Non-regular Employment in Japan from the 1980s

By

Julen Esteban-Pretel
Junichi Fujimoto

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Julen Esteban-Pretel [†]

CUNY Queens College

Junichi Fujimoto [‡]

National Graduate Institute for Policy Studies

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Abstract

In Japan, unstable jobs have increased substantially since the 1980s. While a number of studies explore the source of increase in non-regular employment and its implications, there are still many issues to be uncovered. In this paper, we use the Japanese Labour Force Survey and Labour Force Survey Special Survey microdata to examine how the types of employment have shifted since the 1980s for workers disaggregated by age, gender, and marital status. In particular, we use two different concepts used in Japan to categorize worker by job security, one based on how the job is called at the workplace and the other based on the length of the contract, to obtain a fuller picture of job stability in Japan and its evolution over time. Our analysis reveals that the share of insecure jobs has increased in Japan since the 1980s widely across workers and firms of different characteristics.

Keywords: Non-regular employment; Life-cycle; Japan

JEL Classification: E24, J63, J64

1 Introduction

Over the last few decades, the labor market in many developed countries has shifted toward unstable jobs. Japan, once celebrated for *lifetime employment*, is no exception. The share of non-regular employees, who are typically on a term contract, has increased dramatically since the 1980s for both males and females. Such an increase in non-regular employment in Japan is intertwined with family and demographic issues in complex ways. For example, the increased participation rates of females and older individuals, who have a higher tendency to work in non-regular jobs than prime-age males, serve to increase the proportion of non-regular employees. At the same time, the increase in unstable jobs in Japan, where the social norm that makes males the main earner still persists, poses a serious challenge for younger individuals in forming marital relationships and having children. A comprehensive understanding of the issue of non-regular employment in Japan therefore requires a perspective that encompasses not only the labor market but also broader social and demographic structure.

This paper analyzes the Japanese Labour Force Survey (LFS) and LFS Special Survey microdata and provides a detailed information on the characteristics of insecure jobs in Japan and its changes over time. We first document the age profiles of key labor market variables for workers disaggregated by gender, education, and marital status. In particular, we use two different concepts used in Japan to categorize workers by job security, one based on how the job is called at the workplace and the other based on the length of the contract,[1] to present the age profiles of the proportion of workers in insecure jobs. While the distinction based on the former concept, regular (*seiki*) versus non-regular (*hiseiki*) employment, has been considered more important in recent years,[2] conducting analyses based on both concepts helps deepen our understanding of insecure jobs in Japan. Subsequently, we illustrate the age profiles of the flow rates between different labor market statuses, again for workers disaggregated by gender, education, and marital status. We then conduct further investigation of insecure jobs by exploring, for example, how the share of different employment types varies across industries, occupations, and firm size. We conclude our analysis by presenting such demographic statistics as the gender, marital status, and education compositions in each of the different labor market statuses.

Our main findings can be summarized as follows. Based on either categorization of workers, the proportion of individuals in secure jobs is higher for males than females, for those with more education, and within gender for married males and never married females. Secure jobs according to two categorizations exhibit a substantial overlap, but they have diverged over time. The share of males and females in insecure jobs have increased considerably since the 1980s under the categorization based on how the job is called, but

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[1]For further descriptions of these two concepts, see Section 3.1.
[2]See, e.g., Kambayashi and Kato (2016).

no such trend is observed for males under the categorization based on the length of the contract. Concerning worker flows, we find that for males, those married or having a college degree are more likely to obtain and keep regular jobs. For females, those with a college degree or some college education are more likely to flow into and stay in regular employment, while the opposite is true for married ones. Further investigation of the characteristics of regular and non-regular employment shows that regular employment is most prevalent in the secondary sector, but that the share of regular employees declined over time in all three industries. Similarly, the share of regular employees decreased for all occupations except for the managerial one, which has the highest share of regular employees. Turning to the analysis on demographics, we find that the majority of regular jobs is held by married males, while the majority of non-regular jobs is held by never-married females. We also find that non-regular employment in the period of 1984-1996 was dominated by women with high school or less education, but that over time, the share of female workers, and also some men, with some college and even college degrees increased.

The present paper contributes to the literature on non-regular employment in Japan.[3] Using the LFS data from 1986 to 2008, Asano, Ito, and Kawaguchi (2013) examines how changes in demographic and industrial compositions contributed to the increase in non-standard workers. A similar decomposition exercise is performed by Ohashi (2017) using the Employment Status Survey data in 2002, 2007, and 2012. Kambayashi (2017) contrasts regular and non-regular employment and provides an in-depth analysis of the Japanese labor market. Unlike the present paper, however, none of these studies conduct worker flow analysis. Esteban-Pretel, Nakajima, and Tanaka (2011) compute worker flows disaggregated by various worker characteristics, but they do not disaggregate workers by education or marital status and consider only the worker categorization by the length of the contract. More recently, Esteban-Pretel and Fujimoto (2020b) use the LFS microdata to explore how flows into and out of non-regular employment vary across age, gender, education, and marital status. The present paper expands Esteban-Pretel and Fujimoto (2020b)'s analysis by considering two different categorizations of workers by job security and by providing more comprehensive descriptions of non-regular employment in Japan since the 1980s.

The rest of this paper is organized as follows. Section 2 discusses the data used for the analysis and our methodology for constructing the worker flows. Sections 3 and 4 discuss the stock and flow variables obtained from our analysis. In Section 5, we further investigate insecure jobs by showing how employment types vary across employment categories and industries and then by providing detailed demographic information. Section 6 concludes.

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[3]In dealing with the issue of job security, the present paper also relates to the literature that examines how lifetime employment in Japan changed over time. See, for example, Ono (2010), Hamaaki, Hori, Maeda, and Murata (2012), and Kambayashi and Kato (2017) on this topic.

2 Data and Construction of Flow Rates

2.1 Data

Our analysis, which spans from 1984 to 2018, uses household survey microdata of the LFS and LFS Special Survey collected by the Statistics Bureau of Japan. The LFS is the official source of unemployment statistics and is conducted in the last week of each month.[4] Each household is surveyed for two consecutive months, is out of the survey for the next ten months, and is then surveyed again for another two consecutive months. Given this structure, the LFS is comparable to the Current Population Survey (CPS) in the United States and provides, as explained below, information on gross worker flows like the CPS. Since 2002, the LFS has a basic questionnaire, which the household answers every month it is interviewed, and a special questionnaire with further questions such as educational attainment and income, which the household answers only on the fourth interview. Prior to 2002, the LFS and the LFS Special Survey surveyed issues similar to the LFS basic and special questionnaires, respectively. These two surveys, however, were independent and surveyed distinct sets of households.

2.2 Construction of Gross Worker Flows

We construct gross worker flows by applying the method used by Shimer (2007) to the LFS data. Given the survey design of the LFS, roughly half of the sample in each month is in their second month of the first or second year of survey. Hence, by using information on labor market statuses in two consecutive months, we can observe the transition among those statuses.[5] Esteban-Pretel, Tanaka, and Meng (2017) follows this approach to conduct the flow analysis using the LFS data, but we expand it by incorporating employment categories which are of interest for our analysis. That is, we study the flows in and out of unemployment (U), inactivity (I), and either regular (R) and non-regular (N) employment or *jouko* (J)[6] and temporary/daily employment (T).

   Our first step is to match individual records over two consecutive months using information on unique household identifiers,[7] gender, and year and month of birth. We then compute the sample-weighted gross flows across states $\{R, N, U, I\}$ or $\{J, T, U, I\}$. In the

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[4]The definition of unemployed in the LFS is given by those who has no job and did not work at all during the reference week, who is ready to work if work is available, and who is engaged in any job-seeking activity or was preparing to start business during the same week. This definition of unemployment is consistent with the definition by the International Labour Organization.

[5]Ohta and Teruyama (2003) adopt an alternative method for constructing flow data, which is to use information on employment status in the previous month. Since this information is contained in the second- and forth-month surveys, they do not have to match individual data for consecutive months. As pointed out in Esteban-Pretel, Tanaka, and Meng (2017) the method used in this paper and the one used in Ohta and Teruyama (2003) produce series which are very close to each other.

[6]See Section 3.1.2 for an explanation of this employment category and the difference with *seiki*.

[7]We construct the unique household identifier by employing the information of the sample area code, interviewed period, and household's characteristics.

former case, we obtain the following sixteen flows: RR, RN, RU, RI, NR, NN, NU, NI, UR, UN, UU, UI, IR, IN, IU, and II. Let w_{it} be the sample weight of worker i at month t in the LFS. Let G_t^{XY} be the group of workers who move from state $X \in \{R, N, U, I\}$ to state $Y \in \{R, N, U, I\}$ at month t. Then, the gross flow from state X to Y is given by

$$(1) \qquad F_t^{XY} = \sum_{i \in G_t^{XY}} w_{it}.$$

The transition probabilities follow from the flows. For example, the transition probability from regular employment to unemployment in time t is computed as

$$(2) \qquad p_t^{RU} = \frac{F_t^{RU}}{\sum_{Y \in \{R,N,U,I\}} F_t^{RY}}.$$

Other transition probabilities are computed similarly.

3 Age Profiles of Stock Variables

We begin by analyzing the age profiles of the share of employees in stable jobs, using two different categorization of workers by job security, and discuss their main features and changes over time. Then, to understand these findings in a broader context of the labor market, we proceed to explore the age profiles of the participation and unemployment rates. For much of the analysis, we show the results for three periods, 1984–1996, 1997–2007, and 2008–2018, and for 5-year age groups from 20–24 to 60–64. The three time periods can be considered as (i) pre-deregulation, (ii) deregulation, and (iii) post-deregulation phases, respectively, in terms of legal restrictions on the hiring of non-regular employees, as explained below. In December 1996, job categories for which dispatched workers are allowed were increased from 16 to 26, which can be considered as a beginning of the deregulation phase of non-regular employees. A series of events in 2008, however, reversed the trend in deregulation on the hiring of non-regular employees. In April 2008, the amended Part-time Worker Law, which prohibited discriminatory treatment of part-time workers satisfying certain conditions, came into effect. Further, due to the global financial crisis, the contract of many dispatched workers were discontinued in late 2008, which led to social pressures toward better protection of dispatched workers.

3.1 Share of Employees in Stable Jobs

In Japan, two different concepts have been widely used for categorizing workers by job security. We discuss in turn the share of workers in stable jobs according to each of the two concepts.

3.1.1 Share of Regular (*Seiki*) Employees

We begin by analyzing regular employees, who are called *seishain* or *seiki shain* in Japanese and are typically hired under an indefinite term contract. Employees who are non-regular in this sense are called *hiseiki shain* and include, for example, dispatched workers, contract workers, and part-timers. Since *seishain* and *hiseiki shain* typically differ completely in terms of wages, career developments, and legal protection against firings, in recent years the concept of regular employees as defined here is considered more important than that of *jouko*,[8] another concept of stable jobs discussed in the next subsubsection.

Figures 1(a)–(d) present, for workers of both genders and of different education levels, the fraction of regular employees among all employees excluding executives. The data is shown for three periods, 1984–1996, 1997–2007, and 2008–2018, and for 5-year age groups from 20–24 to 60–64.[9] The figure contains 12 subfigures, each of which representing a particular combination of gender (both genders, males, females) and education (all education levels, high school or less education, some college education, college degrees). Figure 1(a) shows the analysis for all education levels combined. Note that during 1984–1996, the fraction of regular employees is 84.8 percent for the 20–24 age group and increases to 89.9 percent for the 25–29 age group. It then decreases as employees become older, and remains close to 80 percent for employees aged between 35 and 59. For employees aged 60–64, the fraction of regular employees drops to 59.0 percent, reflecting the retirement age. Turning to 1997–2007, we find that the age profile of the share of regular employees now exhibit an inverted U-shape. This is a result of the decrease in the share of regular employees from the 1984–1996 period, which occurred for all age groups but more substantially for young and old workers than for prime age workers. More precisely, the share of regular employees fell by roughly 20, 10, and 12.5 percentage points for employees aged 20–24, 25–29, and 60–64, respectively, while the fall is less than 10 percentage points for other age groups. The share of regular employees continued to decline from 1997–2007 to 2008–2018, but compared to that from 1984–1996 to 1997–2007, the decline is less drastic and more evenly distributed across all age groups. Figures 1(b)–(d) present the share of regular employees for males and females with different levels of education. There are two observations. First, in any given period, the fraction of regular employees for each age group tends to increase as the education level increases. This pattern is most evident for workers aged 25–29 and for the period 2008–2018, where the fraction of regular employees is only 64.5 percent for workers with high school or less education, while the corresponding figure for workers with some college education and for those with a college degree are 70.4 percent and 82.1 percent,

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[8] See, e.g., Kambayashi and Kato (2016), on this point. As a reflection of such changes in perception over time, prior to 2013, the main LFS contained information on *jouko*, while the question asking whether the employment is regular appeared in the LFS Special Survey (prior to 2002) or the LFS Special Questionnaire (2002 onward). Since 2013, this question has been moved to the main LFS.

[9] When disaggregating workers by education, we set the first time period to 1986–1996 since information on education is not available in the LFS Special Survey for 1984 and 1985.

respectively. Second, the age profile of the fraction of regular employees for each education level has shifted down over time, just as for workers with all education levels combined.

Once we disaggregate by gender, we find that the age profiles differ substantially between males and females. As observed from Figures 1(e)–(h), the fraction of regular employees for male workers is higher and reaches the peak at older ages than that for both genders combined. Note that while the fraction of regular employees decreased over time, for prime age males it is still high even in the most recent period. In 2008–2018, for male employees of all education levels combined, the regular type comprises more than 80 percent for the age group 25–59 and more than 90 percent for the age group 35–54; for males with a college degree, the fraction of regular employees equals 82.7 percent for those aged 20–24 and increases with age up to the peak of 95.4 percent at age 45–49.

As observed from Figures 1(i)–(l), the share of regular employees for females not only is lower than that for males, but also exhibits age profiles that differ completely from those of males. Most noticeably, in any given period, the fraction of regular employees for females peaks in the 20s and falls with age up to the 40s. The share of the regular type then increases for employees in their 50s and decreases again for those aged 60–64. Such age profiles contrast with those of males, where the fraction of regular employees is relatively low for workers aged 20–24, increases with age, and peaks in the 40s. Another remarkable finding is that for females, the fraction of regular employees decreased over time much more than for males, especially from 1984–1996 to 1997–2007 and for those without college degrees. In 2008–2018, for females with high school or less education, the fraction of regular employees exceeds 50 percent only for the age group 20–24.

Let us now explore, using Figure 2, how the share of regular employees vary with marital status, namely, never married, married, and widowed or divorced. The key finding for males is that the decrease in the fraction of regular employee over time is much more pronounced for those who have never married than males in other marital status. From 1984–1996 to 2008–2018, the share of regular employees among never married males aged 15–64 decreased from 88.0 percent to 71.7 percent. Over the same period, the share of regular employees among married males decreased from 94.5 percent to 88.9 percent and that for widowed or divorced males decreased from 87.5 to 77.4 percent.

In contrast to males, among females, the share of regular employees is highest for those who have never married. An explanation for this result is that married females often move from regular employment to non-regular employment (such as part-time jobs), either directly or by going through spells of inactivity. Over the three periods, however, the share of regular employees decreased for all age groups for both married and never married females. Among female employees aged 15–64 who have never married, 82.4 percent of them had a regular job in 1984–1996; only 60.3 percent of them did so in 2008–2018. Over the same period, the share of regular employees decreased from 53.8 percent to 38.1 percent for married females and from 66.5 percent to 45.2 percent for widowed or divorced females.

6

3.1.2 Share of *Jouko* (Long-term Employees)

We now discuss employees called *jouko* in Japanese, who are employees other than executives hired under either an indefinite term contract or a fixed term contract with the term exceeding 1 year.[10] Employees (excluding executives) who are not *jouko* are either *temporary* employees, whose term of contract is between 1 month and 1 year, or *daily* employees, whose term of contract is less than 1 month. Until recently, whether an employee is a *jouko* was the key information in the LFS on the job security enjoyed by the employee.

Figure 3 presents the age profiles of the fraction of *jouko* among employees other than executives. This time, we divide the period 2008–2018 into 2008–2012 and 2013–2018, since it is known that a seemingly innocuous change in the LFS questionnaire caused a sudden increase in the number of *jouko* in 2013.[11] Because of this issue, the share of *jouko* prior to and after 2013 cannot be directly compared. Also, due to data availability, the age profiles by education can be computed only from 2002.[12]

We keep the discussion of *jouko* relatively brief, since we consider regular employees discussed above as more important. There are three main findings from Figure 3. First, as seen from Figure 3(a), for employees of both gender and all education levels combined, the age profile of the share of *jouko* exhibits an inverted U-shape. In other words, the share of *jouko* is relatively low when employees are young, increases as they enter the prime age, and then falls for employees in their 60s. Note from Figures 3(e)–(h) that for males the same pattern largely applies regardless of education. In contrast, as seen from Figures 3(i)–(l), for females, the share of *jouko* generally peaks in their 20s and then tends to decline with age. Second, for each age group excluding 20–24, the fraction of *jouko* increases with education and is substantially higher for males than for females. Third, even disregarding the period 2013–2018 which cannot be directly compared with previous periods, the share of *jouko* among male employees did not fall much over time. Thus, the analysis of *jouko* alone would suggest that there is little evidence for a decline in job security. This observation contrasts with that from the analysis of regular employees presented above.

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[10]More precisely, the LFS refers to the employees mentioned here as *ippan* (= ordinary) *jouko* and these employees plus executives as *jouko*. For the sake of brevity, in this paper we use the term *jouko* to refer to *ippan jouko*. While the LFS has used either *regular employee* or *long-term employee* as the English translation of *jouko*, in this paper we refer to them as *jouko* and reserve the term regular employee for the type of employees discussed in Section 3.1.1.

[11]In the LFS questionnaire, those hired under an indefinite term contract and those hired under a fixed term contract with the term exceeding 1 year were, prior to 2013, put into a single category, *ippan jouko*, whereas they are split into separate categories since 2013. This change in the questionnaire led to an unexpected consequence whereby the sum of these two sub-categories of *ippan jouko* in January 2013 exceeded the number of *ippan jouko* in December 2012 by 2.88 million (= 6.6 percent increase in 1 month), while the number of temporary and daily employees decreased by 2.47 million, or 31.6 percent, over this one month period.

[12]Information on *jouko* is from the main LFS while that on education is from the LFS Special Survey (prior to 2002) or the LFS Special Questionnaire (2002 onward). Prior to 2002, the LFS and LFS Special Survey data cannot be matched, so the share of *jouko* by education cannot be computed.

Figure 4 presents the results where workers are disaggregated by marital status instead of education. The key observation is that the share of *jouko* is substantially higher for married males than for other males, while the opposite is the true for females. This result parallels the findings for regular employee discussed in the previous subsubsection.

3.2 Participation and Unemployment Rates

3.2.1 Participation Rate by Education

Figure 5 displays the average values of the participation rate, which is defined as $\frac{E+U}{E+U+I}$, where E denotes total employment.[13] For all individuals combined, note from Figure 5(a) that the participation rate increases from the age group 20–24 to 25–29, decreases for the age group 30–34, and then increases again. As is well known (and confirmed from Figure 5(i)), such a non-monotonic age profile of the participation rate at relatively young ages is due to many females staying out of the labor force while their children are small and re-entering the labor force once children become older. The corresponding age profiles by education, shown in Figures 5(b)–(d), indicate that the participation rate tends to increase with education. This is not, however, necessarily the case between individuals with high school or less education and those with some college education. One reason for the relative low participation rate of those with some college education is that compared to males, females have a lower participation rate and also a greater share among junior college graduate. Another reason, which mostly involves those aged 20–24, is that this education category includes individuals currently attending junior college or college who are less likely to participate in the labor market.

Figures 5(e)–(h) plot the participation rates for males. We observe that the participation rate is quite high for males between age 25 and 59, while it is only around 40 percent for males aged 20–24 with some college education due to the reason described above. We also observe that for males, the participation rate has remained quite stable. In 1984–1996, 83.9 percent of males aged 15–64 participated in the labor market, while the corresponding figures in both 1997–2007 and 2008–2018 were 85.1 percent. For males with high school or less education, however, the participation rate has declined over the three periods for all age groups between 25–29 and 50–54. For example, In 1984-1996, the participation rate of males with high school or less education was 97.5 percent at age 25–29 and 97.9 percent at age 30–34. The corresponding figures in 1997–2007 were 96.2 percent and 97.0 percent, while those in 2008–2018 were 93.8 percent and 94.5 percent.

The situation differs substantially for females in several dimensions, as observed from Figures 5(i)–(l). First, the participation rate for females is much lower than that for males, and as mentioned above, decrease at age 30–34. For all education levels combined, the

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[13]Total employment (E) includes regular employee (R), non-regular employee (N), and non-employees such as self-employed, executives, and family workers.

participation rate does not exceed 80 percent for any of the age group over the three periods. Second, over time, there is a trend against the characteristics of the female participation rate just mentioned. More precisely, unlike for males, the participation rate has increased substantially over time for females. In 1984–1996, 56.8 percent of females aged 15–64 participated in the labor market, while the corresponding figures in 1997–2007 and 2008–2018 were 60.3 percent and 65.6 percent, respectively. Remarkably, the participation rate of females aged 30–34, which was only 52.1 percent in 1984–1996, has increased to 70.4 percent in 2008–2018.

3.2.2 Participation Rate by Marital Status

Figure 6 displays the participation rates by marital status. Since the participation rate varies with marital status in a completely different fashion across genders, here we skip the discussion for both genders combined.

Note that for males, those who are married exhibit substantially higher participation rates than those with other marital statuses. In particular, the participation rate of married males aged 25–49 exceeds 99 percent in all three periods. In contrast, the participation rate of males who have never married peaks at age 25–29 and subsequently decreases with age. Strikingly, 10 percent or more males who have never married are inactive in their 40s. The age profiles of widowed or divorced males in general lie in between those of never married and married males.

As for females, the age profile of the participation rate for those who have never married has a similar shape as that of the male counterpart. This is not true for married females, who feature rather low participation rates especially at young ages. The situation has, however, changed gradually. In 1984–1996, the participation rate for married females was 40.4 percent for those aged 20–24 and 40.6 percent for those aged 25–29, while these figures increased to 49.9 percent and 58.5 percent in 2008–2018, respectively. Finally, note that for widowed or divorced females, there was a drastic increase in the participation rate from 1984–1996 to subsequent periods.

3.3 Unemployment Rate

3.3.1 Unemployment Rate by Education

We now turn to the unemployment rate, which is defined as $\frac{U}{E+U}$. Figure 7(a) depicts the age profile of the unemployment rate for all individuals combined. In all three periods, the age profile of the unemployment rate exhibits a U-shape, such that the unemployment rate is higher for young and old workers than for workers in the prime age.[14] Note that during

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[14]In Esteban-Pretel and Fujimoto (2012), we discuss such an inverted U-shape of the age profile of the unemployment rate for the period 1983–2008. Our analysis here confirms such age profile is present also in other periods.

1984–1996, the unemployment rate was less than 2 percent for workers aged 35–54, and less than 5 percent even for the age groups with the highest unemployment rate, 20–24 and 60–64. The unemployment rate, however, increased substantially from 1984–1996 to 1997–2007. In particular, the unemployment rate of those aged 20–24 increased from 4.5 percent to 8.3 percent. In contrast, from 1997–2007 to 2008–2018, the unemployment rate fell for workers aged 20–24 and 60–64, while it did not change much for other age groups. Figures 7(b)–(d) show how the age profile of the unemployment rate varies with education. A general finding over the three periods is that for each age group, the unemployment rate decreases with education. Among workers aged 20–24 and 60–64, however, those with some college education have the lowest unemployment rate in 1997–2007 and 2008–2018.

The age profiles of the unemployment rate for males, shown in Figure 7(e)–(h), exhibit a similar U-shape as those for both genders combined. Comparison of the age profiles for females in Figure 7(i)–(l) with those for males yield several interesting findings. First, the age profiles of the unemployment rate for females are also U-shaped, but the increase in the unemployment rate at old ages is quite modest compared to males. Second, females had higher unemployment rates than males for most age-education groups in 1984–1996, but this relationship has been reversed in subsequent periods. This is due to the fact that for females, the increase in the unemployment rate from 1984–1996 to the latter two periods was, for most age-education groups, smaller than for males.

3.3.2 Unemployment Rate by Marital Status

We now turn to the pattern of unemployment by marital status. A striking finding for male workers is that unemployment is much less prevalent for married males than other males and that this tendency has strengthened over time. From 1984–1996 to 2008–2018, the unemployment rate for married males aged 15–64 increased only slightly from 1.7 percent to 1.8 percent. Over the same period, the unemployment rate for never married males increased from 4.9 percent to 8.5 percent and that for widowed or divorced males increased from 6.3 to 6.9 percent. Thus, married males are strongly attached not only to the labor market, as discussed in Section 3.2.2, but also to jobs.

The finding above for males largely applies also to females. The unemployment rate is lowest for married females except at young ages and it has also been most stable over time for this group. This result, along with that for the participation rate, suggests that some of the married females who lose their job exit the labor market rather than becoming unemployed.

3.4 Income

We now turn to the age profiles of income. Figure 9 presents the average income, in the past year, of all individuals with positive income. Figure 9(a) shows the typical concave

age profile of income, where income increases with age from 20s to 50s and then decline for very old individuals. As expected, the age profile of income is steeper for males and for those with higher education level, such that the income gap between genders and across education levels is narrow at young ages and widens as individuals become older. In particular, as observed from Figures 9(c)(f)(i), the increase in income with age for females with high school or less education is quite small. In 2008–2018, the average income of such females at age 55–59 (1.92 million yen) is only 15 percent higher than the average income at 20–24 (1.67 million yen), whereas males with high school or less education aged 55–59 earn 114 percent higher income (4.84 million yen) than those aged 20–24 (2.26 million yen). A notable finding is that the income gap across education groups narrowed over time, largely due to the decrease in average income for those with a college degree. In 1986–1996, the average income of males with a college degree reached close to 10 million yen at age 50–54 and 55–59, while in 2008–2018, the corresponding figures were below 8 million yen.

Let us now explore how the age profiles of income vary with the labor force category. Figures 10–12 show the age profiles of the income of *jouko*, daily and temporary employees, and self-employed, respectively. Figure 10 indicates that even among *jouko*, there is a large gap in income by gender. Such a gender gap in income is most pronounced for those who are in their 40s or 50s and have high school or less education; for this group, the average income of males was more than twice as much as that of females in all three periods. The age profiles of income of daily and temporary employees presented in Figure 11 also exhibit a considerable gender gap, but more strikingly, indicate that income does not vary much with age and education for these employees. This property is especially true for females, with the average income not exceeding 2 million yen for any age-education group in 1997–2007 and 2008–2018. In contrast, the age profile of the income of self-employed workers generally increases with age and education, as observed from Figure 12. Note that during 1986–1996, self-employed workers with a college degree had, regardless of gender, upward sloping age-income profiles. In subsequent periods, the age-income profile of self-employed males with a college degree became concave, while the corresponding age profile for females remained upward sloping but flattened over time.

We now present the age profiles of income for the regular and non-regular employees. Note that for males, the age profiles of income of regular employees are, as shown in Figure 13 quite similar to those for *jouko*. In the case of females, however, income rises with age from 20s to 50s much more substantially for regular employees than for *jouko*. Figure 14 shows that the income of non-regular employees increases with age and education by much less than that of regular employees. Male non-regular employees have steeper age-income profiles than their female counterparts, but their age profiles flattened over time. For example, in 1986–1996, non-regular male employees of age 50–54 with a college degree had an average annual income of approximately 6 million yen, but in 2008–2018, none of the age-education group of non-regular males received average income exceeding 4 million yen.

11

Finally, note from Figures 13 and 14 that there are substantial gender gaps in income for both regular and non-regular employees, even between males and females belonging to the same age-education group.

