Cousins From Overseas: The Labour Market Impact of Half a Million Portuguese Repatriates*

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Abstract

This paper investigates the labour market consequences of an exogenous increase in the labour supply, exploiting the large and unexpected inflow of repatriates to Portugal following the end of the Portuguese Colonial War. We explore the impact on labour force participation, unemployment and different types of employment of both male and female natives. Using a novel instrumental variable approach which exploits information on the places of births of the repatriates, we find no increase in unemployment but some displacement effects, with a stronger adverse effect on females. Female and male native workers are found to be driven out of employment as employees. Men compensate for this loss by moving to self-employment, while women move to inactivity.

Keywords: Immigration, Labour Market, Labour Supply, Instrumental Variable.

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1 Introduction

Following a military coup in 1974, Portugal granted independence to its former colonies, Angola, Cape Verde, Guinea-Bissau, Mozambique and São Tomé and Príncipe. This induced close to half a million ethnic Portuguese living in Africa to flee to Portugal. In 1976, *The New York Times* reported that "the absorption of this mass of colonial refugees is one of the main difficulties facing Western Europe's poorest country".[1] Two years later, *Der Spiegel* states that the hundreds of thousands of refugees had been integrated faster than expected, describing how local employers were more prone to employ repatriates than natives[2] because of their more conservative attitudes, making them less likely to be in labour unions.[3] This paper provides quantitative evidence on the labour market impact of the Portuguese repatriation, which constituted a large, immigration-induced, one-time supply shock to the labour force.

The case of these so-called Portuguese "retornados" is a particularly interesting setting to study for several reasons. First, the inflow was large and concentrated, with close to half a million people arriving in Portugal within just three years, increasing the workforce by about 3.9% on average and up to more than 15% in some municipalities. In comparison, the previously studied French repatriation only increased the workforce by about 1.6% , on average (Edo 2020). Second, the timing of the inflow was largely unpredictable and hence provides an exogenous source of variation. Third, there was little selection among immigrants, as a large majority of the Portuguese living in the former colonies repatriated to Portugal, independent of social class, education, and other characteristics. Fourth, most repatriates were Portuguese speaking or even born in Portugal, therefore constituting a case of return migration of substitutes for the native population. The final reason that this case is fascinating is the skill composition of the repatriates. While the majority of existing literature on the labour market effects of migration has studied inflows of people who were less skilled than the native population, the repatriates were considerably more educated than the natives (Pires, Delaunay, and Peixoto 2020).

Prior studies by Carrington and De Lima (1996) and Mäkelä (2017) have investigated the

1. Howe, Marvine. 1976. "Chased From Africa, Adrift and Jobless in Portugal" *The New York Times*, Paragraph 3, March 7. https://www.nytimes.com/1976/03/07/archives/chased-from-africa-adrift-and-jobless-in-portugal-the-excolonizers.html.

2. We will use the term native to refer to the non-repatriate population prevailing in Portugal.

3. Der Spiegel. 1978. "Rechnungen bezahlt" *Der Spiegel*, July 24. https://www.spiegel.de/spiegel/print/d-40694112.html.

impact of the Portuguese repatriates. They were, however, unable to distinguish composition effects from effects on native workers. We overcome this issue by using a rich micro data set on the universe of Portuguese repatriates, which has not yet been used by economists and which allows us to retrieve native outcomes. We further extend their analysis by looking at a wider range of outcomes, including labour force participation (LFP), unemployment, employment, and entrepreneurship, and by investigating these outcomes separately for male and female natives.

To study the effect of the repatriates on these outcomes, we closely follow the French economist Edo's (2020) work on the labour market impact of the French repatriation. We combine the natural experiment created by the end of the Portuguese Colonial War with a novel instrumental variable (IV) approach to overcome potential endogeneity in the location of repatriates. We use a shift-share instrument based on places of birth of repatriates, thereby exploiting a peculiarity of the Portuguese repatriates: opposed to other repatriation flows to, for instance, France or The Netherlands, most Portuguese repatriates had still been born in Portugal.

For both male and female natives, we find no significant change in unemployment, but a decrease in employment as employees. This effect is stronger for women than for men. While men compensate for this loss by moving into self-employment, displaced female natives move mainly to inactivity. This change is reflected in a decrease in female LFP and overall employment, opposed to no change in male LFP or overall employment.

The remainder of this paper is organised as follows. Section 2 presents related literature, followed by section 3 providing historical background on the Portuguese Colonial War, and the repatriation to Portugal. Section 4 describes the data used, presents descriptive statistics, and information on the spatial distribution of repatriates. Section 5 introduces the empirical strategy, before section 6 presents the results. Section 7 discusses and reconciles these results with prior studies. Section 8 shows various robustness checks implemented, and section 9 concludes.

2 Related Literature

Quantifying the effect of migration on native workers has been one of the main quests of economic analysis. Predictions from economic theory are far from clear-cut. They depend mostly

on the structure of the receiving country, as well as the skill composition of immigrants relative to the native population (Dustmann, Fabbri, and Preston 2005). In the simplest case, a closed economy in which production uses capital and labour, and there is only one type of labour, an influx of immigrants will lead to a reduction in the capital-labour ratio and thus to lower wages (Friedberg 2001). If there is more than one type of labour, the effect on native wages will depend on the degree of substitutability between natives and immigrants. Immigrants will lower the wages of natives if they are gross substitutes in production and raise the wages of natives for whom they are gross complements in production. If the labour supply is perfectly inelastic, there will be no change in native employment. If labour supply and demand are both elastic, native employment will move in the same direction as wages, with a smaller change in wages than in the former case. In a small open economy, wages will remain at the world level in the long run. If capital is re-allocated to labour-intensive sectors with a delay, wages will be lower for some time. If wages are sticky, there will be a period of unemployment (Hunt 1992). More recent frameworks have incorporated more features, such as externalities of immigration: immigrants may, for instance, improve learning, and enhance innovation, or promote agglomeration externalities by settling in highly populated areas (Peri 2016).

Empirically, a wide range of studies has found modest or absent effects of immigration on average natives' wages and employment. Other studies have found sizable impacts of immigration on labour market outcomes for natives, with, for instance, Borjas (2003) providing evidence for wages of natives being harmed by immigration, and Ottaviano and Peri (2012) finding positive wage effects of immigration. In the light of these conflicting results, there is an ongoing debate about measurement and identification (Borjas 2003). Dustmann, Schönberg, and Stuhler (2016) argue that different empirical specifications and assumptions can explain the contradicting findings.

Given the inherent difficulties of studying the effects of migration due to simultaneity between immigrants' location choice and local labour market conditions, one strand of literature has focused on large, unexpected increases in migration using natural experiments. They correspond more closely to exogenous increases in the supply of immigration to a specific labour market given that their timing is exogenous to local labour market conditions (Friedberg 2001). Card (1990), for instance, studies the effect of a large inflow of Cubans into the labour market

of Miami and finds virtually no effect on unemployment or wages of native workers.[4] Friedberg (2001) investigates the impact of mass migration from the Soviet Union to Israel and finds no adverse impact of immigration on native wages and employment. Glitz (2012) studies the migration of 2.8 million ethnic Germans from Eastern Europe and the former Soviet Union to Germany and finds some short-run displacement effects, but no effect on relative wages of native workers. Foged and Peri (2016) analyse the impact of the increase in refugees to Denmark from Bosnia, Somalia, Afghanistan, and Iraq from 1994 to 2008 and show that wages of low-skilled natives increased in municipalities receiving more refugees. Hunt (1992) studies the 1962 repatriation of Algerian French and finds only weak evidence for an adverse effect on unemployment and the labour force participation of the native workforce. Edo (2020) re-examines the case of the French repatriation implementing an instrumental variable approach and finds a decrease of regional wages in the short term, with a return to their pre-shock level 15 years after. He further finds a reduction of native employment in the short run, with a larger displacement effect on female natives.

The impacts of immigration to Portugal has been previously studied by Carrington and De Lima (1996) and Mäkelä (2017), who both investigate the effect of the Portuguese repatriation. The former provide ambiguous results: A comparison with Spain and France indicates no negative effect of the repatriates, while a comparison between districts within Portugal shows a substantial adverse impact on Portuguese wages. Mäkelä (2017) employs a synthetic control method and finds significant adverse effects on productivity and wages in the agricultural and construction industries.[5] Both studies use aggregated data for their outcomes and hence cannot distinguish between composition effects from the inflow and impacts only on the native population. This study overcomes this issue by using a large micro data set on the Portuguese repatriates. Cardoso and Morin (2018) study the effect of emigration from Portugal on native women, showing that the out-migration of men in the 1960s and early 1970s led to a demand-driven increase in female LFP in Portugal. We investigate the impact of a subsequent increase

4. This finding is, however, subject to some debate, with, for instance, Borjas (2017) finding a large adverse effect on wages of native high-school dropouts following the Mariel boatlift. Opposed to that, Clemens and Hunt (2019) agree with Card (1990), concluding that the boatlift had no adverse effect on wages.

5. Both studies use district-level wage data from Statistics Portugal, recording daily wages in the agriculture and construction industries. We do not use this data for two reasons. First, it is only available at the district level, while our main level of analysis are the (smaller) NUTS (Nomenclature of Territorial Units for Statistics) 3 regions. A more important caveat of the data, given that this analysis focuses on native outcomes, is that it does not allow to distinguish between natives' and repatriates' wages.

in the labour force following the arrival of the repatriates.

This paper furthermore adds to the strand of literature dealing with return migration. In recent years, there has been a renewed interest in the phenomenon of return migration (Mayr and Peri 2008). Most studies in the field have however focused on determinants of return migration (Borjas and Bratsberg 1994, or Dustmann and Weiss 2007), return migrants' skill composition (Zucker and Darby 2007), entrepreneurial activity upon return (Dustmann and Kirchkamp 2002) and potential wage premiums for international experiences (Barrett and O'Connell 2001). This study looks into the effect of return migration on native outcomes.

