

Title

The (de)standardization of the life course in Portugal. A cross-cohort analysis using entropy analysis

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Abstract

This article addresses the question of life course de-standardisation in Portugal, drawing on a trajectory-based holistic approach. The de-standardisation hypothesis presupposes that, over recent decades, occupational and family trajectories became gradually more variable. Our methodological strategy to test these hypotheses uses entropy measures and assesses how cohort and gender influence standardisation. We used these measures to determine the heterogeneity in co-residence and occupational trajectories between the ages of 7 and 35. In a second stage, we used regression models to estimate if cohort, gender, education and socio-economic class associate with co-residence and occupational entropy. The paper draws on data from the ‘Family Trajectories and Social Networks: The life course in an intergenerational perspective’ research project (n=1500), which included questions on co-residence and work employment history of Portuguese individuals born in three different cohorts (1935-40; 1950-55; 1970-75). Findings show that standardisation and de-standardisation dynamics coexist, operating differently depending on the life domain and the stage of life. While early family trajectories are more standardised in younger cohorts, later stages are slightly more diverse, particularly among women. As far as occupational trajectories are concerned, formative years are much more standardised in the younger cohort, while adulthood is de-standardised in all cohorts. We discuss results in light of the life course regime and gendering hypotheses.

Keywords

Portugal; De-standardisation; Life course; Entropy; Gender; Cohorts

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Introduction

Over the last two centuries, the life course has become increasingly predictable and standardised in many western countries. The standardisation hypothesis (Kohli, 2009 [1986]) describes the implications of modernisation and economic rationality in industrialised societies. Standardisation would be the “historical corollary of [Weberian] bureaucratic rationalisation” (Levy, 2013, p. 23), an assumption that fits with broader theories of social modernisation (Brückner & Mayer, 2005; Inglehart, 1997). Life course scholars argue that the process of standardisation culminated on the Fordist period of capitalism, which occurred in the decades following the Second World War.

Theoretically, the highly standardised life courses experienced in many countries after World War II are pinned on the abundance of jobs and the development of the Welfare State in industrialised societies (Kohli, 2009 [1986]). Economic growth and the availability of stable employment allowed for smooth transitions between school and labour market, which in turn fostered earlier family formation. During this period, life events, such as getting married and becoming a parent, were more common than before and likely to occur around the same age (Billari & Liefbroer, 2010). Age stratification systems, resulting from the public regulation of daily life¹, supported life course standardisation. While the organisation of work-related careers into a sequence of school-employment-retirement shaped *normal work biographies*, private lives were expected to follow a sequence of marriage and parenthood that produced *normal family biographies* (Kohli, 2007, p. 258). Consequently, at the culminating point of *organised modernity*, individual life courses were organised into defined stages, interspersed by transitions between different social roles and statuses (Aboim, 2010). Furthermore, the standardised life course regime entailed a gendered division of labour, which ascribed different roles for men and women, according to the archetypes of the *male breadwinner* and the *female homemaker* (Widmer & Ritschard, 2013).

Since the late 1960s, researchers have been identifying a break in the standardisation of life course patterns, as trajectories became less streamlined than before. Developments in the role of the State and the ‘new spirit of capitalism’ are vital to frame this evolution (Boltanski & Chiapello, 1999; Lash & Urry, 1987). Observers have commented that in late modernity, life course sequences are less associated with socially prescribed roles and increasingly dependent on individual choice (Beck & Beck-Gernsheim, 2002; Furlong & Cartmel, 2007 [1997]; Giddens, 1997). These sociologists argue that contemporary life courses are increasingly different because individuals are less constrained by institutions and less likely to follow the imperatives of tradition and repetition. Other authors argue that processes generated by globalisation, namely economic de-regulation, welfare state retrenchment and labour market reform, have led to uncertainty and instability in individual life trajectories (Buchholz et al., 2009; Mills & Blossfeld, 2006). On the other hand, demographers frame these changes as entailing a Second Demographic Transition (SDT) (Lesthaeghe, 1995, 2010), brought on by secularisation, reduced dependence on family and a growing emphasis on self-fulfilment (Billari & Liefbroer, 2010, p. 60).

¹ For example, by establishing legal ages to get married, start and leave school, military conscription, enter and retire from the labour market, etc.

Scholars suggest that recent history can be divided into four distinct historical periods or regimes, according to life course patterns and institutional contexts: *traditional* (until ca. 1900); *industrial* (1900-55); *Fordist/Welfare State* (1955-1973); *post-industrial* (1973-to the present) (Mayer, 2004). Furthermore, variations in institutional structures (including the structure of the welfare state, labour market, education, among others) and path dependency shape different typologies of life course regimes at the country level (Leisering, 2002; Möhring, 2016). However, in the *longue durée* of history, the economic and institutional circumstances leading to the highly standardised life course of the third quarter of the 20th century would be an outlier, preceded and succeeded by more unpredictability (Heinz, 2002; Kohli, 2009 [1986]). Thus, the de-standardisation of the life course, namely the decline of fixed and predictable trajectories, would be a leading indicator of entry into a new phase.

Life course scholarship has flourished as a field of research during the last decades (Elder, Johnson, & Crosnoe, 2002; Mayer, 2004). Consequently, the hypotheses of life course standardisation and de-standardisation have been receiving extensive critical scrutiny. Researchers have made efforts to conceptualise the different phenomena leading to changes in life course patterns in late modernity (Brückner & Mayer, 2005). Moreover, they have developed measures for adequately measuring the heterogeneity of life course trajectories (Elzinga & Liefbroer, 2007; Studer, Ritschard, Gabadinho, & Müller, 2011).

Concepts such as de-standardisation, differentiation and pluralisation are often used when debating about recent changes in the life course. Using them ‘as an ensemble’ is problematical because they refer to trends that can be contradictory or concurrent (Chaloupková, 2010; Hofäcker & Chaloupková, 2014). De-standardisation refers to a lower level of uniformity between individual life courses, implying that some stages and transitions occur at different points in the lives of individuals (Brückner & Mayer, 2005; Bühlmann, 2013). Differentiation entails a greater variability of states and transitions and is associated with higher unpredictability and uncertainty in individual life courses (Brückner & Mayer, 2005; Chaloupková, 2010; Van Winkle, 2018). Lastly, pluralisation refers to a synchronic multiplication of situations (family or occupational) in a population (Brückner & Mayer, 2005; Widmer, Ritschard, & Müller, 2009).