4   Analysis of the Age Profiles of Flow Rates

Section 3 shows that the share of employees in stable jobs is higher for males than females, tend to increase with education, and within gender is the highest for married males and never married females. As is well known, the age profile of the participation rate for women is M-shaped, while it has an inverted U-shape for men. The participation rate is higher for men than for women, but the gender difference is fairly small among the never married. The age profile of the unemployment rate is generally U-shaped and the level is lower for women, more educated workers, and married individuals. In this section, we construct worker flows between labor market statuses in order to understand the mechanisms behind these findings.

4.1   Flow Rates involving Regular and Non-regular Employment

4.1.1   Flow Rates by Gender

We now explore how the transition between different labor market statuses vary with age and gender. Here we use only the data from 2013, for which the information on whether one is a regular or non-regular employee in the first of the two consecutive months is available, and compute the average monthly transition rates between regular employment (R), non-regular employment (N), unemployment (U), and inactivity (I).

Figure 15 shows the age profiles of the transition rates for all education levels combined. Each panel contains the age profiles by gender as well as for both genders combined. Below, we mostly focus on explaining the age patterns for males and females, since the age profile for both genders combined lies in between them.

Figure 15(a)–(d) shows the transition rates from regular employment. Note that the probability that a regular male employee aged below 60 remains a regular employee in the subsequent month is very high, exceeding 97 percent for all age groups between 20–24 and 55–59. As a result, regular male employees aged below 60 have a very low probability of transiting into unemployment or inactivity. It is noticeable, however, that more than 1 percent of regular male employees aged between 20 to 34 become non-regular employees in the subsequent month. In a stark contrast to their younger counterparts, regular male employees aged 60–64 have a much lower monthly probability of continuing as regular employees (90.8 percent) and much higher probabilities of turning into non-regular employees (8.2 percent), being unemployed (0.5 percent), or being inactive (0.5 percent). The age profiles of the transition rates of female regular employees are qualitatively similar to those

of male counterparts. For females, however, the transition rate from regular employment to regular employment reaches its peak in the 20s and gradually declines with age, and then drops substantially at age 60–64. The flip side of this observation is that the rate of transition from regular to non-regular employment increases almost monotonically with age for females aged 30 or above. In contrast, the likelihood of moving from regular employment to unemployment is similar for males and females. Finally, the transition rate from regular employment to inactivity for females is higher than that for males at any age group and has a noticeable spike at age 30–34, which suggests that having a child induces some regular female employees to exit the labor market. Except for the oldest age group, however, the rate of transition from regular employment to inactivity is quantitatively low even for females: it is only 0.6 percent even for females at age 30–34.

The flows from non-regular employment, shown in Figure 15(e)–(h), exhibit marked differences across genders. As observed from Figure 15(e), the age profile of the rate of moving to regular employment has an inverted U-shape for non-regular male employees. This transition rate is approximately 4 percent for non-regular male employees aged 20–24 and then tends to increase with age up to age 45–49, where the corresponding figure is approximately 9 percent. The chances of switching from non-regular to regular employment subsequently decreases with age, but remains above 6 percent even for males aged 60–64. In contrast, for females, the transition from non-regular to regular employment is highest for those in their 20s, at around 4 percent, and becomes less likely as age increases. Overall, except for the age group 20–24, non-regular male employees are much more likely to move to regular employment than their female counterparts. Non-regular male employees also have higher chances of moving into unemployment, but lower chances of continuing as non-regular employees or becoming inactive, than non-regular female employees.

The age profiles differ substantially across genders also for the rates of transition from unemployment, presented in Figure 15(i)–(l). As observed from Figure 15(i), for males, the rate of transition from unemployment to regular employment is around 3 to 4 percent for those aged below 55 and around 2 percent for older workers. In contrast, for unemployed females, the likelihood of becoming regular employees decrease substantially with age: the average monthly transition rate from unemployment to regular employment is 5.5 percent at age 20–24, 2.5 percent at age 40–44, and 0.6 percent at age 60–64. Figures 15(i)–(l) show even greater differences between males and females. Unemployed females aged 25 to 59 are more than twice as likely to become non-regular employees or inactive than the male counterpart. On the flip side, compared to unemployed females, unemployed males are much more likely to remain unemployed. For those aged between 25 and 54, the transition rate from unemployment to unemployment remains close to 85 percent for males and 70 percent for females.

Figure 15(m)–(p) shows the transition rates from the state of inactivity. The age profiles of the likelihood of moving from inactivity to regular or non-regular employment are

similar across genders and are mostly downward sloping. Compared to females, however, males tend to have a higher probability of transiting from inactivity to regular employment. In contrast, females have a higher chance of switching from inactivity to non-regular employment, one reason being that many female workers who leave the labor market to take care of small children subsequently re-enter the labor market as part-timers or other non-regular employees. Among the four age profiles of the transition rates from inactivity, the one from inactivity to unemployment exhibits the greatest difference across genders. While the rate of transition from inactivity to unemployment is very close for males (1.3 percent) and for females (1.4 percent) at age 20–24, it becomes much higher for males (4.1 percent) than for females (2.5 percent) at age 25–29. The gender gap in this rate widens at age 30–34 and begins to shrink in the late 40s, but except for the age group 20–24, inactive males are more than twice as likely to switch to unemployment compared to inactive females. A potential explanation for this finding is that compared to inactive females, inactive males have stronger preferences for a regular employment and therefore, when they do not readily find a regular job, they are more willing to continue to search for one as an unemployed. Finally, the transition rate from inactivity to inactivity decreases from the age 20–24 to 25–29 and then increases with age for males, while it increases monotonically with age for females.

4.1.2 Flow Rates by Education

Figures 16–18 show the same age profiles as in Figure 15 for workers disaggregated by education. Some of the age profiles are noisy due to small number of observations in certain age-education groups, but these figures nonetheless convey several important facts.

For males, the first important finding is that regular employees with a college degree are very strongly attached to regular employment. In particular, transitions from regular employment to unemployment or inactivity are almost negligible for males aged below 60. Moreover, males with a college degree have higher chances of moving into regular employment from non-regular employment, unemployment, or inactivity than males with less education. In contrast to such sharp implications for males with a college degree, comparisons between males with some college education and males with high school or less education do not yield very clear-cut messages.

Just as for males, regular female employees with a college degree are more strongly attached to regular employment than regular female employees without a college degree. Among those aged 15–64, 97.7 percent of regular female employees with a college degree remain as regular employees a month later; the corresponding figures for those with some college education and for those with high school or less education are 96.4 and 94.5 percent, respectively. Females with a college degree are also more likely to become regular employees from other labor market statuses. For example, among those aged 15–64, the rate of

14

transition from non-regular to regular employment is 2.4 percent for females with high school or less education and 2.3 percent for females with some college education, while it is 3.7 percent for females with a college degree.

Finally, comparisons of males and females belonging to the same education group reveal similar conclusions as for all education levels combined. In particular, for most age-education groups, males are more likely to transit into regular employment and are less likely to transit into non-regular employment or inactivity from any labor market statuses. Moreover, for almost any age-education group, males more likely to move to unemployment from non-regular employment, unemployment, and inactivity, but not from regular employment.

4.1.3 Flow Rates by Marital Status

Figures 19–21 show how the transition rates between different labor market statuses vary with marital status. Figure 19 shows the age profiles of these rates for workers who have never married. Remarkably, many of the transition rates of males and females are now much closer to each other compared to those for all workers in Figure 15. In particular, flows from regular employment are very similar between males and females except for certain age groups. Most noticeably, the age profile of the transition rate from regular employment to regular employment barely varies across genders.

The situation differs completely for those who are married. In fact, Figure 20 shows that much of the key gender differences in the transition rates observed in Figure 15 is due to different labor market behaviors of married males and females. Figures 19–21 indicate, as we would expect, that the chances of moving out of regular employment or the labor market itself are much higher for married females than for other groups of females. More strikingly, married males are much more likely to flow into regular employment and much less likely to flow out of regular employment than other groups of males, especially males who have never married. Thus, both inflows and outflows are relevant for the higher fraction of regular employees among married males, discussed in Section 2.

4.2 Flows Rates involving *Jouko* Employees

While we consider regular employee as a more important concept than *jouko* for thinking about job security, the fact that the relevant flow rates can be computed only from 2013 prevents analyzing how job security has changed over time. We thus complement the analysis in Section 4.1 by computing the flows between *jouko* (J), temporary or daily (T), unemployment (U), and inactivity (I). Here, we focus on the age profiles for all education levels combined, because the ones disaggregated also by education are fairly noisy due to small number of observations for some of the flows. Because of the jump in the number of *jouko* in 2013 mentioned above, this time we separate the period 2008–2018 into 2008–

15

2012 and 2013–2018 and refrain from comparing the results for 2013–2018 with those in the three previous periods.

Figure 22 illustrates the transition between these four labor market categories for the four periods for both genders combined. The first key observation is that, while the transition rates from *jouko* to *jouko* are very high, with more than 95 percent of *jouko* aged 25–54 continuing to be *jouko* the following month in all periods, these rates have fallen from 1984–1996 to 2008–2012 for all age groups. The drop in these rates are most noticeable for those aged 20–24 (from 97.4 percent in 1984–1996 to 94.3 percent in 2008–2012) and 60–64 (from 93.1 percent in 1984–1996 to 90.1 percent in 2008–2012). On the flip side, the transition rate from *jouko* to temporary or daily employment increased from 1984–1996 to 2008–2012 for all age groups; that from *jouko* to unemployment also increased for all age groups except 60–64. At the same time, the rates of transition from temporary or daily employment to *jouko* and that from inactivity to *jouko* both increased for all age groups. These findings imply that while the share of *jouko* did not decrease much over time as explained in Section 3.1.2, the flows into and from *jouko* have both increased. In that sense, *jouko* appears to have become less stable.

The corresponding age profiles for males, presented in Figure 23, also exhibit increased flows between *jouko* and temporary or daily employment. Increased flows from *jouko* to unemployment, however, is observed only for those aged below 50, while no such increase is observed for flows from *jouko* to inactivity.

The age profiles for females, shown in Figure 24, provide even clearer implications than those for males. First, from 1984–1996 to 2008–2012, the rate of transition from *jouko* to *jouko* decreased. In contrast, the transition rates from *jouko* to temporary or daily and to unemployment, as well as the rates of flows of the opposite direction, increased for all age groups over the same period. Second, the rates of transition into inactivity from any category (including inactivity itself) decreased, while the rates of transition from inactivity to other labor market categories increased, for almost all age groups over the same period. Thus, the increase in the female labor participation rate, discussed in Section 3.2, is due to both greater inflows into and smaller outflows from the labor market.

5   Further Analysis of Employment Type and Demographics

In this section, we further examine the issue of insecure jobs. To do so, we first present employment type by different job characteristics such as employment category and industry. We then provide detailed demographic information, which helps us understand more deeply the composition of workers in the labor force.

5.1 Employment Type by Different Job Characteristics

5.1.1 Employment Type by Employment Category

Tables 25 and 26 present the composition of employment types (regular, part-time, *arbeit*, and other) for each gender, education level, and employment category (*jouko*, temporary, and daily). Here, "Part-time" are employees called *paato* in Japanese and usually have shorter work hours than full-time employees, while "*Arbeit*" are employees called *arubaito* in Japanese and engage in part-time or casual work. "Other" includes all employees other than regular, part-time, and *arbeit*, such as contract and dispatched workers.

Figure 25 shows that the majority of *jouko* are regular employees. The fraction of regular employees among *jouko*, however, declined by almost 14 percentage points in the last 2 decades, from 80.4 percent in the 2002-2007 period, to 69.6 percent in 2013–2018, while the share of part-time and other employees increased. Temporary jobs are mostly occupied by part-time workers, although their share went down from 45.4 percent in the early 2000s to 40.6 percent in the the period 2013-2018, which was met by an increase in other types of employees. In terms of daily workers, they were mostly part-time workers in the 2002-2007 period with a share of 38.9 percent. This share, however, declined in the last period of the sample, to 29.1 percent, and the highest fraction of daily workers is currently *arbeit*, whose share went up from 31.9 percent, in the 2002-2007 period, to 42.0 percent, in the most recent period of 2013-2018.

Disaggregating by gender, we see a decline in the share of regular employees among *jouko* for both genders, but more notably for females, for whom this share dropped by 12 percentage points from the 2002-2007 to the 2013–2018 periods. The corresponding decline for males was of about 7 percentage points. The three graphs in the second column of Figure 25 show that for males, regular employees also declined among temporary and daily workers, whereas *arbeit* workers declined among temporary workers, but increased among daily workers. For women, displayed in the third column of graphs, the biggest take-away for temporary and daily workers is the decrease in part-timers and the increase in other types of employees. Female daily workers also saw an increased share of *arbeit*, as is the case for men.

Figure 26 decomposes this analysis by educational attainment and gender. We observe that, for both males and females, the lower the level of education, the smaller the chances for *jouko* to be a regular employee. We notice, however, that among female *jouko*, those with some college experience are more likely to be a regular employee compared to those with high school or less education, whereas for males, such a difference is hardly observed between *jouko* with high school or less education and those with some college experience. Among temporary workers, the majority of those with high school or less education are part-time workers. This result is mostly driven by the much higher share of part-timers among female temporary workers (66.0 percent) than for their male counterparts (22.2 per-

17

cent). This pattern also carries over to workers with some college experience, although here male temporary workers are mostly (74.9 percent) *arbeit*, whereas female temporary workers are mostly part-time workers (47.4 percent). College educated temporary workers are primarily "other" types of employees, both for male and females, and a similar pattern holds for daily workers. Among less educated daily workers, males are mostly *arbeit*, whereas women are mostly part-time. Daily workers with a college degree are predominantly hired as "other" employees.

5.1.2 Employment Type by Previous Employment Type

We now turn to how likely workers are to keep the same type of employment when changing jobs. Figures 27 and 28 help us understand this issue by showing the composition of current employment type across previous employment types.

From Figure 27, we observe that employees tend to retain the same type of job after moving to a new job. For both genders combined, regular employees stay as regular employees in over 50 percent of cases, although that fraction went down from 70.6 percent in the 1984–1996 period, to 56.0 percent in the 2008–2018 period. This roughly 15 percentage point decline in the proportion of those who remain as a regular employee after moving jobs is seen for both males and females. Approximately 60 percent of part-time and *arbeit* workers remain in that category after switching jobs, and this fraction has been fairly stable over the last 30 years, although it has slightly increased. In particular, more than 60 percent of women (versus around 50 percent of men) continue to work as part-time or *arbeit* after changing jobs. In contrast to these workers, in the case of executives, only about 40 percent of males, and less than 25 percent of females, remain as executives after switching jobs. The most likely destination for males when leaving an executive position is a regular job, although this rate decreased over time from 33.3 percent in 1984–1996 to 25.9 percent in 2008–2018. Most female executives move to part-time and *arbeit* jobs, with that rate increasing by 10 percentage points from 31.6 to 39.9 percent from the first decade of the sample period to the last decade. For self-employed and family workers, we see a similar pattern as for executives, where the greatest proportion of job switchers become regular employees in the case of males, and part-time or *arbeit* workers in the case of females. This gender difference in the changes in employment type for executives, self-employed and family workers may reflect the well-known fact that many Japanese women leave the labor market after having children and eventually re-enter the labor market as part-time or *arbeit* workers.

Figure 28 sheds more light on some of the previous findings by dividing workers by educational attainment. Note that when regular employees switch jobs, more educated ones do not seem to remain as regular employees more often than less educated ones. This occurs for both genders, although men of all education levels have a better chance

than women at moving from a regular to another regular job. Among part-time or *arbeit* workers, however, those with a college degree are, compared to those with lower education, more than twice as likely to move into regular employment following a job change. Once again, male workers transition more often than their female counterparts from a part-time/*arbeit* job to a regular one. This pattern is especially true for females with less than a college degree, since they remain in these part-time/*arbeit* jobs in around 70 percent of cases. The above findings related to the destination of workers in executive, self-employed, and family jobs carry over here and we see no big differences across educational levels.

5.1.3   Employment Type among Employees by Industry

Figures 29 and 30 show the composition of employment types among employees for different industries.

Figure 29 shows that, for both genders combined, the fraction of regular workers is highest in the secondary sector (around 80 percent), followed by the tertiary sector (60 to 80 percent depending on the decade) and finally the primary sector (around 60 percent). However, the share of regular workers has declined steadily for all industries. Such drops have been of 12, 7, and 20 percentage points between the 1984–1996 and 2008–2018 periods for the primary, secondary, and tertiary industries, respectively. The decline in the share of regular employees has been compensated by an increase mostly in "other" employees for the primary and secondary sectors, and by part-time and "other" employees in the service industry. When looking at different genders, we first find that men are over 40 percentage points more likely to hold regular jobs than women, with the share of men hired as regular employees being as high as 90 percent in the secondary and tertiary industries, and 82 percent in the primary sector in the first decade of the sample period. That fraction is only around 65 percent for women in the secondary and tertiary sectors, and 40 percent in the primary. For all three industries, most of the female employees that are not of the regular type are part-time workers. This is, again, likely related to many Japanese married woman temporarily exiting the labor market and eventually returning as part-time employees. We also find that the decline in the share of regular employees has occurred for both males and females in all industries, except for females in the primary sector, where the fraction of regular employees has increased slightly.

As one would expect, Figure 30 shows that the share of regular employees is, for both males and females, higher for those with higher levels of education in all three industries. Such a difference is most prominent between those with a college degree and those with less education. In all three industries, the second largest group for employees without a college degree is part-time, although this is mostly driven by female workers. Men, if not hired as regular, are most likely employed as "other" employees in the primary and secondary sectors, and as *arbeit* in the tertiary sector. The secondary sector is the sector that exhibits

the highest share of regular employees for all educational attainments, although as stated above, the proportion of regular employees is, in all industries, about 15 percentage points higher for those with a college degree than those without one.

5.1.4 Employment Type among Employees by Occupation

We now turn to Figure 31 to study the composition of employment types among employees in different occupations. Averaging for the three periods, the occupation with the highest share of regular employees is the manager/official (95 percent), followed by professional and technical occupations (80 percent), blue collar jobs (66 percent), clerical/sales/services/protective service ones (62 percent), agriculture/forestry/fishery (58 percent), and finally "other" or "unclassifiable" occupations (54 percent). All occupations except manager/official saw an over two-digit percentage decline in the share of regular employees within those jobs in the last three decades. This decline was more pronounced for female employees than for males. Across all types of occupations regular employees were replaced mostly by part-time workers for females, and by "other" employees for males.

Figure 32 shows that employees with higher levels of education are more likely to be of a regular type across all occupations, although this difference is very small when we compare individuals with high school education or less and those with only some college experience. Therefore, once again, the key to having a regular job seems to be to have finished college. For all occupations and education levels, around half or more of all employees are hired as regular, and this fraction is over 70 percent for males with a college degree. Across all occupations, those male employees who are not of a regular type tend to be "other" employees if they do not have any college experience, and are mostly *arbeit* workers if they have some college experience but not a 4-year college degree. Male employees with a college degree tend to be hired as "other" employees when they are not regular. The fraction of female employees with regular jobs is lower than that for males for all occupations and education groups. This gender gap is most noticeable for the lowest educated, where females are between 30 and 50 percentage points less likely to hold a regular job for some occupations than their male counterparts. For females with high school or less education, we see that the share of part-time employment is as high if not higher than regular employment for all occupations except for managerial and professional ones. In contrast, female employees with some college experience are more likely to be of a regular employee than a part-time for all occupations except for blue collar and the "unclassifiable" ones.

5.1.5 Further Analyses on Employment Type and Search Duration

We now briefly discuss some further analysis on how the composition of employment type varies with employer characteristics, namely, types of organizations and firm sizes. We

also explore the dependence of job search duration on various factors, such as previous occupation, previous industry, and the type of job sought.

Panel (a) of Figure 33 shows that most employees in different types of organizations are regular ones. We also see that the share of regular employees is higher for workers hired by firms than for those hired by individuals (65.3 percent versus 50.3 percent). The fraction of part-time is 27.2 percent for those hired by individuals and 17.0 percent for those employed by firms.

The relationship between employment type and firm size is seen in Panel (b) of Figure 33. We clearly see that the larger the firm, the higher the share of regular workers among all employees. The government hires an average of 77.1 percent of people as regular employees, and firms with 500 or more workers hire around 69 percent. Smaller-sized firms, with less than 30 employees, have 61.6 percent of workers being the regular type.

Panel (c) and (d) of Figure 33 help us understand issues related to the number of hours worked. We see in Panel (c) that *jouko* and self-employed work the longest hours, with close to 70 percent of them working over 40 hours, and around 10 percent working more than 60 hours. The majority of temporary and daily workers are employed for less than 40 hours a week (more than 70 percent) and around 30 percent of these types of workers report less than 20 hour weeks. Panel (d) sheds some light over the reasons why some workers have low hours (less than 35 hours per week). For regular employees, the main reason for low-hours weeks has to do with personal or family related issues and not with their firm. For part-time and *arbeit* employees, as one would expect on these types of jobs, between 70 and 80 percent report that working less than 35 hours per week is their normal work time.

How long a worker may be searching for a job depends on many factors. Panels (e) through (i) of Figure 33 help us understand some of them. Panels (e) and (f) show search duration as a function of the reason why the worker is searching and the reason why they left the previous job. We see in Panel (e) that the longest search duration is for those who are looking for work because they need to earn revenue (SR5) or they had just graduated from school (SR4). Over half of the workers who search because they quit their job (either voluntarily or involuntarily, SR1 to SR3) find work within 3 to 6 months of starting to search. Similarly, we observe in Panel (f) that workers who left the previous job for reasons related to their employer or because they wanted a better job (RL1-RL3) search the shortest, whereas those who left due to personal or family issues (RL4) take longer in their search. Panel (g) shows that, as one would expect, individuals seeking part-time or *arbeit* jobs are the ones who find them the fastest, followed by those looking for regular jobs and finally by workers searching for self-employment opportunities. The duration of search is also related to the industry and occupation of a worker's previous job. We can see in Panel (h) that workers previously employed in the primary sector are the ones who find new jobs the fastest, followed by those in the tertiary sector and then the

secondary. In terms of the previous occupation, we observe in Panel (i) that independently of the previous occupation, between 30 and 50 percent of workers find job within 3 months of starting to search, and an extra 20 percent find it within 6 months. Workers who had jobs in occupations related to agriculture, fishery, and forestry (A/F/F) are the ones who find jobs the fastest, followed by workers who held occupations such as clerical, sales, and services (C/S/S/PS), which is in line with our findings in terms of previous industries in Panel (h). Finally, we also find that the workers who search the longest are those in managerial or official occupations.

5.2   Demographics

This section studies the basic demographic characteristics of Japan in terms of gender, marital status, and education. This analysis helps us better understand some of the trends observed in the labor market and that, to some extent, may have been due to changes in the composition of different demographic groups.

5.2.1   Gender and Marital Status

Figures 34 and 35 show the gender compositions of different marital status/age groups. While these figures contain the graphs for three different decades, we will focus here on the top row (1984–1996) since the results are qualitatively similar for all three time periods.

Figure 34 shows that the Japanese population is, as one would expect, very close to 50 percent male and female. Note, however, that for the age group 60-64, the ratio is slightly skewed towards women, 53.6 percent. This is normal as the life expectancy of males in Japan is lower than that for females, so even by the age of 60, fewer males have survived than women. In Panel (b) we observe that among the never married, there are more men than women and the gap increases with age until the age group 30-34, where this trend is reversed. For the age group 50-54 and older, there are more never married women than never married men, which could potentially be explained by a shorter life expectancy for never married men than for never married women. As for married individuals (Panel (c)), women dominate for younger age groups, but it balances out for older age groups. Finally, Panel (d) shows that most of the individuals who are widowed or divorced are women, with a ratio of women to men of over 70 percent for all age groups. This result is explained by men's older average age of first marriage (and thus also divorce) and their greater tendency to remarry after divorce relative to their female counterparts.

Figure 35 displays the marital status composition by gender and age for the last three decades. The first thing to note is that for both genders the fraction of married has decreased over time for all age groups except females aged 55 or above. Furthermore, this decline is more pronounced for younger age groups, which implies that the age of first marriage has been delayed in Japan over the last 30 years. We still observe that

even in recent times men marry older than women, but the difference between the fraction of married males and females for those aged 34 or below has decreased over time. This observation reflects the greater delay in marriage for women than for men.

5.2.2 Gender and Education

The gender composition by education and age can be seen in Figure 36. The most important observation from this figure is that, while people with high school or less education are fairly even between men and women, women dominate the population with some college education (which includes graduating from Junior college) and men are the vast majority of the individuals with a 4-year college degree. The gap in higher education has narrowed over time with more women holding college degrees in the recent years for all ages groups. However, the fact that the vast majority of people with some college education are females has not changed very much over time.

Figure 37 shows the evolution over time of the education composition of different gender-age groups. The main takeaway from these graphs is that the fraction of college graduates has increased over the last three decades for both males and females and for all age groups. This increase has been mostly countered by the decrease in high school or less education, and not so much due to a reduction in those with some college experience. Such increases in the share of individuals with a college degree likely have important implications for the share of different types of employment.

5.2.3 Labor Market Status by Gender, Marital Status, and Education

We now turn, with the help of Figures 38 and 39, to discuss how the share of individuals with different gender and marital status or education varies across different labor market statuses (Regular, Non-Regular, Unemployment and Inactive).

Figure 38 shows that most regular jobs are held by men, in particular married men. For age groups 35 or older, married men comprises around 65 percent of regular employees. It is striking to see how few women above the age of 30 hold regular employment, but the few that do are mainly married women. In combination, married individuals account for over 80 percent of regular employees. Non-regular jobs are dominated by married women, especially after the age of 30. For younger and older workers, men take about 50 percent of those jobs. Unemployed workers are fairly divided among men and women until the two oldest age groups, where men account between 70 to 85 percent of all unemployed workers. The inactive pool of workers, as is well-known for Japan, is mostly composed of women, which for those in their 30s, 40s and 50s accounts for almost 90 percent of workers out of the labor force.

In terms of education, Figure 39 shows that, in the 1984–1996 period, most regular jobs were held by men and women with a high school degree or less, accounting for as much

as 80 percent for older age groups, but in the 2008–2018 period, workers with a college degree account for about 30 to 40 percent of regular employees. Non-regular employment in the decade of 1984–1996 was dominated by women with high school or less education, and very few women and men with a college degree worked as non-regular employees. Over time, while most of non-regular jobs were still held by lower education women, the share of females, and also some males, with some college and even college degrees increased among non-regular employees. Unemployment in the early decade of our sample was dominated for all age groups by individuals, mostly men, with high school or less education, but by the decade of 2008–2018 the share of highly educated workers in the unemployment pool rose to as much as 30 percent for some age groups. Finally, a similar pattern to that seen for unemployment can be observed for inactivity, meaning that most of the people in this pool are low educated workers, but the difference is that in this case it is women and not men who have the largest share. Over 80 percent of individuals out of the labor force in Japan in the 1980s were women without a college degree, and mostly those with a high school or less education. As time passed, the share of women with some college and even a college degree increased in the inactivity pool to up to 50 percent for age groups below 45.

6 Conclusions

In this paper, we examine the Japanese LFS and LFS Special Survey microdata to provide an in-depth analysis of the characteristics of insecure jobs in Japan and its changes since the 1980s. By using two distinct categorizations of workers by job security, we first document how the age profiles of key labor market variables, in particular the proportion of workers in insecure jobs, vary across gender, education, and marital status. To understand the forces underlying those age profiles, we then compute and illustrate the age profiles of the flow rates between different labor market statuses. We further explore such issues as how the share of different employment types varies across industries, occupations, and firm size, and how different demographic groups comprise different types of employment.

We find that males, those with more education, and within gender married males and never married females, are more likely to have secure jobs than their respective counterparts. The worker flow analysis shows that for males, those married or having a college degree are more likely to obtain and keep regular jobs. For females, those with a college degree or some college education are more likely to flow into and stay in regular employment, while the opposite is true for married ones. Turning to changes over time, we find that the share of regular employees declined from 1984–1996 to 2008–2018 in all three industries, including the secondary sector in which regular employment is most prevalent. Finally, non-regular employment, dominated by women with high school or less education in 1984–1996, increasingly contained women, and to a lesser extent also men, with some

college or college degrees.