3 Historical Background

3.1 A Brief Overview of the Portuguese Colonial War

During the 1960s and early 1970s, unrest caused by independent movements in Portugal's largest colonies, Angola and Mozambique, led the authoritarian Portuguese regime to increase the resources spent on colonial administration. In 1973, military expenditures made up close to 50% of government expenditures (Carrington and De Lima 1996). These high monetary costs, coupled with a rising number of dead and injured in the Colonial War, and an increasing anti-colonisation sentiment, eventually culminated in the April 1974 military coup, which put an end to the authoritarian regime in Portugal (Kalter 2018). Subsequently, the military withdrew its troops from the colonies and surrendered to the local independence movements. While initially, it was expected that the white settler populations would be able to remain in Africa, soon conflicts erupted on the streets of the former colonies (Peralta 2019). The anticipation of civil war in the large "white settler" colonies Angola and Mozambique led hundreds of thousands of ethnic Portuguese to flee to Portugal as repatriates (Young and Hall 1997).

3.2 Repatriation to Portugal

The inflow of repatriates to Portugal was large and sudden, which was partly due to the unexpected timing of the military coup and subsequent independence of the colonies. The evidence provided by the 1981 census allows us to estimate that close to half a million repatriates arrived in Portugal between 1974 and 1976, making it the largest migration flow resulting from decolo-

nization in relative terms (Peralta 2019). At the time, the native population accounted for about 9 million people. Given that many of the repatriates arrived with few physical resources, the Portuguese government initiated a large-scale settlement program to assist them in their arrival, carried out by the Instituto de Apoio ao Retorno de Nacionais (IARN) (Carrington and De Lima 1996). This state support included employing repatriates as public servants and giving cheap credits to small businesses (Peralta 2019). In need for accommodation for the repatriates, the government rented luxury tourist hotels, in which some of the repatriates passed their first two years in Portugal. They further enjoyed preferential access to the labour market. According to Solsten (1993), the settlement program accounted for 11% of total government spending in 1976. However, as early as 1981, the IARN was dissolved, and the repatriates who remained in need of assistance were handed over to the social security system (Peralta 2019).

This fast process may be one of the reasons why the integration of the repatriates is often remembered as a success that "may even be considered miraculous" (Peralta 2019, 6). However, the arrival of the repatriates was not without problems. Given that Portugal was in the middle of a process of social and political change, the native population received the repatriates with hostility, perceiving them as foreigners, or even invaders (Peralta 2019). According to Lubkemann (2002), the media at the time contributed to the negative stereotyping of the "internal strangers", as he called them (76). Press reports of the government assistance program included claims that repatriates were "stealing housing and jobs" from the Portuguese (Mäkelä 2017, 242).

4 Data and Descriptive Statistics

4.1 Data on Repatriates

Data on the repatriates was retrieved by the sociologist Rui Pena Pires from the Portuguese census of 1981. He defines a repatriate as someone who lived in Portugal in 1981 and had lived in an African country in December 1973. The data set contains individual-level data on 471,427 repatriates, including demographic information such as sex and age, place of birth, place of residency in 1979 and 1981, as well as educational and employment information. In our sample, we consider repatriates who are between 20 and 69 years old in 1981. This range corresponds to an age of around 15 to 64 when arriving in Portugal, which is considered the most relevant

range in inducing a shock to the labour market. This restriction reduces the sample to 339,868 repatriates. We furthermore limit the sample to individuals who migrated to Portugal before 1979 and to those who did not change NUTS 3 region since then. This exclusion leaves us with a sample size of 317,924 repatriates. The former restriction allows us to consider only those who moved to Portugal in response to an unanticipated political event, that is, in response to an exogenous push-factor, which facilitates identification. Restricting the sample to only those who did not change NUTS 3 region leads to the exclusion of roughly 20,000 repatriates (approx. 4% of all repatriates). It however furthermore aids to capture the initial shock rather than movements between regions at a later point, which may have been for economic reasons.[6]

We furthermore retrieved data on the white resident population in Angola and Mozambique from 1940 to 1970 from Statistics Portugal, as displayed in table A1 in the appendix. Movements to the colonies were relatively recent, as the number of white residents in Angola and Mozambique more than tripled between 1950 and 1970. There were 443,068 white residents in these colonies in 1970. Given that the large majority of repatriates were from these two colonies, this constitutes another proxy for the inflow of repatriates, accounting to close to half a million people. It also indicates that almost the entire Portuguese population residing abroad repatriated to Portugal. We will use this number as a shift in one of the shift-share instruments.

4.2 Data on Portuguese Natives

To investigate the impact of the repatriates, we are using census data from 1960 as the pre-shock period, and census data from 1981 as the post-shock period. The 1960 census is the last large census before the inflow, and the 1981 census is the first large census after the inflow.[7] Hence, the post-shock period takes place about six years after the shock, thereby measuring its impact after some time for adjustment.[8] The censuses contain municipality-level data on demographics and employment. We aggregate the data to the main level of analysis, namely to NUTS 3 level[9],

6. As shown later, the results are however robust to including those who changed region and to changing the age range considered.

7. While there was a census in 1970, which is available in non-digital format at Statistics Portugal, it is considerably smaller than the 1960 and 1981 censuses, covering only 20% of the population and containing none of the labour market variables used in this analysis.

8. In their study of the effect of skewed sex ratios on Portuguese women's labour market outcomes, Cardoso and Morin (2018) use an even longer time period between the shock and measured outcomes.

9. As defined in 2002.

hence containing 30 regions. Since the census of 1981 includes repatriates and is aggregated at the municipality level, a distinction between repatriates and the native population is not readily available from the data. We define the native population in each region as the non-repatriate population, calculating them as the total population listed in the 1981 census minus the number of repatriates that lived in each region in that year, as taken from the data set on repatriates. We compute outcomes for the native population likewise: the number of unemployed natives, for instance, is derived from the total number of unemployed as defined in the census minus the number of unemployed repatriates. We focus the analysis on the impact of the repatriates on Labour Force Participation, Unemployment Rate and the Employment Share.[10] The census also provides data on different types of employment, among them the number of employees and entrepreneurs. Entrepreneurs are further divided into employers (those who have employees) and self-employed individuals (those who do not employ others). We investigate these outcomes separately for male natives and female natives.

To construct a shift-share instrument based on educational levels, we decompose the native population and the repatriates across four educational groups, namely those with no education, primary education, secondary education and higher education[11].

4.3 Comparison of Repatriates and Natives

Approximately 77.8% of repatriates were born in Portugal, with the majority of the remaining repatriates born in former Portuguese colonies. This characteristic distinguishes the repatriates from other decolonization migrants to, for instance, France and The Netherlands, of whom most had been born in the colonies (Lubkemann 2002). In line with this, the large majority of repatriates were Portuguese speaking (Pires, Delaunay, and Peixoto 2020).

What differentiated the Portuguese repatriates from the native population, however, was the fact that they were more likely to be of working age, as shown in figure A1 in the appendix.

Table 1 shows further differences between natives and repatriates. Compared to natives,

10. Since individual-level wage data in Portugal collected in the Quadros de Pessoal, which would be needed to retrieve native outcomes, is only electronically available starting in 1986 (Card and Cardoso 2012), our outcomes do not include wages.

11. Primary education includes those with Primário elementar or Preparatório. Secondary education includes those with Secundário unificado, Secundario complementar or Propedêutico ou 12.º ano. Higher education includes those with Curso de índole profissional e artístico, Curso médio, enfermagem, profissional, or Curso superior.

repatriates were more likely to be male, more educated and more likely to be employees or employers. Overall, the inflow of repatriates not only changed the size, but also the composition of the Portuguese labour force. The table further displays data on the place of residence in 1973, indicating that the majority of repatriates came from Angola and Mozambique.

Table 1: Comparison Repatriates and Natives

	Natives (Sample)		Repatriates (Sample)		Repatriates (Above 15)	
	N	%	N	%	N	%
Gender						
Male	3,189,679	46.7%	173,382	54.5%	194,617	53.8%
Female	3,634,546	53.3%	144,542	45.5%	167,162	46.2%
Total	6,824,225	100.0%	317,924	100.0%	361,779	100.0%
Education						
None	2,612,630	38.3%	39,493	12.4%	45,328	12.5%
Primary	3,341,173	49.0%	185,816	58.4%	210,633	58.2%
Secondary	657,780	9.6%	65,460	20.6%	78,156	21.6%
Higher	212,642	3.1%	27,155	8.5%	27,662	7.6%
Total	6,824,225	100.0%	317,924	100.0%	361,779	100.0%
Profession						
Employee	2,808,796	76.8%	174,745	81.4%	181,912	81.7%
Self-employed	602,565	16.5%	25,839	12.0%	26,157	11.8%
Employer	118,985	3.3%	10,338	4.8%	10,441	4.7%
Stay-home parent	97,936	2.7%	1,673	0.8%	1,989	0.9%
Cooperative	16,496	0.5%	540	0.3%	564	0.3%
Other	13,235	0.4%	1,467	0.7%	1,520	0.7%
Total	3,658,013	100.0%	214,602	100.0%	222,583	100.0%
Unemployed/Inactive	3,166,212	100.0%	103,322	100.0%	139,196	100.0%
Residence in 1973						
Angola			195,206	61.4%	222,420	61.5%
Mozambique			106,242	33.4%	121,588	33.6%
Other			16,476	5.2%	17,771	4.9%
Total			317,924	100.0%	361,779	100.0%

Notes: The native sample is comprised of all non-repatriates above the age of 15. The sample of repatriates is comprised of all repatriates between 20 and 69 years old in 1981. For comparison, statistics of repatriates above 15 are displayed. Shares may not add up to 100% due to rounding. Source: census of 1981, Statistics Portugal, computations by the author.

Table 2 shows descriptive statistics for changes in native labour market outcomes between 1960 and 1981, natives' and repatriates' outcomes in 1981 and the difference between them, for both males and females. We calculate all indicators except for the unemployment rate as shares over the total population of working age.[12] The unemployment rate is the share of the labour force who is unemployed.[13] The outcomes exhibit an increasing degree of granularity as one

12. Defined as 15 to 64 years old.

13. This is in line with the most common definition of the unemployment rate, as used by, for instance, the OECD.

moves from the top to the bottom of the table. The labour force encompasses all those who are unemployed and employed. Those employed encompass, among less relevant categories not considered, employees and entrepreneurs. Entrepreneurs, in turn, are made up of self-employed individuals (those who do not have employees) and employers (those who have employees).