Initial research on the de-standardisation hypothesis was not conclusive (Brückner & Mayer, 2005; Elzinga & Liefbroer, 2007). The process seems more heterogeneous and less generalised than foreseen (Brückner & Mayer, 2005). Variability in family trajectories increased as intimate relations became more secular, as shown by the increase in the numbers of civil partnerships, divorces and separations (Brückner & Mayer, 2005; Elzinga & Liefbroer, 2007). Moreover, conjugality and parenthood are increasingly postponed (Billari & Liefbroer, 2010). On the other hand, a standardised life course remains as an archetype in many European countries (Aboim, 2010; Elchardus & Smits, 2006). However, even though Elzinga and Liefbroer (2007) showed evidence for increasing de-standardisation, Van Winkle’s (2018) emphasises that there are significant and relatively stable cross-national differences in levels of family life course differentiation. Therefore, it is entirely possible for the life course to become less standardised due to changes in the timing of major life course transitions, even while individual trajectories remain relatively undifferentiated. According to Van Winkle (2018), this results from powerful social forces (such as familism and natalism), which promote less-complex family pattern, namely in Southern and Eastern Europe.

Recent research has found consistent evidence of a de-standardisation of family trajectories in several European societies (Zimmermann & Konietzka, 2018). However, the pace and intensity of de-standardisation depend on the country, educational groups and gender, suggesting that theoretical explanations need to be fine-tuned to each context. Moreover, while findings are consistent with both the de-standardisation hypothesis and SDT, researchers also concluded that changes tend to be overstated and path dependency understated (Van Winkle, 2018). Lastly, Zimmermann and Konietzka (2018) suggest that de-standardisation is primarily linked with lower education, which leads authors to associate it with deprivation rather than with deliberate choices and less institutional control. Conversely, while there are significant cross-national differences in employment trajectories, research suggests that career complexity has not increased substantially (Biemann, Fasang, & Grunow, 2011; Van Winkle & Fasang, 2017).

For the most part, studies on changes in life course patterns and trajectories have focused on Western and Central Europe, often leaving out Southern Europe (Brückner & Mayer, 2005; Elchardus & Smits, 2006; Elzinga & Liefbroer, 2007; Hofäcker & Chaloupková, 2014; Nico, 2013; Van Winkle, 2018; Van Winkle & Fasang, 2017). Furthermore, research has focused on what are now post-industrialised countries, with sophisticated, albeit varied, welfare regimes (Esping-Andersen, 1999).

Studying a Southern European country with a specific path to modernity is likely to provide insights into the processes of life course standardisation and de-standardisation. Portugal endured a right-wing dictatorship and has experienced fast-paced social, institutional and economic change during the last decades. Moreover, the country lacks several of the implied factors for standardisation. For example, the rural exodus occurred late (from the late 1950s). Industrialisation occurred late and even at its peak mobilised a smaller part of the labour force than in industrialised societies.

On the other hand, the welfare state developed slowly and until 1974 it did not aim at extending social and citizenship rights. Instead, it was an effort to contain them, by an authoritarian state strongly influenced by the social doctrine of the Catholic Church (Adão e Silva, 2002). Even with the strong political mobilisation after the 1974 Revolution, pre-industrial structures continued to exert influence over labour relations and the promotion of welfare, which still rely on subsidiarity and traditional reciprocity mechanisms (Portugal, 2014).

Therefore, our key research question is this: does the thesis of life course de-standardisation hold for Portugal? A preliminary question is to what extent was there ever a standardisation of the life course, given the specific socio-economic and institutional conditions of the Portuguese context? To answer these questions, we compare household and occupational trajectories of different Portuguese cohorts, namely born during the Estado Novo dictatorship and around the transition to democracy. While others dimensions can be considered, family and employment are essential to characterise life sequences.

The article is structured as follows: The first section includes an overview of family behaviour, the labour market and educational system in Portugal, concluding with an outline of our main hypotheses concerning the standardisation and de-standardisation of family and occupational trajectories. In the second section, we describe the data and methodology. The third section contains the results from empirical analyses. In the final section, we discuss the empirical findings and the limitations of the data and analytical strategy.

Framing the Portuguese case

The evolution of family behaviour in Portugal

Transformations in private and family life in Portugal can be described as encompassing a double movement (Wall, 2011). The first movement, which precedes the Revolution, was characterised by a “renewed familism” and was fostered by the conjugalisation of family life. A second movement occurred after the 1974 Revolution and accelerated after Portugal joined the European Economic Community (later EU) in 1986. This impulse was characterised by lower gender role differentiation, generalised access to contraception, increased valuing of education, and the emergence of individualist values (A. N. d. Almeida, Guerreiro, Lobo, Torres, & Wall, 1998; Wall, 2011).

These movements are evidenced by how family demography evolved in Portugal. After peaking in the aftermath of the 1974 Revolution, marriage rates have fallen sharply, while age at the start of conjugal life increased. Moreover, since 2007 most marriages are non-religious (Pina & Magalhães, 2014). However, a lower propensity to get married does not entail a lower adherence to conjugality, as demonstrated by the high number of cohabitations followed by marriage. On the other hand, divorce, which was restricted until 1975, due to limitations imposed by a Concordat with the Vatican, increased significantly. Currently, the crude divorce rate is among the highest in Europe and remarriage rates are high (in 2012, they were 1 out of every four marriages) (Pina & Magalhães, 2014). Furthermore, the proportion of births out of wedlock, which until the 1980s was always below 10%, currently exceeds 50%, a figure close to that observed in Nordic and Anglo-Saxon societies. Overall, these trends point toward the diversification of conjugal life resulting from less stringent norms concerning conjugality, which no longer stigmatise divorce, cohabitation before marriage, or family recomposition (Wall, 2005).

Data on household structures shows a continuous decrease in the average family size and a change in its composition (Delgado & Wall, 2014). Still, most adults are in conjugal cohabitation and childlessness in couples is far from the norm. In fact, “conjugality” and “parenthood” remain strongly associated (Cunha, 2007; Ramos, Atalaia, & Cunha, 2016). Declining average household size has been associated with the nuclearisation and individualisation of co-residence (Wall, Cunha, & Ramos, 2014, pp. 58-59) and to lower fertility (Cunha, 2014). Nevertheless, the proportion of individuals living alone increased, because of migrations to pursue education, postponement of family formation and residential autonomy of elders, who are more likely to live alone in later life (Guerreiro & Caetano, 2014; Wall et al., 2014).

Transformations in work and employment

The theory of an unfinished modernisation or ‘semi-peripheral’ position of Portugal are useful in framing how employment and labour relations have evolved (Machado & Costa, 1998; Santos, Reis, & Marques, 1990). The institutional context of employment and work in Portugal changed dramatically after 1974. Before then, most of the population began working in their early teens. Informal work was widespread in agriculture, which was the main economic activity until the late 1960s. Informality was equally prevalent in manufacturing and service work.

