Piketty (2003 and 2005), several scholars have measured the share of income got by the top X% of the population in different countries, (usually the top 1% or an even more limited percentage), observing changes of top income shares over the long run\(^1\).

As reported in the *World Wealth and Income Database* (Alvaredo et al. 2016), top 1% shares vary widely among developed countries: the US and the UK are characterized by the highest values (currently, respectively, around 18% and 15%), while the lowest values characterize Nordic European countries (in Netherlands and Sweden the value of the top 1% share does

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\(^1\) Top income shares can be calculated since the official statistics on tax returns have become available. This means, for many countries (e.g. France, the UK, the US), from the first years of the 20th century. See Leigh (2009) for an overview of the methodology of measurement of top income shares and of major empirical evidences and the two volumes edited by Atkinson and Piketty (2007 and 2010) for a collection of studies that have computed top income shares in several developed and developing countries.
not exceed 7%). However, the top 1% share has increased in all countries since the ‘80s, even if at different paces: for instance, the top 1% share increased by 2 percentage points in Italy between 1980 and 2010, while in the US the rise in the same period has been a bit less than 10 percentage points.

A feature of top incomes that is to be emphasized is their changing composition by sources (Franzini et al. 2016). In the past decades the richest individuals mostly earned their income from capital and rents, but in the last three decades the share of labour income earners increased substantially almost everywhere. Therefore, a new class of working super-rich has emerged, made by professionals – business lawyers, investment bankers –, top executives of large corporations and CEO (especially in the financial sectors), show business and sport superstars (Atkinson et al. 2011). For example, from the 70’s up until now, the share of incomes of the top 0.1% that is produced by work in the United States has grown by 20 percentage points and currently stands at 45% [Alvaredo et al. 2016]. Even in Italy, from 1980 onwards, the composition of the top incomes has changed considerably (Alvaredo and Pisano 2010): the weight of labour earnings (from employment and self-employment) and pensions (i.e. deferred earnings) has greatly increased and, conversely, there has been a reduction of capital incomes and rents. More specifically, in Italy among the richest 1% of the population, earnings and pensions stood at 46.4% in 1980 and now account for 70.9% of the total, while in the 0.1% richest segment the share of earnings has grown from 29.5% to 66.2%. Therefore, Italy is a country where one becomes rich mainly through self-employment (especially working as a professional) or working as an employee (Franzini et al. 2016).

Hence, a major conclusion about the trend of top incomes is that labour market in developed countries is becoming a place where extreme inequalities develop.

In the economic literature richer individuals are usually defined according to their total income (from labour, transfers, capital or rents), also because the main data source for studying top incomes comes from tax files that report total gross incomes yearly reported by individuals to fiscal authorities (Leigh 2009). In this article, similarly to Guvenen et al. (2014), we instead focus on focus on labour incomes, i.e. on earnings, since the administrative longitudinal individual micro-data that we use – based on data recording workers’ earnings reported to social security institutions – only refer to workers. However, focusing on top earners instead that, in general, on top incomes is not a limit since, as mentioned, top incomes are becoming mainly top earners (Franzini et al. 2016). Therefore, analyzing in details composition and characteristics of top earners seems valuable.

Conversely, despite the increasing number of studies focusing on top incomes, most of them has so far been mainly interested in measuring year by year top income shares and studying the association between top income shares and a set of economic variables (Leigh 2009), while, to the best of our knowledge, few studies have devoted their attention to study in detail who and how long belong to the groups at the top of the distribution.

In particular, also due to the characteristics of data used for computing top income shares – derived often from summary tabulations of tax files rather than on individual micro-data –, the issue of mobility over time of top incomes has not been thoroughly analyzed, apart from Jenderny (2015).2

The issue of intra-generational inequality among the rich, i.e. how they move along the income ladder over time, is instead crucial for both equity and efficiency reasons. As concerns equity,

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2 Conversely, many studies, making use of survey micro-data, have investigated individual and household mobility in and out of poverty in the short- and medium run (e.g. Fouarge and Layte 2005, Valletta 2006 and Polin and Raitano 2014 for an international comparison and De Vicenti et al. 2014 for the Italian case).
higher mobility reduces inequality in permanent incomes and also inequality of opportunity if the achievement of top positions is related to individual circumstances rather than on merits and efforts (Franzini et al. 2016). As concerns efficiency, the economic literature considers mobility as a requisite for efficiency because it fosters individual incentives (Jäntti and Jenkins 2013).