Overall, our analysis shows that while the proportion of insecure jobs varies substantially with worker characteristics such as age, gender, education, and marital status, and job characteristics such as the industry, occupation, and firm size, it has declined widely across such worker and job characteristics since the 1980s. Such a trend toward less job security and the related changes to the labor market will likely interact with family formation in complex ways. Esteban-Pretel and Fujimoto (2020a, 2020b) examine such issues by using the 2013–2018 data and analyzing the labor market transitions and marital transitions, respectively.

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Figure 1: Age Profiles of the Share of Regular (*Seiki*) Employees by Gender and Education
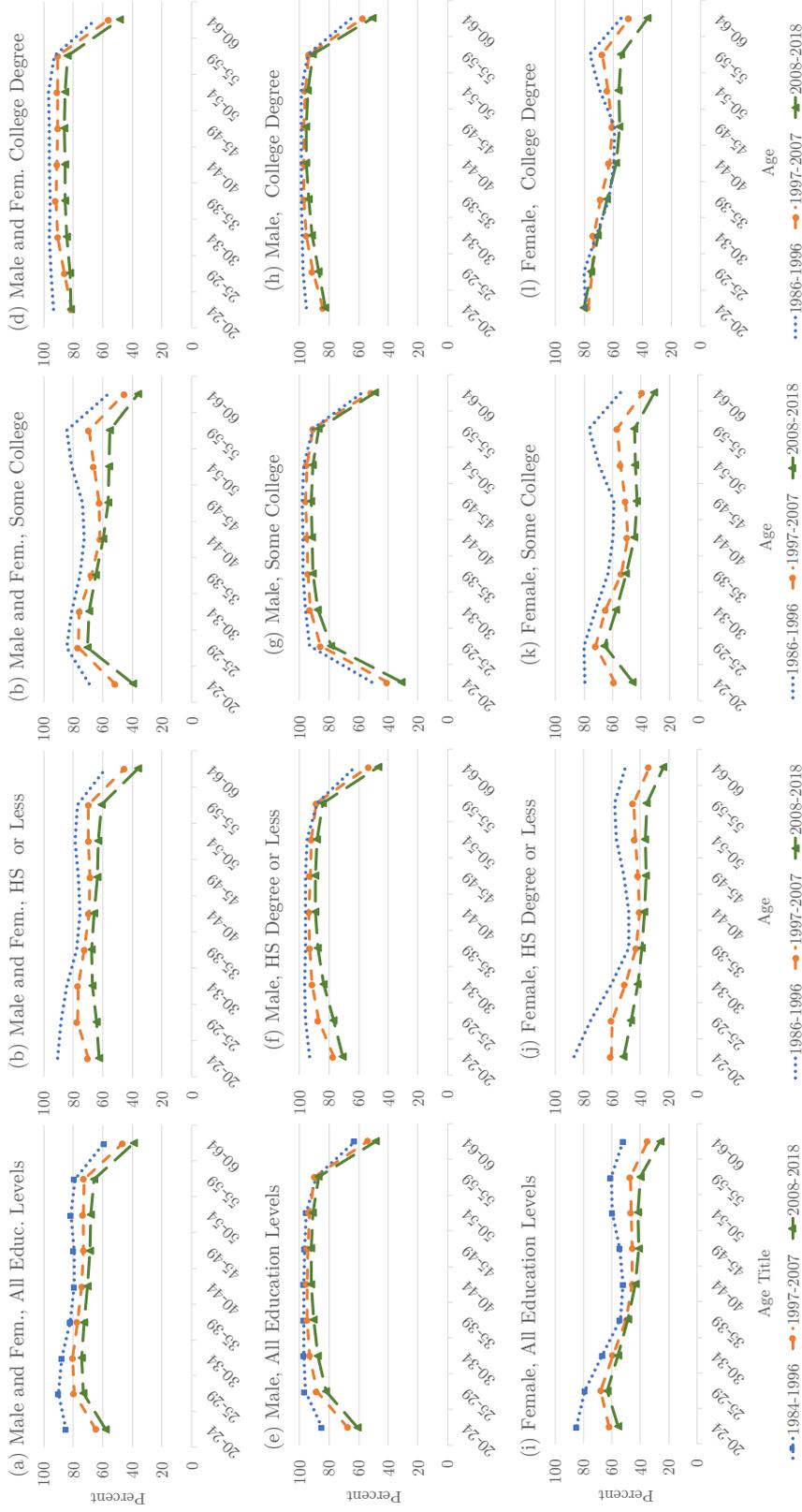
(a) Male and Fem., All Educ. Levels

(b) Male and Fem., Some College

(c) Male and Fem., HS or Less

(d) Male and Fem. College Degree

(e) Male, All Education Levels

(f) Male, HS Degree or Less

(g) Male, Some College

(h) Male, College Degree

(i) Female, All Education Levels

(j) Female, HS Degree or Less

(k) Female, Some College

(l) Female, College Degree

Notes: The series represents the share of regular employees among all employees excluding executives in each group (gender-education-age). Regular employees are those called *seishain* or *seiki shain* at the workplace and are typically hired under an indefinite-term contract. The educational levels are as follows: "HS or Less" includes workers with at most a high school degree; "Some College" comprises of anyone who attended (2- or 4-year) college but without a 4-year college degree; "College Degree" consists of all individuals who graduated from a 4-year college.

28

Figure 2: Age Profiles of the Share of Regular (*Seiki*) Employees by Gender and Marital Status
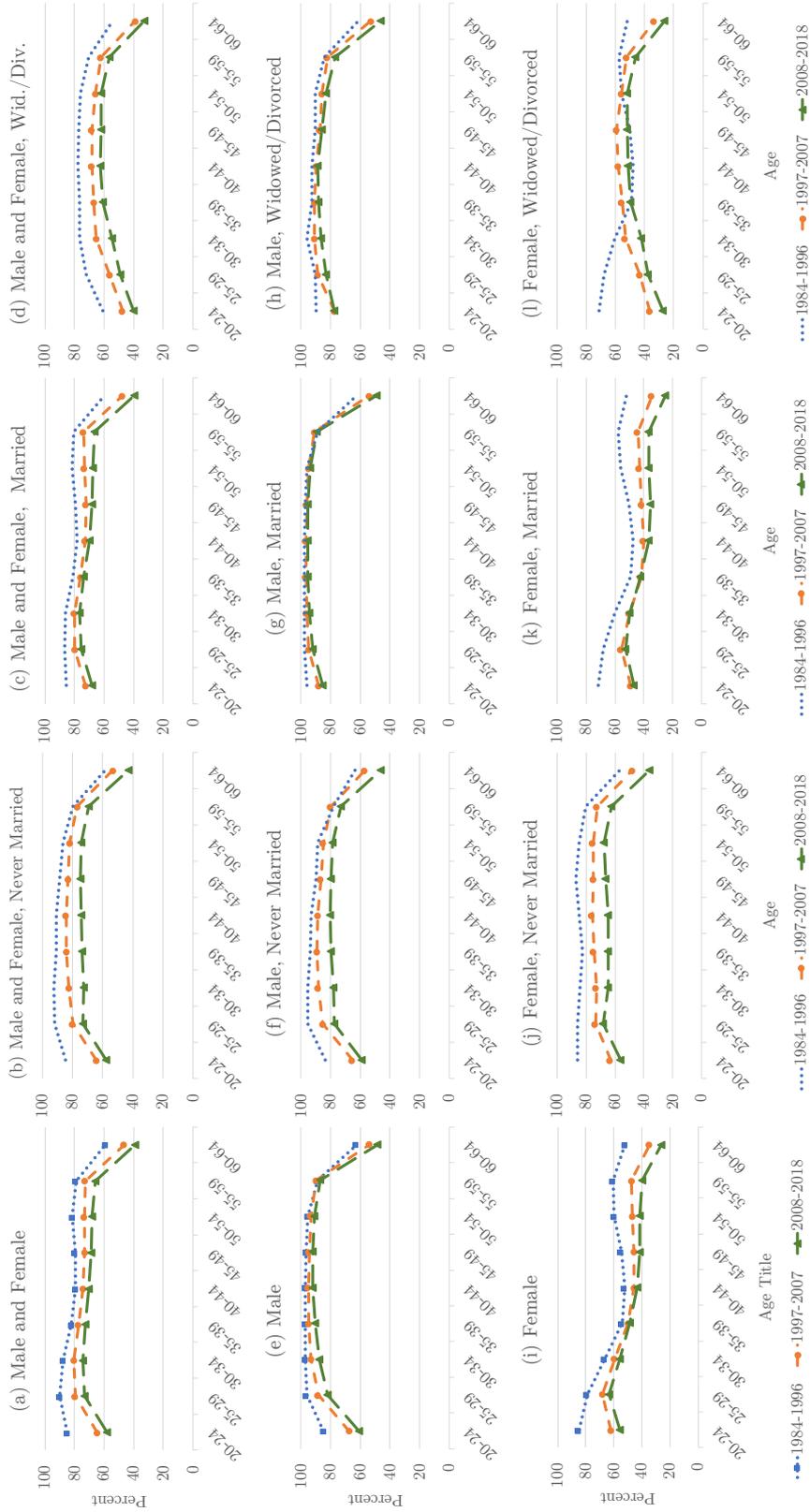
Notes: The series represents the share of regular employees among all employees excluding executives in each group (gender-marital status-age). Regular employees are those called *seishain* or *seiki shain* at the workplace and are typically hired under an indefinite-term contract. The marital statuses in the figures are as follows: "Never Married" includes individuals who have never married; "Married" are those currently married; "Widowed/Divorced" includes all those previously married but not currently married.

29

Figure 3: Age Profiles of the Share of *Jouko* by Gender and Education

Figure 4: Age Profiles of the Share of *Jouko* by Gender and Marital Status
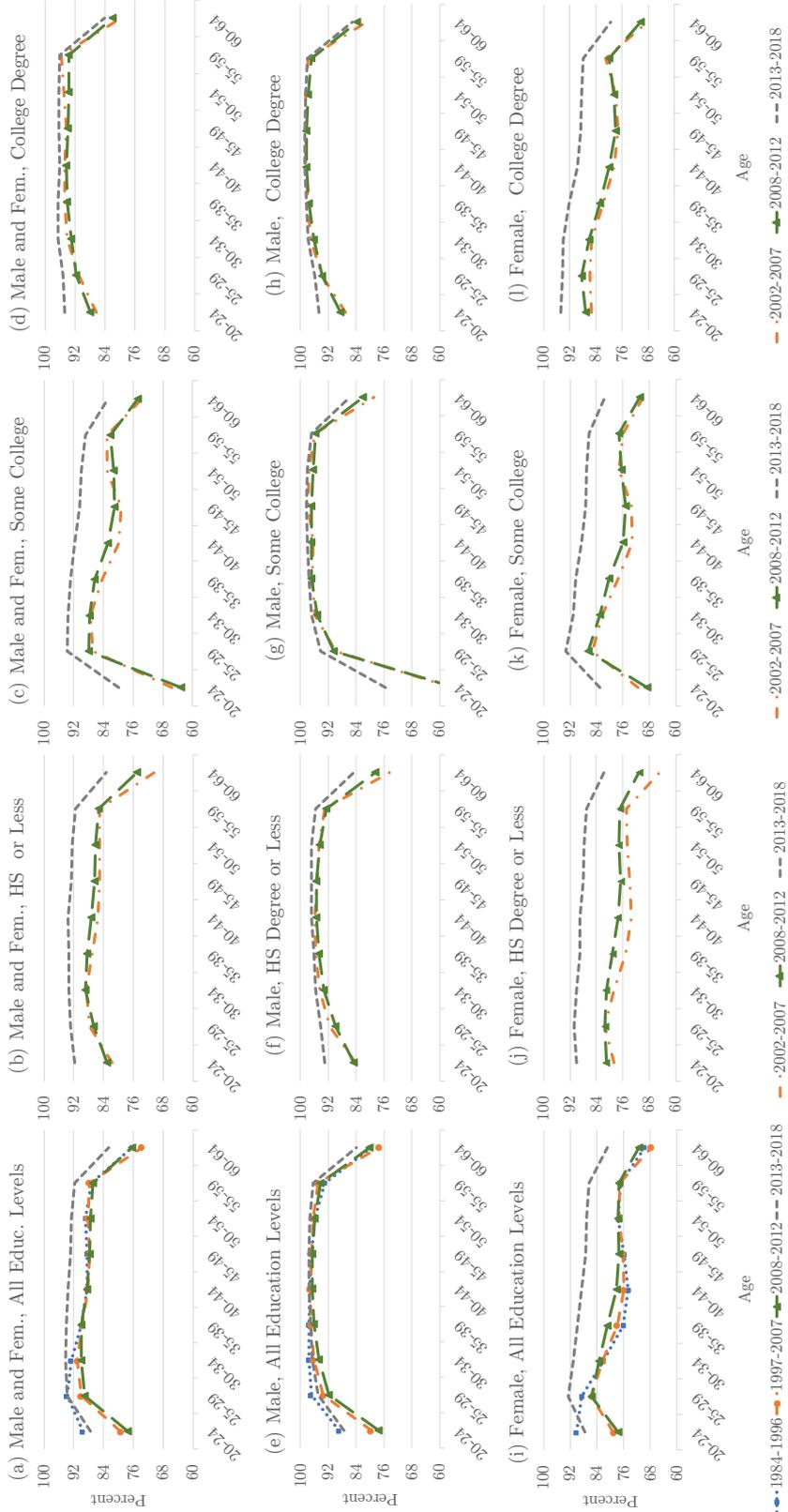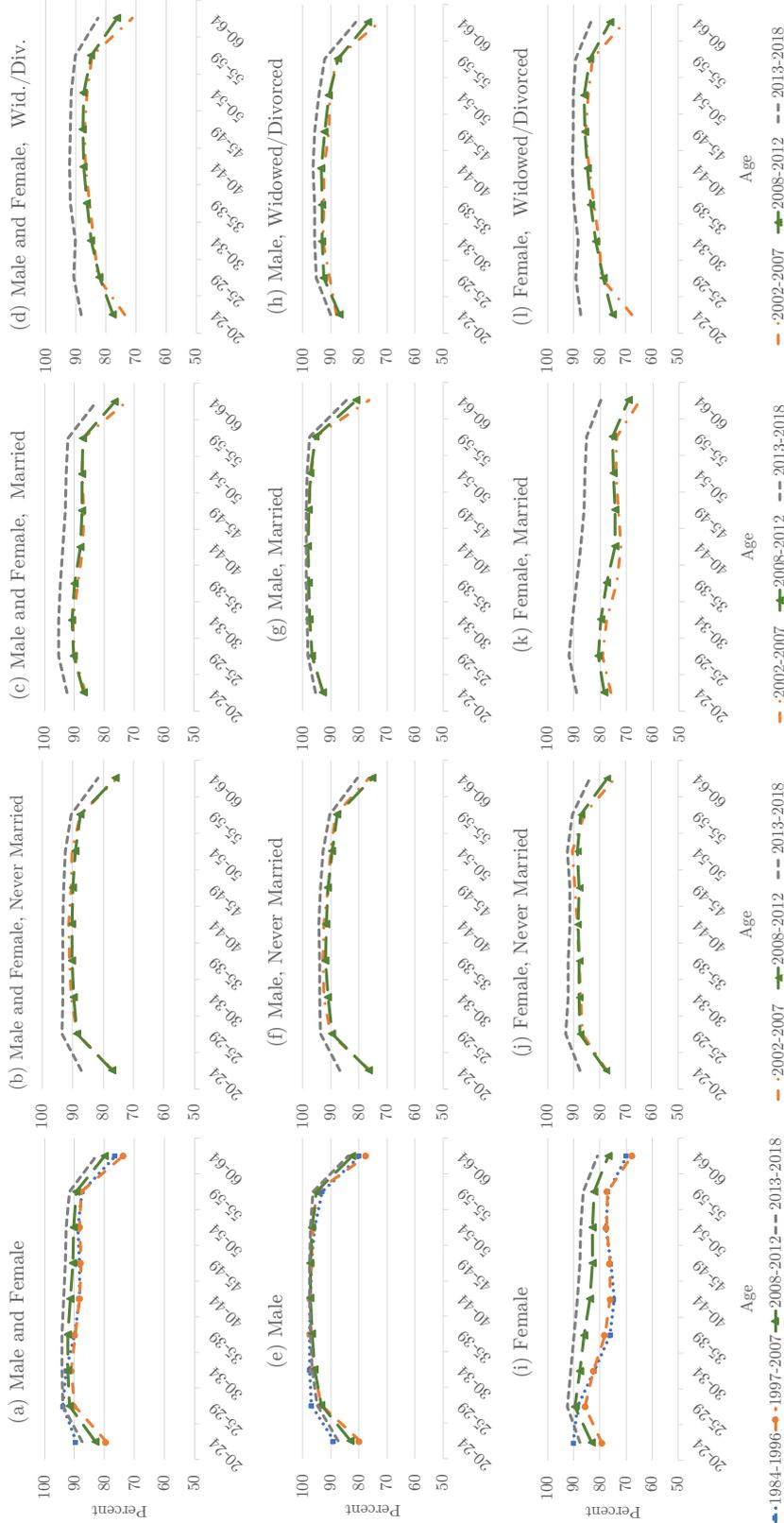
Notes: The series represents the share of *Jouko* among all employees excluding executives in each group (gender-marital status-age). *Jouko* are employees hired under either an indefinite-term contract or a fixed term contract with the term exceeding 1 year. The marital statuses in the figures are as follows: "Never Married" includes individuals who have never married; "Married" are those currently married; "Widowed/Divorced" includes all those previously married but not currently married.

Figure 5: Age Profiles of the Participation Rates by Gender and Education
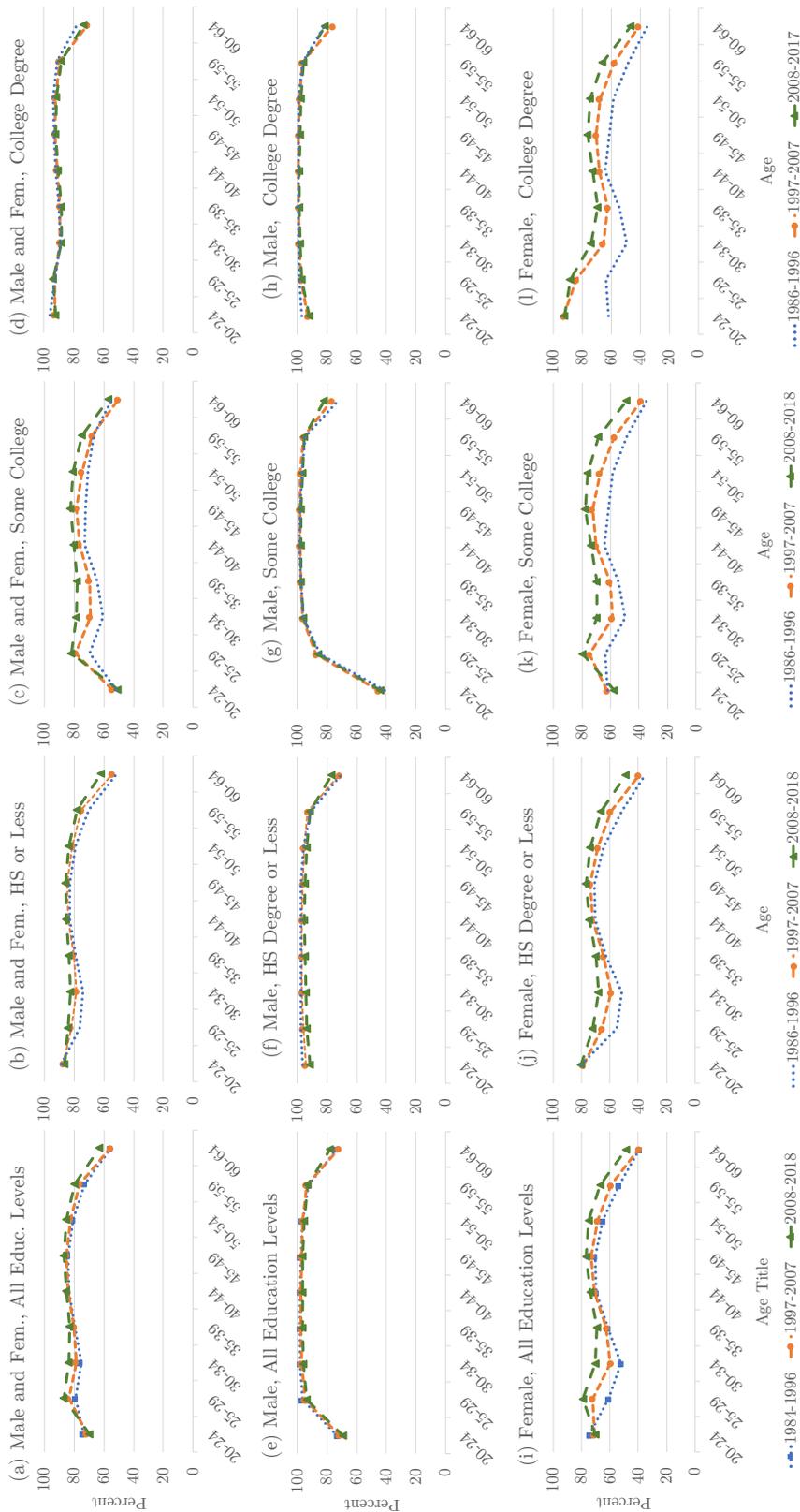
Notes: The series represents the participation rate for each group (gender-education-age). The educational levels in the figures are as follows: "HS or Less" includes workers with at most a high school degree; "Some College" comprises of anyone who attended (2- or 4-year) college but without a 4-year college degree; "College Degree" consists of all individuals who graduated from a 4-year college.

Figure 6: Age Profiles of the Participation Rates by Gender and Marital Status
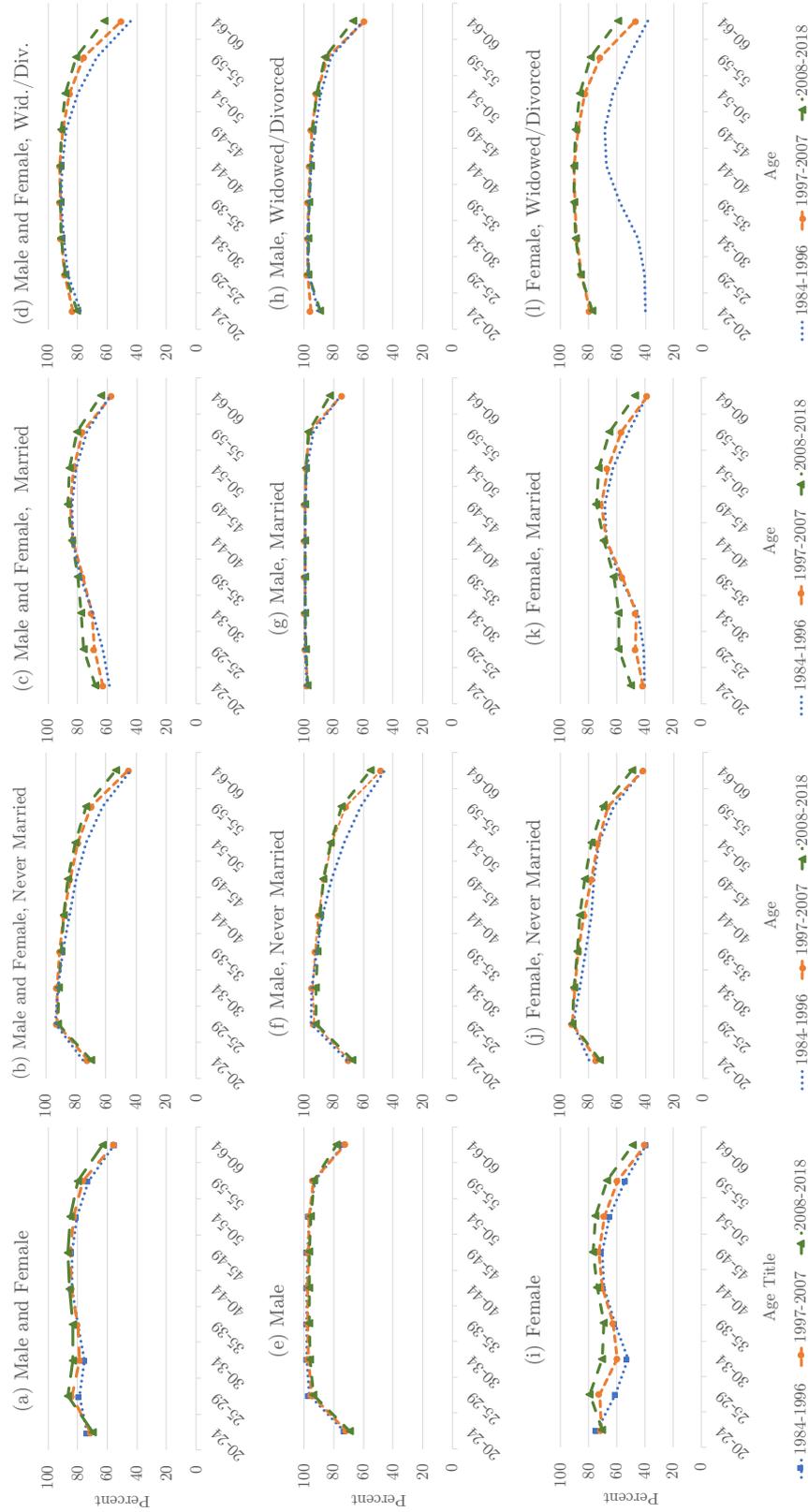
Notes: The series represents the participation rate for each group (gender-marital status-age). The marital statuses in the figures are as follows: "Never Married" includes individuals who have never married; "Married" are those currently married; "Widowed/Divorced" includes all those previously married but not currently married.

