Homeownership of Immigrants in France: Selection Effects Related to International Migration Flows

Laurent Gobillon
(Paris School of Economics-CNRS)

Matthieu Solignac
(Univ. Bordeaux, Comptrasec, CNRS; INED)

Groupe des utilisateurs
de l'Échantillon Démographique Permanent
INSEE, 3 Juin 2019

Motivation

For immigrants, the evolution of their average outcomes in a receiving country can reflect:

- a change of individual outcomes ("behavior change")

- a change of individuals themselves through selective in and out-migration ("composition change")

This renewal of the immigrant population is:

- continual

- massive

- selective

It affects the evolution of immigrant occupations and income

Lubostky, 2007; Abramitzky et al., 2014; Dustmann and Görlach, 2016

Homeownership of immigrants

Homeownership: sign and factor of economic and social success

The literature:

- Papers on the evolution of homeownership rate for immigrants over long time periods: **but** repeated cross-section data such as censuses

  Myers and Lee, 1998; Borjas, 2002; Painter and Yu, 2008,2010; Sinning, 2010; Chakrabarty et al., 2019

- Papers on individual decisions based on panel data that track individuals: **but** sample sizes rather small compared to censuses extractions (not aggregate homeownership)

  Charles and Hurst, 2002; Dawkins, 2005

- A paper on transition into homeownership using longitudinal administrative dataset: **but** focused on individuals from different ethnic groups staying in the Netherlands

  Zorlu et al., 2014

What we do

We study the evolution of the gap in homeownership rate
between natives and immigrants aged 18-84 (1975-1999)

- use of exhaustive census-linked data
  INSEE's Permanent Demographic Sample (EDP)
- nearly 1 million individuals tracked over 30 years

Twofold contribution of this paper:

1. assess how international migration patterns explain the evolution of
   homeownership rates

   - contribution of stayers, leavers, and entrants
   - their homeownership rates / their weights in the sample

2. decompose of the gap btw natives and immigrants into:
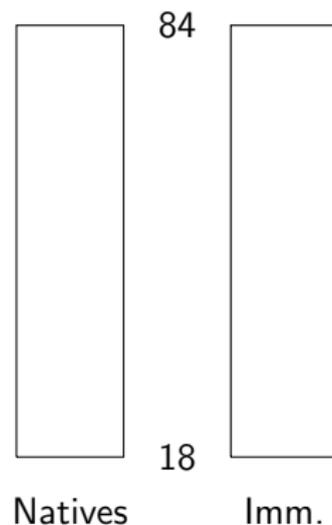   - composition effects
   - returns of characteristics

What we do

Comparison of the homeownership rate of immigrants and natives aged 18-84 and located in mainland France
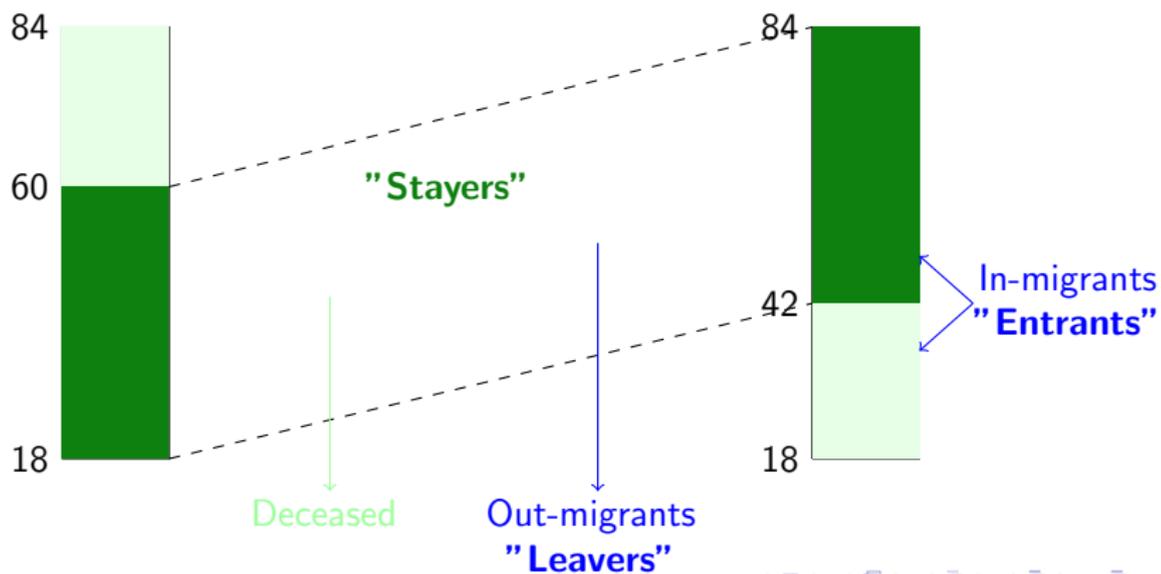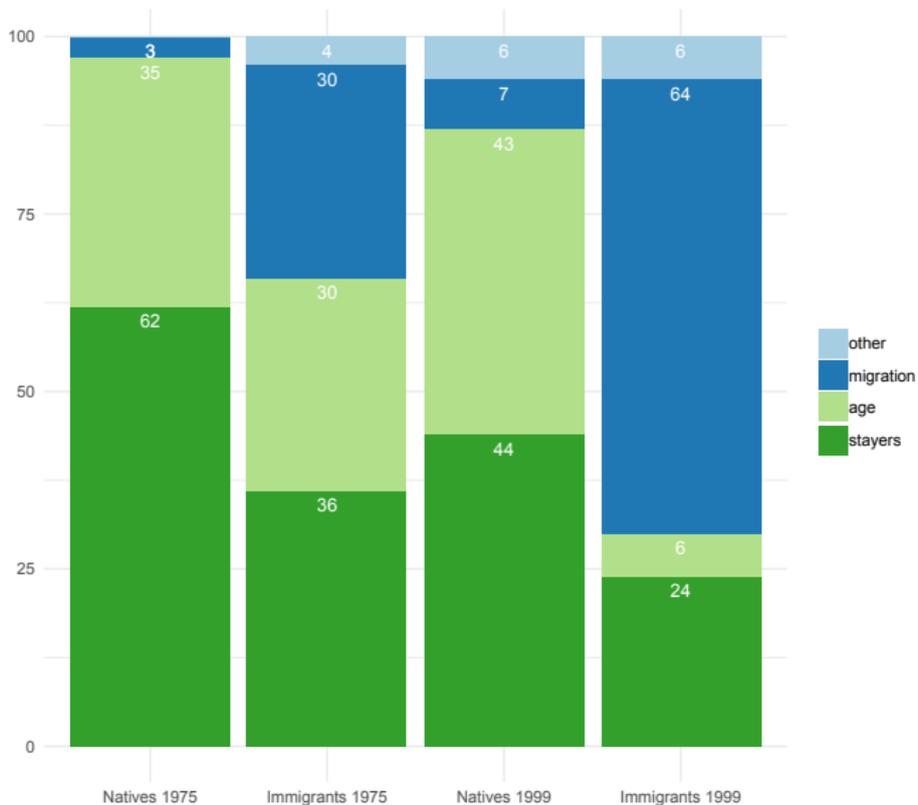
Census in 1975
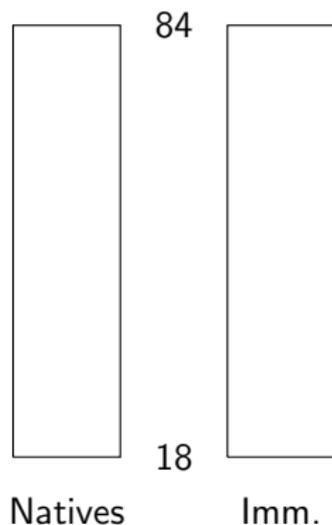
Census in 1999