With the Revolution, worker and civil rights² were instituted. At first, new labour regulation led to a decrease in informal labour and increased the minimum age to start working. Working full-time for an undetermined period was established as the norm (Rodrigues, 1985), to which contributed the new state-owned enterprises (created through nationalisations) and the expansion of Administration and Welfare Services. Despite advances after the Revolution, pre-capitalist relations persisted in many areas of society, including public and private employment, as evidenced by the prevalence of informality and illegality (Santos, 1993). On the other hand, the deregulation of labour relations started in 1976, when fixed-termed contracts were introduced. When Portugal joined the EEC (1986), labour rights retreated further (Casaca, 2010; Santos, 1993). Flexibilisation practices became widespread when the Portuguese business fabric was exposed to external competition, and its strategy has mainly been oriented towards cost reduction (Kóvacs & Casaca, 2007).

Female participation in the labour market grew exponentially over the last 50 years. As late as the mid-1960s, although many women worked informally, only 13.1% were formally employed. The Wars of Independence in the former African colonies and massive emigration in the 1960s led to the feminisation of labour. After the 1974 Revolution, female participation intensified with the growth of services and the growth in the number of jobs in the public sector. In 2011, women made up 47.4% of the total workforce. Moreover, the activity rate of women aged 25-34 reached 88.8%. The growth of female participation in the labour market occurred in parallel with the flexibilisation of labour relations (Kóvacs, 2005). Moreover, female employment grew in a highly segregated labour market. Women are over-represented in less protected occupational sectors and more likely to have worse working conditions, receive lower wages, have fewer career development opportunities and to be partially excluded from benefits and social protection (Ferreira, 1993, 2010).

Research questions and hypothesis

In this article, we use retrospective survey data to describe cross-cohort variation in co-residence and occupational trajectories. Specifically, we investigate the hypotheses relating to standardisation and de-standardisation of family and employment in Portugal, by comparing the trajectories of men and women from three cohorts.

The standardisation hypothesis associates modernisation with stable employment and a gendered division of paid and family (domestic) work. In western European countries, these features are likely to be found in cohorts that reached adulthood after the Second World War. Conversely, the de-standardisation hypothesis suggests that variability in both occupational and co-residence trajectories is likely to be found in recent cohorts. Moreover, because de-standardisation is also a gendered process, demands for flexibility and adaptability are more likely to impact on female occupational trajectories (Widmer & Ritschard, 2013).

However, the specificity of the Portuguese context advises reworking these general hypotheses. During the Estado Novo regime, institutions and social norms exerted strict control over family formation patterns. *We hypothesise that this led to a standardisation of family trajectories.* Conversely, *we expect less standardisation in recent cohorts, because of changes to the timing of life-course transitions.*

² Only then were the following established: the right to work, to just and favourable working conditions and to unemployment benefit; freedom of association, unionisation and demonstration; the right to strike; the right to collective bargaining; and the prohibition of lock-out (Santos et al., 1990).

Regarding occupational trajectories, *we hypothesise a high level of de-standardisation in older cohorts*. In part, this would stem from the country's low degree of industrialisation, but also because of the institutional conditions during the *Estado Novo* regime. *Changes in State regulation and the fast pace of economic transformation after 1974 are likely to yield some standardisation of occupational trajectories in recent cohorts*. Overall, this is more likely among highly educated individuals, because they are more suited to secure stable positions in an increasingly competitive and deregulated labour market.

The effect of education

Education enrolment is likely to play an important role in both family (co-residence) and occupational trajectories. Overall, longer schooling careers are associated with the postponement of family formation and childbearing because normative expectations about the life course establish that these transitions (and roles) follow finishing school and starting work. However, we have to consider the strong generational contrasts on enrolment in education in Portugal.

During the *Estado Novo* regime, the State devaluated education beyond essential reading and writing abilities. Only an elite had access to education: for the majority of the population a simplified schooling (3 or 4 years), which focused on indoctrinating nationalism and an overly conservative set of Roman Catholic values, was considered sufficient (Mónica, 1978; Nóvoa, 1996). Moreover, education was ostensibly gendered, with girls required to attend fewer classes than boys. Exceptions allowed parents not to enrol their children (due to financial circumstances and distance from schools).

During the 1960s, the regime began to view education as a tool for planning state action and economic development (Stoer, 2008, pp. 18-19). Reforms widened access to education, namely by extending primary schooling and increasing access to higher levels of education. Liberalisation was a condition for the regime to survive and keep up with the pace of industrial development. At the time, Portugal had a meagre percentage of college graduates in comparison to other European societies. Furthermore, the existing elitist universities were not able to train enough technical and scientific personnel for economic, social and cultural development. Nevertheless, equal access to school only became a priority after the 1974 Revolution. Massive investments were made to expand the infrastructure. High schools were created and new universities established. Compulsory and universal education was effectively set to 6 years and later to 9 years (1986). During the early 2000s, compulsory schooling was extended to twelve years.

This backdrop frames the evolution of education and qualifications among the Portuguese population. At the beginning of the 1960s, one-third of the population was unable to read or write. Despite a rapid decline in the illiteracy rate, even as late as 2011, 5% of the population was formally illiterate, mostly senior women. Secondary education enrolment increased sharply during the 1980s and 1990s. Nevertheless, as late as 2011, only one-third of the population aged 25-64 had completed upper secondary education, far below the EU average.

Furthermore, while university enrolment increased sharply, the rate of young adults (25-34 years old) with a university diploma only reached 17.3% in 2011. In recent decades, women have thrived in higher education, and women's educational attainment seems to be less dependent on their class background (J. F. d. Almeida, Casanova, Costa, & Machado, 2003, p. 67). Nevertheless, recent progress did not eradicate the structural deficit of qualifications among the Portuguese population or significantly reduce the gap with most Western/Central European countries.

Lastly, as enrolment in education was shorter in older cohorts, many individuals entered the labour market at a very early age. Additionally, as they lacked qualifications to get secure and well-paid jobs, many needed to work and accumulate resources before making familial transitions. Therefore, due to the late extension of compulsory education and widespread access to university, *we expect to find differences between a large, mostly older and less qualified segment of the population, and younger more qualified individuals*. Additionally, *we expect the heterogeneity of co-residence states to evolve differently for men and women, with women's trajectories likely to be more diverse*.

Data and Methods

Dataset

Data were collected through a national survey conducted for the “Family Trajectories and Social Networks: The life course in an intergenerational perspective” project (TFRS). One of the objectives of the TFRS was to test the relationship between modernisation/social transformation and diversification of life courses by comparing individuals from different cohorts. The size of the total sample was 1500 respondents, subdivided into three cohorts (1935-1940; 1950-1955; 1970-1975). We selected these cohorts because of their distinct social, historical, and institutional frameworks that we presumed to result in substantially different trajectories. The cohort born between 1935 and 1940 had its formative years during the dictatorial, politically repressive and socially retrograde Estado Novo. They also lived through significant historical events, such as the hardships of World War II and the Colonial War. The cohort born between 1950 and 1955 grew up during the Estado Novo but experienced first-hand (during young adulthood) the massive social and political transformations that followed the Revolution of April 25th, 1974. The youngest cohort, born between 1970 and 1975, represents the population that grew up in a democratic regime and reached adulthood after Portugal joined the European Union.

