

Family formation and the employment outcomes of immigrants in France: A multilevel multistate approach*

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Abstract

This paper investigates the effect of family formation on the labour market trajectories of immigrant men and women in France. Using rich longitudinal data from France and applying multilevel competing-risks event history models, we analyse the risk of a change in the employment status of immigrant men and women who are childless and then following childbirth. More specifically, we analyse the outcomes of 1) immigrants upon arrival in France (they can either be employed or in education), 2) employed immigrants (they can either switch to another employment as salaried or self-employed, move to education, become unemployed or inactive), and 3) immigrants who are out of employment (they can either become salaried, self-employed, move to education, become unemployed or inactive) and focus on the differential role of family formation for men and women to explain these transitions. We distinguish between employment changes due to childbirth from employment changes of individuals who have children and account for unobserved codeterminants of childbearing and employment risks. Our analysis shows that immigrant women are negatively impacted by childbirth compared to immigrant men. We also find that the effect of family formation on gender gaps in labour market trajectories differ by migrant groups, and birth cohorts.

Keywords: Fertility, Partnership, Employment, Multi-state Event History Analysis, Immigrants, France.

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1. Introduction

A dynamic labour market characterised by equality of opportunity remains a challenge for most countries in Europe. Although progress has been made, there are still important gender disparities as women continue to have lower labour force participation rates than men (ILO 2018), and when they are active on the labour market, they work fewer hours, are concentrated in specific occupations, and earn less (OECD, 2021). These gender disparities are also observed among immigrants as immigrant women are more likely to be inactive compared to immigrant men. Among the potential explanations, family formation has received a lot of attention and has been shown to be an important source of gender inequality in the labour market (Loughran and Zissimopoulos 2009; Bertrand et al., 2010; Angelov et al. 2016; Wilner 2016; Kleven and Landais 2017; Kleven et al. 2019a; Kreyenfeld 2015).

Childbirth does not affect the labour market outcomes of immigrants and natives in a similar way (Kil et al. 2018; Nieto 2021; Vidal-Coso 2019). Overall, immigrant women experience a greater motherhood penalty than native women. However, little is known about whether the effect of childbirth depends on socio-demographic characteristics other than gender and migration background. The origin group of immigrants may be an important factor to consider, as immigrants may differ from each other in their cultural background and preferences. Migrants from different origin countries may hold different preferences about the timing of family formation and different expectations regarding the division of paid and unpaid work. Furthermore, immigrants may differ from each other in the number of family members available for informal care and the extent of childcare services they can access.

This paper aims to fill this gap in the existing literature by investigating differences across migrant groups in the effect of family formation on gender gaps in labour market trajectories in France. To carry out the analysis, we focus on immigrants and use a rich French survey that contains retrospective biographical information on the labour market outcomes of immigrants from their arrival to the time of interview and implement multilevel competing-risks event history models to study repeated events of employment changes as well as the birth of several children. This allows us to examine gender differences in the career paths of immigrant parents before and after childbirth. We also explore how these gender differences differ in magnitude across migrant group.

There are potential unobserved selection effects since individuals who are more likely to change their employment status are also more likely to have a birth because of unobserved characteristics. To address this concern, we use a simultaneous-equations modelling approach which allows us to detect and control for unobserved time-constant codeterminants of these two processes. Although simultaneous-equations hazard models have been used in research on interrelated event histories of individuals before (Kulu and Steele 2013; Mikolai and Kulu 2018; Steele et al. 2005, 2006), to the best of our knowledge, no study has applied this method in this context. Besides, we study the type of employment change that immigrants do upon and after childbirth. Lastly, we examine whether the effect of family formation on the labour market trajectories differ by gender, migrant group, and birth cohort.

2. Previous Research on Family Formation and Employment

2.1. Among Majority Populations

A large and growing body of literature highlights the role of family formation in explaining gender inequality in the labour market (Loughran and Zissimopoulos 2009; Bertrand et al., 2010; Angelov et al. 2016; Wilner 2016; Kleven and Landais 2017; Kleven et al. 2019a; Kreyenfeld 2015). Indeed, while men's labour force participation tends to be stable across the life course, women's labour force participation varies at different life stages, with lower or non-participation often corresponding to periods of childbirth (Angrist and Evans 1998; Jacobsen et al. 1999; Kleven et al. 2019a; Sieppi and Pehkonen 2019; Herrarte et al. 2012). Childbirth also results in lower employment probabilities (Gutierrez-Domenech 2005b; Cristia 2008; Michaud and Tatsiramos 2011; Fitzenberger et al. 2013), lower earnings (Angelov et al. 2016; Kleven et al. 2018; 2019), a reduction in working hours (Lundberg and Rose 2000; Miller 2011; Kleven et al. 2019a; Gutierrez-Domenech 2005a; Wood et al. 2016, Begall and Grunow 2015) for mothers compared to fathers. It reduces women's performance (Azmat and Ferrer 2017), experience (Klepinger et al. 1999; Daniel et al. 2013), occupational status (Cools et al. 2017; Kleven et al. 2019a), productivity (Krapf et al. 2017), full-time (Paull 2008; Daniel et al. 2013) and high-paid private sector employment (Daniel et al. 2013; Lundborg et al. 2017; Kleven et al. 2019a). Many women shift into more family-friendly workplaces after having a child (Hotz et al. 2018).

Yet, the magnitude of the effect varies across countries (Gustafsson et al. 1996; Sigle-Rushton and Waldfogel 2007; Gangl and Ziefle 2009; Agüero and Marks 2011; Kleven et al. 2019c; Cukrowska-Torzewska and Lovasz 2020) due to country-specific institutional context, especially with regard to family policies and cultural attitudes towards the gender division of housework and childcare (Cukrowska-Torzewska and Lovasz 2020; Alesina and Giuliano 2010; Stam, Verbakel, and de Graaf 2014; Antecol 2000; Blau, Kahn, and Papps 2011). It also varies by individuals' characteristics. For instance, the effect of childbirth on employment differs depending on the educational level (Angrist and Evans 1998; Anderson et al. 2002; 2003; Wilde et al. 2010; Cools and Strøm, 2016; Gutierrez-Domenech 2005b, Matysiak and Vignoli 2010; Azmat, Ferrer, 2017; Bertrand, Goldin, Katz 2010; Wilde, Batchelder, Ellwood), birth cohort (Fouarge et al. 2010), ethnicity (Anderson et al. 2002; 2003), marital (or union) status (Bronars and Grogger, 1994), and economic background of the parents (Budig and Hodges, 2010).