What we do

Decomposition of the evolution of the homeownership rate for immigrants **into the contribution of "stayers", "entrants", "leavers"**

Census in 1975

Census in 1999

Preview on the results

Preview on the results

1. **Homeownership rates of natives and immigrants aged 18-84 between 1975 and 1999**
   - General increase and slightly reduction of the gap:
     - natives: from 40.8% to 50.5%
     - immigrants: from 25.7% to 36.4%
     - evolution of the diff. btw nat. and imm.: -1.0 pts

*For immigrants, the evolution is driven by new immigrants entering the country (**"entrants"**) and to a lesser extend by those leaving the country (**"leavers"**) rather than by the access to homeownership of immigrants observed at both censuses (**"stayers"**)*

   - evolution of the diff. for cohort of stayers: + 3.7 pts
     $\implies$ important selection effects, mostly due to entrants for immigrants

   - variations of the evolution between groups of immigrants:
     - South Europeans: overall (-15.2 pts); stayers (+ 0.5 pts)
     - North Africans: overall (-1.2 pts); stayers (+11.2 pts)

Preview on the results

2. **Returns of characteristics have evolved in favor of immigrant stayers** (possibly because of assimilation).
   Especially true for South European

3. Among stayers who access homeownership, immigrants end up in owned dwellings that are of lesser quality than natives

Context

- 20 point differences between native and immigrant households in the US in 2000 *(Borjas, 2002)*

- In France, stark differences across immigrant groups *(Simon, 1995)*

- Review of the potential factors explaining the lower homeownership rate of immigrants:
    - lower level of endowments
    - access to housing and credit markets
    - location
    - time spent in the host country

- Review of the effects of migration flows on homeownership
    - return / onward migration anticipations
    - expectations and actual situation in the host country
    - actual out-migration and self-selection

The dataset

- *INSEE's Permanent Demographic Sample* (EDP) since 1968

- Data constructed from **census-linked data** and **civil registers**

- **Large longitudinal panel data** that remain representative of the population in metropolitan France over time:
  - all individuals born the first four days of October
  - 900,000 individuals tracked over 30 years

- We limit the analysis to those:
  - born on Oct. 1 and 4
  - aged 18-84 in 1975 or in 1999
  - with information on household available

- Homeownership
  couple-level: property of the household head and his partner (if any)

- Immigrant status = place of birth ∩ nationality at birth

Control variables

Demographic characteristics: sex, age

Employment variables: diploma (5 levels), employment status, socio-professional category (7 categories)

Family structure: family status, status in the household (head or his partner), partner (presence, immigration status), number of children

Contextual variables at the municipality / urban area levels: local unemployment rate, local proportion of homeowners, proportions of immigrants

Additional information about the dwelling: type (detached house), number of rooms

No information on income and wealth in the original data
(alternative specification on a restricted subsample including wage information from *Déclarations Annuelles des Données Sociales* (DADS))