As Saez (2015) documents for the US, recent economic growth has ultimately disproportionally advantaged the top 1%, thus it makes a crucial difference whether this 1% is composed by the same individuals or changes year by year, as in the latter case the portion of those benefitted by economic growth is greater, while in the first case persistence of the same individuals on the top rungs of the economic ladder would hamper the spread of economic growth. Furthermore, some authors (Gilens and Page 2014, Hacker and Pierson 2011) point out that the elites influence public policies according to their interests, then, again, it is different whether these elites are not always composed by the same individuals, as in this case the rent-seeking behaviour of the elites could weaken.

According to a famous sentence by Schumpeter, “each class resembles a hotel, or omnibus, always full, but always of different people” (1927, p. 126). The main aim of this article then becomes inquiring whether the omnibus is really always full of different people or whether the members of the elite groups do not change over-time.

In detail, exploiting a longitudinal micro-dataset on individual yearly earnings reported to social security authorities by workers in Italy, we can advance with respect to the existent literature and observe the characteristics of members of the top earners group and, mostly, the mobility of individuals in and out of this group, thus focusing on intra-generational earnings inequality at the top of the distribution. Therefore, this article aims at computing top earnings mobility in Italy, also examining the characteristics of the individuals more or less mobile among the top earners.

The article is organized as follows. Section 2 presents the used dataset, while Sections 3 and 4 present our main (still very preliminary) results concerning, respectively, the variation over time of the characteristics of top earners and of inequality indexes at the top (Section 3) and individual mobility in and out of the top 1% and top 5% (Section 4). Section 5 concludes pointing out our future lines of research that will be followed in order to complete the article.

2. Dataset and data adjustments

We use the administrative longitudinal sample dataset LOSAI provided by the National Institute of Social Security (INPS). The dataset is extremely large as it represents 1/15 of the Italian working population, contains much information about Italian workers and has some appealing advantages for a mobility study of top earnings.

The main features of the dataset are: i) a longitudinal design as workers are tracked from 1990 up to 2012; ii) a very large sample size by international standards as it collects around 6.5% of the total workforce per year\(^3\); iii) representativeness of private employees, self-employed\(^4\) and “parasubordinate” workers\(^5\). Furthermore the dataset collect detailed information on: i) gross earnings (i.e. gross of personal income taxes and social insurance

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\(^3\) The sample selection strategy consists of collecting information for all workers registered at INPS born on the 2nd or on the 9th of any month.

\(^4\) The categories of self-employed tracked in our dataset are craftsmen and dealers.

\(^5\) Parasubordinate workers refer to those workers, enrolled in the INPS fund called “Gestione Separata”, who are usually formally self-employed, but in practice economically dependent on a single employer. This fund has been created in 1996; hence, parasubordinate workers are absent in our data until 1995.
contributions paid by the workers) and worked weeks for each job relationship had in a year; ii) workers’ characteristics (e.g. gender, age, region of work, occupation); iii) firms’ characteristics of employees in the private sector (namely, firm’s size and sector coded at 2 digits NACE).

Attrition from the sample is by definition absent, as administrative social security data cover all types of workers (only individuals moving abroad or, of course, working in the informal sector are not tracked) and we have also information on the date of retirement or death of individuals. However, in the dataset used for the preliminary version of this paper we have not information on employees in the public sector and professionals that are not tracked in the INPS archives used for this article. Indeed public employees did not belong to INPS until 2011 and professionals pay contributions to private funds managed by their professional order (information on these individuals are provided in a specific archive called “Casellario degli Attivi”).