2.2. Among Immigrant Populations

Despite the growing literature on the role of childbirth behind gender inequality in the labour market, only a few studies focus directly on migrant populations. This is surprising given that there are important within-gender differences in the labour market participation of immigrants (Ala-Mantila and Fleischmann 2018; McRae 2003). The existing studies have found that employment levels decrease to a larger extent following the transition to parenthood among women of migrant origin than among natives (Kil et al. 2018; Nieto 2021). There is also a strong path-dependency of employment trajectories

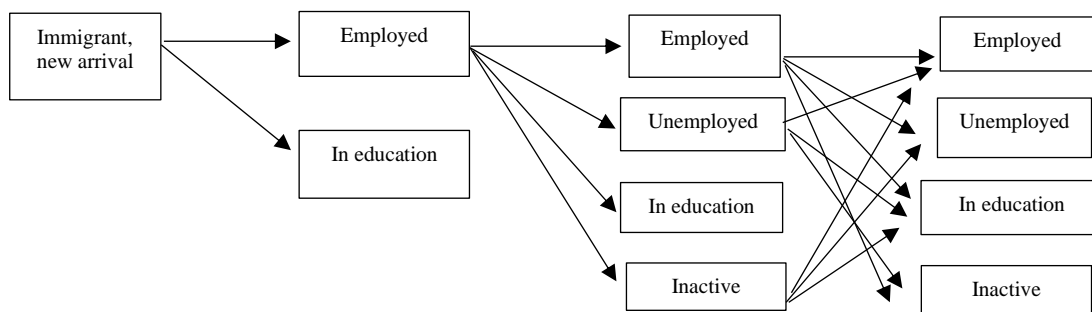
around parenthood for migrant women and natives (Maes, Wood and Neels 2021). The drivers of these gender gaps strongly differ however between natives and immigrants: while children generate higher gender gaps in labour participation and part-time work for natives, the gender gaps in employment and permanent employment are greater for immigrants (Nieto 2021). Furthermore, in post-birth employment patterns, a larger positive effect of women’s opportunity cost, measured through educational attainment and previous job characteristics, than of partners’ income, is observed, especially for immigrant women (Vidal-Coso 2019).

2.3. Family Formation and Employment in France

3. Methodology

To study changes in the employment status of immigrants across their life courses, we estimate multilevel multi-state event history models. These models are an extension of conventional event history models: rather than analysing a single employment transition, individuals move among different states. We start by observing all immigrants from the time of migration. Upon arrival, all are considered as unemployed. As a result, they can either move to employment as salaried or self-employed or pursue further education. Once in employment, they can either switch to another employment, move to education, or go out of employment as unemployed or inactive. Finally, immigrants who are out of employment can either go back to employment as salaried or self-employed, move to education or become unemployed or inactive.

Figure 1. Representation of employment transitions among immigrants



To study the risk of a change in the employment status of individuals by parity status among immigrant men and women, we estimate three sets of competing risks models for the outcomes of 1) immigrants upon arrival, 2) employed immigrants, and 3) immigrants who are out of employment. For the outcomes of immigrants upon arrival, the model has the following specification:

$$\ln \mu_i^k(t) = \ln \mu_0(t) + \sum_j \alpha_j x_{ij} + \sum_l \beta_l w_{il}(t) + \gamma z_i \quad (1)$$

where $\mu_i^k(t)$ denotes the hazard of a change in the employment status of type k for individual i . For all immigrants after arrival, this refers to the risk of becoming employed or to pursue further education. $\ln \mu_0(t)$ denotes the baseline log-hazard, which is specified as piecewise constant. The baseline is time (in months) since arrival in France. x_{ij} and w_{il} represent time-constant and time-varying characteristics that influence immigrants' propensities to change their employment status. z_i denotes an interaction term between parity status and the type of employment transition and γ is the parameter to measure its effect. The model assumes a common baseline for transitions to all employment types and the same effect of covariates, but the employment levels by type of employment statuses can vary by parity status. These models are fitted using extended data in which each individual has k records, where k corresponds to the number of categories in the employment status variable.

To study the outcomes of immigrants who are employed as well as the outcomes of immigrants who are out of employment, we apply multilevel competing-risks event history models to calculate the risk of a change in the employment status by type of employment status and parity status. We estimate multilevel models because of the fact that each individual can experience several changes in their employment statuses along their life course. Besides, individuals can change their employment status as childless, or with children. We extend the conventional competing-risks model by conducting simultaneous analysis of changing to different employment statuses. The risk of a change in the employment status is thus expressed by:

$$\ln \mu_{im}^k(t) = \ln \mu_0(t) + \sum_j \alpha_j x_{ijm} + \sum_l \beta_l w_{ilm}(t) + \gamma z_{im} \quad (2)$$

where μ_{im}^k is the risk of changing to an employment status of type k of order m (second and subsequent order) for individual i ; and $\ln \mu_{im}(t)$ denotes the baseline log-hazard, which is specified as piecewise constant. For the outcomes of employed immigrants, the baseline is time (in months) since the previous employment while for the outcomes of immigrants who are out of employment, the baseline is time (in months) since being previously out of employment; x_{ijm} represents time-constant variables and w_{ilm} time-varying variables.

Joint Model of employment changes and childbearing

One issue is that our explanatory variable is suspected to be jointly determined with the outcome of interest. Such concern can be addressed by applying simultaneous-equations hazard models (Kulu and Steele 2013; Mikolai and Kulu 2018; Steele et al. 2005, 2006). More specifically, we estimate a joint model of employment changes and childbearing to detect and control for individual-level unobserved factors, which may simultaneously influence both processes. The model is as follows:

$$\begin{aligned} \ln \mu_{im}(t) &= \ln \mu_0(t) + \sum_j \alpha_j x_{ijm} + \sum_l \beta_l w_{ilm}(t) + \varepsilon_i \\ \ln h_{im}(t) &= \ln h_0(t) + \sum_j \alpha_j x_{ijm} + \sum_l \beta_l w_{ilm}(t) + u_i \end{aligned} \quad (3)$$

where $h_{im}(t)$ denotes the hazard of childbirth of order m (first or higher-order) for individual i ; and u_i is an individual-level random effect to control for unmeasured time-constant characteristics that influence individuals' likelihood of having a birth. We assume that the residuals of the two equations (Eq. 3) follow a joint bivariate normal distribution:

$$\begin{pmatrix} \varepsilon_i \\ u_i \end{pmatrix} \sim N \left(\begin{pmatrix} 0 \\ 0 \end{pmatrix}, \begin{pmatrix} \sigma_\varepsilon^2 & \rho_{\varepsilon u} \\ \rho_{u\varepsilon} & \sigma_u^2 \end{pmatrix} \right) \quad (4)$$

where σ_ε^2 and σ_u^2 denote the variances of the person-specific residuals of the two processes, and $\rho_{\varepsilon u}$ is the correlation between the residuals. All models are estimated via maximum likelihood using the aML software (Lillard and Panis 2003).

