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Did Early-Career Complexity Increase After Labour Market Deregulation?
Heterogeneity by Gender and Education Across Cohorts in Italy

Research Area
Dynamics of Social Inequality

Research Unit
Demography and Inequality

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Abstract

Did early-career complexity increase after labour market deregulation? Heterogeneity by gender and education across cohorts in Italy

by Emanuela Struffolino and Michele Raitano

This article considers the complexity of early employment life-courses focusing on the heterogeneity by gender and education. We construct 7-year-long early employment trajectories by using a unique longitudinal dataset that combines administrative records on employment episodes and survey data from the Italian module of the EU-SILC. This enables the application of advanced methods in sequence analysis to calculate the complexity of employment trajectories following labour market entry. Complexity reflects the instability of early-careers by considering the number of transitions between employment states and the length of each episode. We compare several cohorts of Italian workers who entered the labour market between 1974 and 2001 in institutional contexts characterized by different levels of deregulation. The results demonstrate that early-career complexity increased across cohorts, but mostly for medium and lower-educated individuals. This dynamic is particularly pronounced for women, and complexity is the highest for recent cohorts, especially among those with less human capital.

Keywords: labour market, youth, gender, education, flexibility, sequence analysis

Introduction

In recent decades, many European countries have sought to increase labour market flexibilization by removing labour-market rigidities (e.g. centralized bargaining and hiring and firing costs, [OECD, 1994]), with the aim of reducing unemployment and fostering smoother transitions into employment for young people and workers with weak labour-market attachment, typically women and low-skilled individuals. However, in most of the cases the reform process was characterized by a strong emphasis on flexibilization at the margins – i.e. a deregulation of hiring through temporary and atypical arrangements – thus creating two-tier labour markets where both flexible and permanent contracts coexist (Boeri, 2011).

Although the non-standard arrangements introduced were expected to facilitate labour-market entry for workers who would subsequently follow linear upward trajectories towards stable standard contracts, some authors argue that the deregulation might have generated less stable and more complex employment life-courses (e.g. Hofmeister et al., 2006; Mills et al., 2006). Stability is usually defined in opposition to frequent mobility between different jobs, contracts, and arrangements, whereas mobility refers often to frequent transitions both from employment to unemployment and vice versa and between different contractual arrangements. When a worker moves from a permanent to a temporary contract, she experiences a downward transition. Hence, mobility patterns might generate employment trajectories that are not linear or upwardly sloped, in the sense of progressing toward more desirable positions. Stability and linearity are especially relevant for workers in their early-career stages: differentials in exposure to highly differentiated trajectories at this point might have long-lasting consequences over the working life (Kohli, 2007).

The literature in economics and sociology has investigated the short-term effects of labour-market deregulation by exploring the 'trap *vs.* stepping stone effect' of non-standard labour market arrangements. This has been primarily done by considering the occurrence and timing of transitions between single events, i.e. from temporary to permanent contracts. The medium and long-term effects of deregulation on career patterns and wages have not been studied in much depth, partly due to limited data. Furthermore, most of the research on the outcomes of labour market de-standardization relies on cross-sectional indicators about working statuses at various time points (e.g. the probability of being unemployed or in an atypical employment arrangement at year *t*).

However, studying 'point-in-time outcomes' might lead researchers to overlook the influence of changes in the institutional setting on the whole employment trajectory. Individual labour-market experiences can be instead conceptualized as a 'process outcome' (Abbott, 2016), i.e. working trajectories are the global result of multiple single events (e.g. the complete succession of different jobs within a career).

We extend the previous literature in two respects. First, we describe the trend of early-career longitudinal variability in the context of an institutional shift towards labour-market deregulation in Italy, comparing 7-year-long early careers starting from the first employment episode across six cohorts of Italian young workers who entered in the labour market between 1974 and 2001.[1] Second, we compare early careers by worker's education and gender.

We use an innovative longitudinal dataset built by merging administrative with survey data about working histories. This allows us to consider careers as 'process outcomes': longitudinal employment life-course variability is operationalized using a complexity index developed in sequence analysis (Gabadinho et al., 2011). The complexity index synthesizes stability and mobility between spells in employment and out of the labour market by accounting for their length and recurrence. It therefore adequately reflects the life-course concept of working-life differentiation: the greater the number of states and episodes experienced over time, the higher the differentiation (Brückner & Mayer, 2005).

Comparing the complexity index across entry cohorts of workers who were exposed to increasing degrees of labour market deregulation serves to synthesize the pace at which reforms display their effect on early-careers' longitudinal configuration. Note that we do not analyse deregulation's effects on career complexity in a causal sense; instead, we present evidence on the early-career complexity of cohorts who entered the labour market before or after the implementation of flexibilization.

Our results also contribute to the debate on the consequences of deregulation in light of the invidualization *vs.* persistent inequality perspectives, which would predict a more diffuse uncertainty and decreasing career predictability or rather the persistency of 'traditional' social stratification dimensions: accordingly, we will explore differences by gender and education.