The absence of public employees and professionals is a flaw of our dataset since these two groups of workers are largely diffused among the top earners in Italy (Franzini et al. 2016). Moreover a possible attrition in our dataset could refer to those individuals moving from private employment or self-employment towards public employment or liberal professions. Anyway the absence of public employees and professionals does not prevent us from analyzing mobility of top earners, because these transitions from private employment or self-employment towards public employment or liberal professions are uncommon, especially at the top of the earnings distribution.

Individual gross earnings are top-coded for privacy issues in INPS archives. However, crucial to our goals, top codes regard earnings thresholds in almost all years higher than the earnings threshold to enter the top 0.1% of the earnings distribution. A second type of truncation in earnings reported by employers and employees in INPS files is related to the existence of floors and ceilings (minimale and massimale contributivo) on earnings on which pensions contributions are levied for some workers’ categories (especially for self-employed), so that only earnings up to these thresholds are reported. However, the ceiling on earnings to be reported to social insurance institutions is above the threshold to access the top 1% of the earnings distribution except that in 1996. As a consequence, apart from that year, the dataset we have at disposal allow us to analyze characteristics and dynamics of the top 1% earners.

We consider annual gross earnings, obtained summing all gross earnings received in a year by individuals from possible various job relationships. We include in gross earnings also maternity and sickness allowances and the Cassa Integrazione allowance paid to private employees in case of job suspension. Note, however, that the inclusion of these allowances does not alter the definition of the top percentile.

Different types of working relationships are identifiable in INPS archives according to the type of pension funds on which workers pay contributions. Therefore, according to the main earning source in a year, we can distinguish private employees, parasubordinate workers and self-employed (craftsmen and dealers in INPS archives).

In our analyses we consider in each year workers aged between 15 and 70. When computing persistence measures we also remove from the sample those individuals who die or retire in the time window considered (e.g. in a 5-year period).

In this article we use both annual earnings and five-year averages. Five-year averages are obtained by time-averaging individual earnings over 5 years, that is, for each year t we average individual earnings for the maximum number of available observations between t-2 and t+2. In this way we remove year-specific volatility at the individual level, particularly
present for self-employed due to fiscal reasons, and obtain a longer-term distribution for individual earnings. Nominal annual earnings are converted at constant prices using the Consumer Price Index provided by the National Institute of Statistics (ISTAT).

3. The characteristics of top earners

In this Section we first present indexes of earnings inequality at the top of the distribution and then show how top earnings composition has changed in terms of gender, cohort and main earnings source.

As documented for OECD countries (OECD 2015), earnings growth has been very unequal across the distribution in recent years. Unequal trends of earnings growth at the different percentiles are confirmed for Italy by our analyses (Figure 1).

Figure 1 here

From Figure 1 it stands clear how stagnant median earnings have been over the last 25 years, while the 10th and the 25th percentile have respectively declined by 40% and more than 20% in real terms in comparison to their level in 1990. In contrast, workers at the 90th or at higher percentiles have experienced a large earnings growth.

Figure 2 how much real earnings have grown for top segments of the distribution. The top 0.1% - i.e. the 99.9th percentile - has experienced almost a 50% real increase, while the 99.5th percentile of the five-year average distribution has experienced a much steeper growth at the beginning of the 21st century than at the end of the 20th century. Moreover the inspection of gender-specific distributions shows a similar trend for the top 0.5%, with a greater relative increase for men than for women.

Figure 2 here

Anyway, it has to be pointed out that, when considering gender specific distributions, the threshold to access top earnings groups largely differs between genders, as shown by Figure 3.

Figure 3 here

So, painting with a broad brush, the real growth of different fractiles of the earnings distribution, especially at the top, is likely to have triggered a general increase in inequality, regardless of how it is measured.

Indeed, both inequality indices sensitive to changes in the middle of the distribution – as the Gini index and the p90/p50 ratio – and top inequality indices – the p99/p90 and the p99.9/p99 ratios – are characterized by an upward trend (Fig. 4-7).