We estimate three models stepwise. First, we examine the outcomes of immigrants upon arrival (Model 1), we then examine the outcomes of employed immigrants (Model 2), and lastly the outcomes of immigrants who are out of employment (Model 3). For Models 1 to 3, we have five different specifications. We first focus on the relationship between fertility status and employment changes without accounting for unobserved time-constant codeterminants of the risk of an employment switch and the risk of childbirth (Models a). Second, to distinguish employment changes due to a childbirth with employment changes of individuals with children, we split the category of individuals with children by time since birth. The event of experiencing a change in employment is represented by a change that occur within the first year following childbirth. Employment changes that happen after more than 1 year are considered as employment changes done by individuals with children and are divided into the following categories: 1-3 years, 3-5 years, 5+ years after childbirth (Model b). This enables us to study whether the effect of childbirth on individuals' employment trajectories is long-lasting. Similarly to the first and the second specifications respectively, the third and fourth specifications examine whether and the extent to which the effect differs across migrant groups (Models c and d). Lastly, we examine the relationship between fertility status and employment changes accounting for unobserved time-constant codeterminants of the risk of an employment switch and the risk of childbirth (Model e). We analyse immigrant men and immigrant women separately.

4. Data

The analysis is based on data from a rich French survey named Trajectories and Origins. It contains information on a nationally representative sample of more than 20,000 individuals, including immigrants, immigrants' descendants, and French natives. For the purpose of our study, we focus on immigrants, the sample is composed of 5,398 immigrants with 2,444 men and 2,954 women. The survey contains retrospective biographical data with information on the employment and childbearing histories of individuals. More specifically, we have the month and the year of each childbirth. We also have

information on a yearly basis on the employment statuses of individuals over their life course.¹ The survey also contains detailed information on sociodemographic characteristics such as gender, migration cohort, region of origin, migration type and educational level of immigrants.

Variables

Regarding the employment statuses, immigrants can either be “salaried”, “self-employed”, “in education”, “unemployed”, “housewife” or “inactive”. Respondents’ fertility status is created as a time-varying variable using retrospective information on the year and month of each birth, and is categorised as childless, 1 child, 2 children, and 3 children or more. When we study long-term effects of childbirth, we replace the variable “child” with time since birth (i.e., 0–1 year, 1–3 years, 3–5 years, 5 or more years). Partnership status is time-varying and is categorised as “single”, “cohabiting”, “married”, “separated”, “repartnered cohabiting”, and “repartnered married”. Respondents’ age at arrival in France is measured as follows: 16–19, 20–24 (reference), 25–29, 30–34, and 35+. Time since arrival is also measured as: 0-1 year, 1-3 years (reference), 3-5 years, 5-10 years, and 10 or more years. Migration cohorts include 5 cohorts: 1960-1969 (reference), 1970-1979, 1980-1989, 1990-1999 and 2000-2009. Respondents’ educational level is categorized as low (reference), medium, and high. Migrant origin includes North Africa, Sub-Saharan Africa, South East Asia, Turkey, Southern Europe, and other Europe. Migrant type includes refugee, student, worker, married to a French citizen, family reunification, and other permit. Lastly, we control for order of employment change when needed.

5. Results

5.1. Descriptive Results

Tables 1 to 3 show the number and proportion of person-months (exposures) and events (occurrences) for different types of transitions by gender and migrant origin among immigrants for the outcomes upon arrival, the outcomes of employment and the outcomes of out of employment, respectively. Additionally, Tables A.1 to A.3 in Appendix A show the number and proportion of person-months and employment changes in each category of the variables used in the multivariate analyses for the outcomes upon arrival, the outcomes of employment and the outcomes of out of employment. In order to ensure a reasonable number of observations, we put the following employment statuses: “salaried” and “self-employed” under the category “employed” for the outcomes upon arrival and the following statuses: “salaried”, “self-employed” and “in education” under the category “occupied”.

¹ We convert the employment histories from a yearly to a monthly basis by assuming that each event happens in the middle of each year. To ensure that our results are robust, we also conducted additional analyses where months were assigned randomly to each event. The results are largely the same.

5.2. Effects of Childbearing on Employment Transitions – Multivariate Results

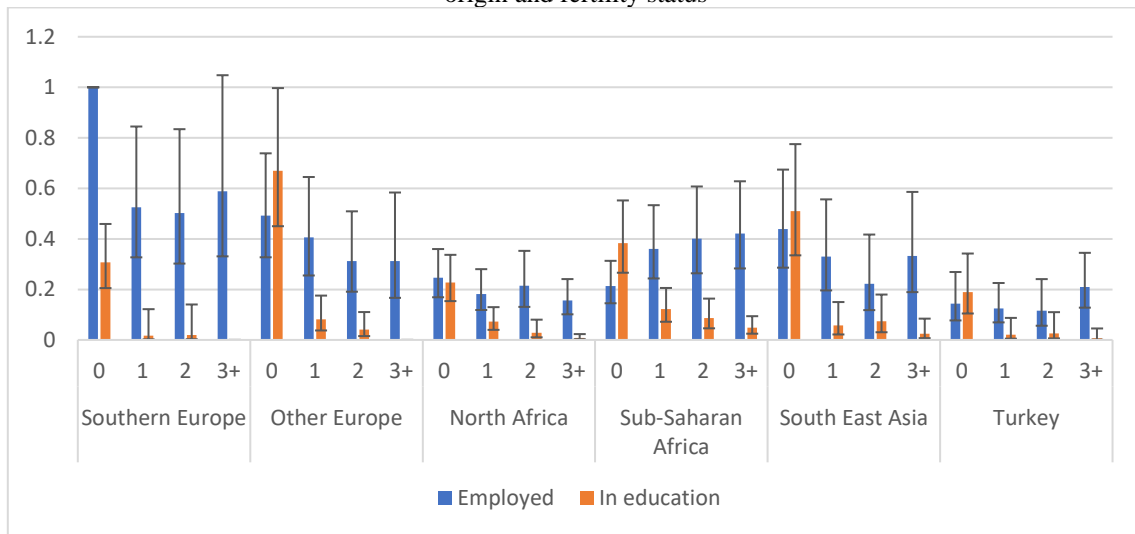
Outcomes of immigrants after arrival

We first show the results for the outcomes of immigrants after arrival. The results are reported in Table 4 columns 1 and 2 for immigrant women and immigrant men, respectively. The results show that childless women are more likely to pursue further education rather than to be employed after arrival. They are less likely to move to employment as the number of children increases. In comparison, childless men are less likely to pursue further education, they are more likely to move to employment after arrival. As the family size increases, they are still much more likely to move to employment compared to women.