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[1] Hence, we do not then take into account the effects of the economic crisis that started in 2009.

By targeting Italy, we adopt the 'differential' life-course sociology perspective that suggests studying country cases over time to highlight linkages between institutional configurations and life-course outcomes instead of comparing broad categories of welfare state regimes (Mayer, 2005). The flexibilization reforms of the mid-1990s/mid-2000s only deregulated non-standard arrangements in Italy, thus engendering an age gap in access to the protected labour market segment. As a result, the discrimination between protected/unprotected and older/younger workers overlapped with the traditional distinction between outsiders and insiders (Barbieri and Scherer, 2009). Against this scenario, the comparison across cohorts is particularly crucial.

The Italian institutional background

From the mid-1980s to the early-2000s, the Italian government approved several labour-market reforms to reduce constraints on temporary hiring and introduce new contractual arrangements. In Italy, as in other Mediterranean countries, deregulation was promoted to (ideally) boost the participation of more vulnerable workers, such as women, over-50 workers, young people and immigrants (Vesan, 2009).

Between 1993 and 1996, a number of regulations were introduced to increase part-time employment and the maximum age for apprenticeships and facilitate job training (e.g. internships), as well as to allow for the re-integration of long-term unemployed workers. In 1995, a specific public pension fund, the *Gestione Separata*, was set up for para-subordinate workers, i.e. dependent self-employed workers and professionals without a professional-organization-managed pension fund (Raitano, 2018). The fund's introduction led to a proliferation of para-subordinate contracts, whose holders had the lowest social security entitlements and paid a reduced pension contribution rate: according to INPS (Italian National Social Security Institute) figures, the number of individuals who exclusively performed a para-subordinate activity more than doubled in the period 1996–2003 (from around 840,000 to over 1.8 million workers).

The 'Treu package' (Law n.186/1997) introduced temporary employment agencies and internship contracts; it also reformed the rules concerning fixed-term employment (dating back to 1962), weakening the constraints on hiring temporary employees and reducing the sanctions for violations regarding the transformation of temporary contracts into open-ended arrangements. The constraints on using fixed-term arrangements were largely removed by Legislative Decree 368/2001, which relieved employers from the

obligation to declare specific reasons for choosing a temporary arrangement. The flexibilization of the Italian labour market was finally completed by Law 30/2003 ('the Biagi law') that introduced further para-subordinate arrangements (e.g. 'job on call', 'staff leasing' and 'job sharing'). It is also notable that since the mid-1990s, severe limitations on permanent public-sector hiring were introduced to limit public spending, thus strongly reducing young workers' chances of attaining an open-ended contract in the public sector (Dell'Aringa, Lucifora, & Origo, 2007).

It has been argued that Italy followed a 'Mediterranean' labour market adjustment strategy (Barbieri, 2009). The aforementioned reforms fostered a deregulation process that was 'partial and selective' (Esping-Andersen & Regini, 2000) as it targeted only the 'margins' of the labour market system, that is, non-standard employment. Unlike other European countries, where access to protected labour market segments was uneven based on skills differentials (Giesecke & Groß, 2003), in Italy the strongest cleavage existed between the older and younger cohorts of workers. The former remained in the core segment, while new entrants found it difficult to move from its periphery (e.g. Barbieri et al., 2016). A reduction in the unfair dismissal protection offered by standard contracts was introduced only much later, in 2012 and 2015, whereas a further deregulation of fixed-term contracts occurred in 2014. However, as mentioned, we focus on the period before the 2008 economic crisis.

According to Eurostat figures, the increase in non-standard arrangements in Italy from the mid-1990s to 2000s is signified by the share of employees hired on temporary contracts (6.2% in 1998, 7.2% in 2002, and 10.0% in 2008) and on part-time contracts (7.2% in 1998, 8.5% in 2002, and 14.1% in 2008). The picture changes dramatically when considering workers aged 15–29: the share of fixed-term employees rose from 9.7% in 1983 to 11.4% in 1993 and to 32.0% in 2008; the share of part-time employees rose from 4.7% in 1983 to 6.0% in 1993 and to 17.2% in 2008. Women are overrepresented both in part-time jobs and in any other atypical contractual arrangement.

At the same time, the OECD employment protection legislation (EPL) index for temporary workers decreased in Italy from 5.25 in the late 1980s to 3.25 in 2001 and to 2.00 in 2003, while the EPL index for permanent workers remained constant at a value of 2.76 since the 1980s, because, as mentioned above, the legislation on permanent contracts was not liberalized before the 2012 and 2015 reforms. As a consequence of the reform process, Italy – which, as the most rigid of the EU15 countries, ranked fourth in 1995 –

experienced the highest decreases in the EPL index from the mid–1990s to 2008 in the OECD. Finally, the share of workers with trade union membership fell remarkably over time. Union density rose steadily from 24.7% of the labour force in 1960, up to 50.4% in 1978, and then constantly fell to 33.4% in 2008 (OECD figures based on the Jelle Visser database)[2].