Table 2: Descriptive Statistics

	Males				Females			
	Natives		Repatriates	Difference	Natives		Repatriates	Difference
Variable	Δ	m	m	m	Δ	m	m	m
LFP	-0.100	0.889	0.878	0.011	0.223	0.392	0.483	-0.091***
	(0.039)	(0.026)	(0.028)	(0.007)	(0.052)	(0.088)	(0.071)	(0.021)
Unemployment rate	0.011	0.040	0.073	-0.034***	0.120	0.133	0.224	-0.091***
	(0.013)	(0.011)	(0.026)	(0.005)	(0.059)	(0.060)	(0.044)	(0.014)
Employment share	-0.105	0.854	0.814	0.040***	0.173	0.341	0.375	-0.034
	(0.041)	(0.030)	(0.039)	(0.009)	(0.050)	(0.085)	(0.061)	(0.019)
Share Employee	-0.129	0.587	0.627	-0.040*	0.095	0.242	0.320	-0.078***
	(0.089)	(0.078)	(0.075)	(0.020)	(0.045)	(0.087)	(0.068)	(0.020)
Share Entrepreneur	-0.014	0.221	0.179	0.042**	0.065	0.083	0.051	0.033**
	(0.056)	(0.068)	(0.047)	(0.015)	(0.044)	(0.049)	(0.021)	(0.010)
Share Employer	-0.038	0.031	0.046	-0.014***	0.001	0.005	0.008	0.003***
	(0.016)	(0.009)	(0.012)	(0.003)	(0.002)	(0.002)	(0.003)	(0.001)
Share Self-employed	0.023	0.189	0.133	0.056***	0.064	0.079	0.042	0.036***
	(0.058)	(0.072)	(0.044)	(0.015)	(0.045)	(0.049)	(0.021)	(0.010)

Notes: Standard deviations in parentheses. Δ refer to the change in each outcome between 1960 and 1981. m refers to the mean level in 1981 across the 30 NUTS 3 regions. LFP stands for labour force participation. The column *Difference* shows the difference between natives and repatriates. The stars indicate significance of an unpaired t-test of the differences. All indicators expect for the unemployment rate are calculated as shares over the total population of working age. I compute the unemployment rate as the share of the labour force that is unemployed. Source: census of 1981, computations by the author. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

The LFP of male natives decreased between 1960 and 1981, while female native LFP increased. We observe an increase in the male native unemployment rate, and a large drop in the male employment share. Male natives experienced a decrease in the share of employers, but an increase in the share of self-employed individuals. For female natives, all these outcomes exhibit positive changes, indicating an increasing integration of women in the labour market.

In 1981, the LFP of both native and repatriate men is significantly higher than for women. Compared to natives, repatriates of both genders are more likely to be unemployed, indicating that they were not yet fully integrated into the Portuguese labour market. However, female

repatriates seem to be better integrated than female natives, as reflected in their higher LFP.[14]

As already indicated in table 1, both male and female repatriates are less likely to be self-employed, but more likely than natives to be employers.

4.4 Spatial distribution of repatriates

The total sample of repatriates accounts for 4.7%[15] of the total natives above 15 in 1981, with considerable spatial variation between municipalities, as shown in figure A2 in the appendix. The highest density is observed in the North East of the country and around Lisbon. In 1981, there seems to be no major clustering of repatriates in certain regions.

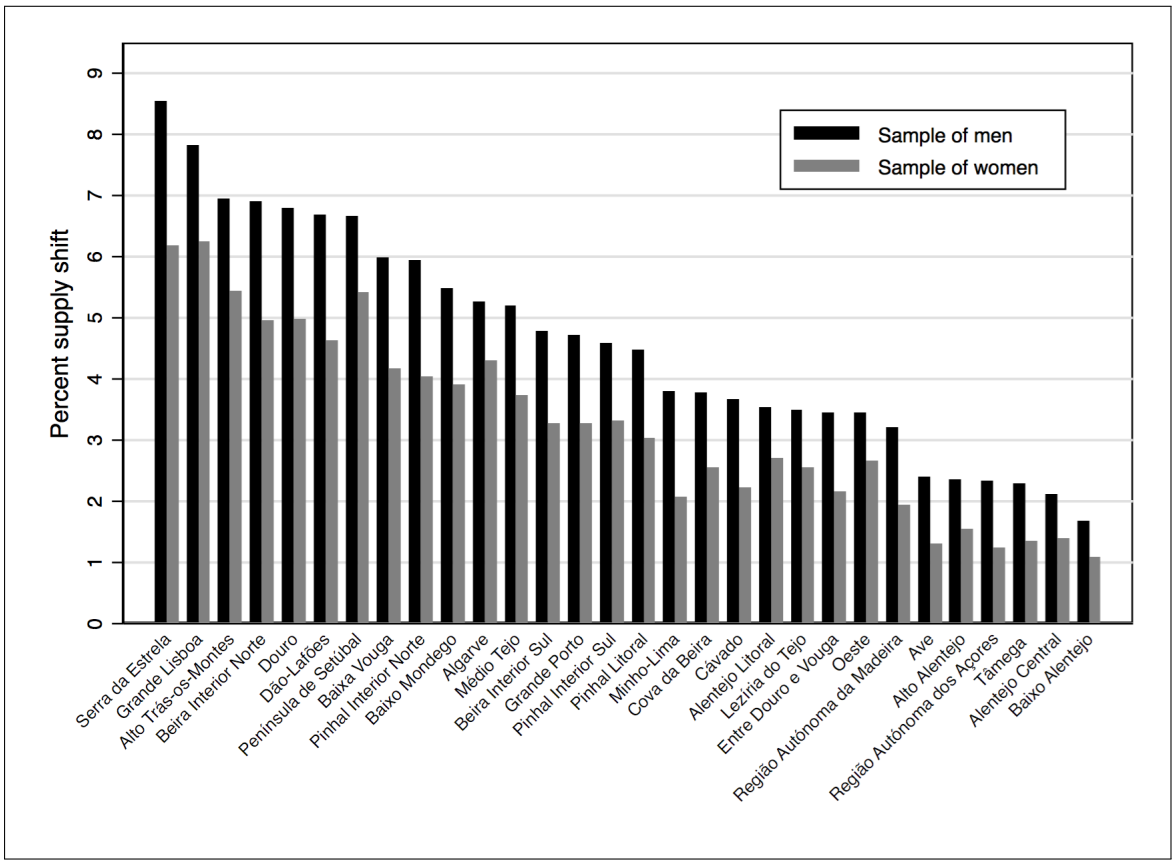

Figure 1 Percent supply shock by NUTS 3 regions. The supply shock is calculated as the number of repatriates in the sample over the number of natives above 15 in 1981. Source: census of 1981, Statistics Portugal, own construction.

14. Female repatriates exhibit a higher unemployment rate and a higher employment share than do native women. This means that they are more likely to either be employed or unemployed once they are of working age and less likely to, for instance, be stay-home parents. This is also reflected in the higher female LFP. For male repatriates, the LFP is lower than for natives. Once male repatriates are in the labour force, they are more likely to be unemployed and less likely to be employed than the native population.

15. Calculated as 317,924/6,824,225, see table 1 for the numbers of total natives and repatriates.

Figure 1 shows the relative supply shock by gender and NUTS 3 level. The regional average supply shock for males is approximately 4.7% of the native population, while for females it accounts for about 3.3%, with a total average shock of 3.9%. The largest supply shock was induced in Serra da Estrela, followed by Grande Lisboa.

5 Empirical Strategy and Identification

5.1 Main Econometric Equation

One of the most common approaches in economic literature to study the effect of migration on native outcomes is the spatial correlation approach (Glitz 2012). In this approach, an outcome in a given area is regressed on the relative quantity of immigrants in that same area. This area is intended to correspond to a local labour market. We follow this approach, using as a source of variation the differential relative size of inflows of repatriates by region. As suggested by Dustmann, Schönberg, and Stuhler (2016), we investigate the effect of the overall (opposed to the group-specific) immigration shock on labour market outcomes.[16] We estimate the impact of the Portuguese repatriates on several labour market outcomes using the following specification:

$$\Delta Y_r = \alpha_n + \beta m_r + X_r^{1960} + \varepsilon_r \tag{1}$$

where r stands for NUTS 3 region and n for NUTS 2 region. Figure A3 in the appendix shows a map with these regions, table A2 shows the size of these regions in terms of population and labour force. The analysis is at the geographical level of NUTS 3 since they are assumed to correspond to local labour markets.[17] ΔY_r denotes the change in the outcome Y from 1960 (the pre-shock period) to 1981 (the post-shock period) in each region. We investigate labour force participation, the unemployment rate, overall employment and employment as an employee or entrepreneur. m_r is the ratio of repatriates in the sample in 1981 to the natives above 15 in 1981,

16. Dustmann, Schönberg, and Stuhler (2016) argue that this specification is preferable over specifications using variation in immigrant inflows both across education groups and across regions for two reasons. First, the latter unduly rely on the assumption that an immigrant and a native with the same measured education and experience compete against each other. There is, however, strong evidence that immigrants "downgrade" upon their arrival. Second, they argue that the overall effect of the total inflow is easier to interpret and estimates a parameter with direct policy relevance.

17. See, for instance, Baptista, Escária, and Madruga (2008).

in region r. X_r^{1960} is a vector of controls, namely, the shares of unemployed, inactive, young, highly educated and entrepreneurs in 1960. We further include dummies for the 7 NUTS 2 regions to focus our analysis on differences within these regions. To account for potential heteroskedasticity of the error term, all regressions use heteroskedasticity robust standard errors.

5.2 Identification

5.2.1 Main Identification Issue

The aim of this analysis is to compare the economic outcomes of certain regions after immigration with the counterfactual outcome that would have been observed had migration not taken place (Dustmann, Fabbri, and Preston 2005). In an ideal empirical world, immigrants would be allocated randomly across labour markets. Any subsequent variation in economic outcomes would then be purely related to variation in immigrant densities. However, in the real world, migrants are not allocated randomly, and immigration densities may be spatially correlated with labour market outcomes because of common fixed influences, which would bias OLS results.