Composition of the immigrant population and its change

Immigrants, by country of origin			
1975		1999	
Country	Proportion (%)	Country	Proportion (%)
Italy	22.72	Portugal	15.41
Spain	16.60	Algeria	11.76
Portugal	15.66	Italy	9.66
Algeria	11.83	Morocco	9.22
Poland	6.17	Spain	7.50
Tunisia	5.03	Turkey	6.69
Germany	3.69	Tunisia	5.34
Belgium	2.93	Germany	2.40
Yugoslavia	2.15	Poland	1.98
Morocco	2.07	Belgium	1.91
Turkey	1.91	Vietnam	1.74
Switzerland	1.19	Yugoslavia	1.64
...	...	Cambodia	1.62
		UK	1.49
		Laos	1.08
		...	...
N	14,937		22,190

2 study groups: South Europeans, North Africans

Homeownership rates of natives and immigrants: all
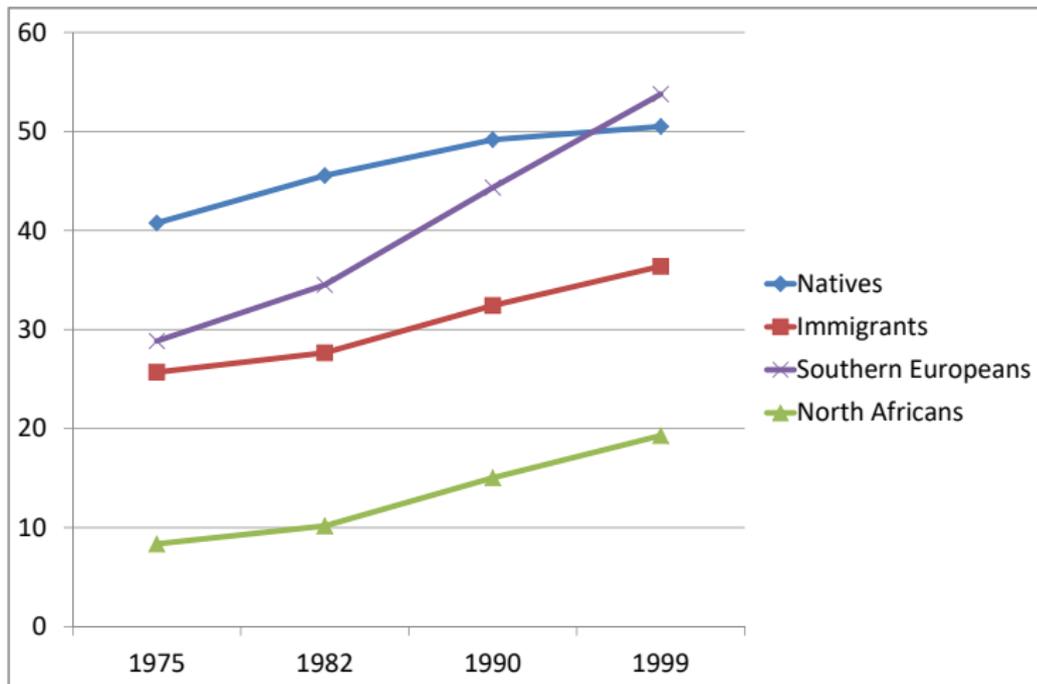
Homeownership rates of immigrants: stayers, entrants, leavers
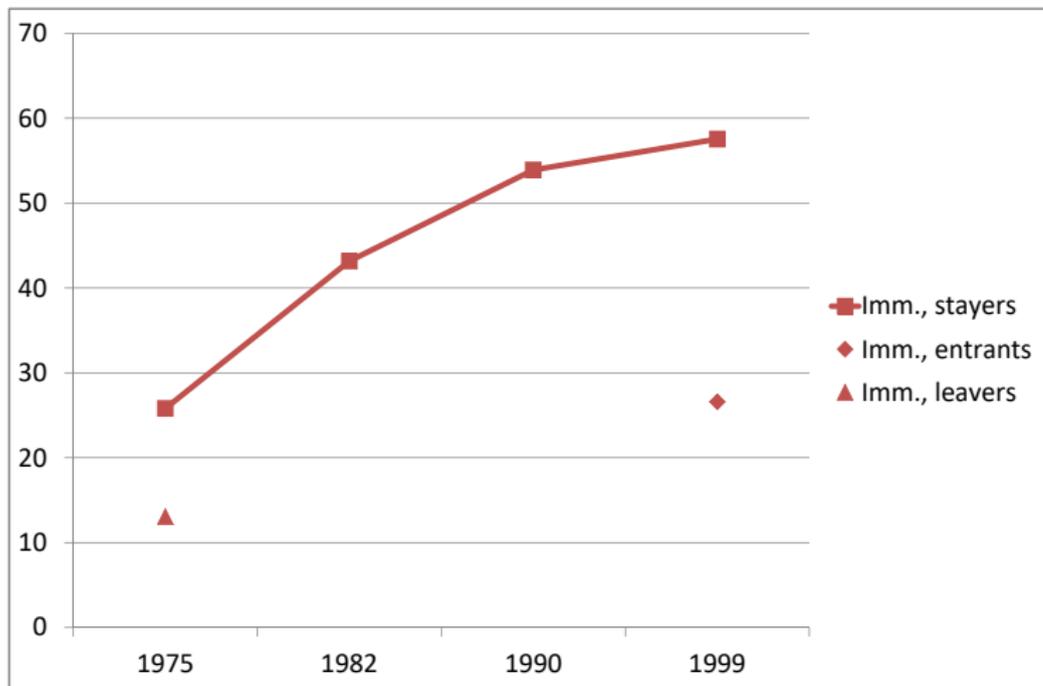
Assessing the impact of international migration flows