Figure 7: Age Profiles of the Unemployment Rate by Gender and Education
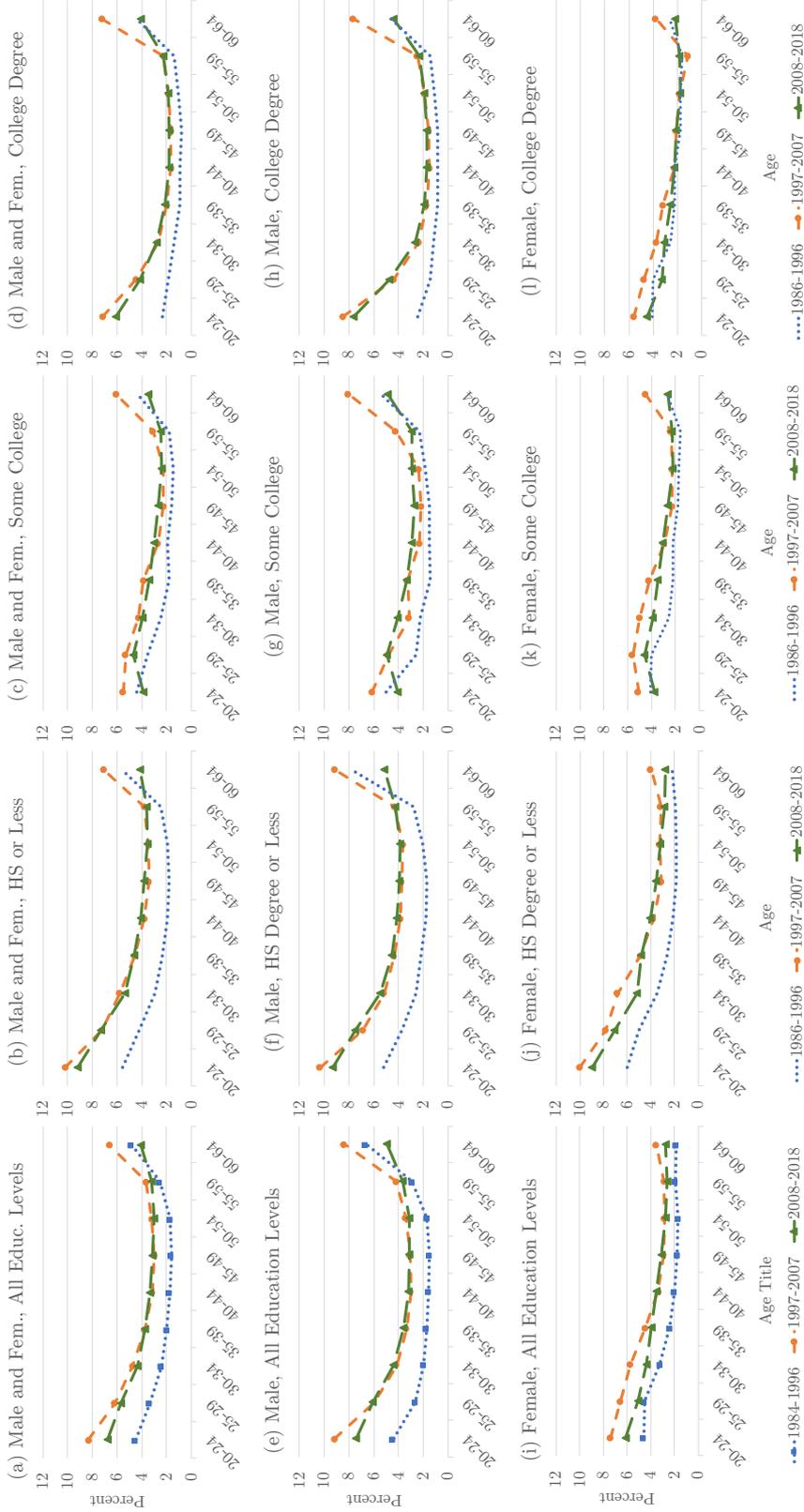
(a) Male and Fem., All Educ. Levels
(b) Male and Fem., HS or Less
(c) Male and Fem., Some College
(d) Male and Fem., College Degree
(e) Male, All Education Levels
(f) Male, HS Degree or Less
(g) Male, Some College
(h) Male, College Degree
(i) Female, All Education Levels
(j) Female, HS Degree or Less
(k) Female, Some College
(l) Female, College Degree

Notes: The series represents the unemployment rate for each group (gender-education-age). The educational levels in the figures are as follows: "HS or Less" includes workers with at most a high school degree; "Some College" comprises of anyone who attended (2- or 4-year) college but without a 4-year college degree; "College Degree" consists of all individuals who graduated from a 4-year college.

34

Figure 8: Age Profiles of the Unemployment Rate by Gender and Marital Status
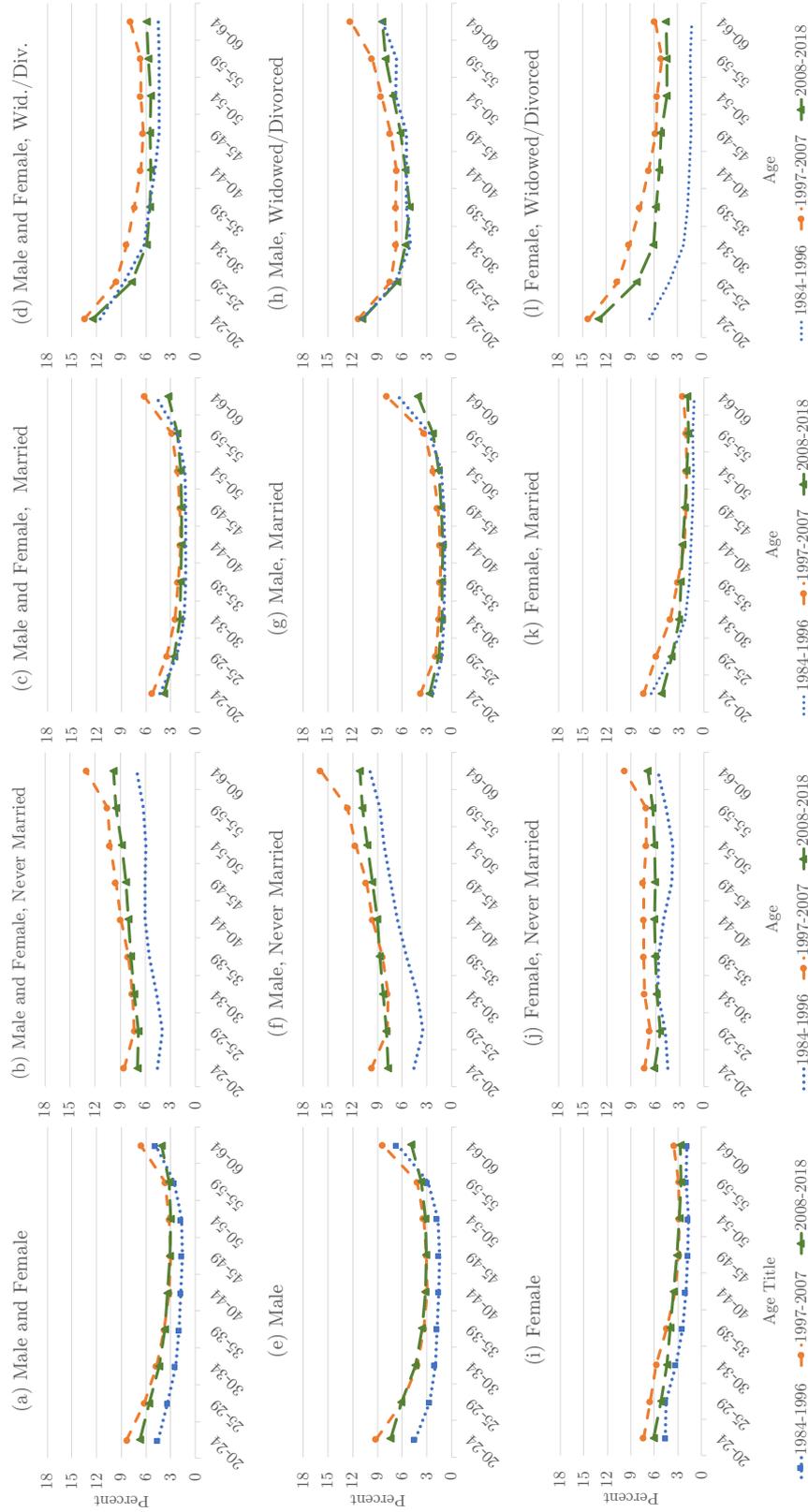
(a) Male and Female

(b) Male and Female, Never Married

(c) Male and Female, Married

(d) Male and Female, Wid./Div.

(e) Male

(f) Male, Never Married

(g) Male, Married

(h) Male, Widowed/Divorced

(i) Female

(j) Female, Never Married

(k) Female, Married

(l) Female, Widowed/Divorced

Notes: The series represents the unemployment rate for each group (gender-marital status-age). The marital statuses in the figures are as follows: "Never Married" includes individuals have never married; "Married" are those currently married; "Widowed/Divorced" includes all those who were previously married but not currently married.

Figure 9: Age Profiles of Income by Gender and Education
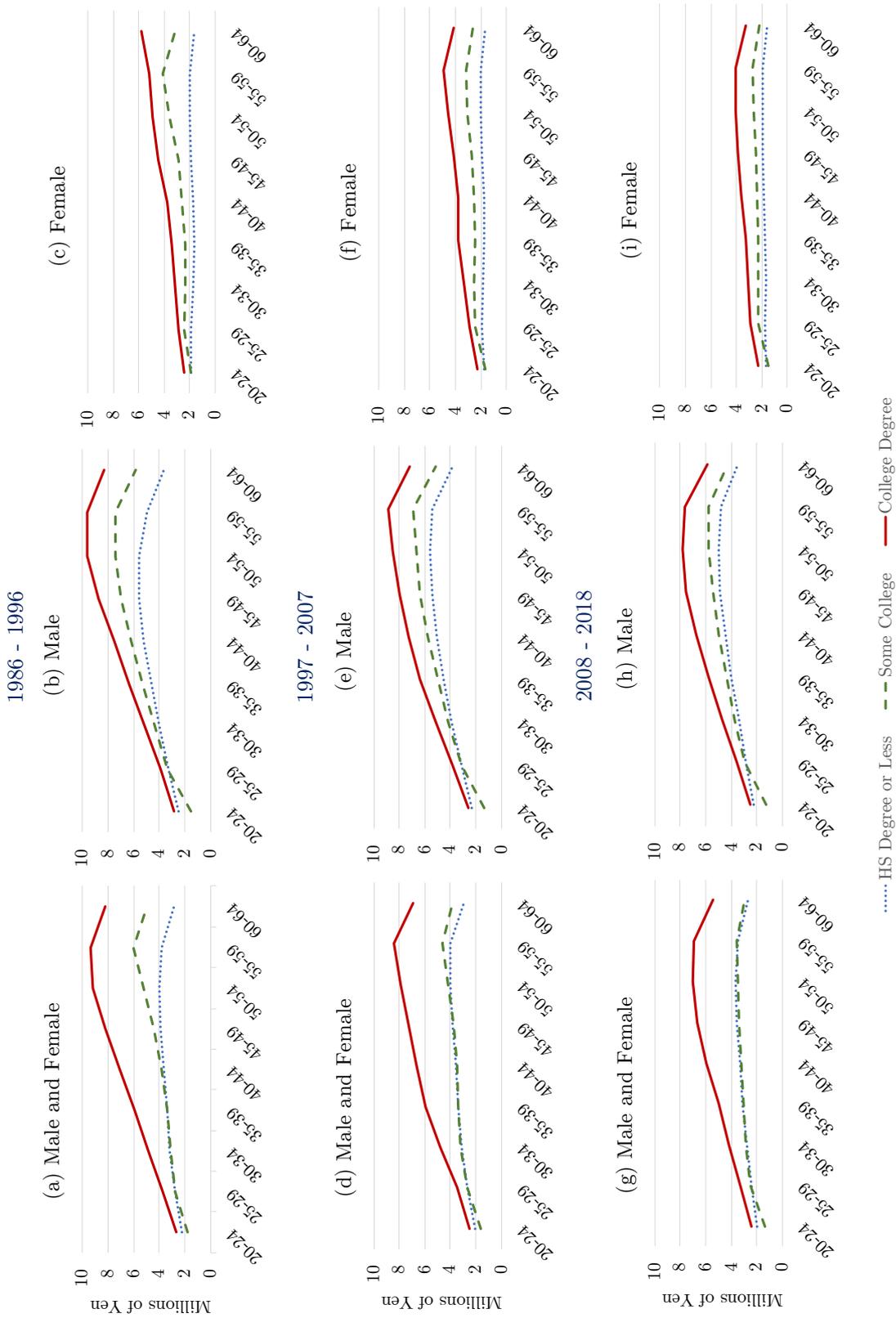

Notes: The series represents the average real annual income in millions of 2005 Japanese Yen of workers in each group (gender-education-age). The educational levels in the figures are as follows: "HS or Less" includes workers with at most a high school degree; "Some College" comprises of anyone who attended (2- or 4-year) college but without a 4-year college degree; "College Degree" consists of all individuals who graduated from a 4-year college.

Figure 10: Age Profiles of Income by Gender and Education (*Jouko*)
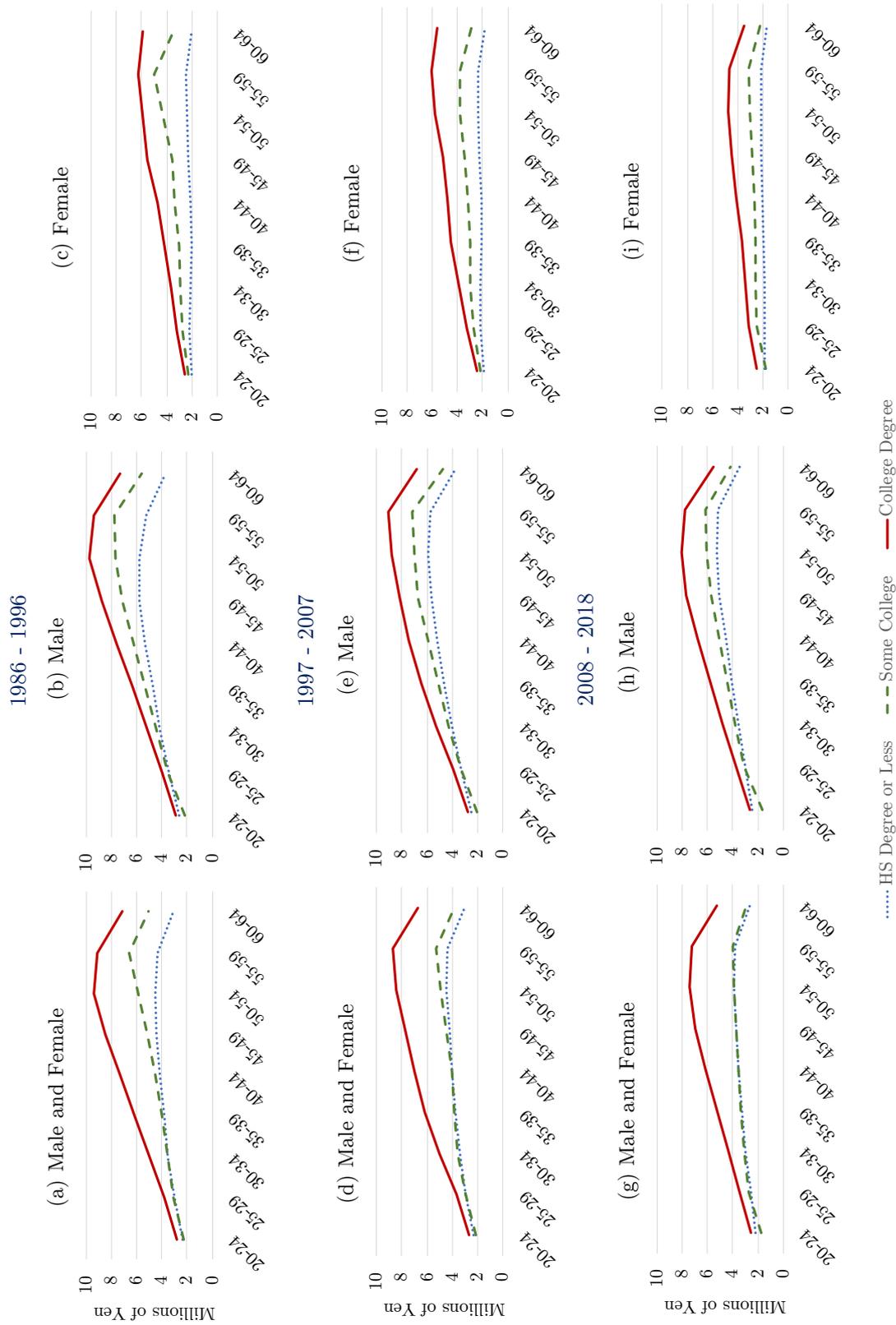
Notes: The series represents the average real annual income in millions of 2005 Japanese Yen of *Jouko* in each group (gender-education-age). *Jouko* are employees hired under either an indefinite-term contract or a fixed term contract with the term exceeding 1 year. The educational levels in the figures are as follows: "HS or Less" includes workers with at most a high school degree; "Some College" comprises of anyone who attended (2- or 4-year) college but without a 4-year college degree; "College Degree" consists of all individuals who graduated from a 4-year college.

Figure 11: Age Profiles of Income by Gender and Education (Temporary/Daily)
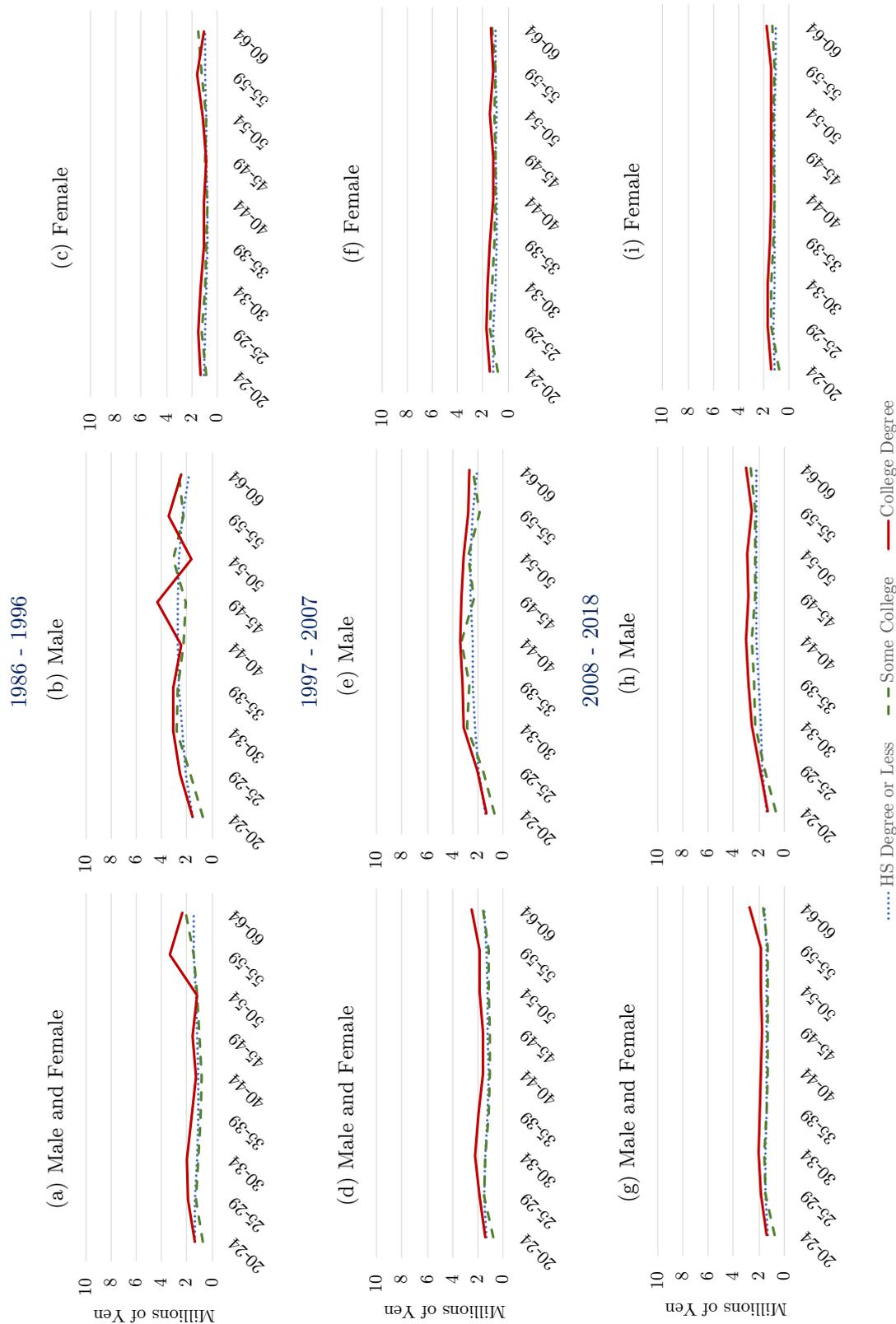
Notes: The series represents the average real annual income in millions of 2005 Japanese Yen of temporary or daily workers in each group (gender-education-age). Temporary workers are employees hired under a fixed-term contract with the term not exceeding 1 year. The educational levels in the figures are as follows: "HS or Less" includes workers with at most a high school degree; "Some College" comprises of anyone who attended (2- or 4-year) college but without a 4-year college degree; "College Degree" consists of all individuals who graduated from a 4-year college.

Figure 12: Age Profiles of Income by Gender and Education (Self-employed)
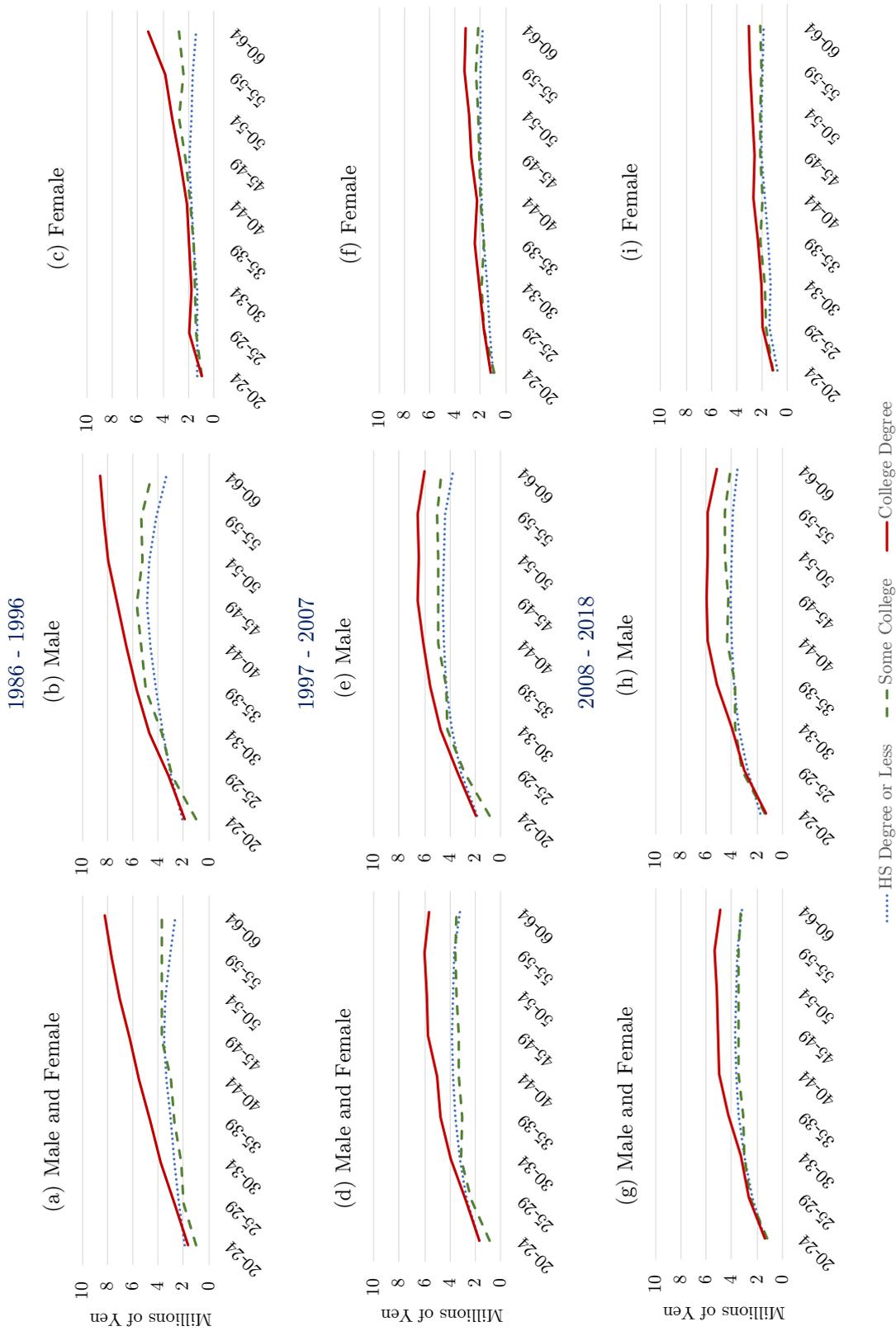
Notes: The series represents the average real annual income in millions of 2005 Japanese Yen of self-employed workers in each group (gender-education-age). The educational levels in the figures are as follows: "HS or Less" includes workers with at most a high school degree; "Some College" comprises of anyone who attended (2- or 4-year) college but without a 4-year college degree; "College Degree" consists of all individuals who graduated from a 4-year college.

Figure 13: Age Profiles of Income by Gender and Education (Regular Employees)
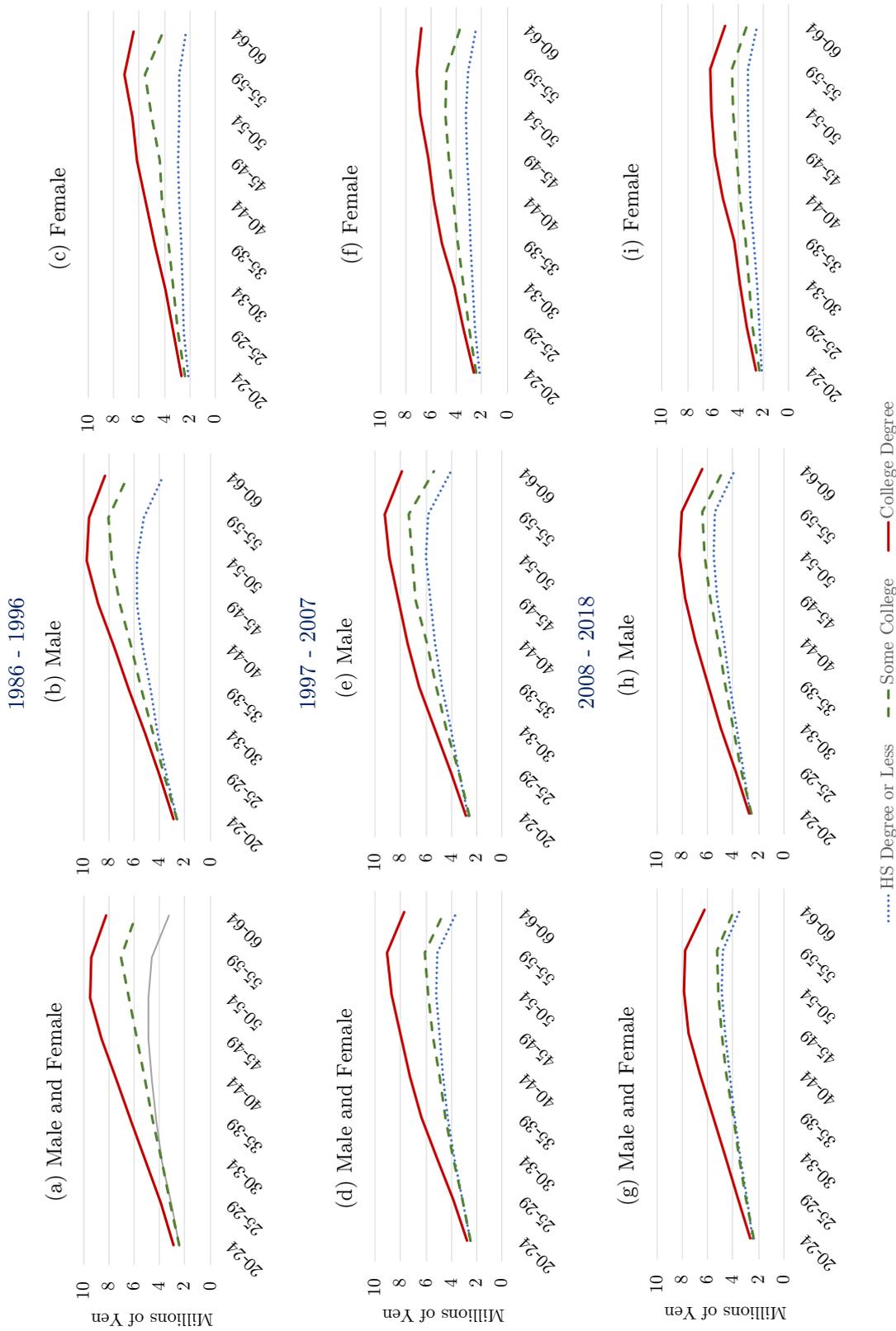
Notes: The series represents the average real annual income in millions of 2005 Japanese Yen of regular employees in each group (gender-education-age). Regular employees are those called *seishain* or *seiki shain* at the workplace and are typically hired under an indefinite-term contract. The educational levels in the figures are as follows: "HS or Less" includes workers with at most a high school degree; "Some College" comprises of anyone who attended (2- or 4-year) college but without a 4-year college degree; "College Degree" consists of all individuals who graduated from a 4-year college.