Our outcome variables are first-differenced to account for omitted time-invariant characteristics of the regions. Two further endogeneity concerns relate to the measurement of the supply shock m_r, calculated as the ratio of repatriates to the pre-existing native workforce in 1981.[18] This ratio poses two endogeneity concerns: natives may have moved in response to the inflow of repatriates[19] and repatriates may locate endogenously. If immigration were to increase unemployment in certain areas, but natives would move to areas with lower migrant density in response, the impact of immigration would be dispersed through the national economy, leading to downward biased estimates of the effect of immigration on unemployment. The extent to which repatriates could actively base their location decision on economic considerations was limited by the unexpected timing of the end of the Portuguese Colonial War. Even when controlling for an extensive set of controls in the pre-shock period, we, however, cannot entirely exclude the possibility that repatriates moved to regions for unobserved factors that are correlated with changes in outcomes between 1960 and 1981, which would again bias OLS estimates.

18. Hunt (1992), Borjas (2003) and Edo (2020) likewise use this post-shock denominator.

19. This concern is especially warranted in this case since the post-shock period takes place several years after the shock, giving natives sufficient time to adjust their location.

5.2.2 Shift-Share Instrument

To address the potential endogeneity in the location of repatriates, we use three variations of a shift-share instrument, which is the most common method applied in studies of this kind (Dustmann, Fabbri, and Preston 2005). A shift-share instrument is a weighted average of some shock, with weights reflecting heterogeneous shock exposure (Borusyak, Hull, and Jaravel 2018). That is, the spatial distribution of a certain shock (I.e. the shift) is instrumented by predicting regional shock exposure from some regional, exogenous characteristic (I.e. the share). Following the work of Bartel (1989), who showed that arriving migrants are more likely to settle in areas with higher previous migrant densities, the most common way to build a shift-share instrument in the migration literature is to use a measure of historical settlement patterns as share. This assumes network effects between current and past migrants. Our shift-share instrument resembles that of Edo (2020), who likewise uses past settlements as shares. We, however, adapt the shares given that we are dealing with a particular kind of migration, namely repatriation of people who had mostly still been born in the receiving country. The Portuguese repatriates are unlikely to have much in common with former migrants, making network effects between these two groups less plausible. A more suitable parameter to predict settlement patterns is the place of birth of repatriates since many of them returned to their region of birth.[20] Therefore, we use the share of Portuguese-born repatriates born in each region as a source of variation. We construct three alternative shift-share instruments, all based on birth places. For the first IV, we decompose the sample of repatriates across four educational levels to construct the instrument, assuming that network effects with other repatriates are stronger between social classes, for which education serves as a proxy.

We then use the share of Portuguese-born repatriates of a certain education group born in each region to build the shift-share instrument. The underlying reasoning is the following: if more repatriates of a particular social class were born in a region, this region is predicted to attract more repatriates of the same social class. We compute the imputed number of repatriates for the first IV in the following way:

20. In our sample, about 40% of Portuguese-born repatriates lived in the municipality they were born in in 1981, with 51% residing in the NUTS 3 region they were born in.

$$\widehat{Repatriates}_r = \sum_i \frac{Portuguese-born_{ir}}{Portuguese-born_i} \times Repatriates_i \tag{2}$$

where i stands for one of four education groups and r stands for one of 30 regions.

To show robustness to the assumption that network effects are stronger within education groups, we compute a variant of the repatriate prediction by defining i as origin group rather than education group, with origin referring to the place lived in before repatriation to Portugal. The three origin groups are Angola, Mozambique and other colonies. This instrument assumes that network effects are stronger between repatriates from the same colonies, which might be a more reasonable assumption for repatriates, who, for instance, migrated together with part of their African-born former employees.

Lastly, we compute a third prediction of repatriates to construct a more simple Bartik instrument, as first proposed by Bartik (1991) in the context of predicting employment growth. We interact the share of total births in each region with another proxy for the total inflow of repatriates, namely the number of white residents in Angola and Mozambique in 1970, using the following equation:

$$\widehat{Repatriates}_r = \frac{Portuguese-born_r}{Portuguese-born} \times White\ residents\ in\ colonies_{1970} \tag{3}$$

This instrument does not rely on network effects between certain education or origin groups and uses an alternative measure as a shift.

Following Edo (2020), we address the above described potential endogeneity of natives in 1981 by likewise predicting the number of pre-existing natives in each region as follows:

$$\widehat{Natives}_r^{1981} = \sum_i \frac{Natives_{ir}(1960)}{Natives_i(1960)} \times Natives_i(1981) \tag{4}$$

where i again stands for education group and r stands for region.

After predicting the number of repatriates per region from (2), or from (3), and the number of natives from (4), we compute the three different shift-share instruments as follows:

$$m_r^{IV} = \frac{\widehat{Repatriates}_r}{\widehat{Natives}_r^{1981}} \tag{5}$$

The literature on shift-share instruments suggests that such an instrument will be invalid if conditions which influence the spatial distribution used as share are serially correlated over time and influence current outcomes (Borjas 1999). According to Dustmann, Fabbri, and Preston (2005), this concern is mitigated by using a sufficient time lag to predict the regional distribution of migrants. As we are using places of birth of migrants of different ages, it seems plausible to assume that their places of birth in different years and subsequent decision to leave their home region in different years have no systematic impact on outcomes in 1981. Furthermore, as noted by Peralta (2019), the repatriates were a socially diverse population. Some of them had left Portugal because they resided in impoverished regions and wanted to escape poverty, others were affluent settler families with affinities to colonial power. This diversity indicates that there is unlikely to be a systematic relationship between the places of birth and changes in labour market outcomes between 1960 and 1981. Nevertheless, we include a set of controls in 1960 to support this assumption. For our instrument to yield unbiased estimates, we then require the share of births of repatriates in each region to be exogenous to changes in labour market outcomes between 1960 and 1981, after controlling for several characteristics in the pre-shock period.

6 Empirical Results

The fact that the characteristics of female and male natives, as shown in table 2, differ substantially motivates a separate analysis for male and female outcomes. Furthermore, female labour supply has been found to be more elastic to shocks than male labour supply (Lloyd and Niemi 1978). Therefore, it seems relevant to investigate the effect of the repatriate supply shock on both the male and the female labour market separately.

Table 3 presents the OLS and IV estimated effects of the supply shock induced by the repatriates on the change in labour force participation, unemployment rate, employment and entrepreneurship for male natives. Table 4 presents the same for female natives. Specification (1) and (2) are OLS regressions of equation (1), without and with pre-shock controls, respectively. Specification (3) to (5) refer to IV regressions, with (3) using the IV based on educational network effects, (4) using the IV based on origin network effects, and (5) using the simple Bar-

Table 3: Labour market effects of repatriates on male natives - baseline

	OLS		IV		
Outcomes for male natives	(1)	(2)	(3)	(4)	(5)
Δ LFP	0.228	0.526	-0.107	-0.111	-0.082
	(0.366)	(0.458)	(0.293)	(0.306)	(0.296)
Δ Unemployment rate	-0.186	-0.044	0.214	0.216	0.210
	(0.137)	(0.185)	(0.119)	(0.118)	(0.117)
Δ Employment share	0.397	0.527	-0.328	-0.334	-0.300
	(0.399)	(0.542)	(0.319)	(0.334)	(0.321)
Δ Share Employee	-0.490	-1.865	-3.912***	-3.902***	-3.779***
	(0.936)	(1.085)	(0.905)	(0.931)	(0.886)
Δ Share Entrepreneur	0.318	1.764*	3.079***	3.059***	2.967***
	(0.573)	(0.809)	(0.766)	(0.774)	(0.744)
Δ Share Employer	-0.396	-0.624***	-0.677***	-0.685***	-0.686***
	(0.204)	(0.152)	(0.158)	(0.159)	(0.154)
Δ Share Self-employed	0.714	2.388**	3.756***	3.744***	3.653***
	(0.566)	(0.854)	(0.851)	(0.860)	(0.826)
Controls	NO	YES	YES	YES	YES
Instrument	-	-	IV1	IV2	IV3
First-stage coefficient	-	-	0.528	0.510	0.375
First-stage F-statistic	-	-	55.05	50.94	63.64
Observations	30	30	30	30	30

Notes: Robust standard errors in parentheses. The independent variable is the sample of repatriates over the native population above 15. All outcomes refer to changes between 1960 and 1981. LFP, Employment share, Share Employee, Share Entrepreneurship, Share Employer and Share Self-employed are calculated as shares over the native working age population. The unemployment rate refers to the share of unemployed over the native labour force. All regression contain dummies for NUTS 2 regions. Controls contain the following parameters in 1960: unemployed and entrepreneurs as share of working age population, inactive and population below 15 as share of total population, those with higher education as share of those above 15. IV1 is the instrument based on educational network effects, IV2 is the instrument based on network effects according to the colony lived in and IV3 is the basic Bartik instrument. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

tik instrument. All first-stage coefficients of the instruments are large in magnitude, and the first-stage F-statistics comfortably pass the bound of 10 suggested by the literature on weak instruments (Stock, Wright, and Yogo 2002). These results indicate that all instruments are relevant predictors of repatriate density and the IV estimates are unlikely to be subject to weak instrument bias. Notably, the first-stage coefficients for instrument 1 and 2 (I.e. specification (3) and (4)) are larger than for instrument 3 (I.e. specification (5)), indicating that the instruments

Table 4: Labour market effects of repatriates on female natives - baseline

	OLS		IV		
Outcomes for female natives	(1)	(2)	(3)	(4)	(5)
Δ LFP	-0.512	-1.082	-1.871**	-1.845**	-1.835**
	(0.581)	(0.892)	(0.691)	(0.698)	(0.690)
Δ Unemployment rate	-1.426	-0.655	0.069	0.073	0.084
	(0.733)	(0.916)	(0.519)	(0.513)	(0.509)
Δ Employment share	0.087	-0.680	-1.587*	-1.568*	-1.562*
	(0.596)	(0.906)	(0.661)	(0.663)	(0.654)
Δ Share Employee	-0.771	-1.059	-1.919***	-1.900**	-1.886***
	(0.558)	(0.731)	(0.573)	(0.586)	(0.573)
Δ Share Entrepreneur	0.604	0.122	0.139	0.136	0.128
	(0.500)	(0.497)	(0.458)	(0.459)	(0.452)
Δ Share Employer	-0.014	-0.050	-0.072*	-0.071*	-0.071*
	(0.031)	(0.039)	(0.034)	(0.034)	(0.034)
Δ Share Self-employed	0.618	0.171	0.211	0.207	0.199
	(0.514)	(0.489)	(0.448)	(0.449)	(0.441)
Controls	NO	YES	YES	YES	YES
Instrument	-	-	IV1	IV2	IV3
First-stage coefficient	-	-	0.528	0.510	0.375
First-stage F-statistic	-	-	55.05	50.94	63.64
Observations	30	30	30	30	30

Notes: See notes in table 3. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

based on network effects between subgroups predict more of the spatial variation in repatriates' location than does the more general Bartik instrument. The estimated second-stage effects using the three instruments are all very similar both in terms of magnitude and significance.