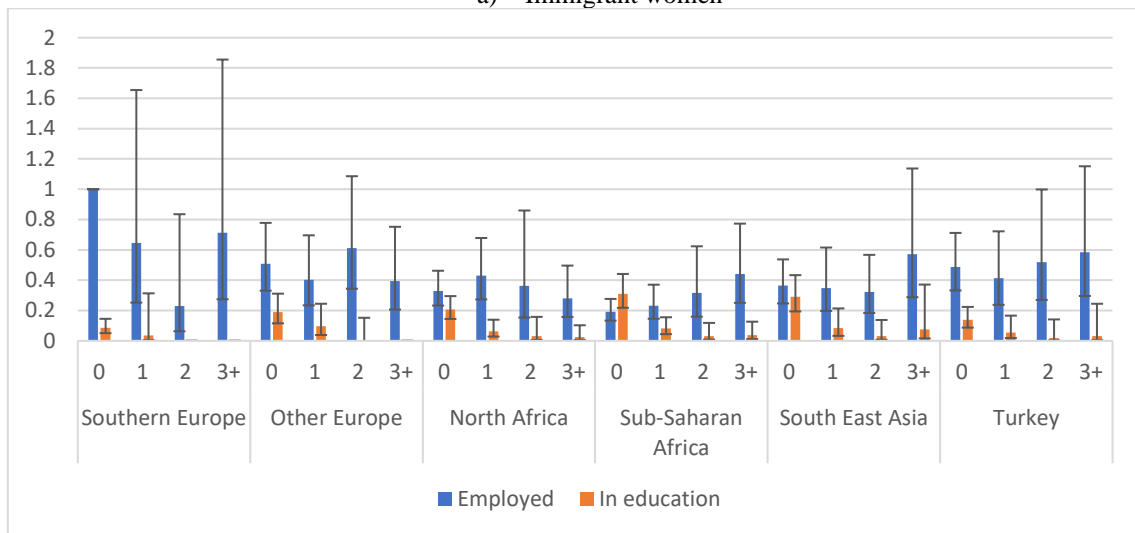
We now distinguish between changes due to childbirth and changes of individuals with children by replacing the category of individuals with child with a variable showing time since birth. The results of Model 1b (reported in Table 4 columns 3 and 4 for immigrant women and immigrant men respectively) show that the risk of a change in the employment status is the lowest in the first year following the birth for women. In other words, women are the least likely of becoming employed or of pursuing further education within the first year after a birth. They progressively go back to the labour market since the results show that women, after 1 to 3 years after a birth, are as likely to become employed as women who are childless. Regarding men, we do not find the same effect of childbirth. Within the first year after a birth, men are still as likely of becoming employed compared to men who are childless.

We explore differences across migrant groups in the effect of family formation on the employment trajectories of immigrant men and women. Figure 1 reports the results. For both men and women, the reference category are childless immigrants from Southern Europe. The results already show significant differences among childless immigrants: immigrants from Southern Europe are the most likely to become employed upon arrival. This is true both for men and women. By contrast, Turkish and North African immigrants are the least likely of becoming employed. Among women, some immigrants groups, particularly South East Asian immigrants, are more likely to pursue further education upon arrival. Within migrant groups, when we compare women who are childless with women who have 1 or 2 children, we can already see that the risk of becoming employed upon arrival decreases significantly. We do not observe this for men.

Figure 1. Outcomes of immigrant men and women: Relative risks of employment, or education by migrant origin and fertility status



a) Immigrant women



b) Immigrant men

Source: Trajectories and Origins, authors' own calculations.

Notes: The analysis is controlled for age at arrival, time since migration, partnership status, migration cohort, educational level and migration type.

Outcomes of employed immigrants

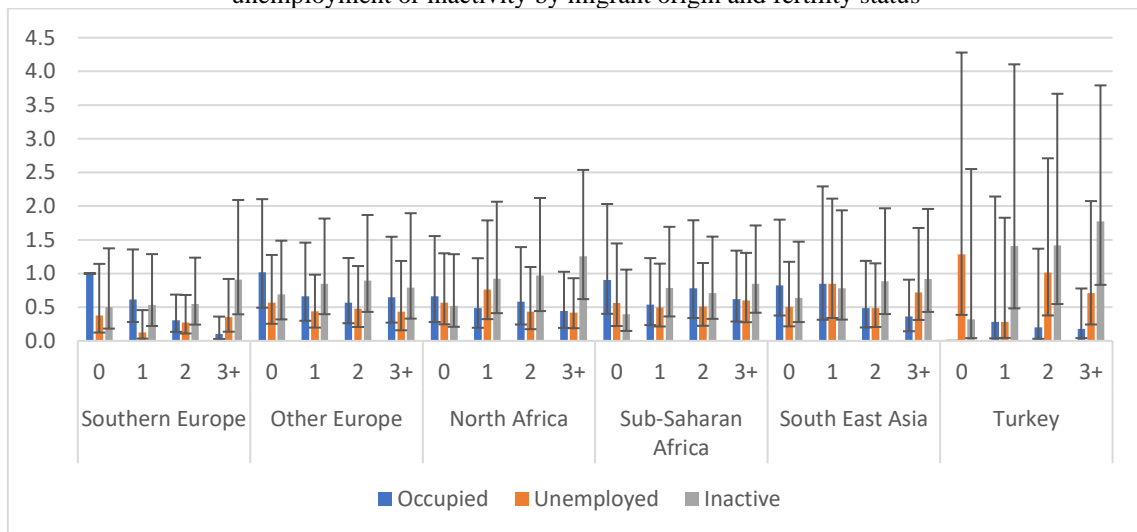
We examine the results of immigrants who are employed. The results are reported in Table 5 columns 1 and 2 for immigrant women and immigrant men, respectively. Among immigrant women who are employed, women who have children are significantly less likely to move to another employment. Their likelihood of moving to inactivity increases as the number of children increases. By contrast, for immigrant men, we only see a significantly reduced likelihood of moving to another employment when they have 3 or more children. In this case, they have a higher likelihood of becoming unemployed.

We now distinguish between changes due to childbirth and changes of individuals with children by replacing the category of individuals with 1 child with a variable showing time since first birth. The results of Model 1b (reported in Table 5 columns 3 and 4 for immigrant women and immigrant men

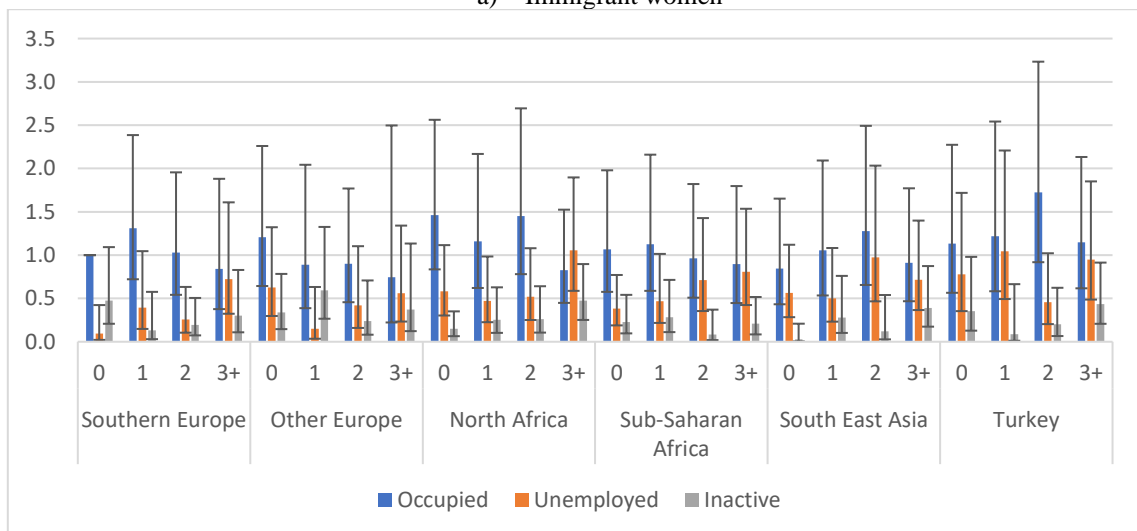
respectively) show that immigrant women are significantly more likely to become inactive within the first year after a birth. They are still more likely to move to inactivity after 1 to 3 years after a birth. It is only after 3 years after a birth that they regain a similar likelihood of moving to another employment as childless women. Again, we do not observe the same picture for men: within the first year after a birth, men are still as likely to move to another employment compared to childless men.