Figure 14: Age Profiles of Income by Gender and Education (Non-regular Employees)

(a) Male and Female

(b) Male

(c) Female

1986 - 1996

(d) Male and Female

(e) Male

(f) Female

1997 - 2007

(g) Male and Female

(h) Male

(i) Female

2008 - 2018

·········· HS Degree or Less   – – – Some College   —— College Degree
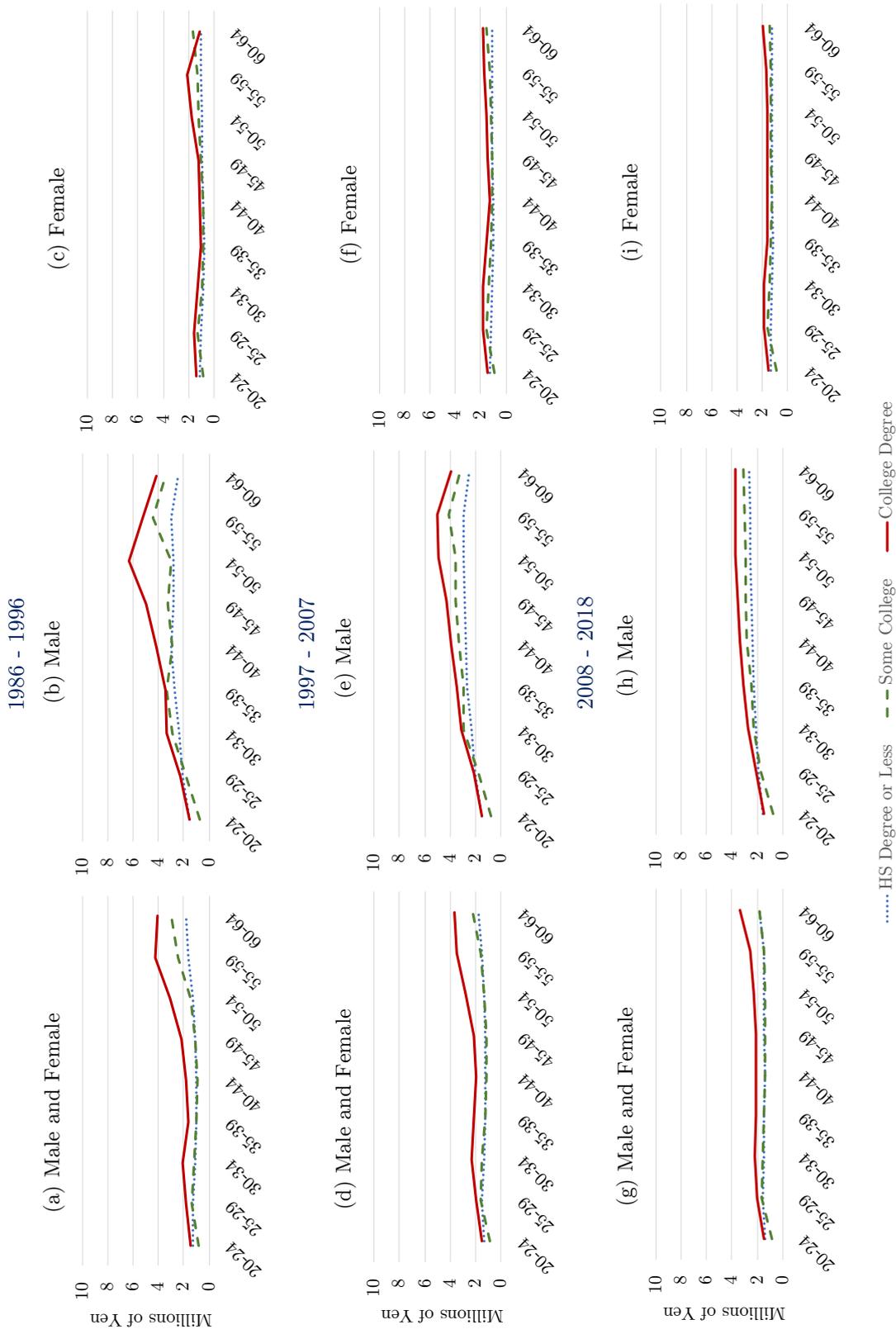
Notes: The series represents the average annual income in millions of 2005 Japanese Yen of non-regular employees in each group (gender-education-age). Non-regular employees comprise of all employees that are not regular (*seiki*) and includes, for example, contract workers, dispatched workers, and part-timers. The educational levels in the figures are as follows: "HS or Less" includes workers with at most a high school degree; "Some College" comprises of anyone who attended (2- or 4-year) college but without a 4-year college degree; "College Degree" consists of all individuals who graduated from a 4-year college.

Figure 15: Flow Rates between Different Labor Market Statuses (All Education Groups)
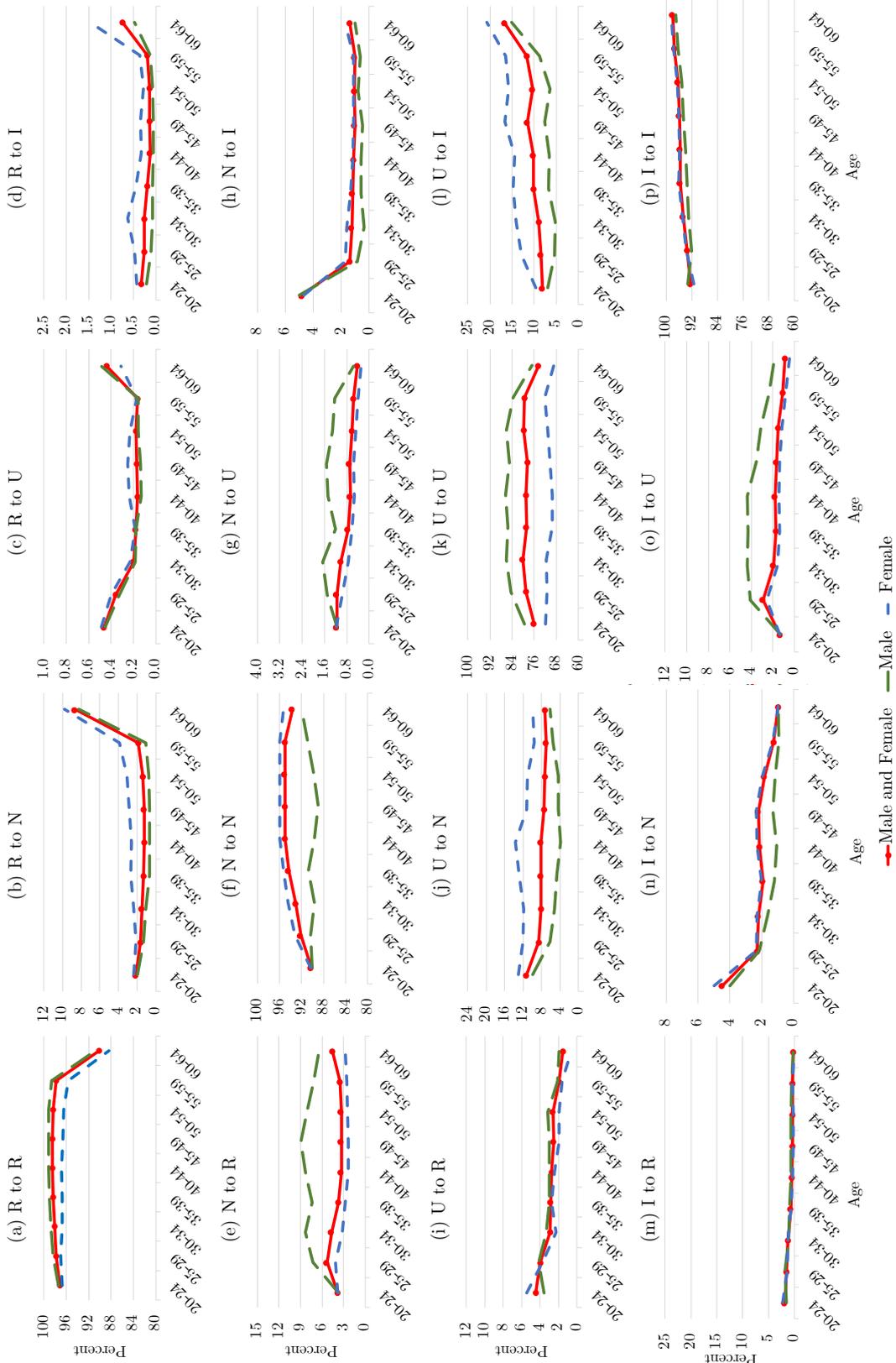
Notes: The series represents the average monthly transition rate between states $X \in \{R, N, U, I\}$ and $Y \in \{R, N, U, I\}$, where "R" is regular employment (hired as employees called *seishain* or *seiki shain*, typically under an indefinite-term contract); "N" is non-regular employment (hired as employees that are not regular (*seiki*)); "U" is unemployment; and "I" is inactivity or non-participation in the labor force. The transition rate is computed as the ratio of individuals who are in state X in month t and in state Y in month $t + 1$ to those who are in state X in month t. Data spans from January 2002 to December 2018, except for those flows originating in "R" or "N" which spans from January 2013 to December 2018.

Figure 16: Flow Rates between Different Labor Market Statuses (High School or Less Education)
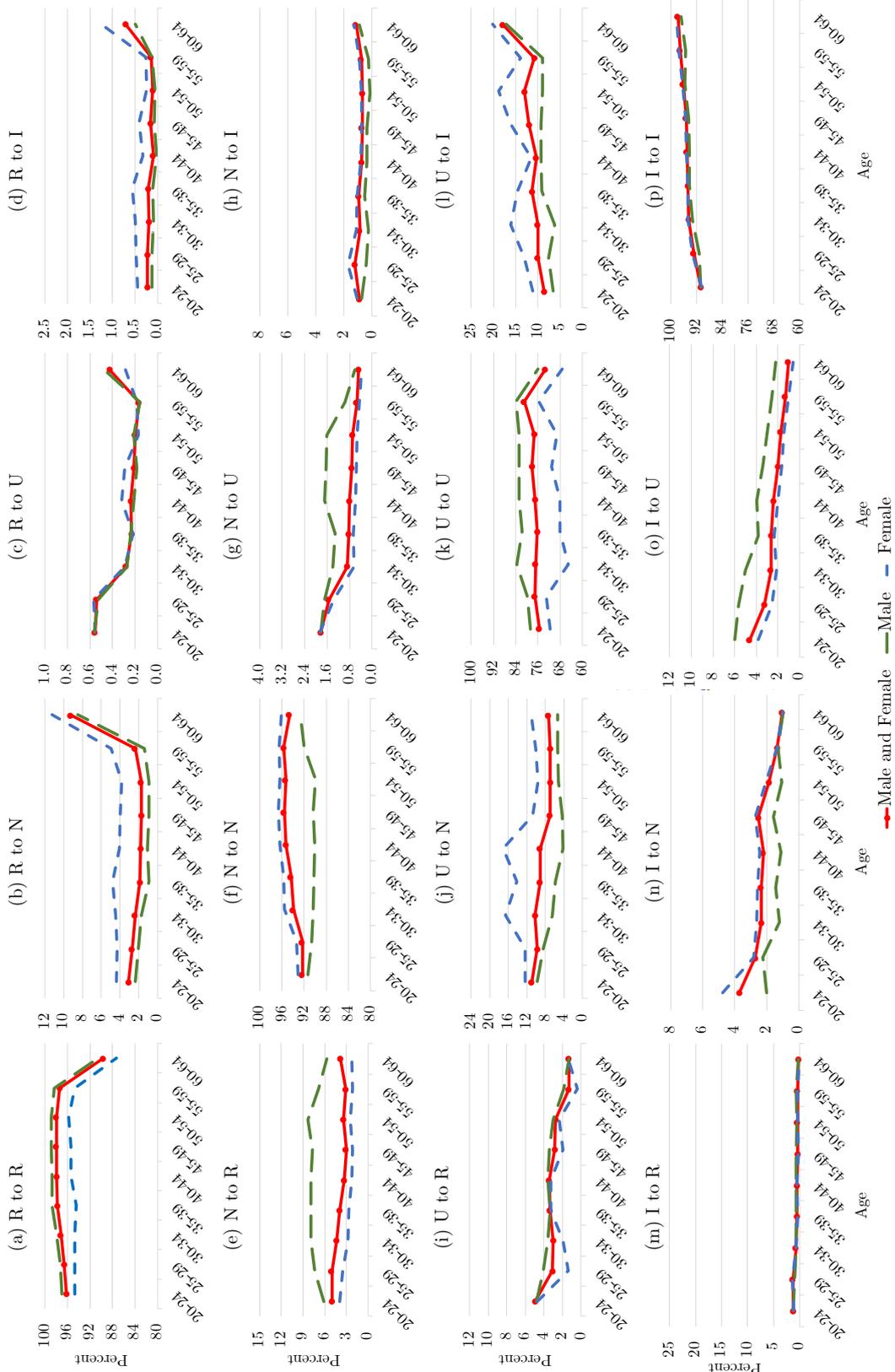
Notes: The series represents the average monthly transition rates between states $X \in \{R, N, U, I\}$ and $Y \in \{R, N, U, I\}$ of individuals with at most a high school degree, where "R" is for regular employment (hired as employees called *seishain* or *seiki shain*, typically under an indefinite-term contract); "N" is non-regular employment (hired as employees that are not regular(*seiki*)); "U" is unemployment; and "I" is inactivity or non-participation in the labor force. The transition rate is computed as the ratio of individuals who are in state X in month t and in state Y in month $t+1$ to those who are in state X in month t. Data spans from January 2002 to December 2018, except for those flows originating in "R" or "N" which spans from January 2013 to December 2018.

43

Figure 17: Flow Rates between Different Labor Market Statuses (Some College Education)
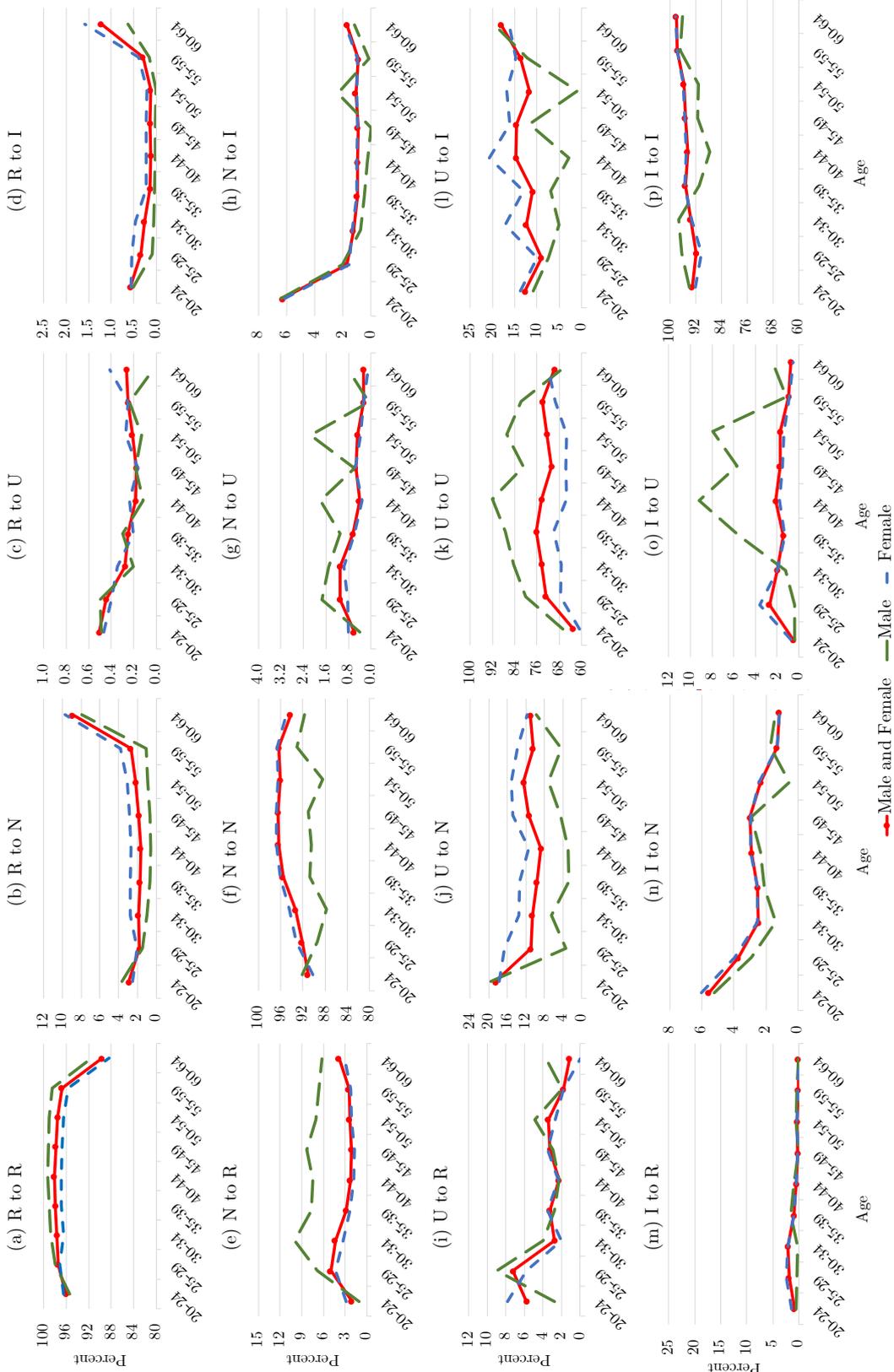
Notes: The series represents the average monthly transition rates between states $X \in \{R, N, U, I\}$ and $Y \in \{R, N, U, I\}$ of individuals who attended (2- or 4-year) college but without a 4-year college degree, where "R" is regular employment (hired as employees called *seishain* or *seiki shain*, typically under an indefinite-term contract); "N" is non-regular employment (hired as employees that are not regular (*seiki*)); "U" is unemployment; and "I" is. The transition rate is computed as the ratio of individuals who are in state X in month t and in state Y in month $t + 1$ to those who are in state X in month t. Data spans from January 2002 to December 2018, except for those flows originating in "R" or "N" which spans from January 2013 to December 2018.

44

Figure 18: Flow Rates between Different Labor Market Statuses (College Degree)
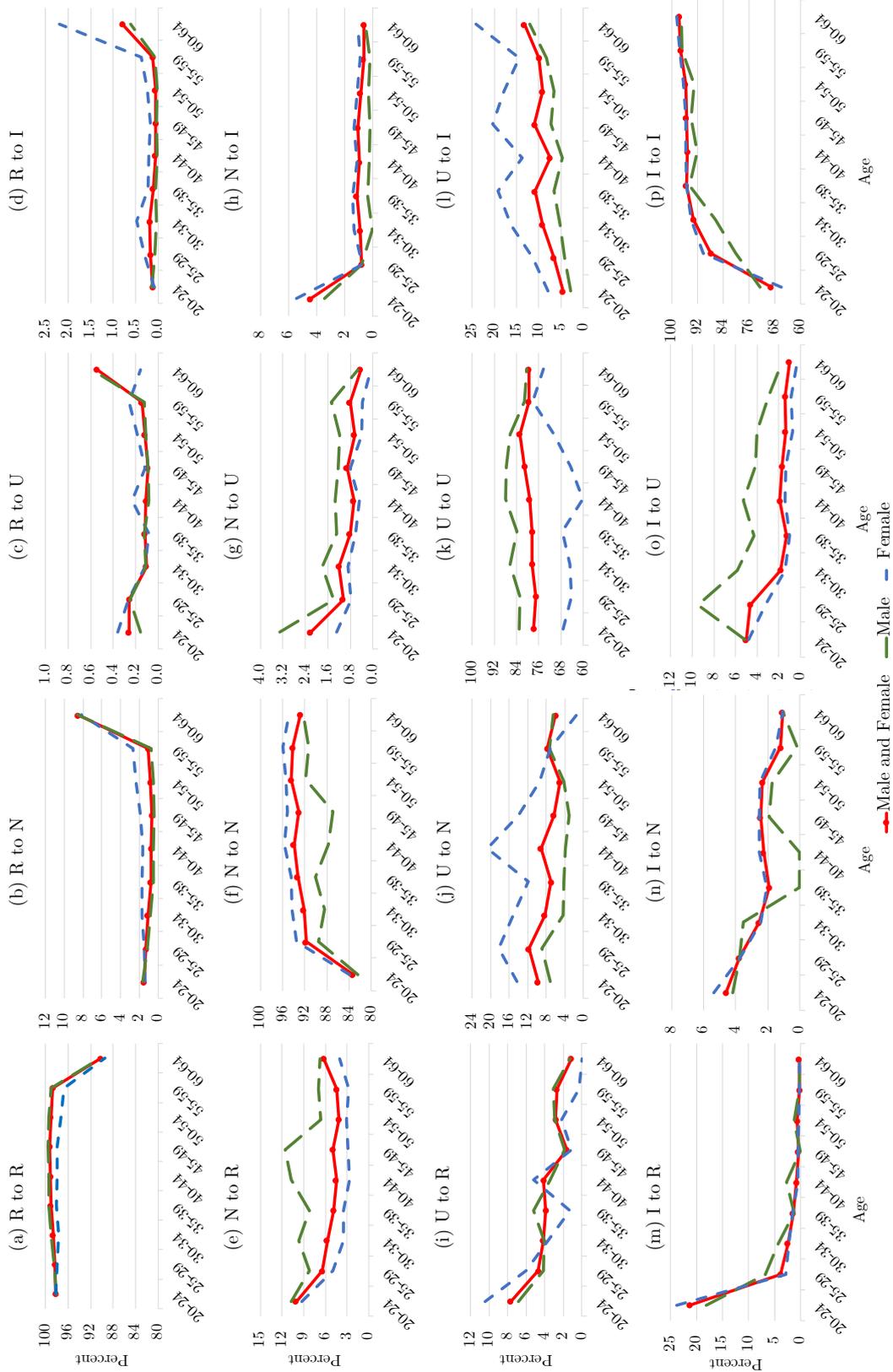

Notes: The series represents the average monthly transition rates between states $X \in \{R, N, U, I\}$ and $Y \in \{R, N, U, I\}$ of individuals who graduated from a 4-year college, where "R" is regular employment (hired as employees called *seishain* or *seiki shain*, typically under an indefinite-term contract); "N" is non-regular employment (hired as employees that are not regular (*seiki*)); "U" is unemployment; and "I" is inactivity or non-participation in the labor force. The transition rate is computed as the ratio of individuals who are in state X in month t and in state Y in month $t+1$ to those who are in state X in month t. Data spans from January 2002 to December 2018, except for those flows originating in "R" or "N" which spans from January 2013 to December 2018.

45

Figure 19: Flow Rates between Different Labor Market Statuses (Never Married)
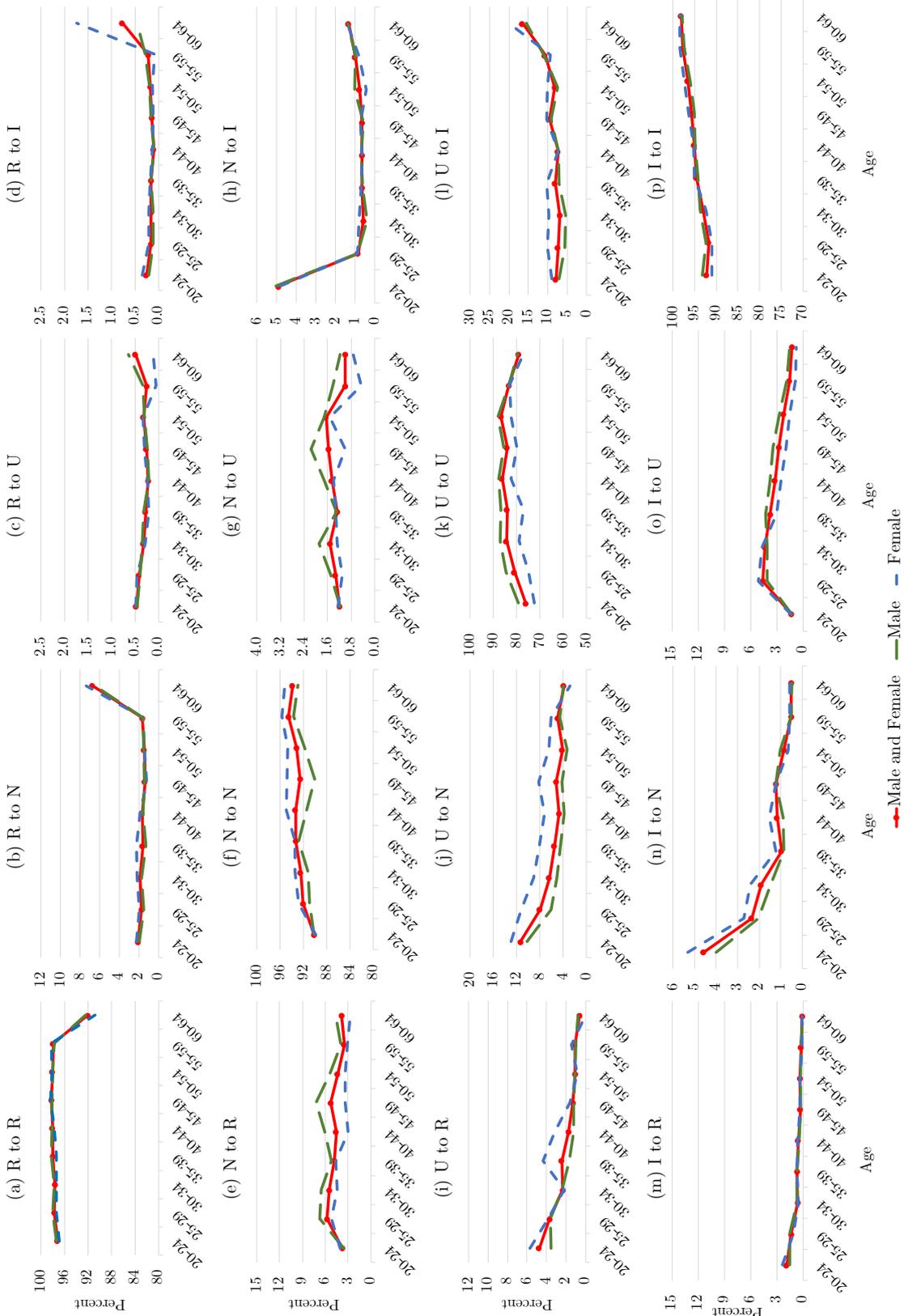
Notes: The series represents the average monthly transition rate between states $X \in \{R, N, U, I\}$ and $Y \in \{R, N, U, I\}$ of individuals who have never married, where "R" is regular employment (hired as employees called *seishain* or *seiki shain*, typically under an indefinite-term contract); "N" is non-regular employment (hired as employees that are not regular (*seiki*)); "U" is unemployment; and "I" is inactivity or non-participation in the labor force. The transition rate is computed as the ratio of individuals who are in state X in month t and in state Y in month $t+1$ to those who are in state X in month t. Data spans from January 2002 to December 2018, except for those flows originating in "R" or "N" which spans from January 2013 to December 2018.