OLS indicates a non-significant increase in male LFP, with a slight, non-significant decrease in unemployment and a non-significant rise in employment. IV reverses the signs of the estimates, suggesting positive selection: repatriates seem to settle in regions with better labour market prospects. The IVs overcome this endogeneity, showing that a higher supply shock slightly decreases male LFP, decreases male employment and increases male unemployment. None of these effects is however, statistically significant. The effect on employment hides substantial heterogeneity between different types of employment. A higher supply shock leads to a substantial and significant decrease in male employment as employees. A one pp increase in the share of repatriates will lead to roughly a 4 pp reduction in the share of the workforce working

as employees, on average. As the supply shock accounted for a 3.9 pp change in the share of repatriates, on average, the average decline in employment as employee caused by the shock amounts to 15.6 pp. This corresponds to an average reduction of about 22% compared to the pre-shock level of 71.6% in 1960. On the other hand, we observe a substantial increase in the share of male entrepreneurs. The supply shock increased the share of entrepreneurs by about 12 pp.[21] This corresponds to a rise of about 51.1% compared to the pre-shock level of 23.5%. An increase in self-employed individuals drives this increase: in the presence of relatively more repatriates, natives are more likely to be self-employed, but less likely to work as employers. All these effects are statistically significant at 0.1%.

For female natives, OLS indicates a non-significant decrease in LFP, unemployment rate and employment share following a higher shock. The changes in coefficients between OLS and IV estimates also suggest positive selection in the location of repatriates. The IV estimates indicate that the shock causes a statistically significant reduction in female LFP, stemming from a drop in the share of females employed, but no change in unemployment. On average, the shock introduced a 6.2 pp reduction in the share employed and a 7.4 pp reduction in the share working as employees. Given the low pre-shock level of 14.6% of women working as employees, the latter indicates a larger relative change than for men, corresponding to a decrease of about 50.1% (compared to 22% for men).[22] Contrary to men, women do not compensate for this loss with an increase in self-employment. While we observe a slight, statistically significant drop in the share of employers, the overall increase in entrepreneurship is statistically non-significant. Females seem to move to inactivity, as reflected in the negative effect on female LFP.

7 Discussion of Results

Overall, the results imply that places of birth of repatriates are a strong predictor of settlement patterns of the Portuguese repatriates. Despite that, it seems that there is some positive selection, that is, that repatriates to some extent base their location decisions on economic fundamentals. This finding is in line with Mäkelä's (2017) study of the Portuguese repatriates.

21. Calculated as 3.9*3.1, i.e the average shock multiplied by the coefficient of the variable at hand.

22. As all these indicators recorded an increase between 1960 and 1981 (see table 2), these negative effects imply that in regions with more repatriates, these indicator increased by less than they would have increased in the absence of the repatriates.

Furthermore, while the repatriates caused no overall increase in unemployment several years after the inflow, there was some displacement of local workers following the arrival of the repatriates. Both male and female natives seem to be driven out of employment as employees by the shock, with a larger relative effect on females. This larger effect is consistent, with the findings of Edo's (2020) study of the French repatriation. While male natives manage to adjust and compensate for this loss by becoming self-employed, overall female employment is impacted negatively as female natives lose their employment as employees but do not record an increase in entrepreneurship. Instead, they leave the labour force altogether, with no significant increase in unemployment. This result is also consistent with Edo (2020).

Our scope for an in-depth explanation of these findings is limited by the fact that we do not have access to suitable wage data. If wages decreased sufficiently following the large inflow of repatriates, this might have induced some men to voluntarily leave employment as employees to pursue self-employment. At the same time, male wages may have decreased more than female wages, given that the supply shock was larger for males, and male repatriates were more likely to be part of the labour force than females. If employers in the late 1970s and early 1980s had a preference for male employees and employed women solely because they were relatively cheaper, a sharper drop in male wages would have reduced the relative price advantage of female labour, leading to female layoffs. Even if both male and female wages decreased, a stronger displacement effect for women is consistent with the fact that female labour supply is generally more responsive to wage changes (Lloyd and Niemi 1978).

Furthermore, Cardoso and Morin (2018) show that the relative scarcity of men in the Portuguese economy resulting from military drafting and emigration in the 1960s and early 1970s led to a demand-driven sharp increase in female LFP, making Portugal one of the European leaders in female LFP. The rise slowed down in the 1980s, coinciding with the arrival of the repatriates. Therefore, we show that after a demand-driven increase in female LFP, a supply shock leads to a slowdown in this trend. While Cardoso and Morin (2018) argue that the early increase in female LFP may have changed social norms in Portugal, our results question the persistence of the change. Once (predominately male) repatriates arrived, women were once again driven out of the labour market, possibly due to a preference of employers for men. This indicates that there may still have been strong social norms against female employment.

Aggregated data from Statistics Portugal further indicates that after a period of increases, real wages started to decrease in 1975, after the arrival of the repatriates (Pereirinha 1980). Furthermore, Mäkelä (2017) finds that in 1977, actual average annual wages per worker were about 8% lower compared to the synthetic counterfactual, with a larger negative effect of -25% in 1970 and -55% in 1985, respectively. He also finds a small short-run increase in unemployment in the first years after the arrival, with no effect visible after 1980 and argues that this may be due to the low unemployment benefits at the time. While these low benefits may have induced displaced females to move to inactivity rather than unemployment, displaced male natives seem to have moved to self-employment. The increase in self-employment and decline in employers fits in with the fact that, while repatriates are less likely to be self-employed compared to natives, they are more likely to be employers (see table 2). Therefore, repatriates seem to drive natives out of especially these professions in which they are more prevalent. This is what Peri (2016) calls margins of adjustment: native workers move away from tasks or skills provided by immigrants and towards talks or skills complemented by them. We do not have sufficient information on the respective characteristics of self-employment and work as employers to make any conclusive remarks on their relative quality. Self-employment without having any employees may however be an indicator for lower quality entrepreneurship than work as an employer. Thereby, male natives seem to be driven out of employment as employees and into, possibly, lower-quality entrepreneurship.

8 Robustness

Table 5 and table 6 show robustness of the results, using IV 1. Table A3 to table A12 in the appendix show the main tables with OLS and all IV estimates for each robustness check.

Specification (1) in table 5 and table 6 shows that the results are robust to the specification of Kronmal. As pointed out by Clemens and Hunt (2019), the fact that the shift-share instrument and the endogenous variable have a common denominator has the potential to bias second-stage IV estimates.[23] To show that the IV results are not driven by the correlation between the predicted and actual number of natives, we follow the suggestion of Clemens and Hunt (2019) to

23. While we are not using the exact same denominator in the endogenous variable as we are using in the instruments, both denominators have some parts in common.

Table 5: Labour market effects of repatriates on male natives - robustness

	IV 1 - based on educational network effect				
Outcomes for male natives	(1)	(2)	(3)	(4)	(5)
ΔLFP	-0.012	0.074	-0.248	-0.395	-0.107
	(0.011)	(0.278)	(0.317)	(0.243)	(0.294)
Δ Unemployment rate	0.014*	0.160	0.281	0.132	0.214
	(0.006)	(0.123)	(0.161)	(0.121)	(0.119)
Δ Employment share	-0.026*	-0.100	-0.522	-0.518*	-0.328
	(0.012)	(0.309)	(0.356)	(0.256)	(0.320)
Δ Share Employee	-0.186***	-3.384***	-3.965***	-2.829***	-3.915***
	(0.036)	(0.790)	(0.891)	(0.413)	(0.918)
ΔShare Entrepreneur	0.141***	2.748***	2.939***	1.702***	3.082***
	(0.034)	(0.692)	(0.773)	(0.362)	(0.774)
Δ Share Employer	-0.027***	-0.635***	-0.538**	-0.110	-0.677***
	(0.007)	(0.150)	(0.188)	(0.110)	(0.159)
Δ Share Self-employed	0.168***	3.383***	3.476***	1.812***	3.759***
	(0.038)	(0.769)	(0.840)	(0.372)	(0.861)
Controls	YES	YES	YES	YES	YES
N of repatriates	317,924	179,518	317,924	307,034	332,708
First-stage coefficient	0.507	0.569	0.517	0.327	0.527
First-stage F-statistic	19.75	87.06	75.84	49.93	46.80
Observations	30	27	30	303	30

Notes: Robust standard error in parentheses. For a description of outcomes, controls and instruments see Table 3. (1) uses the Kronmal specification, that is, the independent variable is the log of repatriates, with the controls including the log of natives above 15 in 1981. (2) - (5) use the share of repatriates over natives as independent variable. (2) excludes Lisbon, Setúbal and Algarve from the regression, (3) includes only three regional dummies (4) runs the regression at municipality level (5) includes those repatriates who changed NUTS 3 regions in the sample. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

apply the correction of Kronmal (1993). We instrument for the log of repatriates with the log of the predicted repatriates based on places of births, including the log of the native population in 1981 as a control. For males, there are some slight changes in significance, suggesting slightly more adverse effects. For females, all results are in line with the main specification.