We explore differences across migrant groups in the effect of family formation on the employment trajectories of immigrant men and women. Figure 2 reports the results.

Figure 2. Outcomes of employed immigrant men and women: Relative risks of employment, education, unemployment or inactivity by migrant origin and fertility status



a) Immigrant women



b) Immigrant men

Source: Trajectories and Origins, authors' own calculations.

Notes: The analysis is controlled for age at arrival, time since migration, partnership status, migration cohort, educational level, and migration type.

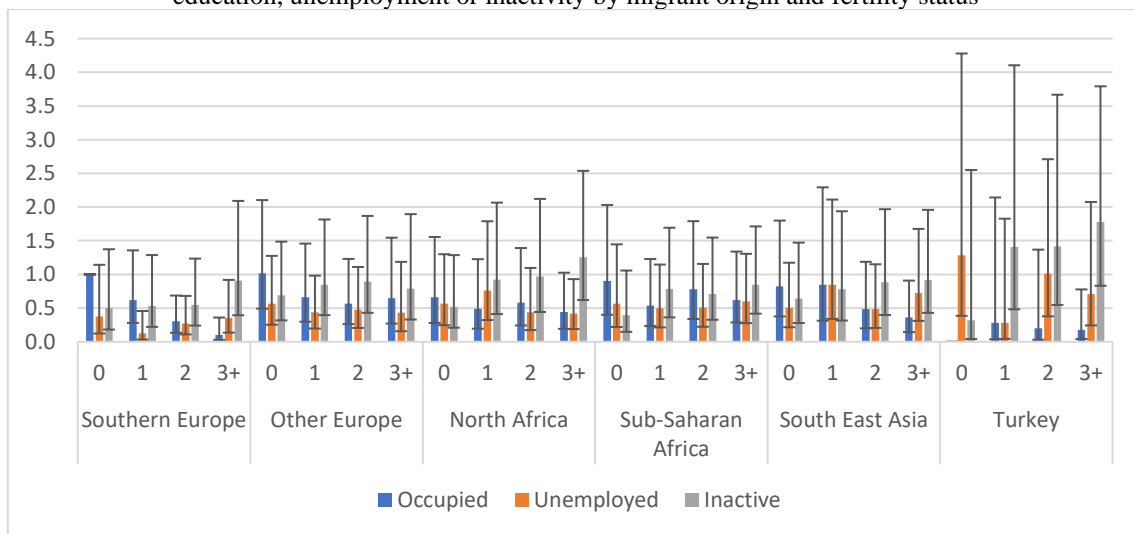
Outcomes of immigrants who are out of employment

Lastly, we examine the results of immigrants who are out of employment. The results are reported in Table 6 columns 1 and 2 for immigrant women and immigrant men, respectively. The results show that immigrant women who have one child have a lower risk of going back to become salaried compared to childless women. Besides, this likelihood reduces steadily as the family grows in size.

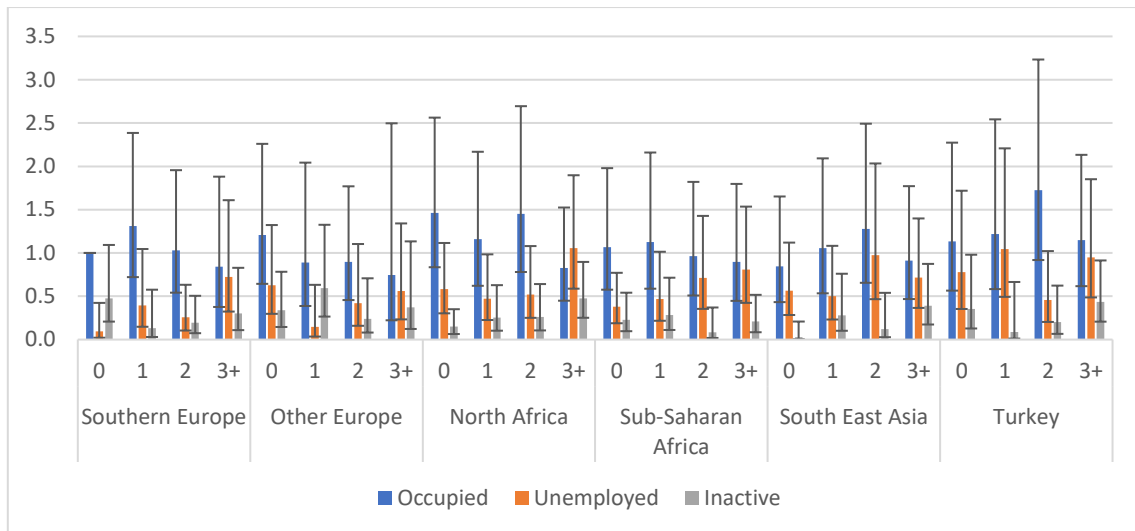
We distinguish between changes due to childbirth and changes of individuals with children by replacing the category of individuals with 1 child with a variable showing time since first birth. The results of Model 1b (reported in Table 6 columns 3 and 4 for immigrant women and immigrant men respectively) show that immigrant women are the least likely of going back to being salaried within the first year after a birth. They have a similar likelihood of going back to being salaried after at least 3 years after a birth compared to childless women.

Lastly, we explore differences across migrant groups in the effect of family formation on the employment trajectories of immigrant men and women. Figure 3 presents the relative risks of the competing events among immigrant men and women. Across all competing-risks models, the reference category is childless women (panel a) and childless men (panel b) moving to being salaried.

Figure 3. Outcomes of immigrant men and women who are out of employment: Relative risks of employment, education, unemployment or inactivity by migrant origin and fertility status



a) Immigrant women



b) Immigrant men

Source: Trajectories and Origins, authors' own calculations.

Notes: The analysis is controlled for age at arrival, time since migration, partnership status, migration cohort, educational level and migration type.