The difference in cohort longevity limits viable comparisons between individual trajectories. Therefore, our analyses consider the interval between the ages of 7 and 35, which is the timeframe experienced by the three cohorts. We are aware that life course literature often studies the life course starting at age 15-18. This option is justifiable based on the assumption that significant life transitions occur after completion of secondary school (individuals would start working, enter vocational training or enrol in tertiary education). However, that was hardly the case for most of Portugal, until recently. Therefore, we are also interested in assessing how education, and namely short schooling careers, impact on the standardisation and de-standardisation of the life course.

Procedures and measures

Measuring state heterogeneity

Our methodological strategy was partly inspired by the life course approach developed in NCCR-LIVES (Widmer & Ritschard, 2009, 2013)³. We conducted Sequence Analysis and Entropy Analysis, using the TraMineR package for the R statistical software (Gabadinho, Ritschard, Müller, & Studer, 2011). To address our research questions, we

³ Applying Sequence Analysis to social sciences was originally proposed by Abbott (1986; Abbott & Hrycak, 1990). Usage of this approach has been increasing over the last three decades, and currently there is an important corpus of literature (for a broader review, refer to Aisenbrey & Fasang (2010)). Empirically, it aims to identify patterns of similarity and differentiation in individual trajectories. Theoretically, it has been defined as a tool “that can reduce the imbalance between the core concepts of transition and trajectory in life course research; sequence analysis can bring the trajectory, the actual “course” back into research on the life course.”(Aisenbrey & Fasang, 2010, p. 421).

defined a limited number of states for each trajectory. The co-residence (or family) trajectory describes with whom individuals lived between the ages of 7 and 35. Twelve possibilities were considered: alone; with two biological parents; with one biological parent; with two biological parents and others; with partner; with partner and children; with partner, children and others; with partner and others; with children, without partner; with children and others, without partner; with biological parent and stepparent; others. The occupational (or employment) trajectory considered seven situations: stable employment; unstable/precarious employment⁴; unemployment; at home (housework); education; retired; other. Trajectories are described according to a sequence of states that correspond to the individual situation each year. The time unit is the year⁵.

Data stems from a research project whose objective was to reconstruct trajectories and there are no missing data. Consequently, our analysis uses all cases. However, a few cases lacked detailed information for a few segments (8 out of 12531 co-residence sub-sequences and 110 out of 7439 occupational sub-sequences). Respondents were included even if some information was missing and coded as ‘other/missing’. In sum, 1500 trajectories were reconstructed: 446 born between 1935 and 1940; 518 born between 1950 and 1955; and 536 born between 1970 and 1975.

The measure of entropy

The measure of entropy (Shannon, 1948) allows a holistic analysis of trajectories. Entropy can be used as an indicator of heterogeneity associated with a distribution for which measures such as the mean or variance are irrelevant (Widmer et al., 2009, p. 260). We calculated a Transversal Entropy Index, which is a measure that oscillates between zero when all the cases are in the same state at a given time, and one when there is an equal proportion of cases in all possible states. The measure is normalised as a function of the maximum number of possible states. It enables us to read the synchronic diversity of states of a given population (Gabadinho et al., 2011). Higher values at a given time mean a greater diversity of situations and thus a de-standardisation of life courses. Conversely, lower values mean higher homogeneity in situations and thus standardisation. Therefore, this is a key measure to assess the hypothesis of standardisation and de-standardisation. Higher values at a given time mean a greater diversity of situations and thus a de-standardisation of life courses. Conversely, lower values mean higher homogeneity in situations and thus standardisation. Therefore, this a key measure to assess the hypotheses of standardisation and de-standardisation.

Entropy (transversal or synchronic) : if p_i is the proportion of cases in state i in at given time, transversal

$$h(p_1, \dots, p_a) = - \sum_{i=1}^a p_i \log(p_i) \quad \text{entropy is} \quad \frac{h(p_1, \dots, p_a)}{\log(a)}, \quad \text{where } a \text{ is the size of the alphabet (Gabadinho et al., 2011, p. 20).}$$

⁴ Under ‘unstable/precarious employment’, we considered nonstandard employment relations, i.e. situations that “depart from standard work arrangements in which it was generally expected that work was done full-time, would continue indefinitely, and was performed at the employer’s place of business under the employer’s direction” (Kalleberg, 2000, p. 341). In Portugal, this corresponds mostly to fixed-term contracts or informal employment arrangements, as part-time employment is residual.

⁵ For technical reasons, in the graphics, age is presented as $n+1$.

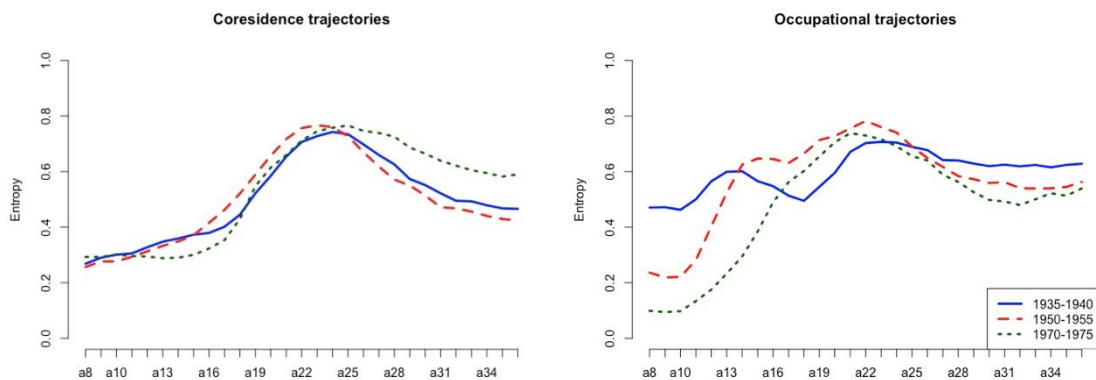
Results

We begin by presenting the results of entropy by gender and cohort⁶. Subsequently, we explore the relationship between entropy measures, education and socio-economic status.

Assessing (de)standardisation through entropy measures

Figure 1 presents the average chronological entropy associated with the co-residence and employment trajectories of those surveyed. Entropy associated with trajectories evolve very differently in each cohort. Concerning co-residence trajectories and regardless of cohort, entropy peaks around age 24, subsequently decreasing sharply. The two older cohorts have a nearly identical profile. However, the diversity of situations is lower after age 25 in the 1950-55 cohort. Conversely, diversity of family situations between ages 28 and 35 is higher in the 1970-75 cohort. On the other hand, diversity is lower in adolescence as heterogeneity decreases between ages 10 and 19.