Second, we address the concern that major shocks such as the oil crises of 1973 and 1979, the end of the Portuguese Colonial War, with a reduction in military employment by about 200,000 people, the revolution and democratisation and the stop of emigration to France and West Germany may drive the results.[24] The inclusion of dummies for the large NUTS 2 regions

24. The country-specific shocks are discussed by, for instance, Carrington and De Lima (1996).

Table 6: Labour market effects of repatriates on female natives - robustness

	IV 1 - based on educational network effect				
Outcomes for female natives	(1)	(2)	(3)	(4)	(5)
ΔLFP	-0.119***	-1.676*	-2.319*	-2.199***	-1.872**
	(0.023)	(0.654)	(1.027)	(0.494)	(0.690)
Δ Unemployment rate	0.043	0.021	0.114	0.626*	0.069
	(0.024)	(0.527)	(0.536)	(0.263)	(0.519)
Δ Employment share	-0.114***	-1.439*	-2.020*	-2.085***	-1.595*
	(0.024)	(0.642)	(0.970)	(0.478)	(0.675)
Δ Share Employee	-0.124***	-1.939***	-2.010***	-2.192***	-1.921***
	(0.025)	(0.542)	(0.600)	(0.442)	(0.576)
ΔShare Entrepreneur	0.005	0.315	-0.193	0.019	0.139
	(0.026)	(0.452)	(0.589)	(0.310)	(0.459)
Δ Share Employer	-0.004*	-0.064	-0.072	-0.060**	-0.072*
	(0.002)	(0.033)	(0.038)	(0.019)	(0.034)
Δ Share Self-employed	0.009	0.378	-0.121	0.079	0.211
	(0.025)	(0.438)	(0.568)	(0.310)	(0.448)
Controls	YES	YES	YES	YES	YES
N of repatriates	317,924	179,518	317,924	307,034	332,708
First-stage coefficient	0.507	0.569	0.517	0.327	0.527
First-stage F-statistic	19.75	87.06	75.84	49.93	46.80
Observations	30	27	30	303	30

Notes: See notes in table 5. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

to some extent reduces this concern. The return of soldiers from the Colonial War is unlikely to asymmetrically affect regions within Portugal. As noted by Card and Cardoso (2012), the options for self-selecting out of drafting for the Colonial War were severely limited, indicating that returning soldiers likely settled evenly across the country. Furthermore, the fact that the Colonial War had a relatively low death toll, with only 7,000 dead soldiers recorded, mitigates the concern that differential impacts of the war may bias our results. The use of an instrumental variable should further reduce the concern for bias by confounding factors. We nevertheless show that the results are robust to excluding regions especially prone to such factors.

As argued by Carrington and De Lima (1996), Lisbon and Setúbal were the centre of the most dramatic political and economic conflicts following democratization of Portugal, whereas there was a large drop in tourism in Faro after 1975. Specification (2) in table 5 and table

6 shows that the results are robust to excluding these three particular regions.[25] Table A7 and A8 in the appendix furthermore show that the results are robust to excluding the NUTS 2 region Alentejo. As described by Pires de Almeida (2016), the Alentejo region was subject to a profound agrarian reform following the military coup in Portugal, which altered many aspects of the region's political, economic and social reality.

A third potential concern relates to the fact that, as we conduct our analysis at the level of NUTS 3, we have only 30 observations. The inclusion of NUTS 2 region dummies further increases the restrictiveness of the regression and may impede the precise estimation of the coefficients and standard errors. Specification (3) in table 5 and table 6 shows that the results are robust to including a less demanding set of three regional fixed effects.[26] Specification (4) shows robustness when running the regressions at the municipality level, with 303 observations.[27]

Lastly, we construct several subsamples of repatriates to show that the results do not depend on the previously applied sampling criteria. Specification (5) shows robustness to including all repatriates who changed regions. Table A13 and table A14 in the appendix show that the findings for males and females, respectively, are further robust to excluding students, adapting the age range of repatriates to 15 to 64 years old and to 25 to 59 year old in 1981, to excluding all inactive repatriates, and to including only Portuguese-born repatriates.[28]

9 Conclusion

This paper offers new evidence on the effect of a large-scale, one-time supply shock on native labour market outcomes, exploiting the end of the Portuguese Colonial War and subsequent repatriation of half a million ethnic Portuguese. As documented by various scholars, (e.g. Borjas and Monras 2017, Friedberg and Hunt 1995) such natural experiments offer an excellent setting to identify causality by combining an exogenous push factor with the use of an IV strat-

25. Since we are using different spatial units then these two studies, we exclude the NUTS 3 most closely corresponding to those excluded districts, namely Algarve, Grande Lisboa and the Peninsula of Setúbal.

26. The first dummy comprises the NUTS 3 regions Centre and North, the second dummy comprises Alentejo, Alvarge and Lisbon, the third dummy comprises the islands Azores and Madeira.

27. While there were 305 municipalities in Portugal in 1960, the 1960 census misses data for two municipalities, thereby leaving us with data for 303 municipalities. The number of repatriates in the municipality-level regression is smaller, as we exclude all repatriates who moved municipalities (rather than NUTS 3 regions) from the sample.

28. To save space, the tables only show results for IV1. Results for the other IVs are however likewise robust and available upon request.

egy to control for the endogenous allocation of migrants. We use a novel shift-share instrument, exploiting the unique characteristic of the Portuguese repatriates, namely the fact that they had still been born in Portugal and that many of them returned to their birthplace. The obtained results are in line with and extend upon Mäkelä's (2017) study of the Portuguese repatriation.

We find robust evidence for adjustment in the labour market following the arrival of the repatriates, with a larger displacement of females. For both female and male natives, employment as employees decreases. Men compensate for this by becoming self-employed entrepreneurs, thereby not experiencing a decrease in overall employment. Women instead move to inactivity, which is reflected in the significant adverse effect on overall employment and LFP. A possible mechanism through which the inflow may have led to these outcomes is through a decrease in wages, which is supported by Mäkelä's (2017) study. Furthermore, the fact that the inflow of the repatriates hampered the previous sharp increase in female LFP in Portugal may be an illustration of the persistence of social norms against female employment.

At the same time, we find no evidence for an increase in neither male nor female unemployment. Notably, we do not show any effects in the very short run, but measure outcomes several years after the inflow. While there may have been an increase in native unemployment in the first years after the arrival of the repatriates, we conclude that about 6 years later, the labour market had accommodated the large inflow, with no increased native unemployment detectable. This result is striking given the size of the inflow and the negative stereotyping of the repatriates at the time. The lack of a large increase in unemployment may partly be attributable to the policy making by the Portuguese state to support the integration of the repatriates. The government rented hotels in different parts of the country to avoid clustering in certain regions, gave support to small businesses and provided jobs as public servants to repatriates.

Due to the peculiar nature of the repatriates, the findings of this study may not be applicable to all kinds of migration. The take-away for policymakers is, however, that lending support to arriving migrants may give the structure of the labour market sufficient time to adjust and accommodate even substantial inflows of migrants within just some years. The study further illustrates the importance of viewing female and male labour market outcomes separately to grasp the whole picture and to be able to design policy interventions to overcome potential challenges related to large-scale migration. Future research could explore the importance of the state sup-

port provided to the repatriates in hampering potential adverse effects of the repatriation, or look into the long-term effect of the repatriates on gender norms in Portugal.

References

Baptista, Rui, Vıtor Escária, and Paulo Madruga. 2008. "Entrepreneurship, regional development and job creation: the case of Portugal". *Small Business Economics* 30 (1): 49–58.

Barrett, Alan, and Philip J O'Connell. 2001. "Is there a wage premium for returning Irish migrants?" *The Economic and Social Review* 32 (1): 1–21.

Bartel, Ann P. 1989. "Where do the new US immigrants live?" *Journal of Labor Economics* 7 (4): 371–391.

Bartik, Timothy J. 1991. *Who benefits from state and local economic development policies?* W.E. Upjohn Institute for Employment Research.

Borjas, George J. 1999. "The economic analysis of immigration". In *Handbook of labor economics,* 3:1697–1760. Elsevier.

Borjas, George J. 2003. "The labor demand curve is downward sloping: Reexamining the impact of immigration on the labor market". *The Quarterly Journal of Economics* 118 (4): 1335–1374.

Borjas, George J. 2017. "The wage impact of the Marielitos: A reappraisal". *ILR Review* 70 (5): 1077–1110.

Borjas, George J, and Bernt Bratsberg. 1994. *Who leaves? The outmigration of the foreign-born.* Technical report. National Bureau of Economic Research.

Borjas, George J, and Joan Monras. 2017. "The labour market consequences of refugee supply shocks". *Economic Policy* 32 (91): 361–413.

Borusyak, Kirill, Peter Hull, and Xavier Jaravel. 2018. *Quasi-experimental shift-share research designs.* Technical report. National Bureau of Economic Research.

Card, David. 1990. "The impact of the Mariel boatlift on the Miami labor market". *ILR Review* 43 (2): 245–257.

Card, David, and Ana Rute Cardoso. 2012. "Can compulsory military service raise civilian wages? Evidence from the peacetime draft in Portugal". *American Economic Journal: Applied Economics* 4 (4): 57–93.

Cardoso, Ana Rute, and Louis-Philippe Morin. 2018. *Can Economic Pressure Overcome Social Norms? The Case of Female Labor Force Participation.* IZA Discussion Papers 11822. Bonn. http://hdl.handle.net/10419/185282.

Carrington, William J, and Pedro JF De Lima. 1996. "The impact of 1970s repatriates from Africa on the Portuguese labor market". *ILR Review* 49 (2): 330–347.

Clemens, Michael A, and Jennifer Hunt. 2019. "The labor market effects of refugee waves: reconciling conflicting results". *ILR Review* 72 (4): 818–857.

Dustmann, Christian, Francesca Fabbri, and Ian Preston. 2005. "The impact of immigration on the British labour market". *The Economic Journal* 115 (507): 324–341.

Dustmann, Christian, and Oliver Kirchkamp. 2002. "The optimal migration duration and activity choice after re-migration". *Journal of Development Economics* 67 (2): 351–372.

Dustmann, Christian, Uta Schönberg, and Jan Stuhler. 2016. "The impact of immigration: Why do studies reach such different results?" *Journal of Economic Perspectives* 30 (4): 31–56.

Dustmann, Christian, and Yoram Weiss. 2007. "Return migration: theory and empirical evidence from the UK". *British Journal of Industrial Relations* 45 (2): 236–256.

Edo, Anthony. 2020. "The Impact of immigration on wage dynamics: Evidence from the Algerian independence war". *Journal of the European Economic Association* 18 (6): 3210–3260.

Foged, Mette, and Giovanni Peri. 2016. "Immigrants' effect on native workers: New analysis on longitudinal data". *American Economic Journal: Applied Economics* 8 (2): 1–34.

Friedberg, Rachel M. 2001. "The impact of mass migration on the Israeli labor market". *The Quarterly Journal of Economics* 116 (4): 1373–1408.

Friedberg, Rachel M, and Jennifer Hunt. 1995. "The impact of immigrants on host country wages, employment and growth". *Journal of Economic Perspectives* 9 (2): 23–44.