Labour market deregulation and the complexity of early careers: our hypotheses

Early–career complexity across cohorts

The literature on the individual-level outcomes of labour-market flexibilization mostly examines changes in job and employment security. Job insecurity reflects the instability of contractual arrangements: in dual labour markets, non–standard workers experience high job turnover and face high barriers to accessing the core segments of the labour force (Barbieri & Cutuli, 2015; Gebel & Giesecke, 2016). If such conditions persist over time, individuals experience long–lasting employment insecurity (Wilthagen & Tros, 2004), and temporary arrangements become a trap rather than being a stepping–stone to stable contracts. Employment insecurity is therefore an inherently longitudinal characteristic of individuals' working trajectories (Berton et al., 2009).

The classical career literature has coined terms such as 'patchwork' (Beck, 1992), 'boundary-less' (Arthur & Rousseau, 1996), or 'disorderly' (Wilensky, 1961) to describe labour-market-participation models shaped by increasing labour market deregulation. More recently, the life–course literature has conceptualized the increasing variation over time in individual careers as differentiation (Brückner & Mayer, 2005). Differentiation is an essentially longitudinal and holistic concept that goes beyond simply counting job episodes or contracts; it instead aims at accounting comprehensively for individuals' complete experience across employment trajectories. Differentiation refers to the increasing number of distinct events experienced over the working lifetime (both in and out of the labour market), taking into consideration their order, timing and duration. Hence, the degree of differentiation indicates the predictability and the linearity of employment trajectories, which can be seen in opposition to employment insecurity.

Recent evidence provided by Van Winkle and Fasang (2017) – who share the focus on differentiation in employment trajectories with the present article – shows a relative

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[2] Dataset available at https://stats.oecd.org/Index.aspx?DataSetCode=TUD.

stability in career complexity when looking at the time span between age 15 and 45 in Europe. However, for individuals in their sample, the early-careers unfold before the mid-1970s. The latter was certainly a period characterized by dramatic changes due to economic terziarization, globalization, and technological change, but several European countries implemented labour market reforms promoting actively destandardization only from the mid-1980s. Moreover, the increasing differentiation that might be specific to the first years of labour market participation is likely to be moderated by the stability typical of later stages when considering a longer portion of the employment life-course. Therefore, we consider also more recent cohorts of workers and focus specifically to early-careers. We expect that *the complexity increased for workers who entered the labour market during the deregulation phase as well as after it (hypothesis 1)*.

Early-career complexity, gender and education across cohorts

Two main theoretical perspectives discuss the trends in careers' configuration over time: the individualization of risks and the persistent inequality perspectives. The individualization-of-risk perspective suggests that globalization has led to diffuse uncertainty and decreasing life-course predictability. With regard to labour-market participation, changes in labour-market regulation would likely result in unstable and extremely fragmented careers for a large part of the labour forces independent of the 'traditional' social stratification dimensions (Beck, 1992; Sennett, 1999). As a consequence, all workers would experience unstable patchwork careers engendered by unemployment and employment instability in particular phases of their working lives. Early-careers are therefore expected to be more complex for all workers *who entered the labour market during the deregulation phase as well as after it, that is irrespective of their individual (observable) ascriptive or achieved characteristics* (hypothesis 2).

By contrast, the persistent-inequality perspective argues that traditional dimensions of inequality (such as gender and education) would likely still strongly shape individuals' exposure to labour market risks. Within this framework, the concept of recommodification of risks (Breen, 1997) suggests that the organizational restructuring processes triggered by labour-market deregulation would transfer market risks to employees. These risks would likely be allocated to groups depending on pre-existing power structures and stratification dimensions, so that the negative outcomes of employment flexibility and the risk of unemployment would not spread across the whole

population but would target specific groups (Breen, 1997; Goldthorpe, 2002). This study focuses on gender and education. The following hypotheses are therefore competing with hypothesis 2.

Women labour force participation and attachment have dramatically increased in the last decades. Although these changes have been accompanied by changes in gender norms, the socialization perspective argues that gender stereotypes are persistently present in cultural believes, so that individuals are confronted with gender-specific expectations on labour market commitment. The gendered master-status hypothesis further elaborates these ideas and suggests that high levels of labour-market deregulation and low provision of childcare services combined with the persistence of traditional family roles would preserve the *status quo* of gender differences in labour-market participation patterns (Crompton, 2002; Krüger & Levy, 2001). Women in their early careers are more likely to work in flexible jobs more often than men because they are expected to fulfil the requirements of their master status by demonstrating a stronger commitment to the family vs. the career. This might be reinforced by discrimination in employers' hiring/firing decisions, based on the anticipation of (stereotyped) lengthy and/or frequent breaks in women's active participation. Therefore, after controlling for compositional effects associated with increasing female participation, we expect *early-career differentiation to increase more for women than for men across cohorts (hypothesis 3a)*.