▸ Decomposition of the evolution of the homeownership rates btw 1975 and 1999

$$P\left(H_{it+1} = 1 \,|\, i \in t+1\right) - P\left(H_{it} = 1 \,|\, i \in t\right)$$

$$= \quad P\left(H_{it+1} = 1 \,|\, i \in t, i \in t+1\right) - P\left(H_{it} = 1 \,|\, i \in t, i \in t+1\right)$$

$$+ \quad \omega_{t+1}^{e} \left[P\left(H_{it+1} = 1 \,|\, i \notin t, i \in t+1, E_{it+1} = e\right) - P\left(H_{it+1} = 1 \,|\, i \in t, i \in t+1\right)\right]$$

$$+ \quad \omega_{t}^{o} \left[P\left(H_{it} = 1 \,|\, i \in t, i \in t+1\right) - P\left(H_{it} = 1 \,|\, i \in t, i \notin t+1, O_{it} = o\right)\right]$$

$$+ \quad R_{it}$$

with:

$H_{it} = 1$ if individual i is homeowner at date t

$i \in t$ if individual i is in the sample at date t

$E_{it+1} = e$ if getting into the sample btw t & $t+1$ by in-migration ("entrants")

$O_{it} = o$ if getting out of the sample btw t & $t+1$ by out-migration ("leavers")

Probability of being:

- *an entrant:* ω_{t+1}^{e} with $\omega_{t+1}^{e} = P\left(i \notin t, E_{it+1} = e \,|\, i \in t+1\right)$

- *a leaver:* ω_{t}^{o} with $\omega_{t}^{o} = P\left(i \notin t+1, O_{it} = o \,|\, i \in t\right)$

R_{it}: contribution of other people getting into / out of the sample ▸ R_{it}

Quantifying the influence of individual characteristics

Decomposition based on logit models (Fairlie 1999, 2005)

Gap btw immigrant stayers (m) and leavers (l) at date t

$$R\left(m, \beta_{mt}, t\right) - R\left(l, \beta_{lt}, t\right) = \left[R\left(m, \beta_{mt}, t\right) - R\left(l, \beta_{mt}, t\right)\right] + \left[R\left(l, \beta_{mt}, t\right) - R\left(l, \beta_{lt}, t\right)\right]$$

with $R\left(g, \beta, t\right)$ homeownership rate predicted by a logit model for group g at time t if returns of characteristics are β:

$$R\left(g, \beta, t\right) = \frac{1}{N_g} \sum_{i \in (g, t)} F\left(X_{it} \beta\right)$$

with $F\left(\bullet\right)$ the cumulative of the logistic function.

Evolution of the gap btw natives and immigrant stayers

$$
\begin{aligned}
\Delta R\left(n, \beta_{nt}, t\right) - \Delta R\left(m, \beta_{mt}, t\right) &= \left[\Delta R\left(n, \beta_{nt}, t\right) - \Delta R\left(m, \beta_{nt}, t\right)\right] \\
&+ \left[\Delta R\left(m, \beta_{nt}, t\right) - \Delta R\left(m, \beta_{mt}, t\right)\right]
\end{aligned}
$$

with $\Delta R\left(g, \beta, t\right) = R\left(g, \beta, t + 1\right) - R\left(g, \beta, t\right)$

Contribution of entrants and leavers, 1975-1999   ▸ Full Table

	Evolution (pts)	Contribution (pts)			
		Stayers	Leavers	Entrants	Residuals
Immigrants					
All	10.7	31.8	3.8	-19.8	-5.1
North Africans	10.9	24.2	2.8	-14.3	-1.8
South Europeans	24.9	34.9	3.1	-7.6	-5.4
Natives					
All	9.7	35.4	0.3	-1.3	-24.7

Note: All results are significant at the 1% level.

Strong negative contribution of entrants:
on average better educated but younger and located more often in Paris
$\implies$ much lower homeownership rate than stayers at $t+1$
and large proportion of the immigrant population at t+1

Positive contribution of leavers (*but only 1/5 that of entrants*):
older generation of low-skilled workers
$\implies$ lower homeownership rate than stayers in t

Decomposition of the difference in homeownership rates btw stayers and leavers in 1975 / entrants in 1999

Difference in homeownership rates (points in favor of stayers)	Raw difference	Reference: stayers Contribution of	
		Characteristics	Returns
Leavers, 1975			
Natives	10.9***	8.0***	2.9***
	(0.6)	(0.4)	(0.5)
Immigrants	12.7***	7.9***	4.9***
	(0.8)	(0.5)	(0.7)
North Africans	6.5***	4.5***	2.1*
	(1.2)	(1.2)	(1.3)
Southern Europeans	11.3***	5.0***	6.3***
	(1.1)	(0.8)	(1.2)
Arrived before 1968	9.4***	4.8***	4.6***
	(1.3)	(0.7)	(1.2)
Arrived in 1968-1975	-1.8**	-1.1	-0.7
	(0.8)	(1.0)	(1.2)
Entrants, 1999			
Natives	19.2***	16.6***	2.7***
	(0.5)	(0.4)	(0.5)
Immigrants	31.0***	20.0***	11.0***
	(0.7)	(1.2)	(1.3)
North Africans	20.3***	12.0***	8.4***
	(1.4)	(2.2)	(2.2)
Southern Europeans	21.1***	12.2***	8.9***
	(1.2)	(1.8)	(2.0)