Figures 4-7 here
In particular, both the p99/p90 and the p99,9/p99 ratio have slightly increased. It is also to notice the gender divide: if indeed the trend of the female p99/p90 seems to be going towards an alignment with the male p99/p90 ratio, the very top inequality index (p99,9/p99) displays much higher values for the male distribution, meaning that the very top male distribution is still much more dispersed than the female one. This result paves the way for further research in line with the “glass ceiling” hypothesis explored in international comparisons (Arumpalam et al. 2007).

Within the framework of rising earnings inequalities it is useful to investigate how top earnings groups have changed their composition across gender and cohort.

The female presence in the labour market has generally risen (Figure 8), also in top groups, whose female component was very low in the first 90s. In 2012 around 25% of the top 5% and 10% of the top 0.1% are, respectively, composed by female workers. Figure 9 reports the share of male and female making in the top 5% and 1% normalised by their weight in the labour force, thus providing a proxy of the odd by gender to achieve top earners’ groups. The trend is clear, for example in 1990 the share of men making to the top 5%, normalised by the number of men in the labour force, was four times higher than for women, while nowadays this ratio amounts to 3. A dramatic drop is also visible for the probability to access the top 1%, even though the ratio is still very high, as the probability for man to achieve this groups is 4 times that for females and the decreasing trend is basically the result of an almost negligible female presence in the top 1% in the 90s.

*Figures 8-9 here*

The distribution by age is shown in Figures 10-14. As expected, the average age has increased by almost the same rate for all groups over the last two decades peaking 48 years for top 5% earners and 50 years for top 1% earners (Figure 10). Figures 11-13 reveal what lies behind the rising top earners’ average age, namely a notable increase of those aged at least 50 the top groups at the expenses of 30 year-olds. It is graphically striking the sort of time continuity in the ascending trend of the 50 year-olds over time and across the main categories of the total labour force, the top 5% and the top 1%, basically at the expenses of the 30 year-olds, whose presence in top groups has dramatically declined recently.

It is also noticeable that 60 year-olds are twice as numerous in the top 1% as in the total labour force, with this share increased from 2006 onwards. Figure 14, the share of the various age classes belonging the top 5% normalised by their weight in the labour force. Once again, for the 50 year-olds the likelihood to belong to the top 5% is 4 times higher than for 30 year-olds, while this ratio was less than 2 in the 1990s. So, the aging of the labour market has brought a more than proportional aging for top earners and the crowding out of younger cohorts from top segments of the earnings distribution.

*Figures 10-14 here*

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6 For some years it is impossible to distinguish the 99.9th percentile for the male distribution as it was above the INPS top-code, therefore the p99.9/p99 ratio for males may have some missing values.
To sum up, Italian top groups are characterised by rising average age, crowding out of younger cohorts coupled with steady positive increase of female components, though from really low levels in the early 90s.

Finally, we describe the top earnings composition in terms of the main source of annual earnings, i.e. they come from employment in the private sectors (also distinguishing apprentices), parasubordinate jobs or self-employment activities as craftsmen and dealers. The most relevant results are sketched in Figure 15-17.

Figures 15-17 here

Along the time dimension there are no meaningful changes in the composition of the labour force, if any, just a decline of the percentage of self-employed in favour of atypical workers. More interesting is the trend of the distribution in the top 5 and top 1% since it stands out the prevalence of private employees and, as expected, a relevant share of parasubordinate workers emerge as – beyond low-paid bogus self-employed – also CEOs of companies can pay contributions to the Gestione Separata and are then identified as parasubordinate workers in INPS archives. Furthermore, as concerns top 1%, a clear substitution between self-employed and parasubordinate workers emerge in 1996 suggesting that when the Gestione Separata was introduced some well-paid self-employed prefer to move to the new pension fund.

4. Top earners mobility

After having described the most visible trends of top earnings distribution, the main aim of our analysis is the investigation of individual mobility at the top of the distribution. Mobility is intended as a positional change over time.

The rationale to assess persistence is to complement the picture of rising earnings inequality with how frequently people move in and out of the top earnings positions. As stated in the introduction, when the reshuffling is high, the benefits of earnings growth, even if captured by a small elite, are spread among a larger portion of individuals, viceversa if the reshuffling is low.