Figure 20: Flow Rates between Different Labor Market Statuses (Married)
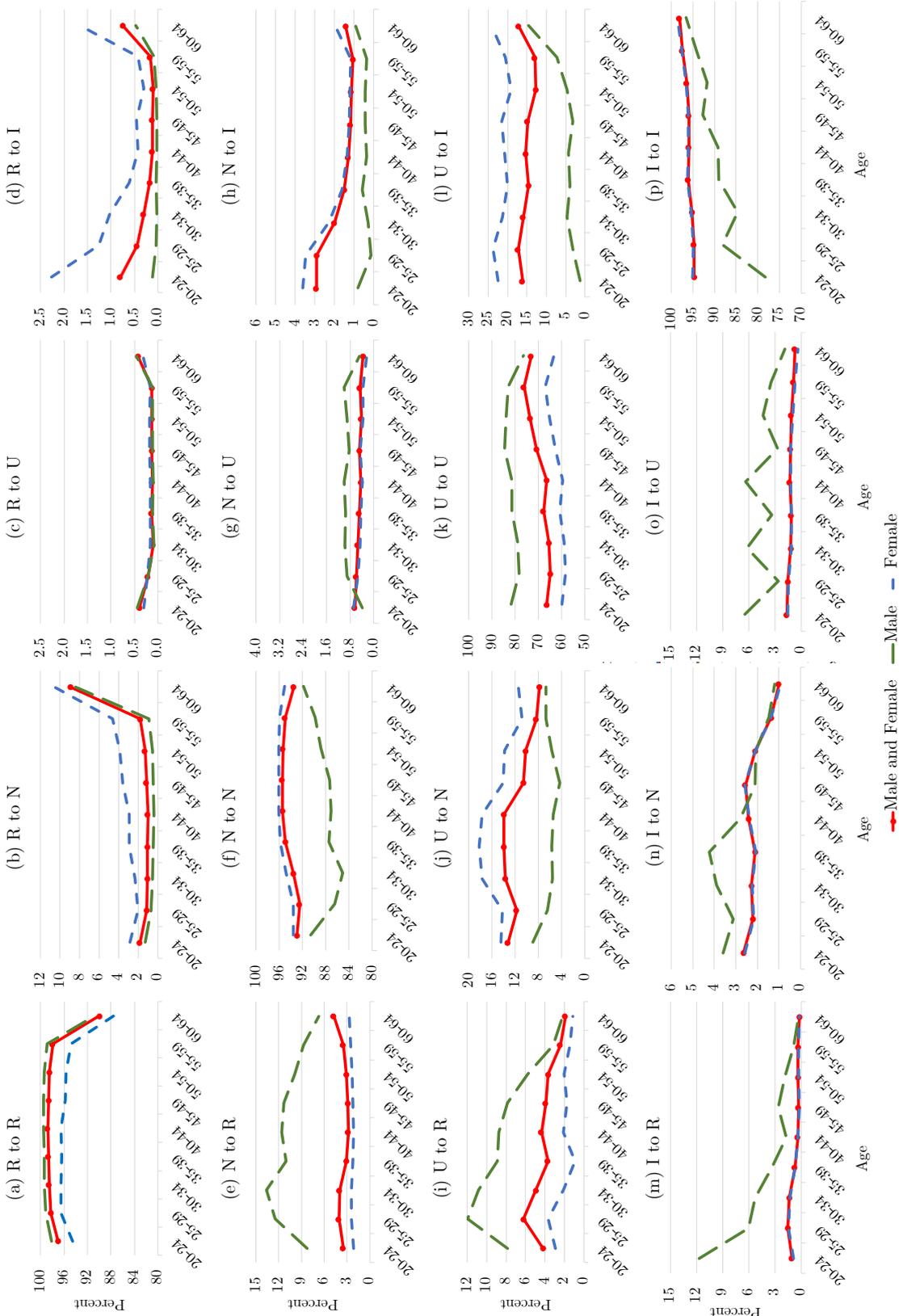
Notes: The series represents the average monthly transition rate between states $X \in \{R, N, U, I\}$ and $Y \in \{R, N, U, I\}$ of married individuals, where "R" is regular employment (hired as employees called *seishain* or *seiki shain*, typically under an indefinite-term contract); "N" is non-regular employment (hired as employees that are not regular (*seiki*)); "U" is unemployment; and "I" is inactivity or non-participation in the labor force. The transition rate is computed as the ratio of individuals who are in state X in month t and in state Y in month $t+1$ to those who are in state X in month t. Data spans from January 2002 to December 2018, except for those flows originating in "R" or "N" which spans from January 2013 to December 2018.

47

Figure 21: Flow Rates between Different Labor Market Statuses (Divorced or Widowed)
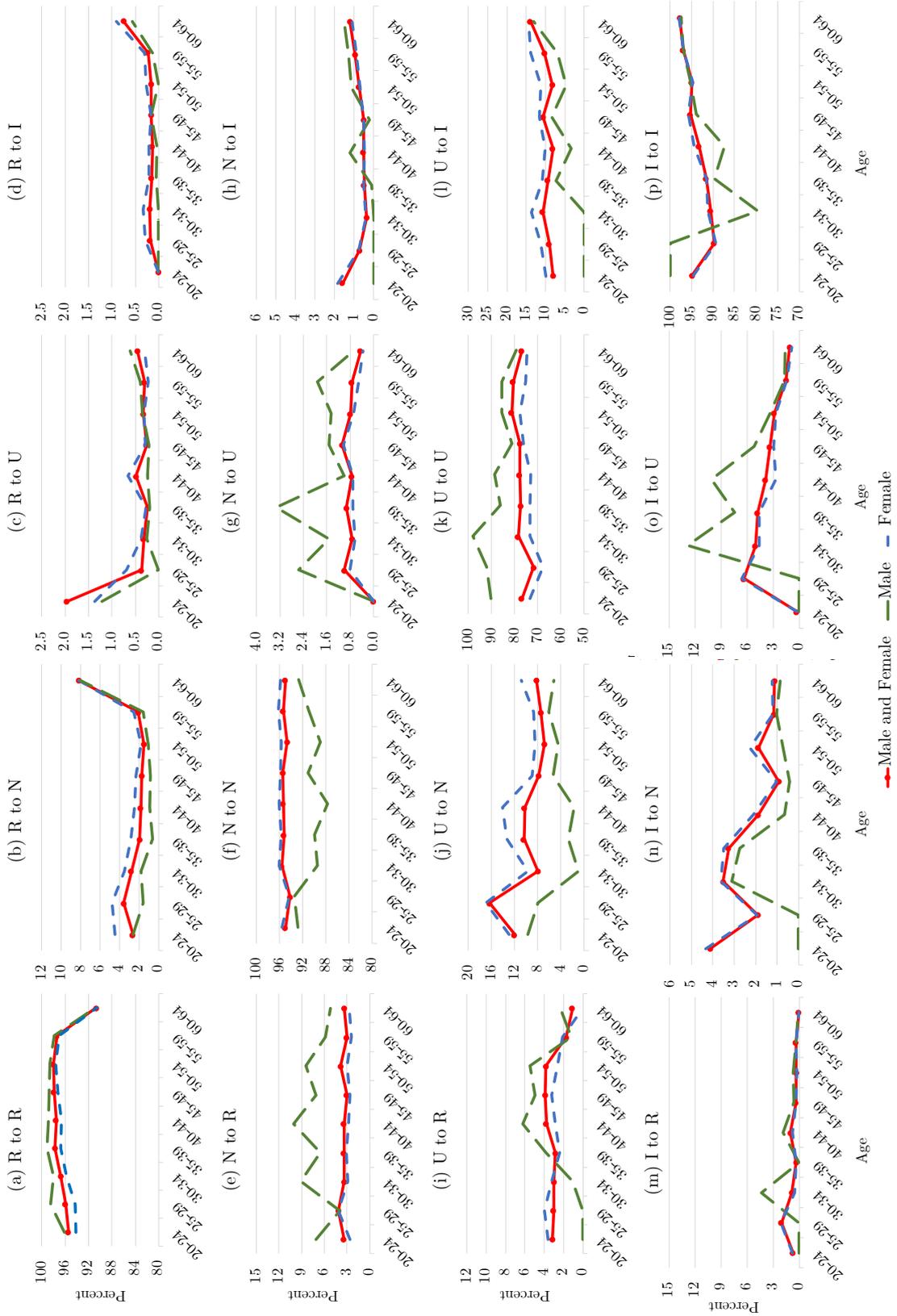
Notes: The series represents the average monthly transition rate between states $X \in \{R, N, U, I\}$ and $Y \in \{R, N, U, I\}$ of individuals who were previously married but not currently married, where "R" is regular employment (hired as employees that are not regular (seiki)); "U" is unemployment; and "I" is inactivity or non-participation in the labor force. The transition rate is computed as the ratio of individuals who are in state X in month t and in state Y in month $t+1$ to those who are in state X in month t. Data spans from January 2002 to December 2018, except for those flows originating in "R" or "N" which spans from January 2013 to December 2018.

48

Figure 22: Flow Rates between Different Labor Force Categories (Both Genders, All Education Groups)
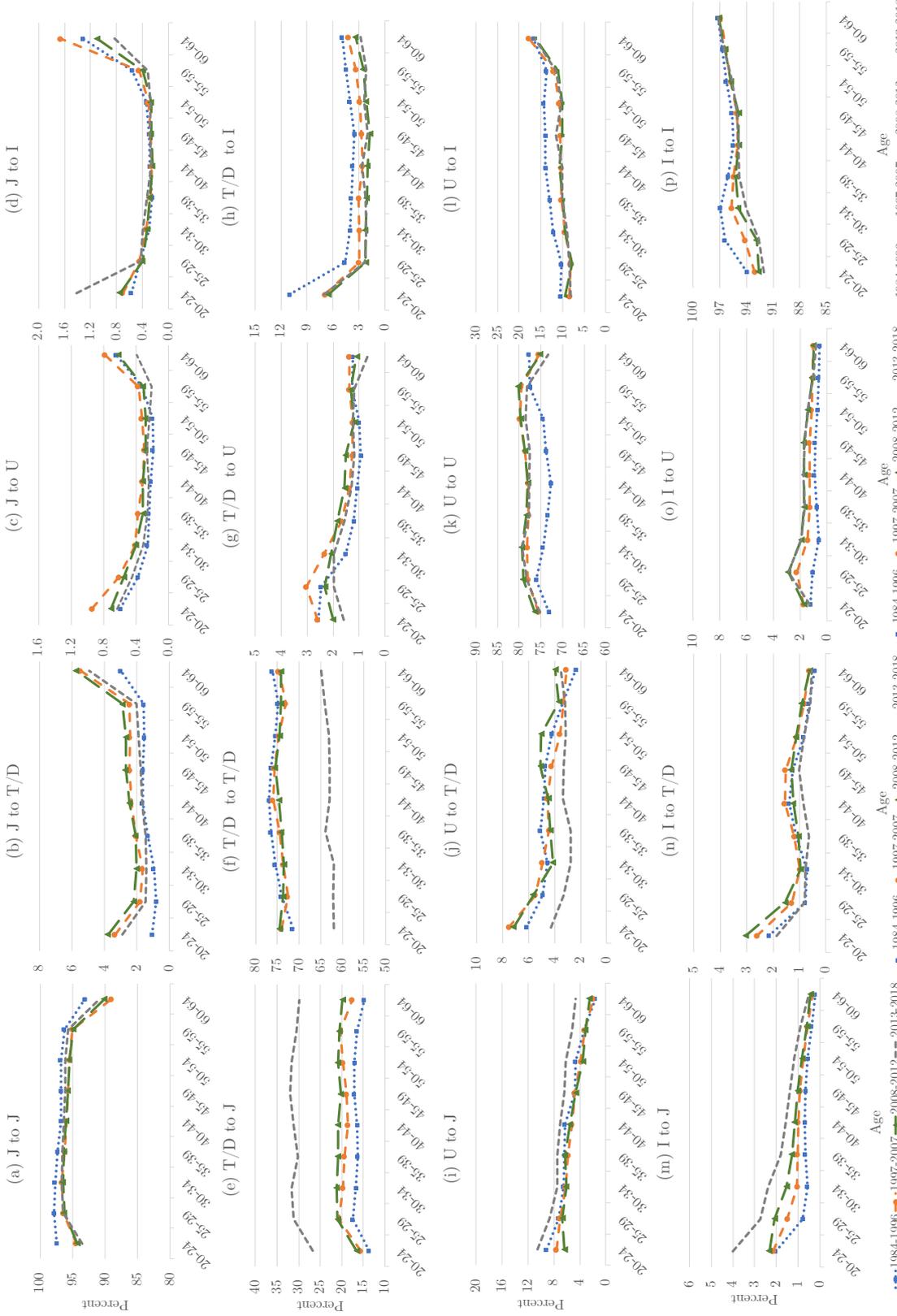
Notes: The series represents the average monthly transition rate between states $X \in \{J, T, U, I\}$ and $Y \in \{J, T, U, I\}$, where "J" is jouko (hired as employees under either an indefinite-term contract or a fixed term contract with the term exceeding 1 year); "T/D" is temporary (hired as employees that are not jouko) and daily employment; "U" is unemployment; and "I" is inactivity or non-participation in the labor force. The transition rate is computed as the ratio of individuals who are in state X in month t and in state Y in month $t+1$ to those who are in state X in month t.

49

Figure 23: Flow Rates between Different Labor Force Categories (Males, All Education Groups)
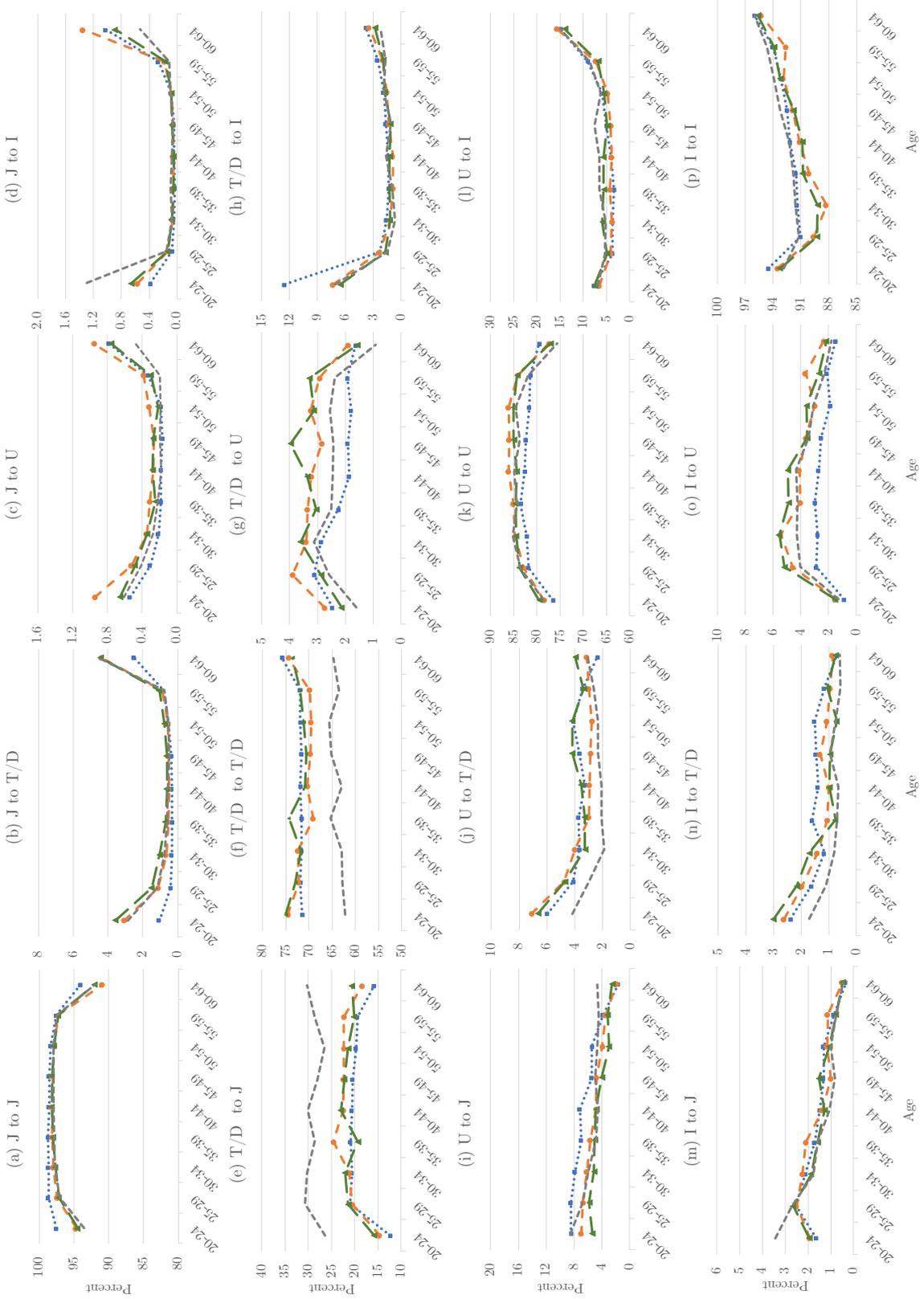
Notes: The series represents the average monthly transition rate between states $X \in \{J, T, U, I\}$ and $Y \in \{J, T, U, I\}$ for male workers of all education levels, where "J" is *jouko* (hired as employees under either an indefinite-term contract or a fixed term contract with the term exceeding 1 year); "T/D" is temporary (hired as employees that are not *jouko*) and daily employment; "U" is unemployment; and "I" is inactivity or non-participation in the labor force. The transition rate is computed as the ratio of individuals who are in state X in month t and in state Y in month $t + 1$ to those who are in state X in month t.

Figure 24: Flow Rates between Different Labor Force Categories (Females, All Education Groups)
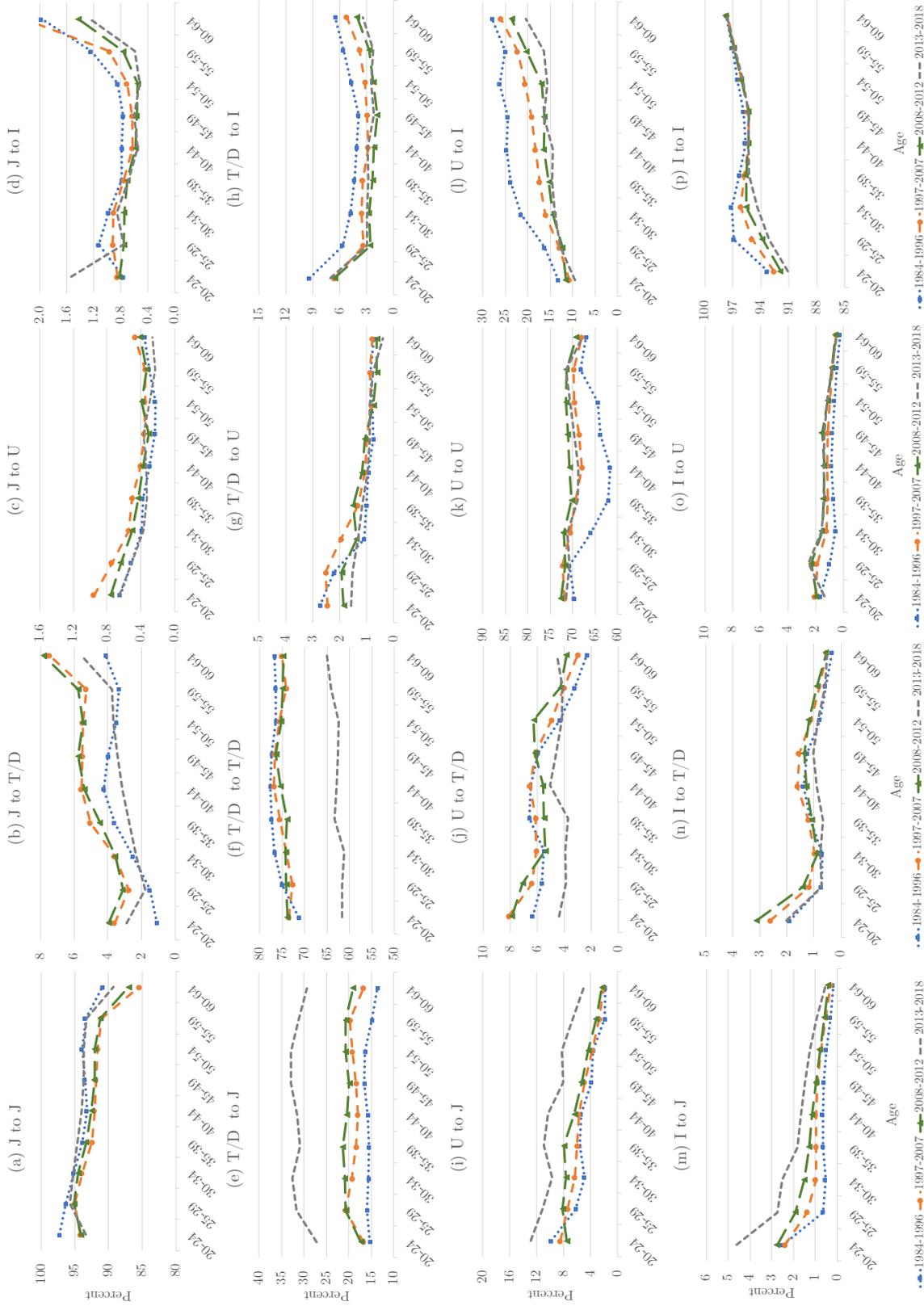
Notes: The series represents the average monthly transition rate between states $X \in \{J, T, U, I\}$ and $Y \in \{J, T, U, I\}$ for female workers of all education levels, where "J" is *jouko* (hired as employees under either an indefinite-term contract or a fixed term contract with the term exceeding 1 year); "T/D" is temporary (hired as employees that are not *jouko*) and daily employment; "U" is unemployment; and "I" is inactivity or non-participation in the labor force. The transition rate is computed as the ratio of individuals who are in state X in month t and in state Y in month $t+1$ to those who are in state X in month t. Data spans from January 1984 to December 2018.

Figure 25: Employment Type for each Employment Category by Gender and Decade
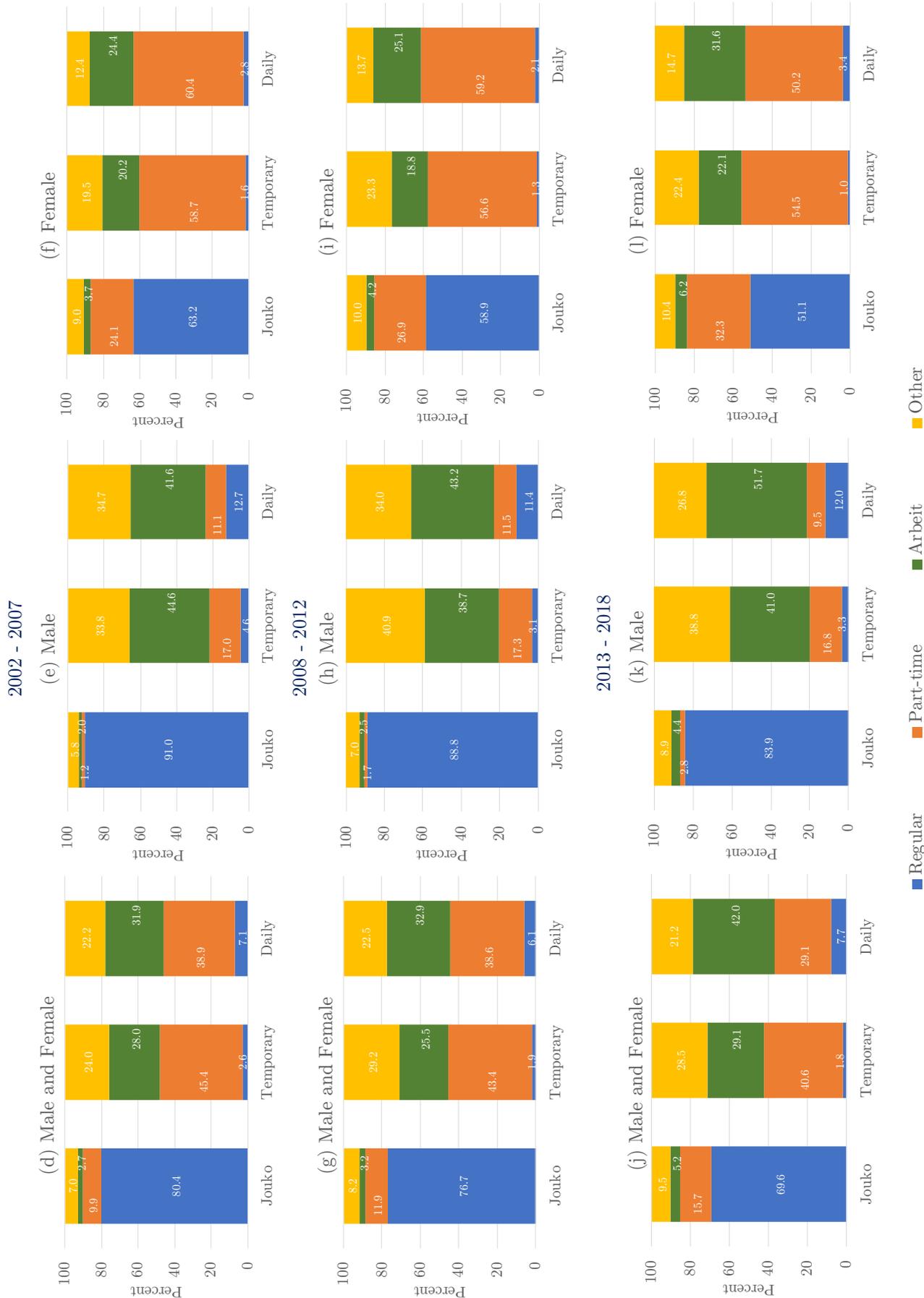
Notes: Each column in these graphs shows the composition of employment types (regular, part-time, *arbeit* and other) for each gender (both, male and female) and employment category (*jouko*, temporary and daily). "*Jouko*" represents employees hired under either an indefinite-term contract or a fixed term contract with the term exceeding 1 year; "Temporary" stands for employees hired under a term-contract with the term between 1 month and 1 year; "Daily" represents employees hired under a term-contract with the term less than 1 month; "Regular" comprises of employees that are called *seishain* or *seiki shain* at the workplace and are typically hired under an indefinite-term contract; "Part-time" encompasses employees that are called *paato* and usually have shorter work hours than full-time employees; "*Arbeit*" corresponds to employees that are called *arubaito* and engage in part-time or casual work; "Other" includes all employees other than regular, part-time, and *arbeit*, such as contract and dispatched workers.