Consistently with the technological-skill-biased scenario that has reduced the relative demand for low-skilled workers (Katz & Murphy, 1992), flexibility, job discontinuity and unemployment are expected to affect low-educated workers especially (Barbieri, 2009; Di Prete et al., 2006). Therefore, *lower educated workers are expected to experience higher degrees of early-career complexity when the potential for employment insecurity increases (hypothesis 3b)*.

During the last decades women have caught up with men in terms of educational attainment and even overtaken them in several countries. Therefore, women entering the labour market are increasingly more educated. Due to possible (self-)selection or discrimination, lower-educated women suffer persistently of a double disadvantage (OECD, 2017) so that gender employment gaps tends to be widest among men and women with low levels of education. We expect this to be reflected in the complexity of early career as well. Therefore, we expect *the early careers of lower-educated women to have increased*

more than (i) those of men with the same education as well as (ii) those of highly educated women (hypothesis 3c).

Data and methods

Data

We used the AD–SILC longitudinal dataset, constructed by merging the 2005 cross-sectional wave of the IT–SILC (i.e. the Italian component of the European Union Statistics on Income and Living Conditions – EU–SILC) and the administrative longitudinal records provided by INP); individual fiscal codes are used as the matching key. In detail, cross-sectional variables collected in IT–SILC were enriched by longitudinal social security records going back to labour-market entry of all individuals interviewed in IT–SILC.[3]

AD–SILC is a retrospective unbalanced panel, which includes almost 1.2 million observations nested in 43,388 individuals who appeared at least once in the INPS archives between 1940 and 2009 and were in the 2005 sample of the IT–SILC module. AD–SILC has several advantages over other longitudinal datasets available for Italy. First, it contains information from all available INPS archives, so it was possible to distinguish between all employment types, including self-employment and dependent self-employment. Second, INPS archives are attrition-free. Third, AD–SILC records education, which is of crucial importance for our research questions and is absent from the Italian administrative datasets. Finally, being based on an administrative source, AD–SILC data are not affected by measurement errors about the type of contractual arrangement or by memory bias: this is particularly important when studying employment trajectories, because short episodes might not be reported or located on a timeline several years after they occurred (Manzoni et al., 2010).

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[3] Individuals interviewed in IT–SILC are matched with the administrative archives if they had an employment spell registered by social security records (i.e., not-matched individuals are those who have never worked in their life). All working episodes are tracked by social security records apart from the few types of contractual arrangements that are free from paying social contributions (e.g., internships and, of course, informal jobs).

Analytical strategy and sample

We selected individuals who started to work between 1974 and 2001 aged between 15 and 34 (men=8,398; women=7,147; workers without the Italian citizenship are not considered). Entry cohorts were grouped according to 5-year classes to trace the changes in early-career variability before and after labour-market deregulation. We assume the oldest year with a working episode lasting at least 13 weeks (the threshold used in Italy for eligibility for unemployment benefit) as the starting working year.[4]

By applying sequence analysis, 7-year-long sequences were constructed representing early careers.[5] Then, the variability along individual sequences was operationalized by calculating a complexity index. The latter became the independent variable for OLS regressions estimating the association between early-career variability across cohorts of entry into the labour market and gender and education.

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[4] Note that AD-SILC does not include a precise number of months spent searching for a job at the end of education. Indeed, the information on the year when the highest educational level was attained is a poor proxy for the job-search time because: i) it is measured in years rather than in months; ii) it is unclear whether a lag between the year of attainment of the highest educational level and the entrance to the labour market was due to searching time or to periods in education without having achieved a qualification (in Italy, there is a very high drop-out rate for both upper-secondary and tertiary students, e.g. around 15% in 2011 [Borgna and Struffolino, 2017]); iii) many individuals – especially those belonging to the oldest cohort – attained the highest educational qualification while working (around 20% of tertiary graduates in our dataset). However, the multivariate models control for a dummy variable identifying late entrants in the labour market (i.e. those who started to work at least 1 year after the attainment of the highest qualification).

[5] The study calculated sequence complexity and visualized early careers using the R packages TraMineR and TraMineRextras (Gabadinho et al., 2011), and Weighted-Cluster (Studer, 2013), version R.3.2.5 (R Core Team, 2017).

Table 1 displays the distribution of the independent and control variables by gender.

Tab. 1: Sample characteristics

	Men	Women
Gender	54.0	46.0
Cohort of entry		
1974–1978	13.9	14.5
1979–1983	19.2	17.4
1984–1988	19.7	18.8
1989–1993	17.5	18.7
1994–1997	13.7	13.2
1998–2001	16.1	17.4
Education		
At most lower secondary	42.4	36.4
Upper secondary	47.8	51.4
Tertiary	9.8	12.2
Geographical area of work		
North–West	23.4	25.9
North–East	24.8	26.5
Centre	23.2	23.8
South and Islands	28.6	23.8
Months spent in unemp. (mean)	17.9	21.2
Months spent in unemp. (S.D.)	21.6	24.7
Late entry: yes	71.2	70.2
Age at first working episode		
15–19	38.2	32.9
20–24	36.9	39.5
25–29	16.7	18.0
30–34	8.2	9.6
Obs.	8,398	7,147

Source: elaborations on AD–SILC dataset.