As a preliminary analysis we persistence rates in top groups in various time horizons and also distinguishing workers by gender and age.

We then plot the probability (obtained by the sample frequencies) of an individual in a top earnings group (top 1% or top 5%) at year t to remain in the same group after t+k years, where and k=1,...,5.

For example, in Figure 18 we show that those whose earnings place him/her in the top 5% in 1993 has a probability of 81,3% to be in the top 5% one year after, in 1994. As mentioned, when we tabulate persistence rates between year t and year t+k we delete from the sample those individuals who died or retired in that time period.

For some years it was not possible to compute persistence rates due to a failure in identifying the top 1% earnings threshold. It may indeed happen that in the two-year file many individuals, especially self-employed, declare earnings in correspondence to the tax cap and, whereas the tax-cap fall under the 99th percentile, thus making impossible to pinpoint the exact threshold that would leave 1% of individuals on its right.
Thus some persistence rates for the top 1% are not filled. Therefore in this section we focus on the top 5% mobility and enrich the picture with the top 1% mobility rates whenever possible (Figures 18-21).

*Figures 18-21 here*

Our findings show the picture of a rigid distribution in the very short run: the persistence rate of the members of the top 5% is constantly above 80% after one year and persistency rates look slightly increasing in the 00s.

Also the persistence rates in the top 1% describe an immobile earnings distribution, at least in the short run,. While, as suggested by Jenderny (2015), a mechanical decline in persistence from the top 5% to the top 1% could be expected due to a reduction of the earnings group size considered, the probability of keeping the same earnings position still remains very high, peaking 83% in 2010.

Anyway, in order to deal with pure income volatility, it is useful to compute persistence rates of multiyear average earnings as presented.

As individual earnings at time $t$ are computed as individual time-averages over five years (from $t-2$ to $t+2$), it is obvious that the persistence rate for this measure of top ‘permanent’ earners at each year is higher than for annual earnings as many year-by-year volatility is already embedded in the earnings measure. What is insightful to check is the trend, which is also slightly increasing; that is, ‘permanent’ earners in the top 1% of the distribution are more likely to be found in the top 1% in the early 2010s than they were in the early 90s, as this probability has gone from 90% up until 95%.

Obviously the very short run persistence computed for both annual and 5-year-average earnings can be complemented with a medium run persistence, say after 5 years.

The five-year probability of persistence in the top 5% shows a decreasing rate from the early 90s until 1997, to regain a growing path in the 2000s. Anyway the likelihood to stick at the top 5% after 5 years was higher for top earners in 2006 than in the 90s. A very similar trend follows the persistence rate in the top 1% even though in many cases it could not been computed, as the 99th percentile is not distinguishable in the distribution when the 99th percentile falls above the yearly tax-cap.

Also for the medium-run, even more strikingly than for the short-run evolution, the trend of top 5% persistence has evidently deepened, as witnessed by the increase in persistence rate up to almost 80% in 2006.

Figures 22-23 permit to better appreciate how much the top persistence of annual earnings declines as the time horizon widens.

*Figures 22-23 here*

For the top 5%, where we could compute more complete mobility rates, the trend across different time horizons follows the same evolution, at first slightly declining and then reaching an all-time maximum by the end of the time period considered, while the differences between the persistence after one year and after five year are roughly constant and amount around 15 percentage points.
Gender-wise, the main stylized facts about top mobility are illustrated in Figures 24-25. One-year female persistence has increased from the 90s to almost equalize the male one, especially for the top 1%, while it was already similar to the male one for the top 5%. Thus, the bad news of very low reshuffling at the top distribution is partially offset by the evidence that this low reshuffling at least is not gender-biased as a mild increase of women among top earners is noticeable. Finally, the previous increasing tendency of probability around 70% for a top 5% earner to be in the same position after 5 years is substantially confirmed without radical differences in both the women- and the men-specific distributions.

Figures 24-25 here

5. Future lines of research

In this article we used a very large-scale database released by the National Institute of Social Security (INPS) to explore the issue of top earnings inequality and mobility in Italy. Findings point out a rising earnings concentration, in line with more recent studies on inequality. The top earners’ profile is characterized by a rising average age and a mild increase in the share of women.