FIGURE 1 - TRANSVERSAL ENTROPY BY COHORT (FROM 7 TO 35 YEARS OF AGE)

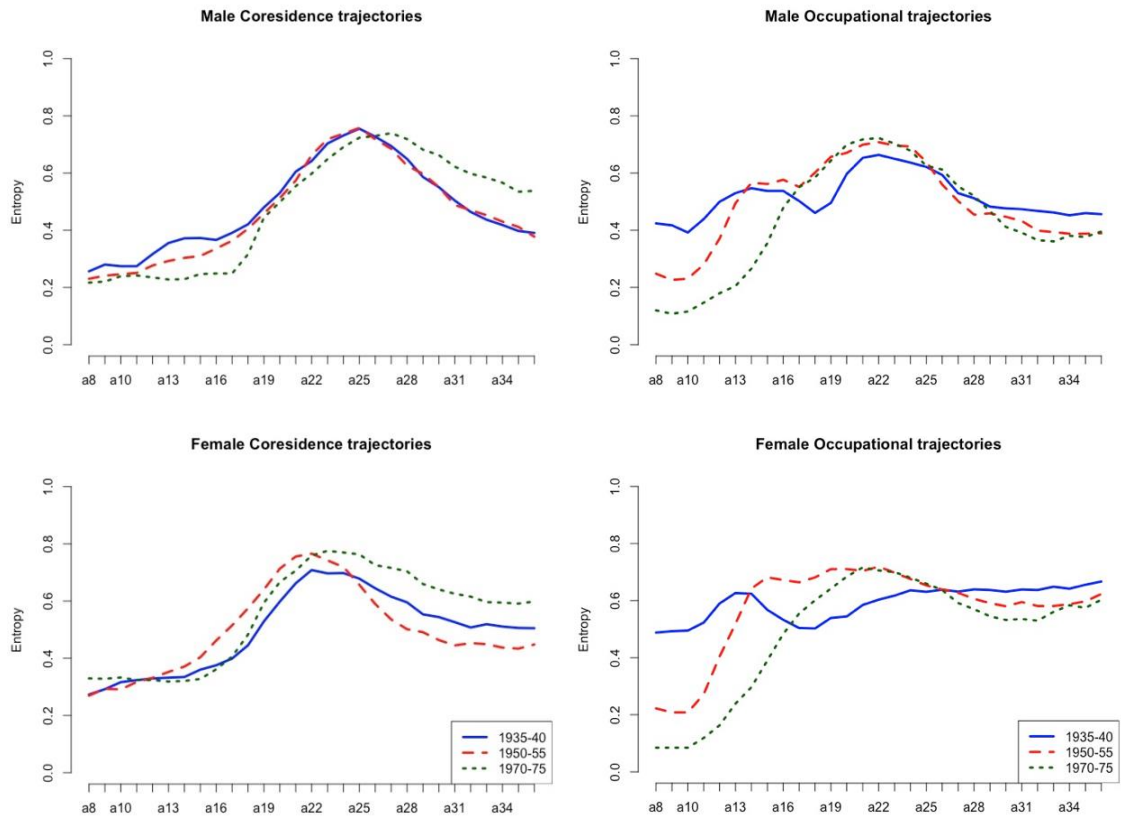


Entropy associated with occupational trajectories is high, but profiles vary depending on the cohort. For the oldest cohort, entropy is highest at younger ages, peaking at 24 and remaining stable afterwards. In the 1950-55 cohort, entropy is lowest until age 12, increasing very sharply until age 15, remains high until peaking around age 22, and decreases after that age. For the 1970-75 cohort, entropy is low until age 15, continuously increasing until age 21 and decreases sharply afterwards. Data show a decrease in heterogeneity (i.e. standardisation) in occupational trajectories during childhood. Conversely, it shows an increase starting in adolescence.

Combining cohort and gender allows a more detailed reading of transversal entropy (Figure 2). Starting with co-residence trajectories, men from the first two cohorts have an almost identical profile, with entropy peaking around 25, sharply decreasing after that age. In the 1970-75 cohort, entropy associated with male trajectories peaks later and is comparatively higher towards the end of the period between ages 25 and 35. The same is also noticeable for trajectories of women from the same cohort. Entropy in female co-residence trajectories in the 1950-55 cohort peaks at age 21, falling sharply afterwards. Finally, entropy in the 1935-40 cohort lies halfway between the two other cohorts. In conclusion, using entropy measures, we found a higher variation between cohorts in female co-residence trajectories.

⁶ An overview of the sequence of states and average time spent in each state can be found in the Appendix.

FIGURE 2 - TRANSVERSAL ENTROPY BY COHORT AND GENDER (FROM 7 TO 35 YEARS OF AGE)



Regarding male occupational trajectories, entropy is quite high in the transition between the second and third decades of life, regardless of cohort. After age 23, entropy decreases, with a sharper decrease in the 1970-75 cohort compared to the older cohorts. For female trajectories, entropy is also high between ages 16 and 22, especially for the 1950-55 and 1970-75 cohorts. While in the 1935-40 cohort, subsequent evolution is virtually rectilinear, for the other cohorts there is a very subtle decrease, with an entropy level after age 25 always higher than among men. Higher female participation in the job market in younger cohorts occurred in a more uncertain context.

Accounting for entropy

We went on to analyse the relationship between the transversal entropy of co-residence (Table 1) and occupational trajectories (Table 2), socio-economic background and education as a function of cohort and gender. We resorted to three models of linear regression in which explanatory variables were introduced sequentially. The first model (1a and 2a) only considered gender and cohort effects. In the second model (1b and 2b) we added a gender-cohort interaction effect. In the third model (1c and 2c) we added a social class indicator and individuals' educational attainment levels⁷.

A first observation is that all models yielded very modest results, for both co-residence and occupational entropy. Gender and cohort did not have a significant effect over co-residence entropy (model 1a). When the gender-cohort interaction effect was introduced (model 1b), the cohort had a significant effect, with lower levels of entropy being associated with the 1970-75 cohort. However, that same interaction term indicated that entropy associated with female trajectories tends to be higher in the same cohort. The cohort effect and gender-cohort interaction term become non-significant with the inclusion of education and socio-economic status. Adding education and socio-economic class improved the model marginally. In this model, the cohort effect for those born between 1970 and 1975 became non-significant, whereas the interaction term gender-cohort remained positively associated with female trajectories. Having a higher education diploma is associated with lower levels of entropy in co-residence trajectories. Conversely, entropy is higher in the co-residence trajectories of individuals who have higher economic and cultural capital, namely Entrepreneurs and Executives, and Professionals and Managers. This is a puzzling result, for which social and geographical mobility can be proposed as tentative explanations.