6. Conclusion and Discussion

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Tables

Table 1. Number and proportion of person-months and employment changes by gender and migrant origin for the outcomes of immigrants after arrival

	Person-Months		Employment		Education	
	Number	%	Number	%	Number	%
Immigrant women	189030	85	1446	47	728	50
North Africa	73901	33	273	9	126	9
Sub-Saharan Africa	33879	15	355	12	193	13
South East Asia	18153	8	183	6	105	7
Turkey	25344	11	75	2	28	2
Southern Europe	13651	6	221	7	41	3
Other Europe	18178	8	258	8	167	12
Immigrant men	32709	15	1618	53	716	50
North Africa	7709	3	407	13	188	13
Sub-Saharan Africa	10436	5	290	9	247	17
South East Asia	4094	2	187	6	102	7
Turkey	3860	2	223	7	43	3
Southern Europe	1345	0.6	232	8	19	1
Other Europe	4024	2	211	7	44	3
Total	221739	100	3064	100	1444	100

Source: Trajectories and Origins, authors' own calculations.

Table 2. Number and proportion of person-months and employment changes by gender and migrant origin for the outcomes of immigrants who are employed

	Person-Months		Salaried		Self-employed		Education		Unemployed		Inactive	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Immigrant women	270294	41	248	35	78	25	55	48	307	42	532	75
North Africa	45778	17	44	18	4	5	13	24	56	18	105	20
Sub-Saharan Africa	51079	19	51	21	14	18	25	45	74	24	106	20
South East Asia	42024	16	37	15	11	14	6	11	59	19	79	15
Turkey	10486	4	3	1	2	3	1	2	18	6	35	7
Southern Europe	52950	20	36	15	12	15	1	2	27	9	64	12
Other Europe	50724	19	57	23	29	37	6	11	60	20	104	20
Immigrant men	388784	59	466	65	237	75	60	52	416	58	182	25
North Africa	99594	26	144	31	39	16	26	43	129	31	54	30
Sub-Saharan Africa	67361	17	92	20	25	11	13	22	72	17	28	15
South East Asia	61252	16	55	12	37	16	9	15	70	17	20	11
Turkey	39563	10	43	9	51	22	2	3	58	14	24	13
Southern Europe	64540	17	55	12	34	14	3	5	30	7	25	14
Other Europe	35420	9	44	9	28	12	2	3	35	8	28	15
Total	659068	100	714	100	315	100	115	100	723	100	714	100

Source: Trajectories and Origins, authors' own calculations.

Table 3. Number and proportion of person-months and employment changes by gender and migrant origin for the outcomes of immigrants who are out of employment

	Person-Months		Salaried		Self-employed		Education		Unemployed		Inactive	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Immigrant women	253578	78	1278	61	89	64	93	72	74	79	153	74
North Africa	83771	33	262	21	10	11	18	19	24	32	31	20
Sub-Saharan Africa	46563	18	370	29	12	13	42	45	17	23	45	29
South East Asia	28736	11	168	13	15	17	10	11	5	7	19	12
Turkey	28059	11	71	6	10	11	6	6	10	14	12	8
Southern Europe	23043	9	137	11	7	8	2	2	6	8	13	8
Other Europe	31406	12	193	15	28	31	12	13	9	12	31	20
Immigrant men	70502	22	806	39	51	36	37	28	20	21	53	26
North Africa	18953	27	227	28	9	18	15	41	6	30	14	26
Sub-Saharan Africa	17289	25	207	26	9	18	8	22	2	10	8	15
South East Asia	9825	14	114	14	10	20	5	14	6	30	8	15
Turkey	7792	11	102	13	11	22	2	5	1	5	9	17
Southern Europe	6340	9	52	6	1	2	2	5	1	5	3	6
Other Europe	6556	9	70	9	5	10	5	14	3	15	9	17
Total	324080	100	2084	100	140	100	130	100	94	100	206	100

Source: Trajectories and Origins, authors' own calculations.

Table 4. Outcomes of immigrants after arrival: Relative risks of being employed or in education

	Model 1a				Model 1b			
	Women		Men		Women		Men	
	RR	Sig	RR	Sig	RR	Sig	RR	Sig
Constant	0.367	***	2.027	***	0.364	***	2.033	***
Age at Arrival								
16–19	1.278	**	1.048		1.281	**	1.049	
20–24 (ref.)	1		1		1		1	
25–29	0.974		1.147		0.950		1.154	
30–34	0.714	**	0.820	*	0.672	***	0.820	*
35+	0.847		0.946		0.713		1.021	
Time Since Migration								
0–1 year (ref.)	1		1		1		1	
1–3 years	0.244	***	0.186	***	0.250	***	0.185	***
3–5 years	0.257	***	0.117	***	0.252	***	0.116	***
5–10 years	0.184	***	0.086	***	0.167	***	0.086	***
10+ years	0.176	***	0.029	***	0.137	***	0.031	***
Fertility Status x type of transition								
Childless x employed (ref.)	1		1					
1 child x employed	0.869		0.972					
2 children x employed	0.819	*	1.042					
3+ children x employed	0.944		1.179					

Childless x in education	1.074		0.618	***			
1 child x in education	0.219	***	0.201	***			
2 children x in education	0.142	***	0.069	***			
3+ children x in education	0.063	***	0.083	***			
Time since first birth x type of transition							
Childless x employed (ref.)					1		1
0–1 year x employed					0.547	***	1.026
1–3 years x employed					0.905		1.086
3–5 years x employed					1.230	**	1.234
5+ years x employed					1.196		0.891
Childless x in education					1.074		0.618
0–1 year x in education					0.176	***	0.153
1–3 years x in education					0.099	***	0.153
3–5 years x in education					0.117	***	0.190
5+ years x in education					0.181	***	0.075
Partnership Status							
Single (ref.)	1		1		1		1
Cohabiting	0.711	***	1.199		0.714	***	1.207
Married	0.544	***	1.293	***	0.553	***	1.274
Separated	0.763	*	1.201		0.741	**	1.210
Repartnered, cohabiting	0.743		2.274	**	0.768		2.275
Repartnered, married	0.738		1.409		0.776		1.451
Educational Level							
Low (ref.)	1		1		1		1
Medium	1.249	***	0.975		1.240	***	0.974
High	1.430	***	1.232	*	1.474	***	1.216
Migration Cohort							
1960–1969 (ref.)	1		1		1		1
1970–1979	1.040		0.801		1.049		0.800
1980–1989	1.023		0.487	***	1.036		0.486
1990–1999	1.297		0.439	***	1.323		0.437
2000–2009	1.423		0.436	***	1.434		0.436
Migrant Origin Group							
North Africa	0.368	***	0.527	***	0.383	***	0.528
Sub-Saharan Africa	0.637	***	0.488	***	0.650	***	0.487
South East Asia	0.703	**	0.630	***	0.715	**	0.620
Turkey	0.293	***	0.638	**	0.297	***	0.642
Southern Europe (ref.)	1		1		1		1
Other Europe	0.826		0.679	**	0.818		0.688
Migration Type							
Refugee	0.173	***	0.138	***	0.170	***	0.138
Student (ref.)	1		1		1		1
Worker	0.363	***	0.237	***	0.365	***	0.236
Married to a French citizen	0.165	***	0.191	***	0.165	***	0.190
Family reunification	0.120	***	0.184	***	0.120	***	0.183
Other permit	0.130	***	0.145	***	0.130	***	0.145
ln-L	-5651.1		-5117.7		-5636.1		-5120.3
N	27874		7540		27874		7540

Source: Trajectories and Origins, authors' own calculations.