Sequences' construction

By adopting the sequence analysis framework, we conceptualize early careers as sequences of categorical states to be analysed as they unfold over time rather than as a set of isolated elements (Abbott, 1995). The objects of study were therefore whole trajectories instead of single transitions between or durations in specific states: early-careers are understood as individual realizations of a 'process outcome' that presented aggregate–level patterns and regularities (Abbott, 2016; Aisenbrey & Fasang, 2010).

We constructed 84-month-long sequences by coding each month according to the labour market status at each time-point:[6] apprenticeship, full-time employment in the private sector, part-time employment in the private sector, employment in the public sector (distinctions were not made between part-time and full-time arrangements in the public sector), self-employment (merchants, craftsmen, and farmers), professionals (e.g., lawyers, architects, physicians), and joblessness (not being in any kind of employment, due to unemployment or inactivity).[7]

This procedure did not take transitions between different jobs/employers into account if the contractual arrangement did not change (e.g. transitions between full-time contracts in the private sector). Therefore, the transitions between states in individual trajectories were meant to emphasize the employment insecurity dimension, rather than the job insecurity connected to the duration of contracts. In fact, direct job-to-job transitions between employers does not necessarily translate into insecurity or differentiation as long as the employment in the same occupation is preserved (Biemann et al., 2011; Hollister, 2012).[8]

Unfortunately, fixed-term and permanent contracts in the private section could only be distinguished in AD-SILC from 1998 onwards, and never for public-sector employees. Moreover, para-subordinate arrangements were only identified as such from 1996. In fact, before 1996 para-subordinate arrangements were not recorded in administrative social security records, as they were exempted from social contributions; however, a massive increase in the use of para-subordinate arrangements only happened after the introduction of the *Gestione Separata* fund in 1995. We thus chose to code episodes in para-subordinate and temporary jobs as employment in the private sector. As a consequence, the complexity index is a lower bound of the actual complexity because it ignores transitions between permanent and temporary employment and between employment and para-subordinate jobs. Moreover, the value of the complexity index is underestimated for the younger cohorts because transitions between employment and para-subordinate arrangements and temporary and permanent employment clearly increased in recent

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[6] In case of overlaps between two different episodes, the more "beneficial" episode in terms of stability and related benefits was prioritized: e.g. working episodes were prioritized over non-employment.

[7] Due to data limitations, it is not possible to distinguish inactivity and involuntary unemployment.

[8] We accounted for the job-to-job transitions and for a more detailed definition of the states used to construct the sequences in a series of robustness checks: the results are highly consistent with those presented here, so that the sequences were prioritized that better reflect employment vs. job security.

decades (see section 2). Therefore, growing complexity for the younger entry cohorts could be interpreted as an actual increase across cohorts.

Complexity index of early careers

We used the complexity index (Gabadinho et al., 2011) to operationalize the differentiation of individual sequences representing early-career trajectories. The complexity index takes into consideration the occurrence of the all states identified as building blocks of the sequences, the duration of each spell, and the number of transitions between states along the sequence (x) and can be formally expressed as:

$$0 \leq C(x) = \sqrt{\frac{q(x)}{q_{max}} * \frac{h(x)}{x_{max}}} \leq 1$$

where $q(x)$ represents the number of transitions between different states in the sequence, $h(x)$ is the longitudinal entropy of a sequence (i.e. the distribution of the states) and both $q(x)$ and $h(x)$ are divided for the respective maxima, q_{max} and x_{max}. The complexity index is therefore the mean of the two components normalized. The minimum value of C=0 corresponds to sequences composed by one single state and having entropy equal to 0. The maximum value of C=1 is computed for sequences in which all possible states appear in the sequence (x) and have equal duration.

We run stepwise OLS regression for men and women separately. The main independent variables are cohort (1974-1978, 1979-1983, 1984-1988, 1989-1993, 1994-1997, 1998-2001) and education (at most lower secondary, upper secondary, tertiary). All models control for area of residence (North-West, North-East, Centre, or South and Islands), age at the first employment episode (15–19, 20–24, 25–29, 30–34) and a dummy for those who started to work at least one year after having completed their highest level of education.

Results

Complexity of early-careers across cohorts

Figure 1 displays the mean of the complexity index by gender and entry cohort. The complexity value can theoretically vary between 0 and 1: the empirical maximum in our data was 0.391 and 0.436 for men and women respectively. As expected according to hypothesis 1, the mean complexity increased across entry cohorts for both genders, and especially so for women.