TABLE 1 - REGRESSION MODELS FOR CO-RESIDENCE TRANSVERSAL ENTROPY

	Entropy of co-residence trajectories		
	1a	1b	1c
(Intercept)	0.361***	0.369***	0.365***
Women	0.032	-0.030	-0.020
1935-40	ref.	ref.	ref.
1950-55	0.044	0.027	0.036
1970-75	-0.027	-0.113*	-0.104
Women *1950-55		0.023	0.018
Women *1970-75		0.123*	0.124*
Education level – primary			ref.
Education level – lower secondary			0.038
Education level – upper secondary			-0.011
Education level – tertiary (university)			-0.076*
Parental Social Class - EE			0.111**
Parental Social Class - PM			0.095*
Parental Social Class – SE			0.064
Parental Social Class - RE			ref.
Parental Social Class - IW			0.058
R²	0.003	0.005	0.010
Residual Standard Error	0.013	0.013	0.013
F	2.395	2.641*	2.554**

⁷ Social classes were classified according to the ACM class typology (J. F. d. Almeida, Machado, & Costa, 2007; Costa, Mauritti, Martins, Machado, & Almeida, 2000). The simplified typology consists of five major classes: EE – Entrepreneurs and Employers; PM – Professionals and Managers; SE – Self-employed; RE – Routine Employees; IW- Industrial Workers (including Agricultural Workers).

TABLE 2 REGRESSION MODELS FOR OCCUPATIONAL TRANSVERSAL ENTROPY

	Entropy of occupational trajectories		
	2a	2b	2c
(Intercept)	0.388***	0.397***	0.373***
Women	-0.053*	-0.099*	-0.086
1935-40	ref	ref	ref
1950-55	0.131***	0.120*	0.111*
1970-75	0.255***	0.189***	0.152**
Women *1950-55		0.016	0.005
Women *1970-75		0.094	0.084
Education level – primary			ref
Education level – lower secondary			0.069*
Education level – upper secondary			0.056
Education level – tertiary (university)			-0.024
Parental Social Class - EE			-0.016
Parental Social Class - PM			-0.030
Parental Social Class - SE			-0,054
Parental Social Class - RE			ref
Parental Social Class - IW			-0.125**
R²	0.046	0.047	0.057
Residual Standard Error	0.022	0.022	0.022
F	25.093***	15.823***	8.905***

* $p < 0,05$; ** $p < 0,01$; *** $p < 0.001$

Results for occupational entropy are slightly different (Table 2). Firstly, the cohort had a significant impact, with younger cohorts being strongly associated with higher levels of entropy (model 2a). Overall, the inclusion of the interaction term did not improve the model (model 2b). However, in this model, female trajectories are associated with lower levels of entropy. When the socio-economic class indicator and level of education were included, the association between women and entropy became non-significant. Conversely, higher entropy in occupational trajectories was associated with mid-low levels of education, while lower entropy levels were associated with individuals from a working-class background (Industrial Workers).

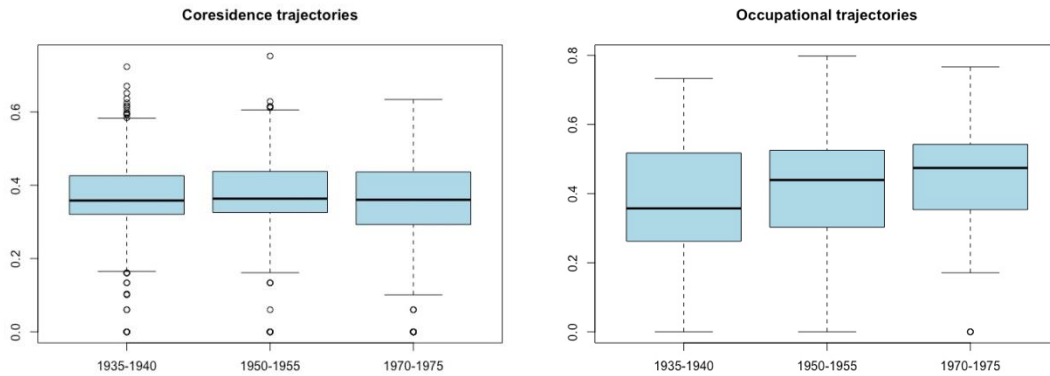
And what about within trajectory variation?

Longitudinal or within-trajectory entropy is a derived measure, which assesses change and diversity along individual trajectories. The measure also varies between zero, when an individual remains in a given state during the whole period, and one when an equal amount of time is spent in all possible states⁸. Therefore, this measure evaluates whether individual courses are becoming more or less complex (considering only occupational and family situations). It does not assess the level of standardisation or de-standardisation for a population or cohort. Nonetheless, as claims of a de-standardisation of the life course are often coupled with assertions that individual trajectories are increasingly more volatile, we present its distribution and provide a brief analysis.

⁸ Longitudinal entropy is close to the Turbulence index proposed by Elzinga and Liefbroer (2007). Turbulence is a composite index that takes into account the variability of time spent in different states and the number of sub-sequences within a sequence. As argued by Widmer and Ritschard (2013, p. 167) this makes it more difficult to interpret. Furthermore, Turbulence varies with the order of states thus justifying our preference for Entropy.

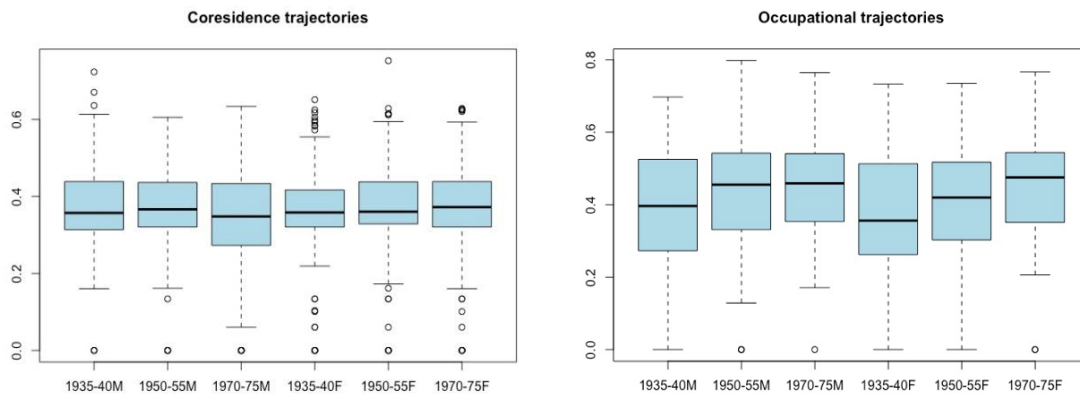
Data show a cohort effect on occupational trajectories, with longitudinal entropy increasing in more recent cohorts (Figure 3). Consequently, entropy measures associated with occupational trajectories reveal contradictory trends: while transversal entropy tends to be lower during childhood and adolescence in younger cohorts, longitudinal entropy increases, which points to more diversity in individual courses. However, the same is not true for co-residence trajectories, where statistical comparison shows that longitudinal entropy in the 1970-75 cohort is slightly lower than in the 1950-55 cohort.