Note: * $p < .1$; ** $p < .05$; *** $p < .01$

Table 5. Outcomes of employed immigrants: Relative risks of being employed in another job, in education, unemployed or inactive

	Model 1a				Model 1b			
	Women		Men		Women		Men	
	RR	Sig	RR	Sig	RR	Sig	RR	Sig
Constant	0.0004	***	0.0006	***	0.0004	***	0.0006	***
Age at Arrival								
16–19	1.012		0.922		0.971		0.927	

20–24 (ref.)	1		1		1		1	
25–29	1.174	*	1.139	*	1.221	**	1.140	
30–34	1.158		1.188	*	1.285	**	1.191	*
35+	1.001		1.096		1.291	*	1.083	
Time Since Migration								
0–1 year (ref.)	1		1		1		1	
1–3 years	2.585	***	2.068	***	2.485	***	2.063	***
3–5 years	2.622	***	2.993	***	2.646	***	3.011	***
5–10 years	3.917	***	3.388	***	4.158	***	3.444	***
10+ years	3.750	***	4.238	***	4.773	***	4.249	***
Fertility Status x type of transition								
Childless x salaried (ref.)	1		1					
1 child x salaried	0.602	**	0.768	*				
2 children x salaried	0.603	**	0.743	*				
3+ children x salaried	0.443	***	0.550	***				
Childless x self-employed	0.217	***	0.233	***				
1 child x self-employed	0.301	***	0.458	***				
2 children x self-employed	0.130	***	0.538	***				
3+ children x self-employed	0.167	***	0.365	***				
Childless x in education	0.203	***	0.101	***				
1 child x in education	0.129	***	0.064	***				
2 children x in education	0.166	***	0.120	***				
3+ children x in education	0.118	***	0.083	***				
Childless x unemployed	0.899		0.579	***				
1 child x unemployed	0.817		0.554	***				
2 children x unemployed	0.769		0.606	***				
3+ children x unemployed	0.896		0.967					
Childless x inactive	0.928		0.252	***				
1 child x inactive	1.333		0.309	***				
2 children x inactive	1.372	*	0.213	***				
3+ children x inactive	1.673	***	0.422	***				
Time since first birth x type of transition								
Childless x salaried (ref.)					1		1	
0–1 year x salaried					0.832		0.809	
1–3 years x salaried					0.557	**	0.717	**
3–5 years x salaried					0.490	**	0.665	**
5+ years x salaried					0.415	***	0.591	***
Childless x self-employed					0.217	***	0.233	***
0–1 year x self-employed					0.291	***	0.369	***
1–3 years x self-employed					0.223	***	0.452	***
3–5 years x self-employed					0.180	***	0.377	***
5+ years x self-employed					0.140	***	0.488	***
Childless x in education					0.203	***	0.101	***
0–1 year x in education					0.166	***	0.106	***
1–3 years x in education					0.134	***	0.110	***
3–5 years x in education					0.103	***	0.144	***
5+ years x in education					0.118	***	0.055	***
Childless x unemployed					0.899		0.579	***
0–1 year x unemployed					0.832		0.880	
1–3 years x unemployed					0.557	**	0.617	***
3–5 years x unemployed					0.438	***	0.557	***
5+ years x unemployed					0.848		0.835	
Childless x inactive					0.928		0.252	***
0–1 year x inactive					4.741	***	0.229	***
1–3 years x inactive					1.784	***	0.176	***
3–5 years x inactive					1.006		0.216	***
5+ years x inactive					0.820		0.481	***
Partnership Status								
Single (ref.)	1		1		1		1	
Cohabiting	1.393	**	0.968		1.336	*	0.969	

0–1 year	0.047	***	0.115	***	0.045	***	0.116	***
1–3 years (ref.)	1		1		1		1	
3–5 years	1.378	**	0.704	**	1.346	**	0.706	**
5–10 years	1.565	***	0.675	***	1.452	***	0.671	***
10+ years	1.811	***	0.440	***	1.535	***	0.441	***
Fertility Status x type of transition								
Childless x salaried (ref.)	1		1					
1 child x salaried	0.738	***	0.900					
2 children x salaried	0.605	***	0.805	*				
3+ children x salaried	0.621	***	0.685	***				
Childless x self-employed	0.042	***	0.023	***				
1 child x self-employed	0.033	***	0.039	***				
2 children x self-employed	0.053	***	0.056	***				
3+ children x self-employed	0.045	***	0.079	***				
Childless x in education	0.075	***	0.057	***				
1 child x in education	0.066	***	0.065	***				
2 children x in education	0.064	***	0.014	***				
3+ children x in education	0.038	***	0.026	***				
Childless x unemployed	0.047	***	0.017	***				
1 child x unemployed	0.042	***	0.026	***				
2 children x unemployed	0.035	***	0.035	***				
3+ children x unemployed	0.043	***	0.017	***				
Childless x inactive	0.141	***	0.070	***				
1 child x inactive	0.090	***	0.052	***				
2 children x inactive	0.064	***	0.056	***				
3+ children x inactive	0.072	***	0.035	***				
Time since first birth x type of transition								
Childless x salaried (ref.)					1		1	
0–1 year x salaried					0.434	***	0.953	
1–3 years x salaried					0.620	***	0.890	
3–5 years x salaried					0.957		0.696	**
5+ years x salaried					0.791	**	0.689	***
Childless x self-employed					0.042	***	0.023	***
0–1 year x self-employed					0.026	***	0.031	***
1–3 years x self-employed					0.038	***	0.061	***
3–5 years x self-employed					0.061	***	0.077	***
5+ years x self-employed					0.061	***	0.070	***
Childless x in education					0.075	***	0.057	***
0–1 year x in education					0.055	***	0.052	***
1–3 years x in education					0.049	***	0.030	***
3–5 years x in education					0.067	***	0.015	***
5+ years x in education					0.059	***	0.035	***
Childless x unemployed					0.047	***	0.017	***
0–1 year x unemployed					0.026	***	0.052	***
1–3 years x unemployed					0.046	***	0.008	***
3–5 years x unemployed					0.073	***	0	***
5+ years x unemployed					0.040	***	0.031	***
Childless x inactive					0.141	***	0.070	***
0–1 year x inactive					0.072	***	0.073	***
1–3 years x inactive					0.087	***	0.015	***
3–5 years x inactive					0.043	***	0.046	***
5+ years x inactive					0.090	***	0.053	***
Partnership Status								
Single (ref.)	1		1		1		1	
Cohabiting	1.073		1.316	*	1.107		1.307	*
Married	1.039		1.548	***	1.045		1.508	***
Separated	1.087		1.104		1.059		1.132	
Repartnered, cohabiting	1.047		1.701	*	1.076		1.704	*
Repartnered, married	1.223		1.557	***	1.242		1.576	***
Educational Level								