Note: Computed from the Permanent Demographic Sample on the population of individuals aged 18-84 located in mainland France. Stayers are individuals in the sample in both 1975 and 1999 who keep the same immigration status (ie. native or immigrant). Entrants are individuals who were already born in 1975 but were not in the 1975 census, and individuals born abroad after 1975 when considering immigrants, and individuals born in French overseas territories when considering natives. Leavers are individuals in the sample in 1975 but not in 1999 whereas they were aged 18-84 that year and they did not die in France over the 1975-1999 period. When a household owns a dwelling, it is considered to be the property of the household head and his or her partner (if any), but not the property of the other members of the household (if any). Contributions of characteristics and their returns are consistent with decomposition (5). Significance levels: * p < 0.1, ** p < 0.05, *** p < 0.01.

Decomposition of evolution of homeownership gap for stayers, 1975-1999 ▸ Full Table

Difference in homeownership rate	Raw difference	Contribution of	
(points in favor of natives)		Characteristics	Returns
All immigrants			
1975	10.0	2.1	7.9
1999	13.7	7.1	6.6
1975-1999 difference	3.7	5.0	-1.3
Southern Europeans			
1975	7.3	1.2	6.1
1999	7.9	5.8	2.0
1975-1999 difference	0.5	4.7	-4.1
North Africans			
1975	25.9	11.0	14.8
1999	37.1	12.3	24.9
1975-1999 difference	11.3	1.3	10.0

Note: we consider only individuals aged 18 and above in 1975. All results (except those in brown) are significant at the 1% level.

Additional results and robustness checks

- decompositions for all the categories of individuals getting into and out of the sample
- descriptive statistics for different subgroups
- results **for males**
- results **for individuals aged 42-60**
- results **when including wage variables** in the specification

Contribution of individuals getting into and out of the sample to the decomposition of the evolution

| | Evolution (pts) | Stayers | Getting out of the sample | | | Getting into the sample | | |
			Leavers	Age/ Dead	Not selected	Entrants	Age	Not selected
Immigrants								
All	10.7***	31.8***	3.8***	-3.7***	-0.0	-19.8***	-1.2***	-0.2**
	(0.5)	(0.9)	(0.3)	(0.3)	(0.1)	(0.5)	(0.1)	(0.1)
North Africans	10.9***	24.2***	2.8***	-0.8***	-0.5**	-14.3***	-0.9***	0.4**
	(0.7)	(1.7)	(0.5)	(0.3)	(0.2)	(1.1)	(0.2)	(0.2)
Southern Europeans	24.9***	34.9***	3.1***	-3.1***	-0.3***	-7.6***	-1.6***	-0.3*
	(0.7)	(1.1)	(0.3)	(0.4)	(0.1)	(0.5)	(0.2)	(0.2)
Arrived before 1968	22.3***	28.6***	1.4***	-2.9***	0.0	/	/	/
	(0.8)	(1.0)	(0.2)	(0.4)	(0.1)			
Arrived in 1968-1975	16.8***	40.0***	-1.0**	-3.2***	-0.0	/	/	/
	(0.5)	(1.5)	(0.4)	(0.3)	(0.1)			
Natives								
All	9.7***	35.4***	0.3***	-5.3***	0.0	-1.3***	-19.3***	-0.2***
	(0.2)	(0.2)	(0.02)	(0.1)	(0.00)	(0.03)	(0.1)	(0.03)

Note: Computed from the Permanent Demographic Sample on the population of individuals aged 18-84 located in mainland France. When a household owns a dwelling, it is considered to be the property of the household head and his partner (if any), but not the property of the other members of the household (if any). Columns 2-9 give the results of decomposition (3). Stayers are individuals in the sample in both 1975 and 1999 who are recorded as immigrants at both dates or as natives. Individuals getting into the sample are those in the sample in 1999 but not in 1975. Among them, "Entrants" are individuals who were already born in 1975 but were not in the 1975 census, and individuals born abroad after 1975 when considering immigrants, and individuals born in French overseas territories when considering natives; "Age" are individuals in the 1975 census that aged 0-17 and those born in mainland France after 1975; When considering the sample of natives (resp. immigrants), "Not selected" individuals are those recorded as natives (resp. immigrants) in 1999 but as immigrants (resp. natives) in 1975, as well as those not in the sample in 1975 because their location is unknown or in Corsica, or because information of the 1975 census forms on housing and household is not recorded. Individuals getting out of the sample are those in the sample in 1975 but not in 1999. Among them, "Leavers" are individuals who would have been aged 18-84 in 1999 and did not die in France over the 1975-1999 period; "Age/Dead" individuals are those not in the sample in 1999 because they died in France during the 1975-1999 period or they reached age 85 in 1999; "Not selected" individuals are those recorded as immigrants (resp. natives) in 1975 but as natives (resp. immigrants) in 1999, as well as those not in the sample in 1999 because their location is unknown or in Corsica. Significance levels: * p < 0.1, ** p < 0.05, *** p < 0.01.