FIGURE 3 - LONGITUDINAL ENTROPY BY COHORT (FROM 7 TO 35 YEARS OF AGE)



Additional analysis (Figure 4) shows that the cohort influences the longitudinal entropy of occupational trajectories of both men and women, even though female trajectories increase more sharply. Conversely, longitudinal entropy associated with co-residence trajectories does not change significantly between cohorts.

FIGURE 5 - LONGITUDINAL ENTROPY BY COHORT AND GENDER (FROM 7 TO 35 YEARS OF AGE)



We ran statistical tests on the distribution of longitudinal entropies (Table 3). Results show that the entropy of male co-residence trajectories for the 1970-75 cohort is lower than in the two older cohorts, whereas longitudinal entropy of female trajectories is similar. Regarding occupational trajectories, we found higher values of longitudinal entropy in recent cohorts. However, there are differences based on gender: for women, entropy increases from cohort to cohort; for men, entropy only increased from the 1935-40 cohort to the 1950-55 cohort.

TABLE 3 - STATISTICAL DIFFERENCES IN LONGITUDINAL ENTROPY BY COHORT AND GENDER

		Co-residence	Occupational
Total	F	3.016*	34.903***
	<i>t</i> (1935-40 / 1950-55)	n.s.	-3.931***
	<i>t</i> (1935-40 / 1970-75)	n.s.	-7.981***
	<i>t</i> (1950-55 / 1970-75)	2.421*	-4.577***
Men	F	4.566*	8.595***
	<i>t</i> (1935-40 / 1950-55)	n.s.	-2.476*
	<i>t</i> (1935-40 / 1970-75)	2.142*	-4.042***
	<i>t</i> (1950-55 / 1970-75)	2.824*	n.s.
Women	F	n.s.	28.411***
	<i>t</i> (1935-40 / 1950-55)	n.s.	-3.066**
	<i>t</i> (1935-40 / 1970-75)	n.s.	-7.001***
	<i>t</i> (1950-55 / 1970-75)	n.s.	-4.708***

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Statistical tests confirm that longitudinal entropies (co-residence and occupational) are positively correlated (Table 4). However, correlation is weak, and further analysis combining gender and cohort revealed that this association is only significant for women and the 1970-75 cohort; all other correlations are statistically non-significant. Therefore, we may state that among women in the youngest cohort, the increase in diversity in occupational trajectories is associated with greater heterogeneity of co-residence trajectories.

TABLE 4 - CORRELATION BETWEEN CO-RESIDENCE AND OCCUPATIONAL LONGITUDINAL ENTROPY

	Total	Men	Women
Total	0.088**	0.055	0.114**
Cohort 1935-40	0.072	0.064	0.074
Cohort 1950-55	0.066	0.041	0.086
Cohort 1970-75	0.160***	0.112	0.193***

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Discussion and Conclusions

In this article, we discussed the hypotheses of life course standardisation and de-standardisation relating to the Portuguese case. We employed a measure of entropy (derived from sequence analysis), which presupposes that the regularity of individual states is a proxy for life course standardisation. Furthermore, we also explored within-sequence differentiation. Our results suggest two major conclusions and some comments.

A first conclusion is that the dynamics of standardisation and de-standardisation coexist in the Portuguese context, operating differently depending on the life domain and the stage of life. Regarding co-residence trajectories, the first two cohorts are highly de-standardised during childhood and adolescence. Several factors can explain the greater variability in the first life stage of individuals from these two cohorts. Migration (rural exodus, emigration, the movement to/from the former colonies) often implied the departure of one or two parents, leaving children with a single parent or in the care of other family members. Additionally, economic hardship associated with housing pressure in urban centres, poverty in rural society, or strategies focused on property maintenance, made it common for individuals from these cohorts to live with their extended families.

Co-residence trajectories after the age of 25 are reasonably homogeneous for the 1950-55 cohort, coinciding with the “golden age” of family life in Portugal. Conversely, for the 1970-75 cohort, the similarity is higher during childhood and adolescence, while variability increases between the ages of 25 and 35. Privatisation and nuclearisation of family life seem to be at play here, operating at different points of each cohorts’ trajectories. For example, for those born during the early 1970s, living in an “atypical” household was less common in early life. These are the children of the generation that lived through the “renewed familialism” of the 1960s and 1970s (Wall, 2011). After 25 years of age, there are small signs of change, to which contribute states such as “living alone” and “with partner” (related to the postponement of transitions). However, in what pertains to life course differentiation, longitudinal entropy is stable across cohorts. If anything, our results show that men born 1970 and 75 had more stable family trajectories than their older counterparts did. Therefore, we found no evidence of an increase in the heterogeneity of cohabitation states experienced by individuals throughout their lives, thus confirming the findings of Van Winkle (2018).

Overall, occupational trajectories seem to be more involved. Moreover, they seem to be changing at a faster pace. For the 1935-40 and 1950-55 cohorts, we found greater diversity in occupational trajectories during childhood and adolescence. One primary reason is that many individuals from these cohorts started working early in their lives and only a few were able to follow extended schooling careers. On the other hand, in the 1970-75 cohort, transversal entropy is lower until the age of 18. Therefore, the extension of compulsory education generated more synchronised transitions to the labour market and thus a level of standardisation. This finding is consistent with the literature on institutional change, namely with the assertion that Fordist wage relations were institutionalised late in Portugal (Santos et al., 1990). Furthermore, it also shows how quickly changes in State regulation paved the way for more uncertainty in work-related trajectories, via labour market de-regulation (Kóvacs, 2005; Matos & Domingos, 2012). Longitudinal entropy is higher among individuals from the most recent cohort, which means employment trajectories are becoming more unpredictable and unstable.

A second conclusion concerns the gendered dimension of standardisation (and de-standardisation). One pillar of standardisation is a model of wage relations in which women are confined to the domestic sphere. In this regard, the Portuguese case seems

distinct from Western/Central European countries. We did not find such sharp distinctions between the roles and participation spheres of men and women, as found by researchers from Switzerland or Germany (Brückner & Mayer, 2005; Levy & Widmer, 2013). Therefore, the association of *modernisation* with *gendering of master statuses* (Krüger & Levy, 2001) does not seem to hold. Most Portuguese women from these cohorts were involved in work (formal or informal). Additionally, while male trajectories stabilized after the age of 25, female trajectories remained quite heterogeneous in adulthood. As shown, women are more exposed to precarious forms of labour throughout their careers.