Low (ref.)	1		1		1		1
Medium	1.310	***	0.992		1.314	***	1.013
High	1.265	***	0.943		1.288	***	0.959
Migration Cohort							
1960–1969 (ref.)	1		1		1		1
1970–1979	1.452	*	1.647	*	1.472	*	1.656
1980–1989	1.883	***	2.067	**	1.952	***	2.071
1990–1999	2.795	***	2.132	***	2.919	***	2.137
2000–2009	3.195	***	2.942	***	3.360	***	2.969
Migrant Origin Group							
North Africa	0.506	***	1.060		0.525	***	0.981
Sub-Saharan Africa	0.946		1.005		0.964		0.944
South East Asia	0.679	***	1.078		0.696	***	1.022
Turkey	0.457	***	0.925		0.453	***	0.869
Southern Europe (ref.)	1		1		1		1
Other Europe	0.686	***	1.140		0.689	***	1.079
Migration Type							
Refugee	1.487	***	1.149		1.434	***	1.150
Student (ref.)	1		1		1		1
Worker	1.244	*	0.879		1.238	*	0.868
Married to a French citizen	1.448	***	1.086		1.418	***	1.071
Family reunification	1.149		1.164		1.117		1.138
Other permit	1.140		0.848		1.128		0.842
Order							
1 (ref.)	1		1		1		1
2	0.967		0.812	**	0.941		0.813
3+	0.914		0.630	**	0.859		0.623
Time since Out of Employment							
0–1 (ref.)	1		1		1		1
1–3	0.490	***	0.362	***	0.482	***	0.365
3–5	0.363	***	0.341	***	0.346	***	0.344
5+	0.234	***	0.295	***	0.214	***	0.296
Out of Employment Type							
Unemployed (ref.)	1		1		1		1
Housewife	0.686	***	0.583	***	0.709	***	0.598
Other	0.780	***	0.555	***	0.786	***	0.557
In-L	-3904.6		-1929.7		-3882.8		-1925.2
N	109695		28730		109695		28730

Source: Trajectories and Origins, authors' own calculations.

Note: * $p < .1$; ** $p < .05$; *** $p < .01$

Appendix

Table A.1. Number and proportion of person-months and employment changes by key variables for the outcomes after arrival

	Person-Months		Employment		Education	
	Number	%	Number	%	Number	%
Gender						
Women	189030	85	1446	47	716	50
Men	32709	15	1618	53	728	50
Age at Arrival						
16–19	33872	15	382	12	367	25
20–24	80608	36	978	32	620	43
25–29	56343	25	818	27	323	22
30–34	28197	13	474	15	86	6
35+	22719	10	412	13	48	3
Time Since Migration						

16–19	59916	18	327	16	17	12	19	15	16	17	34	17
20–24	122307	38	753	36	49	35	56	43	25	27	70	34
25–29	79579	25	535	26	35	25	29	22	29	31	48	23
30–34	35693	11	283	14	23	16	13	10	14	15	38	18
35+	26585	8	186	9	16	11	13	10	10	11	16	8
Time Since Migration												
0–1 year	25772	8	56	3	5	4	1	0.8	3	3	4	2
1–3 years	47970	15	533	26	21	15	34	26	20	21	70	34
3–5 years	37934	12	342	16	13	9	31	24	14	15	31	15
5-10 years	68634	21	450	22	28	20	32	25	19	20	39	19
10+	143770	44	703	34	73	52	32	25	38	40	62	30
Time Since Previous Out of Emp.												
0–1 year	47648	15	615	30	39	28	34	26	22	23	75	36
1–3 years	66570	21	590	28	35	25	47	36	25	27	57	28
3–5 years	44546	14	270	13	23	16	24	18	16	17	30	15
5+ years	165316	51	609	29	43	31	25	19	31	33	44	21
Partnership Status												
Single	32397	10	293	14	8	6	19	15	7	7	25	12
Cohabiting	14556	4	140	7	7	5	5	4	4	4	14	7
Married	234008	72	1333	64	96	69	84	65	58	62	134	65
Separated	30630	9	205	10	22	16	19	15	18	19	21	10
Repartnered, cohabiting	4092	1	35	2	2	1	0	0	3	3	6	3
Repartnered, married	8397	3	78	4	5	4	3	2	4	4	6	3
Fertility Status												
Childless	57987	18	611	29	23	16	35	27	16	17	59	29
1 child	56372	17	437	21	21	15	33	25	22	23	41	20
2 children	67686	21	406	19	37	26	31	24	21	22	40	19
3+ children	142035	44	630	30	59	42	31	24	35	37	66	32
Educational Level												
Low	184126	57	913	44	44	31	38	29	40	43	88	43
Medium	92143	28	727	35	38	27	57	44	33	35	85	41
High	47811	15	444	21	58	41	35	27	21	22	33	16
Migration Cohort												
1960-1969	11449	4	39	2	3	2	0	0	2	2	3	1
1970-1979	96705	30	424	20	27	19	19	15	13	14	33	16
1980-1989	104146	32	576	28	39	28	40	31	24	26	47	23
1990-1999	70555	22	594	29	48	34	42	32	28	30	58	28
2000-2009	41225	13	451	22	23	16	29	22	27	29	65	32
Migration Type												
Refugee	41130	13	366	18	18	13	20	15	16	17	43	21
Student	18413	6	176	8	19	14	17	13	6	6	12	6
Worker	46321	14	370	18	20	14	15	12	8	9	29	14
Married to a French	49380	15	367	18	28	20	34	26	21	22	42	20
Family reunification	101360	31	409	20	18	13	25	19	23	24	44	21
Other permit	28712	9	195	9	17	12	13	10	12	13	8	4
Migrant Origin												
North Africa	102724	32	489	23	19	14	33	25	30	32	45	22
Sub-Saharan Africa	63852	20	577	28	21	15	50	38	19	20	53	26
South East Asia	38561	12	282	14	25	18	15	12	11	12	27	13
Turkey	35851	11	173	8	21	15	8	6	11	12	21	10
Southern Europe	29383	9	189	9	8	6	4	3	7	7	16	8
Other Europe	37962	12	263	13	33	24	17	13	12	13	40	19
Total	324080	100	2084	100	140	100	130	100	94	100	206	100

Source: Trajectories and Origins, authors' own calculations.