Fig.1: Complexity across cohorts by gender (average)
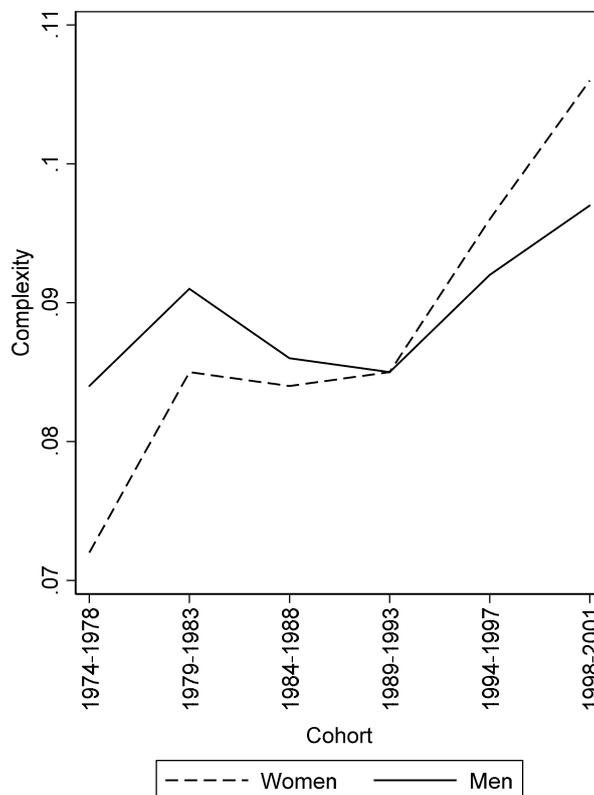
Source: elaborations on AD-SILC dataset.

Figure 2 shows the distribution of the complexity index by cohorts, according to intervals computed with respect to the value of one or more standard deviations of such index over the total sample (s.d.=0.074). We found that the share of women whose early career was characterized by complexity higher than two standard deviations increased from 12.2% to 26.7% across entry cohorts, while the share of early careers with complexity

equal to 0 decreased from 27.8% to 17.7%. In both cases, the differential was sharper for the two youngest cohorts. This general trend also applied to men, but because early careers were already relatively more complex among older entry cohorts, the increase in complexity was less pronounced: very high complexity is displayed by 25.6% of the sample of youngest cohorts vs. 19.4% for the oldest, while complexity equal to 0 is experienced by 23.3% and 27.4% of the youngest and the oldest workers respectively.

Fig. 2: Distribution of complexity index for early-careers across cohorts by gender.
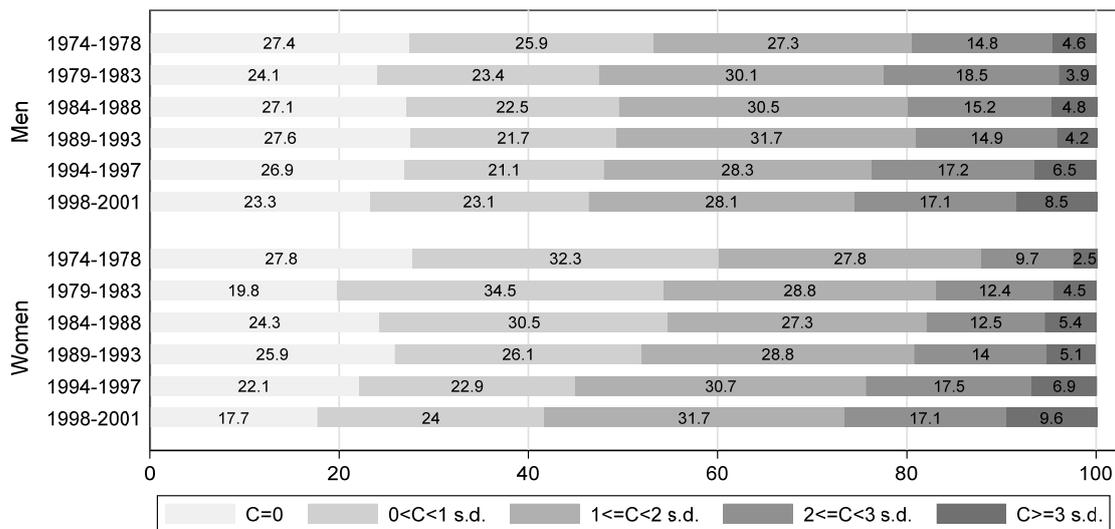
C=complexity; s.d.=standard deviation. Distributions are calculated relatively to the overall sample. Source: elaborations on AD–SILC dataset.

These descriptive results might have been confounded by changes in the sample characteristics across cohorts as a consequence of educational expansion and increasing women's labour market participation. Therefore, a set of OLS regression models was run to estimate the association between the complexity index for early careers and entry cohort, controlling for compositional effects. Table 2 shows the results of separate models for men and women. In line with hypothesis 1, the size of the index grew especially for the most recent cohorts. For men, early-career complexity significantly and sizeably increased only for the two youngest cohorts compared to the reference cohort. Substantiating hypothesis 3a, early-career complexity started to increase substantially more for women who entered the labour market in the early 1980s.