Our conclusions largely confirm the interest of studying the Portuguese case, namely because it does not fit conformably with the narrative that standardisation was necessarily followed by de-standardisation. The mismatch can be attributed to several factors, from the country's semi-peripheral situation in Europe to its late and incipient industrialisation. On the other hand, it is also important to consider that major events in the Portuguese social and political chronology created counter-cyclical effects to trends emanating from Central and Western Europe.

During the Estado Novo, the Portuguese life course regime seems to have combined elements of the traditional and industrial regimes (Mayer, 2004). After the Revolution, Portuguese institutions changed and massive efforts were made to achieve a 'European Modernity'. Within a few years, institutional bases were created for what Mayer labelled a Fordist or late industrial life course regime (Mayer, 2004). Consequently, in Portugal, the standardisation of some life stages was primarily due to institutional changes occurring after 1974. For example, institutionalisation and extension of public schooling under Democracy shaped longer and more even schooling trajectories.

Changes to labour relations resulted in more stable occupational trajectories, particularly for those born in the early 1950s. However, as employment relations were being institutionalised, pre-capitalist relations persisted, and flexible and precarious forms of labour emerged. Meanwhile, in Western Europe and North America, the 1973 oil crisis and subsequent economic crisis eroded the pillars of the status quo that upheld the conditions for a standardisation of the life course. These changes would soon affect Portugal, once again reshaping institutions and impacting individuals' life courses, especially as they were more likely to experience instability throughout their employment trajectories.

Life course sociologists (and others) have used expressions such as "the Golden Age", "Les Trentes Glorieux" or "Gemütlichkeit" to describe the post-war period (Bühlmann, 2008; Fourastié, 1979; Kohli, 2009 [1986]). Although most European societies certainly experienced a particular socio-cultural configuration during this period, the extent to which all its citizens experienced the underlying premises of stability and predictability is highly questionable (Goodwin & O'Connor, 2015). Likewise, applying similar premises to societies with different social structures and paths to the present is problematic. Our results about Portugal show that parsing recent history into three clear-cut periods with a corresponding life course regime is debatable; the phenomena of standardisation and de-standardisation can coexist. Therefore, assuming that recent changes entail the coming of new life course regime should also be regarded as a working hypothesis, not a conclusion. As Mayer stressed, while cohort comparisons may reveal differences, some of the underlying reasons are still nebulous and their meanings ignored (Mayer, 2004). Finally, we claim that changes to life course patterns can only be understood by carefully looking at the socio-economic and demographic features of each country, including their chronology.

Limitations

Our research has some limitations. One limitation concerns possible recall error, as respondents were asked to describe their trajectories going back up to 60 years (for the 1935-40 cohort). Using a life-calendar proved helpful. However, it was unrealistic to ask individuals for more detail than an account of a change in their status (on a yearly basis). This limitation might lead individuals to oversimplify their trajectories. Another limitation stems from the level of detail used in the coding schemes (states considered in Entropy Analysis). For example, our analysis of family trajectories through the lens of co-residence used more states than comparable research. Still, we performed analyses with a smaller number of states, and the results were robust. Cohort comparisons were limited by cohort longevity: for example, individuals from our younger cohort were only aged 35 to 40 years when they were interviewed. Finally, other dimensions of life course sequences should be considered in further research.

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APPENDIX A

**TABLE 5 - DESCRIPTIVE STATISTICS OF CO-RESIDENCE TRAJECTORIES
(FROM AGE 7 TO 35 BY COHORT AND GENDER)**

	1935-40			1950-55			1970-75		
	Total	M	F	Total	M	F	Total	M	F
Mean age of residential autonomy	22,2	23,0	21,6	21,8	22,7	21,2	21,8	22,8	21,1
Mean age at first cohabitation	23,6	25,2	22,5	22,7	24,4	21,5	24,0	25,5	23,0
Mean age at first child	25,5	26,9	24,5	24,7	26,6	23,4	26,2	27,7	25,3
Mean years living in state:									
<i>Alone</i>	0,5	1,0	0,2	0,7	1,2	0,4	1,7	2,0	1,4
<i>With two biological parents</i>	11,9	12,7	11,3	11,8	13,3	10,8	13,2	15,0	12,1
<i>With one biological parent</i>	1,2	1,3	1,2	1,0	1,0	0,9	1,1	0,9	1,2
<i>With two biological parents and others</i>	0,8	0,6	0,9	1,1	0,9	1,3	1,4	1,1	1,5
<i>With partner</i>	2,3	2,0	2,5	2,0	2,2	1,9	2,3	2,5	2,2
<i>With partner and children</i>	7,9	7,4	8,3	8,4	7,1	9,4	6,3	5,2	6,9
<i>With partner, children and others</i>	0,9	0,8	1,1	1,4	1,0	1,7	0,6	0,3	0,9
<i>With partner and others</i>	0,4	0,3	0,4	0,5	0,5	0,4	0,2	0,3	0,2
<i>With children, without partner</i>	0,3	0,1	0,4	0,2	0,1	0,3	0,4	0,0	0,6
<i>With children and others, without partner</i>	0,2	0,0	0,2	0,1	0,1	0,2	0,3	0,1	0,4
<i>With biological parent and step-parent</i>	0,2	0,3	0,0	0,2	0,2	0,2	0,1	0,2	0,1
<i>Others</i>	2,0	2,0	2,1	1,2	1,1	1,3	1,2	1,1	1,3

**TABLE 6 - DESCRIPTIVE STATISTICS OF OCCUPATIONAL TRAJECTORIES
(FROM AGE 7 TO 35 BY COHORT AND GENDER)**

	1935-40			1950-55			1970-75		
	Total	M	F	Total	M	F	Total	M	F
Mean age at first job	12,5	12,3	12,5	14,7	14,3	15,1	17,7	17,3	18,0
Mean years living in state:									
<i>Stable employment</i>	6,4	8,0	5,3	9,1	10,4	8,3	9,3	10,1	8,8
<i>Unstable/precarious employment</i>	12,8	12,7	12,9	8,8	8,9	8,8	6,4	6,5	6,3
<i>Unemployment</i>	0,3	0,2	0,3	0,4	0,4	0,4	0,9	0,7	1,0
<i>At home (doing housework)</i>	3,1	0,2	5,1	2,1	0,0	3,5	0,7	0,0	1,2
<i>In education</i>	5,0	5,2	4,8	7,5	7,3	7,6	11,2	10,9	11,4
<i>In other situations</i>	1,5	2,7	0,6	1,1	2,0	0,4	0,5	0,9	0,3
Proportion of individuals with 1+ years unemployed	2.9%	1.6%	3.8%	4.6%	5.2%	4.2%	15.9%	10.7%	19.1%