Glitz, Albrecht. 2012. "The labor market impact of immigration: A quasi-experiment exploiting immigrant location rules in Germany". *Journal of Labor Economics* 30 (1): 175–213.

Hunt, Jennifer. 1992. "The impact of the 1962 repatriates from Algeria on the French labor market". *ILR Review* 45 (3): 556–572.

Kalter, Christoph. 2018. "Rückkehr oder Flucht? Dekolonisierung, Zwangsmigration und Portugals retornados". *Geschichte und Gesellschaft* 44 (2): 250–284.

Kronmal, Richard A. 1993. "Spurious correlation and the fallacy of the ratio standard revisited". *Journal of the Royal Statistical Society: Series A (Statistics in Society)* 156 (3): 379–392.

Lloyd, Cynthia B, and Beth Niemi. 1978. "Sex differences in labor supply elasticity: The implications of sectoral shifts in demand". *The American Economic Review* 68 (2): 78–83.

Lubkemann, Stephen C. 2002. "Race, class, and kin in the negotiation of 'internal strangerhood'among Portuguese retornados, 1975-2000". *Europe's Invisible Migrants,* 75–93.

Mäkelä, Erik. 2017. "The effect of mass influx on labor markets: Portuguese 1974 evidence revisited". *European Economic Review* 98:240–263.

Mayr, Karin, and Giovanni Peri. 2008. *Return migration as a channel of brain gain.* Technical report. National Bureau of Economic Research.

Ottaviano, Gianmarco IP, and Giovanni Peri. 2012. "Rethinking the effect of immigration on wages". *Journal of the European economic association* 10 (1): 152–197.

Peralta, Elsa. 2019. "The return from Africa: Illegitimacy, concealment, and the non-memory of Portugal's imperial collapse". *Memory Studies,* 1–18.

Pereirinha, José A. 1980. "Evolução salarial em Portugal na década de 70". *Estudos de Economia* I (1): 69–82.

Peri, Giovanni. 2016. "Immigrants, productivity, and labor markets". *Journal of economic perspectives* 30 (4): 3–30.

Pires, Rui Pena, Morgane Delaunay, and João Peixoto. 2020. "Trauma and the Portuguese Repatriation: A Confined Collective Identity". In *The cultural trauma of decolonization,* 169–203. Springer.

Pires de Almeida, Maria Antónia. 2016. The agrarian reform under the Portuguese revolution, 1974–76: Its roots and reversal. *Studies in People's History* 3 (2): 185–196.

Solsten, Eric. 1993. *Area Handbook Series: Portugal, A Country Study.* Library of Congress. Federal Research Division.

Stock, James H, Jonathan H Wright, and Motohiro Yogo. 2002. "A survey of weak instruments and weak identification in generalized method of moments". *Journal of Business & Economic Statistics* 20 (4): 518–529.

Young, Thomas, and Margaret Hall. 1997. *Confronting leviathan: Mozambique since independence.* C. Hurst / Co.

Zucker, Lynne G, and Michael R Darby. 2007. *Star scientists, innovation and regional and national immigration.* Technical report. National Bureau of Economic Research.

A Appendix

A.1 Tables

Table A1: White resident population in Angola and Mozambique, 1940 - 1970

	White resident population		
Year	Angola	Mozambique	Total
1940	44,083	27,438	71,521
1950	78,826	48,213	127,039
1960	172,529	97,245	269,774
1970	280,101	162,967	443,068

Notes: Source: Statistics Portugal, Recenseamentos Gerais da População de Angola e Moçambique.

Table A2: Population and Labour Force in 1981 by NUTS 3 and NUTS 2 regions

Region	Native Population above 15	Native Labour Force
Grande Porto	773,788	480,728
Tâmega	328,242	175,560
Ave	289,346	190,280
Cávado	212,680	122,738
Alto Trás-os-Montes	181,544	80,195
Minho-Lima	179,634	87,503
Douro	172,304	81,556
Entre Douro e Vouga	161,565	101,354
Região do Norte	2,299,103	1,319,914
Grande Lisboa	1,299,030	798,476
Península de Setúbal	394,596	230,053
Região de Lisboa	1,693,626	1,028,529
Baixo Mondego	235,406	126,627
Baixa Vouga	229,908	133,111
Oeste	226,672	118,855
Dão-Lafões	199,922	104,982
Médio Tejo	164,753	80,345
Pinhal Litoral	150,897	83,332
Pinhal Interior Norte	110,555	49,663
Beira Interior Norte	93,514	42,640
Cova da Beira	74,185	37,953
Beira Interior Sul	66,234	28,063
Pinhal Interior Sul	45,798	19,751
Serra da Estrela	39,473	19,688
Região do Centro	1,637,317	845,010
Lezíria do Tejo	173,980	95,960
Alentejo Central	138,687	76,565
Baixo Alentejo	122,216	58,792
Alto Alentejo	111,167	54,377
Alentejo Litoral	77,280	41,502
Alentejo	623,330	327,196
Algarve	244,654	123,987
Algarve	244,654	123,987
Região Autónoma da Madeira	170,975	93,907
Região Autónoma da Madeira	170,975	93,907
Região Autónoma dos Açores	155,220	71,728
Região Autónoma dos Açores	155,220	71,728
Portugal	6,824,225	3,810,271

Notes: The regions in bold are NUTS 2 regions. The Labour Force is defined as all those who are employed (i.e. in paid employment) and unemployed. Source: census of 1981, computations by the author.

Table A3: Labour market effects of repatriates on male natives - Kronmal specification

	OLS		IV		
Outcomes for male natives	(1)	(2)	(3)	(4)	(5)
Δ LFP	-0.002	0.018	-0.012	-0.012	-0.011
	(0.015)	(0.016)	(0.011)	(0.011)	(0.010)
Δ Unemployment rate	-0.008	-0.005	0.014*	0.014*	0.014*
	(0.005)	(0.008)	(0.006)	(0.006)	(0.006)
Δ Employment share	0.006	0.021	-0.026*	-0.026*	-0.024*
	(0.017)	(0.020)	(0.012)	(0.012)	(0.011)
Δ Share Employee	-0.028	-0.058	-0.186***	-0.185***	-0.179***
	(0.037)	(0.039)	(0.036)	(0.035)	(0.033)
Δ Share Entrepreneur	0.014	0.056	0.141***	0.140***	0.136***
	(0.022)	(0.031)	(0.034)	(0.033)	(0.032)
Δ Share Employer	-0.017**	-0.021**	-0.027***	-0.027***	-0.027***
	(0.005)	(0.007)	(0.007)	(0.007)	(0.007)
Δ Share Self-employed	0.030	0.078*	0.168***	0.167***	0.163***
	(0.019)	(0.035)	(0.038)	(0.037)	(0.036)
Controls	NO	YES	YES	YES	YES
Instrument	-	-	IV1	IV2	IV3
First-stage coefficient	-	-	0.507	0.505	0.519
First-stage F-statistic	-	-	19.75	20.12	23.56
Observations	30	30	30	30	30

Notes: Robust standard errors in parentheses. The independent variable is the log of repatriates. All outcomes refer to changes between 1960 and 1981. LFP, Employment share, Share Employee, Share Entrepreneurship, Share Employer and Share Self-employed are calculated as shares over the native working age population. The unemployment rate refers to the share of unemployed over the native labour force. All regression contain dummies for NUTS 2 regions. Controls contain the following parameters in 1960: unemployed and entrepreneurs as share of working age population, inactive and population below 15 as share of total population, those with higher education as share of those above 15 and the native population above 15 in 1981. IV1 is the instrument based on educational network effects, IV2 is the instrument based on network effects according to the colony lived in and IV3 is the basic Bartik instrument. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A4: Labour market effects of repatriates on female natives - Kronmal specification

	OLS		IV		
Outcomes for male natives	(1)	(2)	(3)	(4)	(5)
Δ LFP	-0.0139	-0.0382	-0.119***	-0.118***	-0.116***
	(0.023)	(0.033)	(0.023)	(0.022)	(0.022)
Δ Unemployment rate	-0.057	-0.036	0.043	0.042	0.040
	(0.029)	(0.038)	(0.024)	(0.024)	(0.023)
Δ Employment share	0.010	-0.019	-0.114***	-0.113***	-0.110***
	(0.023)	(0.035)	(0.024)	(0.023)	(0.022)
Δ Share Employee	-0.029	-0.039	-0.124***	-0.123***	-0.121***
	(0.020)	(0.026)	(0.025)	(0.024)	(0.023)
Δ Share Entrepreneur	0.031	0.010	0.005	0.005	0.005
	(0.015)	(0.019)	(0.026)	(0.026)	(0.025)
Δ Share Employer	-0.001	-0.002	-0.004*	-0.004*	-0.004*
	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)
Δ Share Self-employed	0.031	0.012	0.009	0.009	0.009
	(0.015)	(0.019)	(0.025)	(0.025)	(0.024)
Controls	NO	YES	YES	YES	YES
Instrument	-	-	IV1	IV2	IV3
First-stage coefficient	-	-	0.507	0.505	0.519
First-stage F-statistic	-	-	19.75	20.12	23.56
Observations	30	30	30	30	30

Notes: Robust standard errors in parentheses. The independent variable is the log of repatriates. All outcomes refer to changes between 1960 and 1981. LFP, Employment share, Share Employee, Share Entrepreneurship, Share Employer and Share Self-employed are calculated as shares over the native working age population. The unemployment rate refers to the share of unemployed over the native labour force. All regression contain dummies for NUTS 2 regions. Controls contain the following parameters in 1960: unemployed and entrepreneurs as share of working age population, inactive and population below 15 as share of total population, those with higher education as share of those above 15 and the native population above 15 in 1981. IV1 is the instrument based on educational network effects, IV2 is the instrument based on network effects according to the colony lived in and IV3 is the basic Bartik instrument. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A5: Labour market effects of repatriates on male natives - 27 regions