Tab. 2: Association between complexity index for early-careers and individual characteristics. OLS regression estimates[a]

	Men		Women	
	M1	M2	M1	M2
	b/se	b/se	b/se	b/se
1979–1983	0.002	0.002	0.012***	0.013***
	[0.003]	[0.003]	[0.003]	[0.003]
1984–1988	0.002	0.004	0.017***	0.019***
	[0.003]	[0.003]	[0.003]	[0.003]
1989–1993	0.006**	0.008***	0.023***	0.025***
	[0.003]	[0.003]	[0.003]	[0.003]
1994–1997	0.018***	0.022***	0.038***	0.041***
	[0.003]	[0.003]	[0.003]	[0.003]
1998–2001	0.027***	0.030***	0.050***	0.054***
	[0.003]	[0.003]	[0.003]	[0.003]
Upper secondary		–0.018***		–0.019***
		[0.002]		[0.002]
Tertiary		–0.025***		–0.025***
		[0.003]		[0.003]
N.	*8,398*	*8,398*	*7,143*	*7,143*

[a] Control variables included in all models: dummies for age–category at the first working–episode, dummies for geographical macro–areas of work, and a dummy for late entry in the labour market. At most lower secondary is the reference category for education; 1974–1978 is the reference category for entry cohort. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Source: elaborations on AD–SILC dataset.

Changes in complexity across cohorts remained significant after controlling for education (models M2 in Table 2). The negative educational gradient for complexity is consistent with the general expectation that higher educated workers would experience less volatile employment trajectories because the additional resources available to them mean they are funnelled into more stable entry pathways. In models M2, the size of the coefficients for the effects of the cohort of entry increased for both men and women because of the differences in complexity by education.[9]

Figure 3 displays the predicted values of the complexity index for entry cohorts. Striking differences by gender emerged when considering not just the comparison across

[9] It can be argued that the increasing complexity of the early careers of the younger cohorts of workers is driven by the increasing unemployment over time. As a robustness check, additional models were run controlling for the number of months out of employment, even though this latter variable is obviously endogenous to the individual sequences, because jobless is one of the building–blocks states. The increasing trend of the complexity index for cohorts entered since the mid–1990s remain large and significant, for both genders, also in this specification. Detailed results are available upon request.

cohorts within each gender but also the levels of complexity. On average, the older cohort of men 1974–1978 exhibited higher complexity values than the same cohort of women (0.079 vs. 0.062 respectively). A crossover of complexity was observed for men and women across cohorts, as women's early-career complexity increased at a much quicker pace across cohorts. The 1984–1988 entry cohort for women eventually reached the same complexity level as men (0.081 and 0.082 respectively), meaning that the early careers of the younger cohorts of women displayed higher differentiation than those of men, reaching the highest value of 0.121 for the cohort 1998-2001. These findings further substantiate hypothesis 2a that higher early career differentiation for women across cohorts of workers exposed to increasing labour market deregulation.

Fig. 3: Predicted values of the complexity index for early careers by gender, cohort of entry and education, OLS regression models.
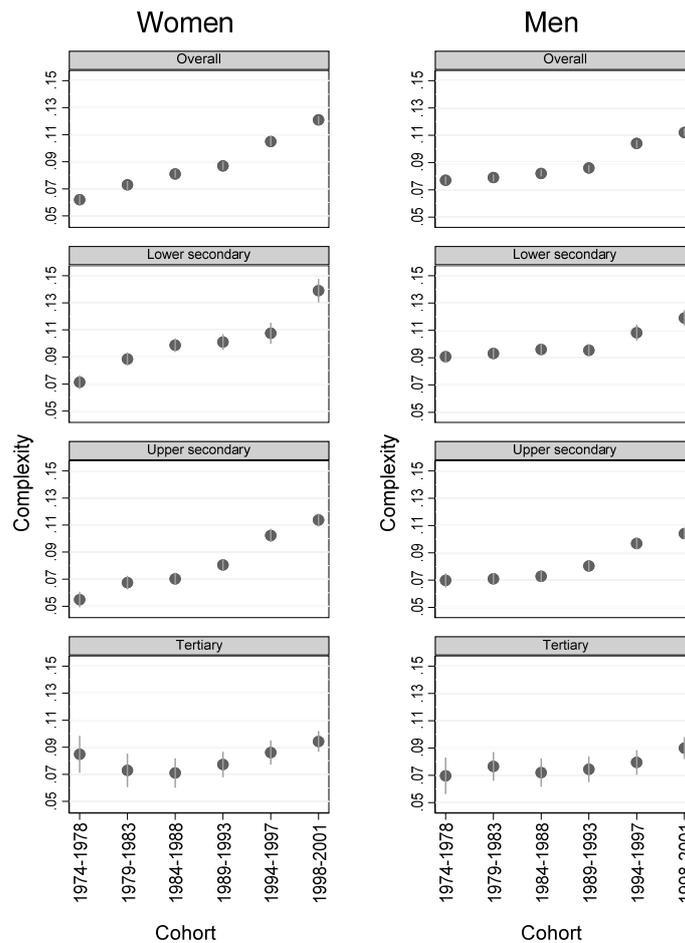
Notes: Estimates from model M2 in Table 2 where an interaction between cohort and education was added. 90% confidence intervals. Source: elaborations on AD–SILC dataset.