Figure 26: Employment Type for each Employment Category by Educational Level
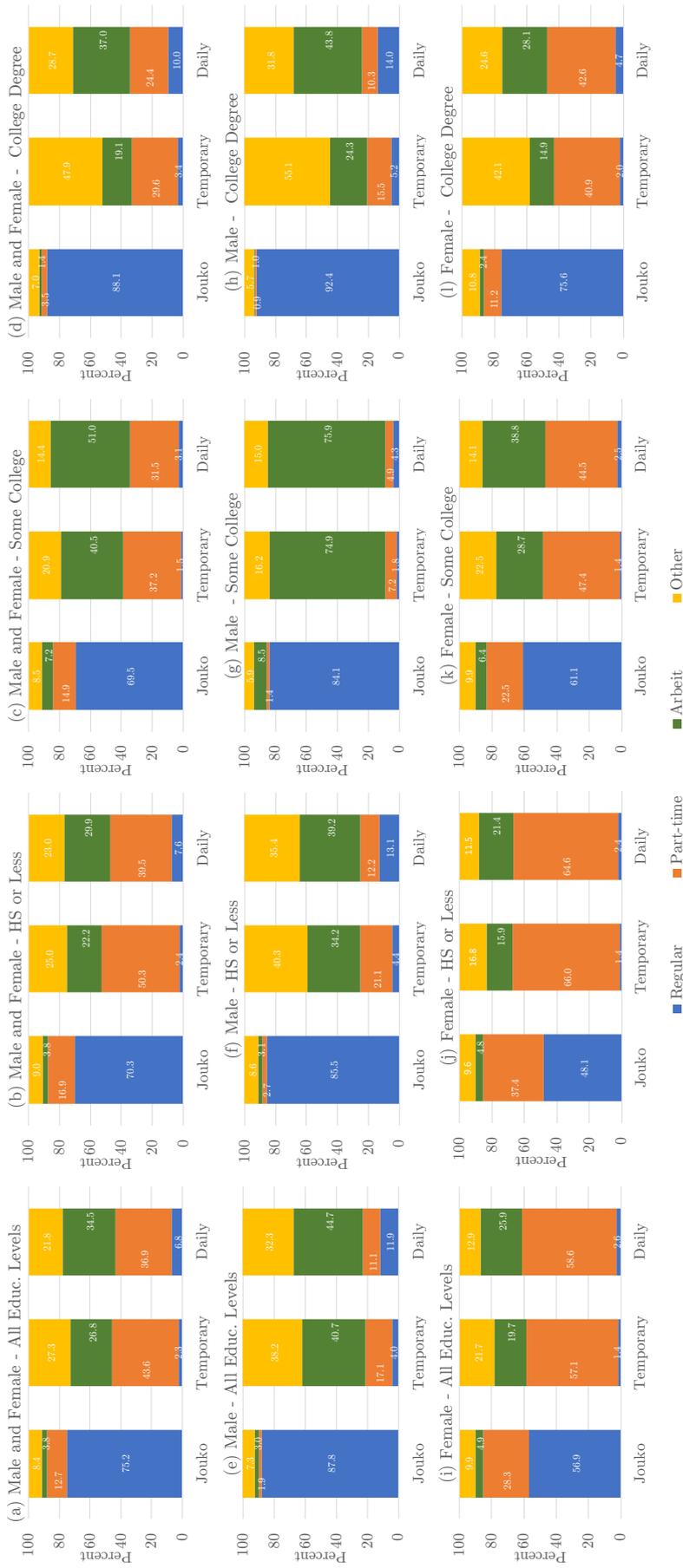
Notes: Each column in these graphs shows the composition of employment types (regular, part-time, *arbeit* and other) for each gender (both, male and female), education level (HS or less, some college, and college degree) and employment category (*jouko*, temporary and daily). "HS or Less" includes workers with at most a high school degree; "Some College" comprises of anyone who attended (2- or 4-year) college but without a 4-year college degree; "College Degree" consists of all individuals who graduated from a 4-year college. "*Jouko*" represents employees hired under either an indefinite-term contract or a fixed term contract with the term exceeding 1 year; "Temporary" stands for employees hired under a term-contract with the term between 1 month and 1 year; "Daily" represents employees hired under a term-contract with the term less than 1 month; "Regular" comprises of employees that are called *seishain* or *seiki shain* at the workplace and are typically hired under an indefinite-term contract; "Part-time" encompasses employees that are called *paato* and usually have shorter work hours than full-time employees; "*Arbeit*" corresponds to employees that are called *arubaito* and engage in part-time or casual work; "Other" includes all employees other than regular, part-time, and *arbeit*, such as contract and dispatched workers." Data spans from January 1986 to December 2018, except for all education levels combined, which starts in January 1984.

Figure 27: Current Employment Type for each Previous Employment Type by Gender and Decade
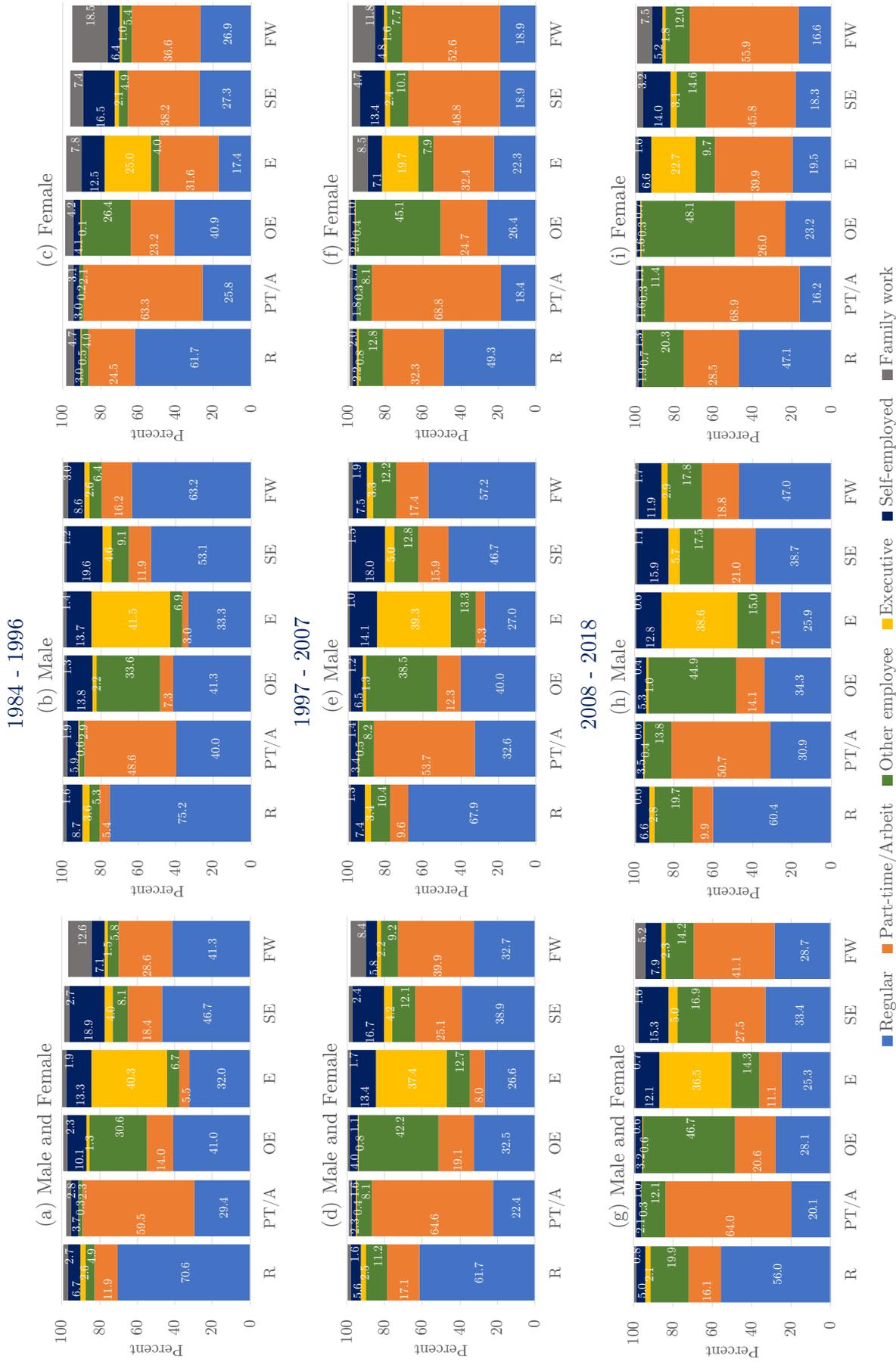

Notes: Each column in these graphs shows the composition of current employment types (regular, part-time/*arbeit*, other employee, executive, self-employed and family) for each gender (both, male and female) and previous employment type. The abbreviations for the previous employment type are as follows: "R" stands for regular, or *seiki*; employees; "PT/A" represents part-time and *arbeit* workers; "OE" stand for other types of employees; "E" stands for executives; "SE" represents self-employment; and "FW" stands for family work.

Figure 28: Current Employment Type for each Previous Employment Type by Educational Level
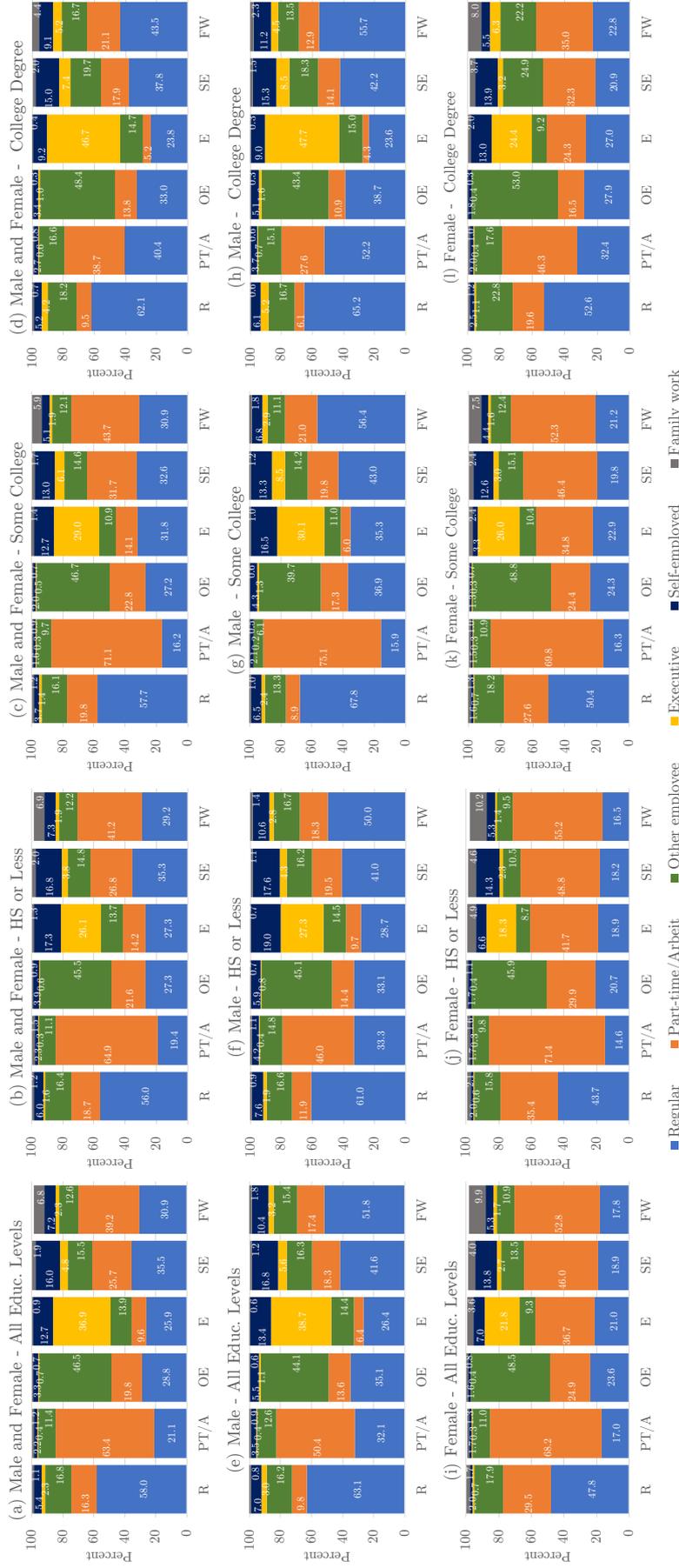
Notes: Each column in these graphs shows the composition of current employment types (regular, part-time/arbeit, other employee, executive, self-employed and family) for each gender (both, male and female), education level (HS or less, some college, and college degree), and previous employment type. The education levels are as follows: "HS or Less" includes workers with at most a high school degree; "Some College" comprises of anyone who attended (2- or 4-year) college but without a 4-year college degree; "College Degree" consists of all individuals who graduated from a 4-year college. The abbreviations for the previous employment type are as follows: "R" stands for regular, or seiki; employees; "PT/A" represents part-time and arbeit workers; "OE" stand for other types of employees; "E" stands for executives; "SE" represents self-employment; and "FW" stands for family work. Data spans from January 1986 to December 2018, except for all education levels combined, which starts in January 1984.

Figure 29: Employment Type among Employees within Industries by Gender and Decade
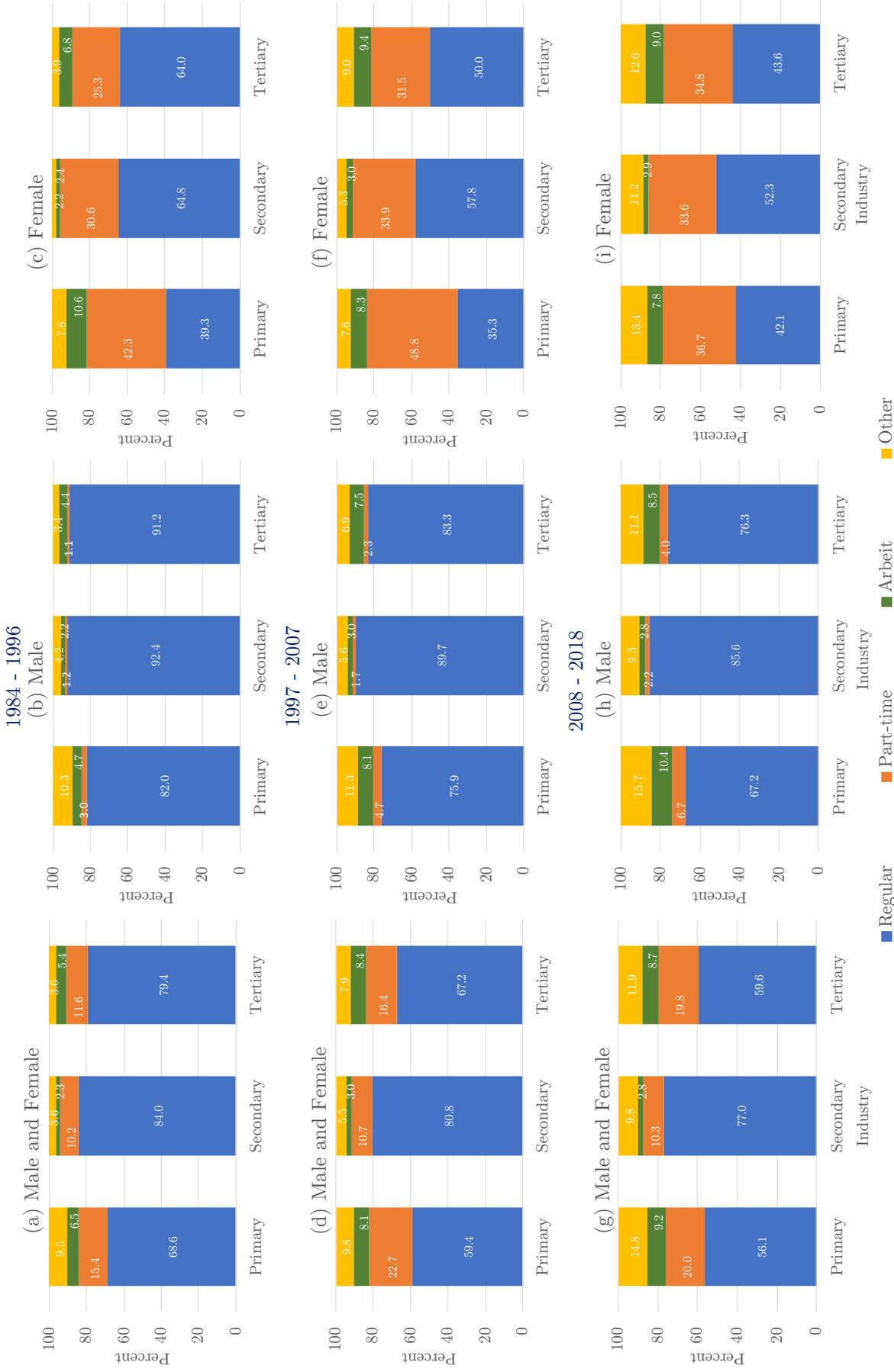
Notes: Each column in these graphs shows the composition of employment types (regular, part-time, *arbeit* and other) among employees for each gender (both, male and female) and industry (primary, secondary and tertiary). Primary industry includes agriculture, forestry, and fishery; secondary industry comprises of mining, construction, and manufacturing; tertiary industry includes all other industries including government services and unclassifiable industries. Employment types are as follows: "Regular" comprises of employees that are called *seishain* or *seiki shain* at the workplace and are typically hired under an indefinite-term contract; "Part-time" encompasses employees that are called *paato* and usually have shorter work hours than full-time employees; "*Arbeit*" corresponds to employees that are called *arubaito* and engage in part-time or casual work; "Other" includes all employees other than regular, part-time, and *arbeit*, such as contract and dispatched workers.

56

Figure 30: Employment Type among Employees within Industries by Educational Level
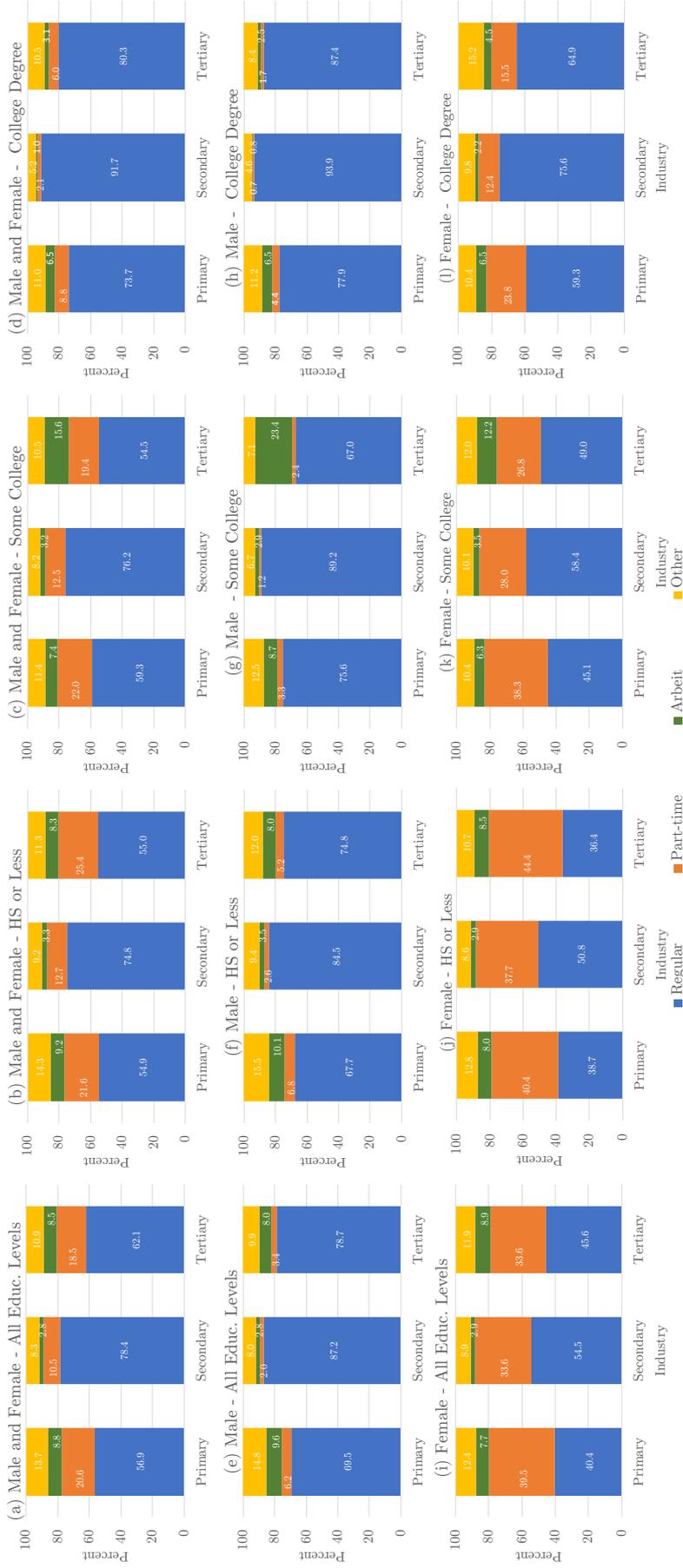
Notes: Each column in these graphs shows the composition of employment types (regular, part-time, *arbeit* and other) for each gender (both, male and female), education level (HS or less, some college, and college degree), and industry (primary, secondary and tertiary). The education levels are as follows: "HS or Less" includes workers with at most a high school degree; "Some College" comprises of anyone who attended (2- or 4-year) college but without a 4-year college degree; "College Degree" consists of all individuals who graduated from a 4-year college. Primary industry includes agriculture, forestry, and fishery; secondary industry comprises of mining, construction, and manufacturing; tertiary industry includes all other industries including government services and unclassifiable industries. Employment types are as follows: "Regular" comprises of employees that are called *seishain* or *seiki shain* at the workplace and are typically hired under an indefinite-term contract; "Part-time" encompasses employees that are called *paato* and usually have shorter work hours than full-time employees; "*Arbeit*" corresponds to employees that are called *arubaito* and engage in part-time or casual work; "Other" includes all employees other than regular, part-time, and *arbeit*, such as contract and dispatched workers. Data spans from January 1986 to December 2018, except for all education levels combined, which starts in January 1984.

Figure 31: Employment Type among Employees within Occupations by Gender and Decade
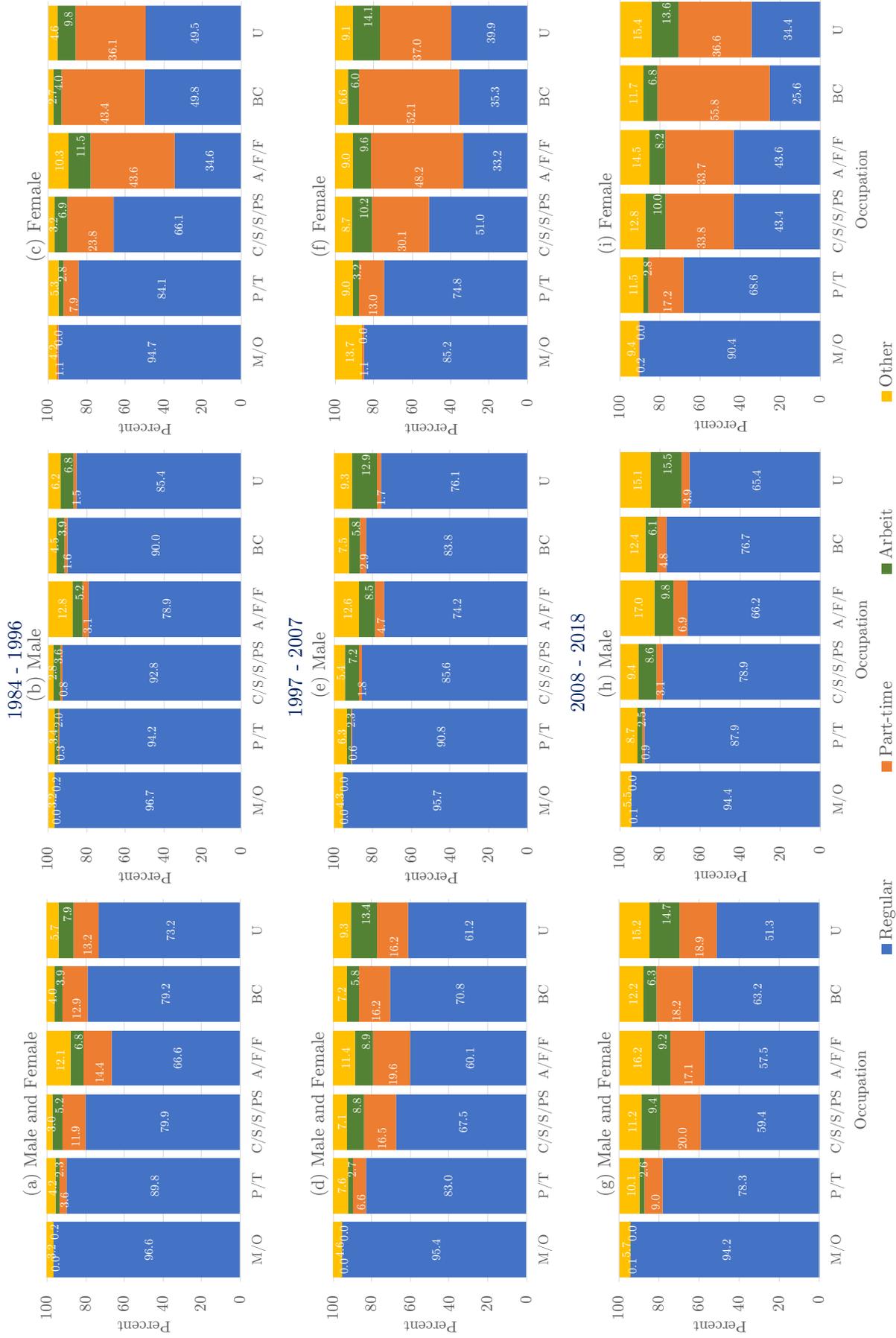

Notes: Each column in these graphs shows the composition of employment types in each gender/occupation group. The abbreviations for the different occupations are as follows: M/O: Manager/Official; P/T: Professional/Technical; C/S/SPS: Clerical/Sales/Service; A/F/F: Agriculture/Forestry/Fishery; BC: Blue-collar occupations; U: Unclassifiable. Employment types are as follows: "Regular" comprises of employees that are called *seishain* or *seiki shain* at the workplace and are typically hired under an indefinite-term contract; "Part-time" encompasses employees that are called *paato* and usually have shorter work hours than full-time employees; "*Arbeit*" corresponds to employees that are called *arubaito* and engage in part-time or casual work; "Other" includes all employees other than regular, part-time, and *arbeit*, such as contract and dispatched workers.

Figure 32: Employment Type among Employees within Occupations by Educational Level

Notes: Each column in these graphs shows the composition of employment types in each gender/education group. The education levels are as follows: "HS or Less" includes workers with at most a high school degree; "Some College" comprises of anyone who attended (2- or 4-year) college but without a 4-year college degree; "College Degree" consists of all individuals who graduated from a 4-year college. The abbreviations for the different occupations are as follows: M/O: Manager/Official; P/T: Professional/Technical; C/S/SPS: Clerical/Sales/Service/Protective Service; A/F/F: Agriculture/Forestry/Fishery; BC: Blue-collar occupations; U: Unclassifiable. Employment types are as follows: "Regular" comprises of employees that are called *seishain* or *seiki shain* at the workplace and are typically hired under an indefinite-term contract; "Part-time" encompasses employees that are called *paato* and usually have shorter work hours than full-time employees; "Arbeit" corresponds to employees that are called *arubaito* and engage in part-time or casual work; "Other" includes all employees other than regular, part-time, and *arbeit*, such as contract and dispatched workers. Data spans from January 1986 to December 2018.