Furthermore, as the main novelty of the article, the issue of the persistency of Italian workers in top groups has been preliminarily examined measured persistency rates in top 1% and 5% groups, to our knowledge for the first time. Results show that the reshuffling among top earners is relatively limited and decreasing in recent years.

Our findings are descriptive and, as mentioned, preliminary. Further analyses will be carried out in the next future along two lines of research: i) a more detailed analysis of individual movements in and out of the top groups analyzing origins and destination of movers and studying, by means of econometric tools, the main covariates associated with these movements, also taking into account further variables recorded in INPS archives, as firm’s sector and size for private employees; ii) a survival analysis aimed at highlighting determinants of persistence in top earnings groups, likewise the various analyses that have investigated the duration of poverty spells7.

7The analyses of poverty duration, pioneered by Bane and Ellwood (1986), have subsequently been improved and enriched by much empirical evidence, for instance by Jarvis and Jenkins, (1997) for the UK, Stevens (1999) for the US and Devicienti et al. (2014) for Italy.
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Fig. 1: Earnings growth in various percentiles. 5-year averages of earnings

Source: elaborations on INPS-LOSAI dataset

Fig. 2: Earnings growth in various top percentiles

Source: elaborations on INPS-LOSAI dataset
Fig. 3: Top 1% and 0.1% thresholds by gender

Source: elaborations on INPS-LOSAI dataset

Fig. 4: Trend of Gini index of earnings inequality

Source: elaborations on INPS-LOSAI dataset
Fig. 5: Trend of the P90/P50 ratio

Source: elaborations on INPS-LOSAI dataset

Fig. 6: Trend of the P99/P90 ratio

Source: elaborations on INPS-LOSAI dataset
Fig. 7: Trend of the P99.9/P99 ratio

Fig. 8: Trend of the ratio between male and female workers

Source: elaborations on INPS-LOSAI dataset
Fig. 9: Trend of the ratio between male and female workers normalized by employment rates

Source: elaborations on INPS-LOSAI dataset

Fig. 10: Mean age of workers in the different groups

Source: elaborations on INPS-LOSAI dataset
Fig. 11: Distribution of the labour force by age classes

Source: elaborations on INPS-LOSAI dataset

Fig. 12: Distribution of the top 5% by age classes

Source: elaborations on INPS-LOSAI dataset
Fig. 13: Distribution of the top 1% by age classes

Source: elaborations on INPS-LOSAI dataset

Fig. 14: Distribution of the top 5% by age classes normalized by employment rates

Source: elaborations on INPS-LOSAI dataset
Fig. 15: Distribution of the labour force by earnings source

Source: elaborations on INPS-LOSAI dataset

Fig. 16: Distribution of the top 5% by earnings source

Source: elaborations on INPS-LOSAI dataset
Fig. 17: Distribution of the top 1% by earnings source

![Graph showing distribution of top 1% by earnings source]

Source: elaborations on INPS-LOSAI dataset

Fig. 18: Persistence rates in a one-year period. Annual earnings

![Graph showing persistence rates in a one-year period]

Source: elaborations on INPS-LOSAI dataset
Fig. 19: Persistence rates in a one-year period. Five-year average earnings

Source: elaborations on INPS-LOSAI dataset

Fig. 20: Persistence rates in a five-year period. Annual earnings

Source: elaborations on INPS-LOSAI dataset
Fig. 21: Persistence rates in a five-year period. Five-year average earnings

Source: elaborations on INPS-LOSEI dataset

Fig. 22: Persistence rate in the top 5% by various time spans

Source: elaborations on INPS-LOSEI dataset
Fig. 23: Persistence rate in the top 1% by various time spans

Source: elaborations on INPS-LOSAI dataset

Fig. 24: Persistence rates in a one-year period by gender. Annual earnings

Source: elaborations on INPS-LOSAI dataset
Fig. 25: Persistence rates in the top 5% in a five-year period by gender. Annual earnings

Source: elaborations on INPS-LOSAI dataset