Contribution of individuals getting into and out of the sample to the decomposition of the evolution

	Decomposition of contribution											
	Proportion (%)						Gap with stayers					
	Getting out of the sample			Getting into the sample			Getting out of the sample			Getting into the sample		
	Leavers	Age/ Dead	Not selected	Entrants	Age	Not selected	Leavers	Age/ Dead	Not selected	Entrants	Age	Not selected
Immigrants												
All	29.9***	30.1***	3.9***	63.9***	5.9***	5.8***	12.7***	-12.2***	-0.7***	-31.0***	-19.5***	-3.9**
	(0.4)	(0.4)	(0.2)	(0.3)	(0.2)	(0.2)	(0.8)	(0.9)	(0.2)	(0.8)	(1.5)	(1.5)
North Africans	43.0***	11.3***	10.0***	70.2***	6.0***	6.5***	11.3***	-7.0***	-4.6*	-20.3***	-15.0***	6.0**
	(0.9)	(0.6)	(0.6)	(0.6)	(0.3)	(0.3)	(1.1)	(2.3)	(2.3)	(1.6)	(2.6)	(2.8)
Southern Europeans	27.6***	29.6***	3.4***	36.2***	11.1***	8.1***	11.3***	-10.6***	-9.5***	-21.1***	-14.7***	-4.1*
	(0.5)	(0.5)	(0.2)	(0.6)	(0.4)	(0.3)	(1.1)	(1.3)	(2.9)	(1.3)	(1.9)	(2.2)
Arrived before 1968	14.9***	38.6***	4.8***	/	/	/	9.4***	-7.5***	0.8	/	/	/
	(0.4)	(0.5)	(0.2)				(1.4)	(1.1)	(2.3)			
Arrived in 1968-1975	55.1***	15.8***	2.4***	/	/	/	-1.8**	-10.6***	-0.4	/	/	/
	(0.7)	(0.5)	(0.2)				(0.8)	(1.6)	(2.2)			
Natives												
All	2.6***	35.0***	0.4***	6.5***	43.4***	5.7***	10.9***	-15.0***	1.6	-19.2***	-44.4***	-3.3***
	(0.04)	(0.1)	(0.02)	(0.1)	(0.1)	(0.1)	(0.7)	(0.3)	(1.9)	(0.5)	(0.2)	(0.5)

Note: Computed from the Permanent Demographic Sample on the population of individuals aged 18-84 located in mainland France. When a household owns a dwelling, it is considered to be the property of the household head and his partner (if any), but not the property of the other members of the household (if any). Columns 2-13 decompose the contributions to decomposition (3). Stayers are individuals in the sample in both 1975 and 1999 who are recorded as immigrants at both dates or as natives. Individuals getting into the sample are those in the sample in 1999 but not in 1975. Among them, "Entrants" are individuals who were already born in 1975 but were not in the 1975 census, and individuals born abroad after 1975 when considering immigrants, and individuals born in French overseas territories when considering natives; "Age" are individuals in the 1975 census but aged 0-17 and those born in mainland France after 1975; When considering the sample of natives (resp. immigrants), "Not selected" individuals are those recorded as natives (resp. immigrants) in 1999 but as immigrants (resp. natives) in 1975, as well as those not in the sample in 1975 because their location is unknown or in Corsica, or because information of the 1975 census forms on housing and household is not recorded. Individuals getting out of the sample are those in the sample in 1975 but not in 1999. Among them, "Leavers" are individuals who would have been aged 18-84 in 1999 and did not die in France over the 1975-1999 period; "Age/Dead" individuals are those not in the sample in 1999 because they died in France during the 1975-1999 period or they reached age 85 in 1999; "Not selected" individuals are those recorded as immigrants (resp. natives) in 1975 but as natives (resp. immigrants) in 1999, as well as those not in the sample in 1999 because their location is unknown or in Corsica. Significance levels: * p < 0.1, ** p < 0.05, *** p < 0.01.

Among not selected: people changing immigration status

In the article: for immigrants in 1975, the group of immigrant stayers decreased by 9.7% when individuals not recorded as immigrants in 1999 are discarded (21.8% for North Africans; 8% for Southern Europeans)

In the whole EDP (4 days, all ages): Among all individuals observed in 1975 and 1999 (in an identified municipality of metropolitan France at both censuses) identified as immigrants (at least once):

%	Imm. 1999		
Imm. 1975	No	Yes	
No	/	3.9	
Yes	9.3	86.8	
			N=9,356

Definition of immigrants and their sub-groups

- Born in a foreign country with a foreign nationality at birth

  In the whole EDP (4 days, all ages): Among all individuals observed in 1975 (in an identified municipality of metropolitan France)

- Among immigrants born in Tunisia:
  - 76.7% Tunisian nationals at birth
  - 20.9% Italian nationals at birth

- Among immigrants born in Morocco:
  - 81.4% Moroccan nationals at birth
  - 9.9% Spanish nationals at birth

- Among immigrants born in Germany:
  - 67.2% German nationals at birth
  - 25% Poland nationals at birth