Figure 3 also shows the predicted complexity by education across cohorts. Consistently with hypothesis 2b, all cohorts of workers with lower-secondary education experienced higher variability in their entry-career trajectories compared to both lower-secondary and tertiary-educated ones; this was especially true for the younger cohorts of women. The two younger male entry-cohorts display a much higher complexity than the older cohorts. Yet, for women, early-career variability increased monotonically across cohorts for those with lower and upper-secondary education. Also in this case, complexity was higher for men than women for the older cohorts, but the values for younger cohorts of women aligned rapidly and eventually overtook men's.

These findings, therefore, support hypothesis 2c, which expected that the early careers complexity of lower-educated women would grow more rapidly than complexity of both low-educated men and high-educated women. The trends in early-career differentiation developed similarly across entry cohorts: for both genders, the complexity index for the younger cohorts lagged behind the corresponding cohorts of less educated workers. However, the complexity value was the highest for the cohort 1998–2001 of low-educated women.

Additional evidence on the number of transitions between states and on the number of months spent in each state during the 7-year-long observational window (results not shown) substantiated this interpretation. The increase in complexity for the women's subsample could be partially explained by the decrease across cohorts in the share of individuals who never changed state. This concerned mainly women with a tertiary degree, who indeed displayed steady complexity values across cohorts. In contrast, the share of men who never changed state decreased only for those with upper-secondary education. Therefore, the complexity experienced by the newest entry cohort of workers was likely to be driven by increasing transitions between different states within the labour market. The most recent cohorts of highly educated men and women experienced an increase in working time *versus* joblessness, so that their early-career complexity was less influenced by the number of joblessness episodes or their length. In fact, the number of transitions increased across cohorts especially for less educated individuals. Finally, the increase in early-career differentiation for (mostly low-educated) women was associated with increase in the average number of transitions and different states experienced.

Discussion and concluding remarks

This article considered early employment life-courses instability across cohorts, focusing on heterogeneities by gender and education. We conceptualized longitudinal employment stability and mobility as career differentiation and used advanced methods in sequence analysis to estimate the degree of complexity of individual 7-year-long employment trajectories. We compared complexity across six cohorts of Italian young workers who experienced their first employment episode between 1974 and 2001: even though our analyses cannot test causal relations, they allowed us to display the pace at which exposure to labour market deregulation is associated with longitudinal early-career differentiation. The Italian case is telling in this respect because flexibilization targeted young workers, who, as a result, became highly vulnerable to unprotected employment. The specific attention to changes over time in a single context is conducive to speculate on the linkages between institutional configurations and employment outcomes.

By adopting a social stratification perspective, we found support for the persistent inequality hypothesis. Indeed, the results highlighted gender differences in the pace at which early-career complexity increased, and higher exposure to complexity for low-educated individuals – and increasingly so for women belonging to more recent cohorts. Complementary explanations to be tested by future research refer to the direct role of other life course events (e.g. childbirth) in the context of underdeveloped care services and of the persistence of traditional gender roles for labor market participation.

We argue that the poorer employment conditions for younger cohorts than for older ones are not due to fewer occupational opportunities – which were supposed to increase in number due to labour market deregulation – but are due to the decline in the opportunities of employment stability (or continuity) in the long run. This suggests the negative implications for inequalities across generations in the opportunities available to fulfil individual's expectations in other life domains (such as family formation), for which employment security is instrumental.

Additionally to the limitations highlighted above that hint at prospects for future work, we were not able to account for crucial dimension because of the lack of information in the data. Specifically, we could not trace the geographical mobility of workers for the first job for all cohorts in the sample: this might be of great interest in light of the persistent North–South Italian divide grounded mostly on differentials in labour market

opportunities, which still trigger massive migration from the South to the North. Moreover, a specific focus on sectors of activity might suggest complementary explanations to increasing early-career complexity. In fact, the secular trend towards a service economy – that is characterized by a wider spectrum of jobs and, usually, higher workers' flexibility with respect to the manufacturing – can have favored more complex careers.

Notwithstanding these limitations, our results represent an important point of departure for extending the analysis to countries that experienced similar patterns of institutional change. Moreover, the findings are relevant for future analyses on the aftermath of the economic crisis after 2008 on early careers: more frequent layoffs of temporary workers and more frequent joblessness generated higher complexity, which will have severe negative consequences for future income and pensions, but also erode career opportunities due to weakening human capital and increasing skills mismatches.

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