Figure 33: Further Analysis
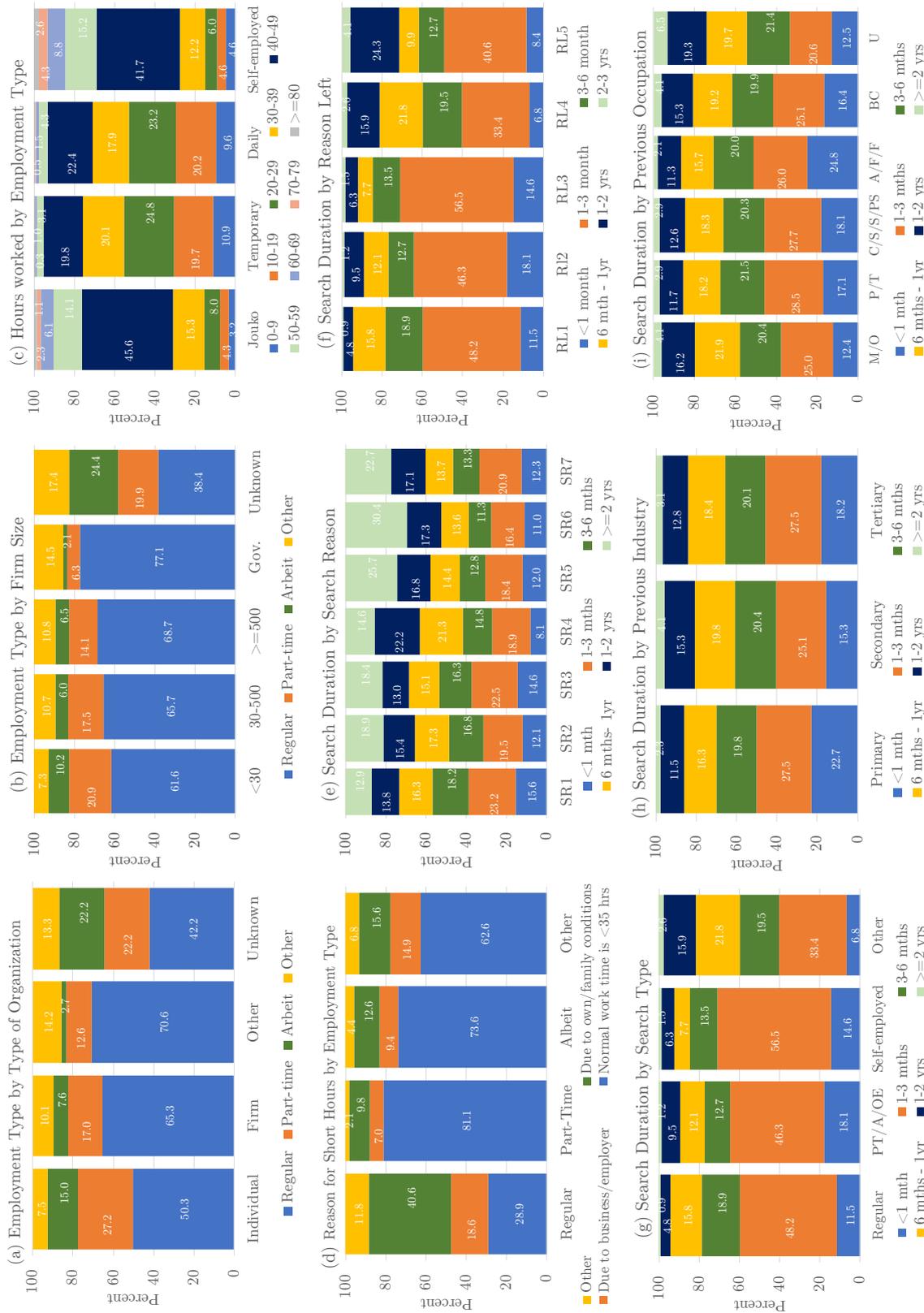
Notes: Panels (a) and (b) show the composition of employment types (regular, part-time, *arbeit* and other) in each type of organization (individual, firm, other and unknown) and firm size group (less than 30 workers, between 30 and 500 employees, larger than 500 workers, government employment, and unknown), respectively. Panel (c) shows the composition of the average number of weekly hours of work (0-9, 10-19, 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, and over 80 hours per week) in each employment category (*jouko*, temporary, daily and self-employed). Panel (d) shows the composition of the reason for working short hours per week (due to own/family conditions, due to business/employer, normal work time is less than 35 hours per week, and other) in each employment type (regular, part-time, *arbeit*, other). Panel (e) displays the composition of the duration of search (less than 1 month, 1-3 months, 3-6 months, 6 months to 1 year, 1-2 years, over 2 years) in each of the different search reasons categories (SR1 to SR7). The abbreviations for search reasons are as follows: SR1: Involuntary quit (Mandatory retirement/Contract expiration); SR2: Involuntary quit (Circumstances of employer/business); SR3: Voluntary quit; SR4: Graduated from school; SR5: Necessary to earn revenue; SR6: Other; and SR7: Unknown. Panel (f) displays the composition of the duration of search in each of the different reasons for leaving the previous job (RL1 to RL5). The abbreviations for the reasons for leaving the previous job are as follows: RL1: Reasons due to business/employer; RL2: Retiring age or the term of your employment agreement ended; RL3: Due to working condition/Want a different or better job; RL4: Reasons due to own/family conditions; RL5: Other. Panels (g)-(i) display the composition of the duration of search in each employment type (regular, part-time/*arbeit*/other employees, self-employed, other) sought, previous industry (primary, secondary, tertiary), and previous occupation, respectively. The abbreviations for the occupations are as follows: M/O: Manager/Official; P/T: Professional/Technical; C/S/SPS: Clerical/Sales/Service/Protective Service; A/F/F: Agriculture/Forestry/Fishery; BC: Blue-collar occupations; U: Unclassifiable.

60

Figure 34: Demographics - Gender by Marital Status and Age
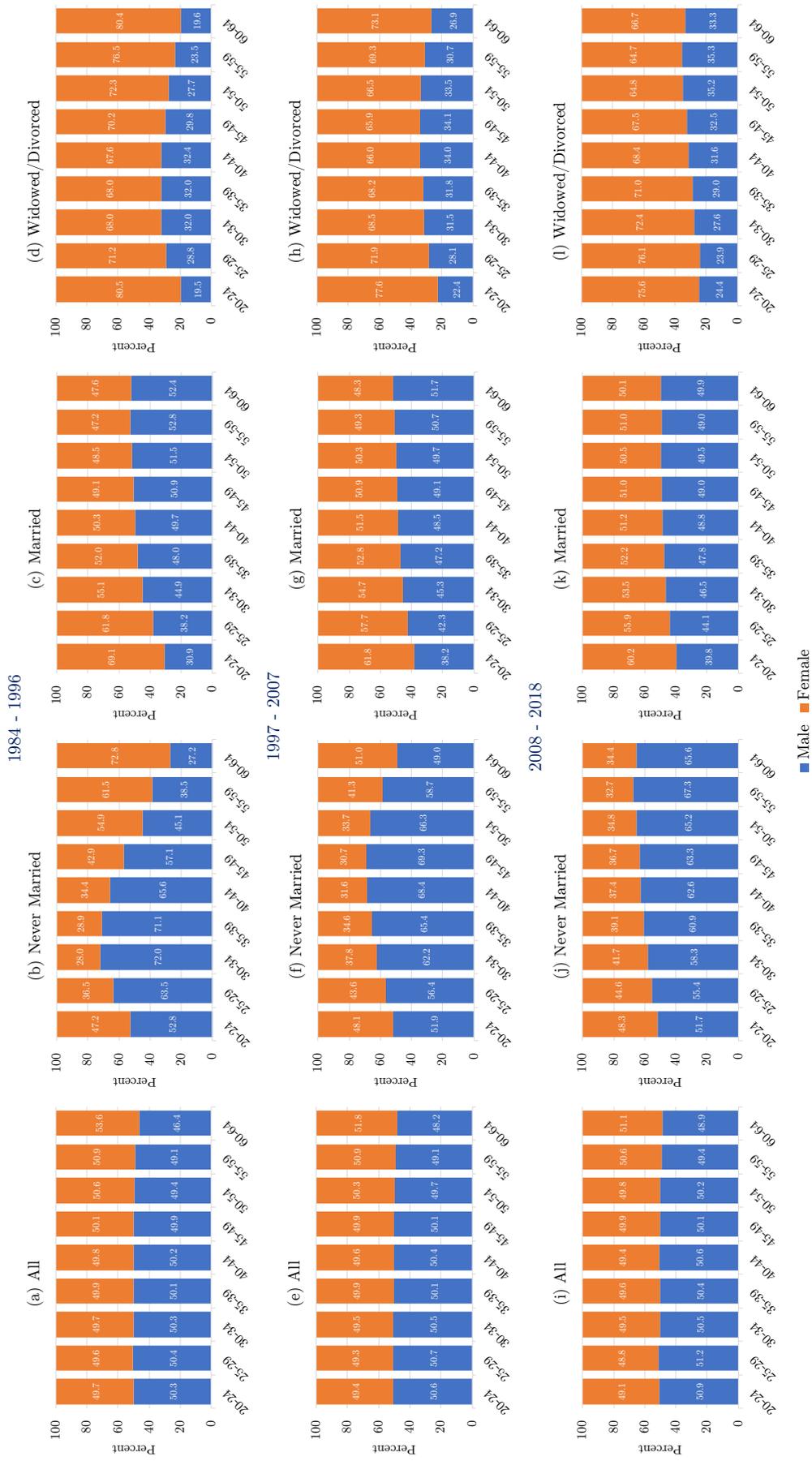
Notes: Each column in these graphs shows the gender composition in each marital status/age group. The marital statuses in the figures are as follows: "Never Married" includes individuals who have never married; "Married" are those currently married; "Widowed/Divorced" includes all those previously married but not currently married.

Figure 35: Demographics - Marital Status by Gender and Age
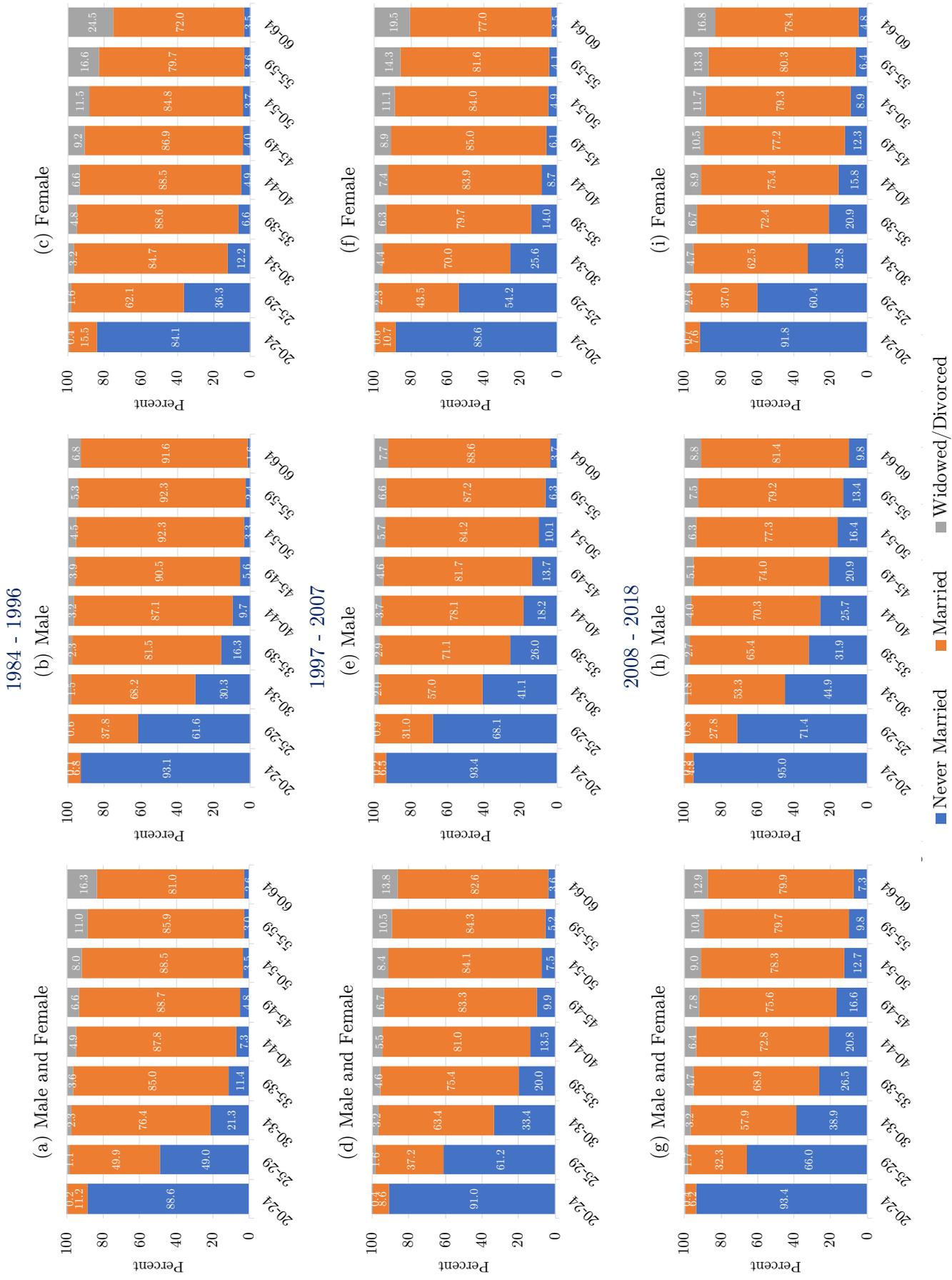
Notes: Each column in these graphs shows the marital status composition in each gender/age group. The marital statuses in the figures are as follows: "Never Married" includes individuals who have never married; "Married" are those currently married; "Widowed/Divorced" includes all those previously married but not currently married.

Figure 36: Demographics - Gender by Education and Age
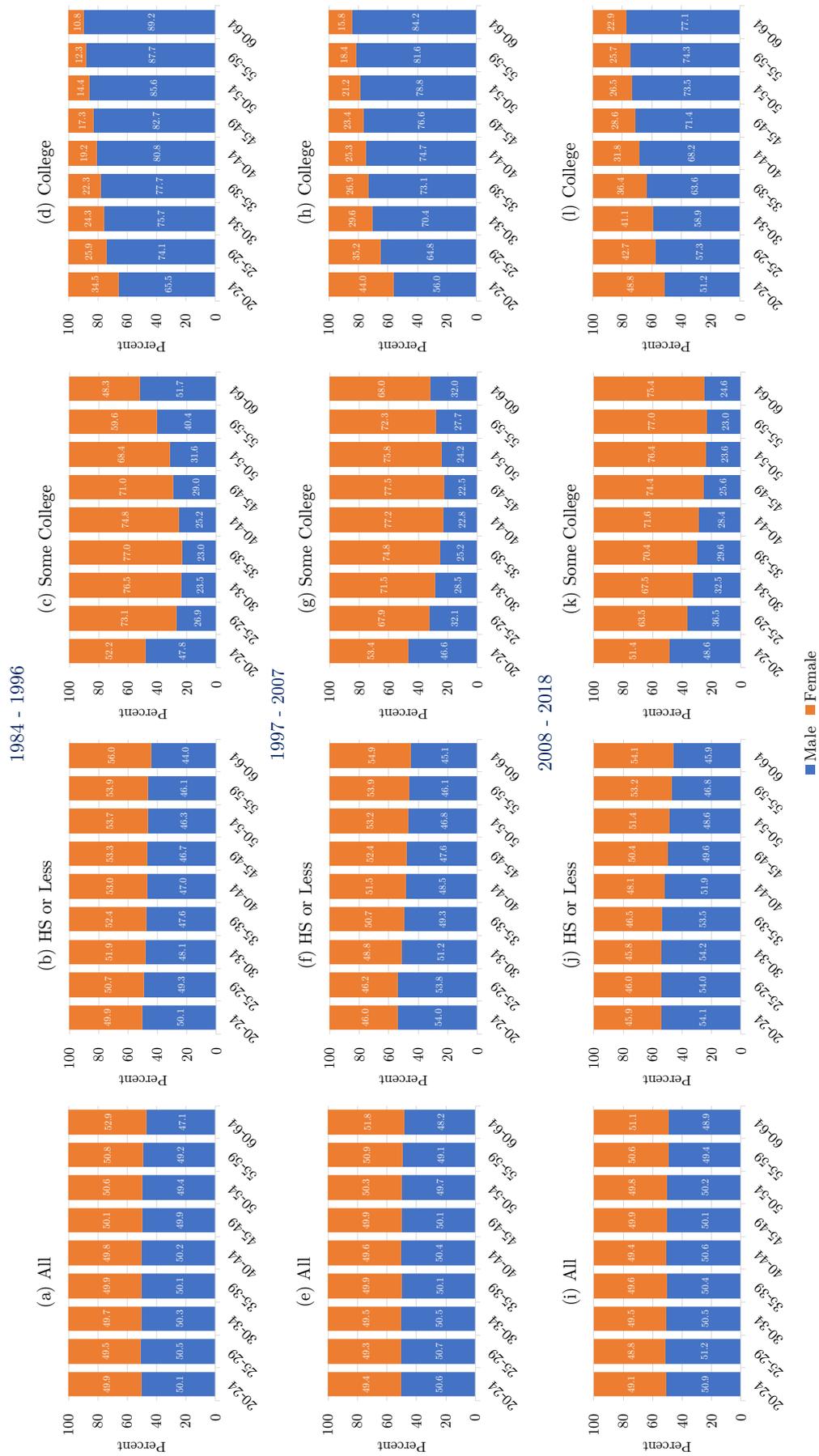
Notes: Each column in these graphs shows the gender composition in each education/age group. The educational levels in the figures are as follows: "HS or Less" includes workers with at most a high school degree; "Some College" comprises of anyone who attended (2- or 4-year) college but without a 4-year college degree; "College Degree" consists of all individuals who graduated from a 4-year college.

Figure 37: Demographics - Education by Gender and Age
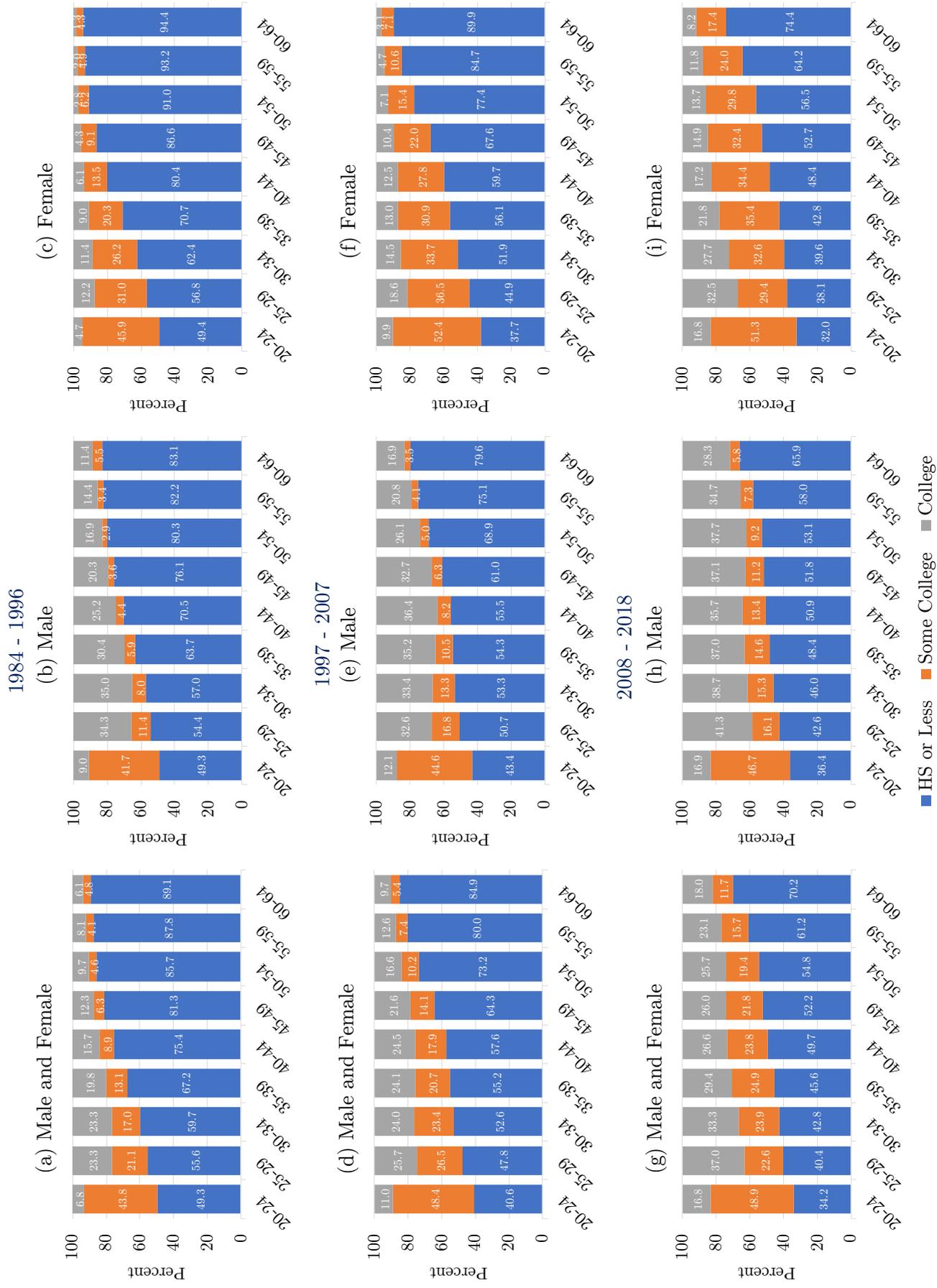
Notes: Each column in these graphs shows the education composition in each gender/age group. The educational levels in the figures are as follows: "HS or Less" includes workers with at most a high school degree; "Some College" comprises of anyone who attended (2- or 4-year) college but without a 4-year college degree; "College Degree" consists of all individuals who graduated from a 4-year college.

Figure 38: Demographics - Gender and Marital Status by Labor Market Status and Age
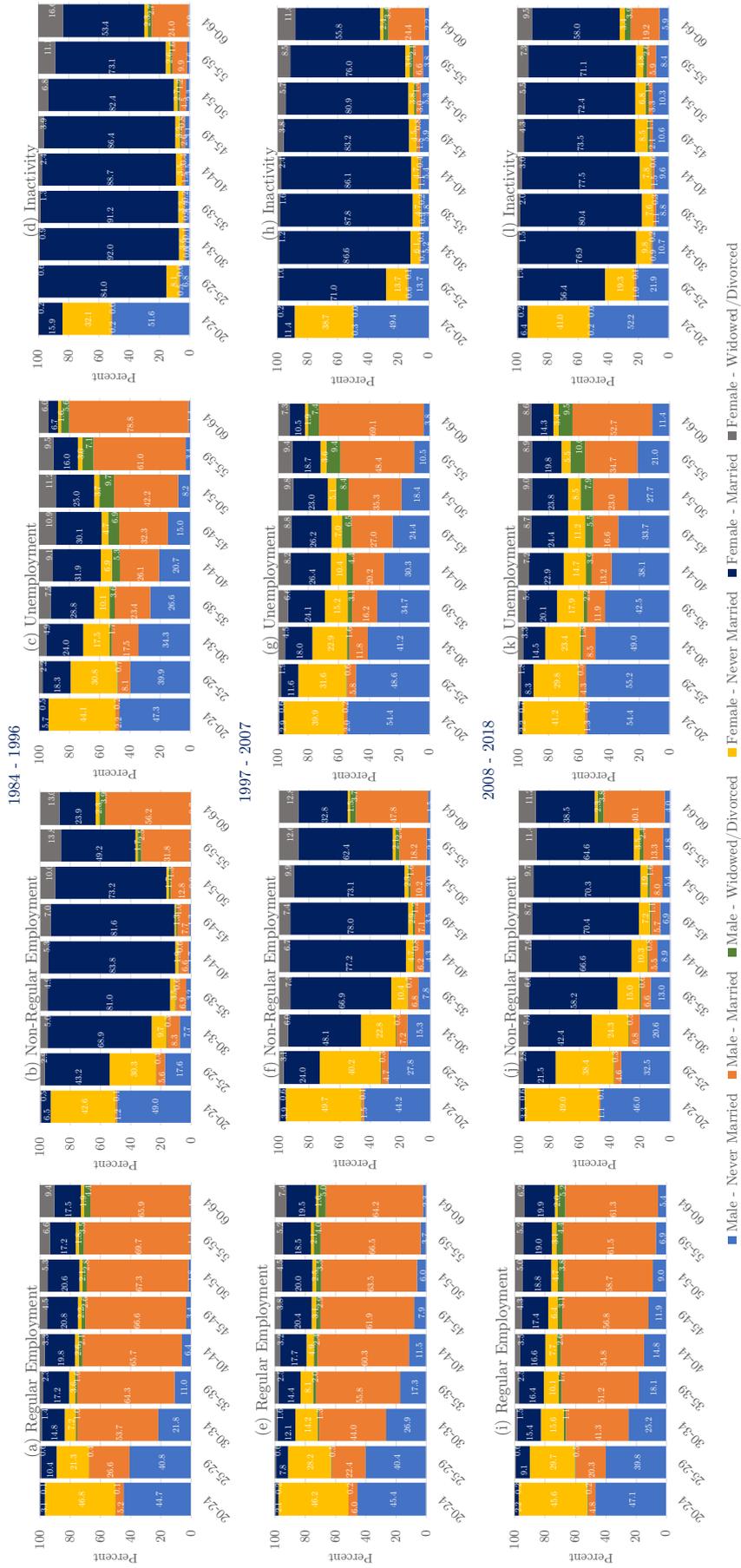
Notes: Each column in these graphs shows the gender/marital status composition in each labor force status/age group. The marital statuses in the figures are as follows: "Never Married" includes individuals who have never married; "Married" are those currently married; "Widowed/Divorced" includes all those previously married but not currently married.

Figure 39: Demographics - Gender and Education by Labor Market Status and Age
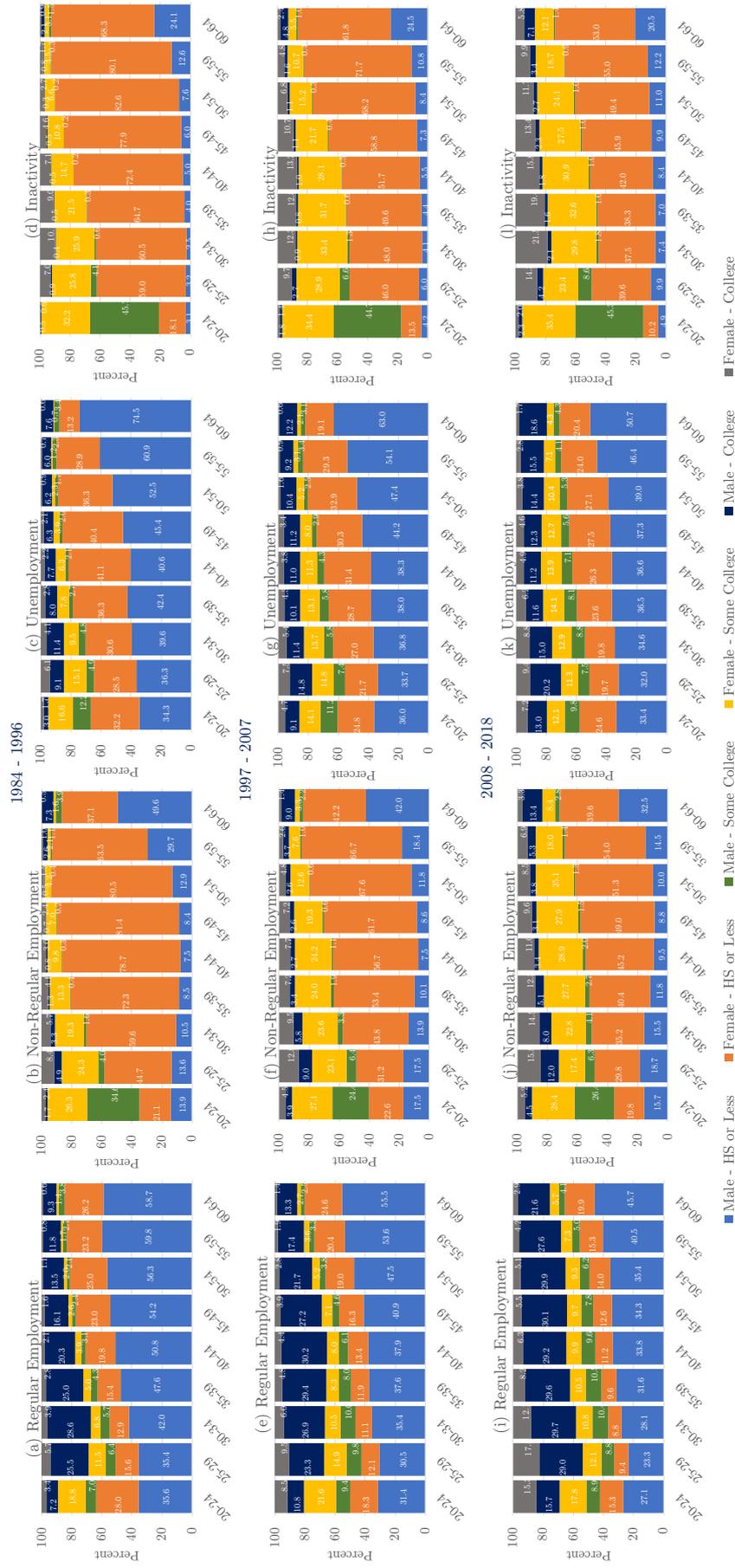
Notes: Each column in these graphs shows the gender/education composition in each labor force status/age group. The marital statuses in the figures are as follows: "Never Married" includes individuals who have never married; "Married" are those currently married; "Widowed/Divorced" includes all those previously married but not currently married.