Main sample vs sample restricted to individuals that can be matched with DADS

Number of observations or proportion (%)	Stayers				Leavers		Entrants	
	1975		1999		1975		1999	
	Nat.	Imm.	Nat.	Imm.	Nat.	Imm.	Nat.	Imm.
Main Sample	89,548	5,396	89,548	5,396	3,821	4,463	13,174	14,181
Born an even year	44,289	2,636	44,289	2,636	1,892	2,264	6,626	7,065
Unmatched individuals	11	393	11	393	13	1,176	46	1,527
Proportion of unmatched individuals (%)	0.0	14.9	0.0	14.9	0.7	51.9	0.7	21.6
Restriction to individuals matched with DADS	44,278	2,243	44,278	2,243	1,879	1,088	6,580	5,538
Proportion of the main sample (%)	49.5	41.6	49.5	41.6	49.2	24.4	50.0	39.1
Restriction to individuals matched with DADS whose wage is observed at least once during the 8 previous years								
All								
Proportion of the DADS sample (%)	60.1	55.9	51.8	48.7	61.8	57.7	67.5	56.0
Proportion of the main sample (%)	29.7	23.3	25.6	20.2	30.5	14.3	33.8	21.9
Males								
Proportion of the DADS sample (%)	69.7	75.8	59.0	59.1	72.6	70.4	72.8	65.4
Proportion of the main sample (%)	34.6	31.8	29.3	24.8	36.9	19.1	36.3	26.3

Note: Computed from the Permanent Demographic Sample on the population of individuals aged 18-84 located in mainland France. Stayers are individuals in the sample in both 1975 and 1999 who keep the same immigration status (ie. native or immigrant). Entrants are individuals who were already born in 1975 but were not in the 1975 census, and individuals born abroad after 1975 when considering immigrants, and individuals born in French overseas territories when considering natives. Leavers are individuals in the sample in 1975 but not in 1999 whereas they were aged 18-84 that year and they did not die in France over the 1975-1999 period. "Nat.": Natives; "Imm.": Immigrants.

Conclusion

- Study of the change in homeownership gap between natives and immigrants

- Use of a longitudinal dataset over a twenty-five-year period

- Immigrant entrants and leavers contribute to the evolution of the gap

- Returns of characteristics have evolved in favor of immigrants stayers (consistent with an assimilation process).
  However, not observed for North African immigrants

- Forthcoming in the *Journal of Economic Geography*

- Pre-print and online appendix available on our personal websites

- This work is supported by public grants overseen by the French National Research Agency (ANR) as part of the "Investissements d'avenir" program (reference: ANR-10-EQPX-17 - Centre d'accès sécurisé aux données - CASD; reference ANR-10-IDEX-03-02 - IdEx Bordeaux; reference ANR-10-LABX-0089 - LabEx iPOPs), as well as by the Nouvelle-Aquitaine region.

- Another recent publication using EDP *(about the contribution of leavers on the geographic mobility)*:
  Solignac (2018), "L'émigration des immigrés, une dimension oubliée de la mobilité géographique", *Population*, 73 (4), pp.693-718 / "Immigrant Emigration: An Overlooked Dimension of Geographical Mobility", *Population (English Edition)*, 73(4), pp.659-684, link

Decomposition of the evolution of homeownership rates

$1/3$ ‣ back to the presentation

Total variation of homeownership rate

$=$ Variation for stayers

$+$ contribution of entrants

Entrants' contribution < 0 *when lower homeownership rate than stayers in 1999*

$+$ contribution of leavers

Leavers' contribution > 0 *when lower homeownership rate than stayers in 1975*

$+$ contribution of individuals getting out or into the sample for other reasons

(age, death, not selected)

Decomposition of the evolution of homeownership rates

2/3 ‣ back to the presentation

Elements of proof

Probability of being an homeowner at the initial date:

$$
\begin{aligned}
P\left(H_{it}=1 \,|\, i \in t\right) &= \omega_t^s P\left(H_{it}=1 \,|\, i \in t, i \in t+1\right) \\
&+ \omega_t^o P\left(H_{it}=1 \,|\, i \in t, i \notin t+1, O_{it}=o\right) \\
&+ \omega_t^{no} P\left(H_{it}=1 \,|\, i \in t, i \notin t+1, O_{it}=no\right)
\end{aligned}
$$

Probability of being an homeowner at the final date:

$$
\begin{aligned}
P\left(H_{it+1}=1 \,|\, i \in t+1\right) &= \omega_{t+1}^s P\left(H_{it+1}=1 \,|\, i \in t, i \in t+1\right) \\
&+ \omega_{t+1}^e P\left(H_{it+1}=1 \,|\, i \notin t, i \in t+1, E_{it+1}=e\right) \\
&+ \omega_{t+1}^{ne} P\left(H_{it+1}=1 \,|\, i \notin t, i \in t+1, E_{it+1}=ne\right)
\end{aligned}
$$

$R_{it} =$

$\omega_{t+1}^{ne} [P(H_{it+1} = 1 | i \notin t, i \in t+1, E_{it+1} = ne) - P(H_{it+1} = 1 | i \in t, i \in t+1)]+$

$\omega_{t}^{no} [P(H_{it} = 1 | i \in t, i \in t+1) - P(H_{it} = 1 | i \in t, i \notin t+1, O_{it} = no)]$

with:

$O_{it} = no$ if getting out of the sample btw t & $t+1$ other than "leavers"

- "death / too old": died in France or reached age 85 in 1999
- "not selected": in the census and aged 18-84 in 1999 but
  - location missing / in Corsica
  - changed migration status

$E_{it+1} = ne$ if getting into the sample btw t & $t+1$ other than "entrants":

- "too young":
  - in the census and aged 0-17 in 1975
  - born after in mainland France
- "not selected": in the census and aged 18-84 in 1975 but
  - location missing / in Corsica
  - changed migration status

Probability of getting:

- into the sample for another reason than in-migration: ω_{t+1}^{ne}

with $\omega_{t+1}^{ne} = P(i \notin t, E_{it+1} = ne | i \in t+1)$

- out of the sample for another reason than out-migration: ω_{t}^{no}

with $\omega_{t}^{no} = P(i \notin t+1, O_{it} = no | i \in t)$

Decomposition of evolution of homeownership rate, 1975-1999 ▸ back

| | Evolution (pts) | Contribution to evolution (pts) | | | | Decomposition of contribution | | | |
| | | | | | | Proportion (%) | | Gap with stayers | |
		Stayers	Leavers	Entrants	Residual	Leavers	Entrants	Leavers	Entrants
Immigrants									
All	10.7***	31.8***	3.8***	-19.8***	-5.1***	29.9***	63.9***	12.7***	-31.0***
	(0.9)	(0.2)	(0.5)	(0.3)	(0.3)	(0.4)	(0.3)	(0.8)	(0.8)
North Africans	10.9***	24.2***	2.8***	-14.3***	-1.8***	43.0***	70.2***	6.5***	-20.3***
	(0.7)	(1.7)	(0.5)	(1.1)	(0.5)	(0.9)	(0.6)	(1.1)	(1.6)
Southern Europeans	24.9***	34.9***	3.1***	-7.6***	-5.4***	27.6***	36.2***	11.3***	-21.1***
	(0.7)	(1.1)	(0.3)	(0.5)	(0.5)	(0.5)	(0.6)	(1.1)	(1.3)
Arrived before 1968	22.3***	28.6***	1.4***	/	-2.8***	14.9***	/	9.4***	/
	(0.8)	(1.0)	(0.2)		(0.5)	(0.4)		(1.4)	
Arrived in 1968-1975	16.8***	40.0***	-1.0**	/	-3.3***	55.1***	/	-1.8**	/
	(0.5)	(1.5)	(0.4)		(0.3)	(0.7)		(0.8)	
Natives									
All	9.7***	35.4***	0.3***	-1.3***	-24.7***	2.6***	6.5***	10.9***	-19.2***
	(0.2)	(0.2)	(0.02)	(0.03)	(0.1)	(0.04)	(0.1)	(0.7)	(0.5)

*Note: Computed from the Permanent Demographic Sample on the population of individuals located in mainland France. When a household owns a dwelling, it is considered to be the property of the household head and his partner (if any), but not the property of the other members of the household (if any). Stayers are individuals in the sample in both 1975 and 1999 who keep the same immigration status (ie. native or immigrant). Entrants are individuals who were already born in 1975 but were not in the 1975 census, and individuals born abroad after 1975 when considering immigrants, and individuals born in French overseas territories when considering natives. Leavers are individuals in the sample in 1975 but not in 1999 whereas they were aged 18-84 that year and they did not die in France over the 1975-1999 period. Columns 3-6 give the results of decomposition (3). In particular, "Residual" in column 6 refers to individuals other than leavers getting out of the sample ("Dead/too old" and "Not selected") and individuals other than entrants getting in the sample ("Too young" and "Not selected"). Column 7 (resp. 8) gives the proportion of leavers (resp. entrants) in the sample at the initial (resp. final) date. "Gap with stayers" corresponds to the differences in homeownership rates between stayers and leavers (column 9), or between entrants and stayers (column 10). Significance levels: * p < 0.1, ** p < 0.05, *** p < 0.01.*

Decomposition of evolution of homeownership gap for stayers, 1975-1999 ‣ back

Difference in homeownership rates (points in favor of natives)	Raw difference	Reference: natives Contribution of	
		Characteristics	Returns
All			
1975	10.0***	2.1***	7.9***
	(0.6)	(0.5)	(0.6)
1999	13.7***	7.1***	6.6***
	(0.7)	(0.5)	(0.7)
1975-1999 difference	3.7***	5.0***	-1.3
	(1.0)	(0.7)	(1.1)
North Africans			
1975	25.9***	11.0***	14.8***
	(0.9)	(0.8)	(1.0)
1999	37.1***	12.3***	24.9***
	(1.5)	(0.9)	(1.6)
1975-1999 difference	11.3***	1.3	10.0***
	(1.8)	(1.2)	(1.9)
Southern Europeans			
1975	7.3***	1.2**	6.1***
	(0.8)	(0.6)	(0.8)
1999	7.9***	5.8***	2.0**
	(1.0)	(0.5)	(1.0)
1975-1999 difference	0.5	4.7***	-4.1***
	(1.2)	(0.8)	(1.3)
Arrival before 1968			
1975	2.6***	-3.1***	5.7***
	(0.7)	(0.5)	(0.7)
1999	9.4***	5.5***	3.9***
	(0.9)	(0.5)	(0.9)
1975-1999 difference	6.8***	8.6***	-1.8
	(1.1)	(0.7)	(1.2)
Arrived in 1968-1975			
1975	29.5***	15.7***	13.8***
	(0.7)	(0.7)	(0.8)
1999	24.9***	11.2***	13.7***
	(1.3)	(0.7)	(1.1)
1975-1999 difference	-4.5***	-4.5***	-0.1
	(1.6)	(1.0)	(1.5)

Note: Computed from the Permanent Demographic Sample on the population of individuals aged 18-84 located in mainland France. Stayers are individuals in the sample in both 1975 and 1999 who keep the same immigration status (ie. native or immigrant). Contributions of characteristics and their returns are consistent with decompositions (5) and (6). Significance levels: * p < 0.1, ** p < 0.05, *** p < 0.01.