	OLS		IV		
Outcomes for male natives	(1)	(2)	(3)	(4)	(5)
Δ LFP	0.271	0.481	0.074	0.077	0.086
	(0.465)	(0.458)	(0.278)	(0.286)	(0.284)
Δ Unemployment rate	-0.182	-0.031	0.160	0.160	0.160
	(0.175)	(0.176)	(0.123)	(0.122)	(0.121)
Δ Employment share	0.450	0.471	-0.100	-0.098	-0.089
	(0.497)	(0.533)	(0.309)	(0.318)	(0.316)
Δ Share Employee	-0.231	-1.995	-3.384***	-3.353***	-3.289***
	(1.108)	(1.059)	(0.790)	(0.806)	(0.790)
Δ Share Entrepreneur	0.257	1.846*	2.748***	2.715***	2.661***
	(0.702)	(0.788)	(0.692)	(0.695)	(0.681)
Δ Share Employer	-0.699***	-0.635***	-0.635***	-0.641***	-0.647***
	(0.119)	(0.142)	(0.150)	(0.150)	(0.147)
Δ Share Self-employed	0.957	2.481**	3.383***	3.356***	3.308***
	(0.666)	(0.822)	(0.769)	(0.771)	(0.757)
Controls	NO	YES	YES	YES	YES
Instrument	-	-	IV1	IV2	IV3
First-stage coefficient	-	-	0.569	0.553	0.401
First-stage F-statistic	-	-	87.06	81.55	96.26
Observations	27	27	27	27	27

Notes: Robust standard error in parentheses. The independent variable is the sample of repatriates over the native population above 15. All outcomes refer to changes between 1960 and 1981. LFP, Employment share, Share Employee, Share Entrepreneurship, Share Employer and Share Self-employed are calculated as shares over the native working age population. The unemployment rate refers to the share of unemployed over the native labour force. All regression contain dummies for NUTS 2 regions. Controls contain the following parameters in 1960: unemployed and entrepreneurs as share of working age population, inactive and population below 15 as share of total population, those with higher education as share of those above 15. IV1 is the instrument based on educational network effects, IV2 is the instrument based on network effects according to the colony lived in and IV3 is the basic Bartik instrument. The regressions exclude Grande Lisboa, the Peninsula of Setúbal and Algarve from the NUTS 3 regions. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A6: Labour market effects of repatriates on female natives - 27 regions

	OLS		IV		
Outcomes for female natives	(1)	(2)	(3)	(4)	(5)
Δ LFP	-0.510	-1.129	-1.676*	-1.644*	-1.654*
	(0.745)	(0.854)	(0.654)	(0.659)	(0.655)
Δ Unemployment rate	-1.618	-0.646	0.021	0.023	0.039
	(0.895)	(0.902)	(0.527)	(0.520)	(0.516)
Δ Employment share	0.228	-0.715	-1.439*	-1.415*	-1.425*
	(0.768)	(0.870)	(0.642)	(0.642)	(0.636)
Δ Share Employee	-1.203	-1.049	-1.939***	-1.921***	-1.904***
	(0.600)	(0.725)	(0.542)	(0.551)	(0.543)
Δ Share Entrepreneur	1.301*	0.074	0.315	0.319	0.293
	(0.552)	(0.453)	(0.452)	(0.453)	(0.446)
Δ Share Employer	-0.054	-0.052	-0.064	-0.063	-0.063
	(0.026)	(0.038)	(0.033)	(0.033)	(0.033)
Δ Share Self-employed	1.355*	0.126	0.378	0.381	0.356
	(0.549)	(0.449)	(0.438)	(0.439)	(0.433)
Controls	NO	YES	YES	YES	YES
Instrument	-	-	IV1	IV2	IV3
First-stage coefficient	-	-	0.569	0.553	0.401
First-stage F-statistic	-	-	87.06	81.55	96.26
Observations	27	27	27	27	27

Notes: Robust standard error in parentheses. The independent variable is the sample of repatriates over the native population above 15. All outcomes refer to changes between 1960 and 1981. LFP, Employment share, Share Employee, Share Entrepreneurship, Share Employer and Share Self-employed are calculated as shares over the native working age population. The unemployment rate refers to the share of unemployed over the native labour force. All regression contain dummies for NUTS 2 regions. Controls contain the following parameters in 1960: unemployed and entrepreneurs as share of working age population, inactive and population below 15 as share of total population, those with higher education as share of those above 15. IV1 is the instrument based on educational network effects, IV2 is the instrument based on network effects according to the colony lived in and IV3 is the basic Bartik instrument. The regressions exclude Grande Lisboa, the Peninsula of Setúbal and Algarve from the NUTS 3 regions.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A7: Labour market effects of repatriates on male natives - 25 regions

	OLS		IV		
Outcomes for male natives	(1)	(2)	(3)	(4)	(5)
Δ LFP	-0.225	0.476	-0.171	-0.170	-0.137
	(0.361)	(0.496)	(0.270)	(0.283)	(0.269)
Δ Unemployment rate	-0.044	0.077	0.268*	0.270*	0.263*
	(0.129)	(0.176)	(0.117)	(0.117)	(0.116)
Δ Employment share	-0.191	0.372	-0.439	-0.440	-0.402
	(0.332)	(0.567)	(0.287)	(0.301)	(0.285)
Δ Share Employee	-2.205**	-2.255	-4.186***	-4.168***	-4.059***
	(0.787)	(1.185)	(0.924)	(0.937)	(0.893)
Δ Share Entrepreneur	1.179	2.028*	3.260***	3.236***	3.159***
	(0.609)	(0.871)	(0.812)	(0.813)	(0.784)
Δ Share Employer	-0.329	-0.633**	-0.687***	-0.695***	-0.697***
	(0.240)	(0.181)	(0.167)	(0.169)	(0.166)
Δ Share Self-employed	1.508*	2.661**	3.946***	3.931***	3.856***
	(0.623)	(0.949)	(0.922)	(0.924)	(0.894)
Controls	NO	YES	YES	YES	YES
Instrument	-	-	IV1	IV2	IV3
First-stage coefficient	-	-	0.501	0.484	0.355
First-stage F-statistic	-	-	55.28	50.92	65.83
Observations	25	25	25	25	25

Notes: Robust standard error in parentheses. The independent variable is the sample of repatriates over the native population above 15. All outcomes refer to changes between 1960 and 1981. LFP, Employment share, Share Employee, Share Entrepreneurship, Share Employer and Share Self-employed are calculated as shares over the native working age population. The unemployment rate refers to the share of unemployed over the native labour force. All regression contain dummies for NUTS 2 regions. Controls contain the following parameters in 1960: unemployed and entrepreneurs as share of working age population, inactive and population below 15 as share of total population, those with higher education as share of those above 15. IV1 is the instrument based on educational network effects, IV2 is the instrument based on network effects according to the colony lived in and IV3 is the basic Bartik instrument. The regressions exclude the NUTS 2 regions Alentejo (corresponding NUTS 3 regions: Alentejo Central, Alentejo Literal, Baixo Alentejo, Lezíra do Tejo, Alto Alentejo) from the regions. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A8: Labour market effects of repatriates on female natives - 25 regions

	OLS		IV		
Outcomes for female natives	(1)	(2)	(3)	(4)	(5)
Δ LFP	-0.572	-1.405	-2.038***	-2.003***	-2.002***
	(0.693)	(0.914)	(0.594)	(0.600)	(0.593)
Δ Unemployment rate	-0.002	0.179	0.352	0.364	0.370
	(0.368)	(0.622)	(0.468)	(0.461)	(0.458)
Δ Employment share	-0.470	-1.192	-1.807**	-1.785**	-1.782**
	(0.622)	(0.893)	(0.591)	(0.593)	(0.585)
Δ Share Employee	-1.223	-1.570*	-2.145***	-2.120***	-2.121***
	(0.639)	(0.613)	(0.431)	(0.440)	(0.428)
Δ Share Entrepreneur	0.405	0.163	0.161	0.155	0.158
	(0.575)	(0.542)	(0.465)	(0.464)	(0.460)
Δ Share Employer	-0.001	-0.056	-0.076*	-0.075*	-0.075*
	(0.036)	(0.044)	(0.032)	(0.033)	(0.033)
Δ Share Self-employed	0.406	0.219	0.237	0.231	0.234
	(0.590)	(0.519)	(0.450)	(0.449)	(0.445)
Controls	NO	YES	YES	YES	YES
Instrument	-	-	IV1	IV2	IV3
First-stage coefficient	-	-	0.501	0.484	0.355
First-stage F-statistic	-	-	55.28	50.92	65.83
Observations	25	25	25	25	25

Notes: Robust standard error in parentheses. The independent variable is the sample of repatriates over the native population above 15. All outcomes refer to changes between 1960 and 1981. LFP, Employment share, Share Employee, Share Entrepreneurship, Share Employer and Share Self-employed are calculated as shares over the native working age population. The unemployment rate refers to the share of unemployed over the native labour force. All regression contain dummies for NUTS 2 regions. Controls contain the following parameters in 1960: unemployed and entrepreneurs as share of working age population, inactive and population below 15 as share of total population, those with higher education as share of those above 15. IV1 is the instrument based on educational network effects, IV2 is the instrument based on network effects according to the colony lived in and IV3 is the basic Bartik instrument. The regressions exclude the NUTS 2 regions Alentejo (corresponding NUTS 3 regions: Alentejo Central, Alentejo Literal, Baixo Alentejo, Lezíra do Tejo, Alto Alentejo) from the regions. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A9: Labour market effects of repatriates on male natives - different region fixed effects

	OLS		IV		
Outcomes for male natives	(1)	(2)	(3)	(4)	(5)
Δ LFP	0.228	0.455	-0.248	-0.247	-0.213
	(0.366)	(0.353)	(0.317)	(0.329)	(0.316)
Δ Unemployment rate	-0.186	-0.180	0.281	0.281	0.272
	(0.137)	(0.224)	(0.161)	(0.160)	(0.158)
Δ Employment share	0.397	0.588	-0.522	-0.522	-0.479
	(0.399)	(0.492)	(0.356)	(0.369)	(0.356)
Δ Share Employee	-0.490	-0.912	-3.965***	-3.941***	-3.766***
	(0.936)	(1.166)	(0.891)	(0.901)	(0.855)
Δ Share Entrepreneur	0.318	0.926	2.939***	2.911***	2.779***
	(0.573)	(0.849)	(0.773)	(0.769)	(0.731)
Δ Share Employer	-0.396	-0.427*	-0.538**	-0.541**	-0.526**
	(0.204)	(0.201)	(0.188)	(0.189)	(0.181)
Δ Share Self-employed	0.714	1.353	3.476***	3.452***	3.304***
	(0.566)	(0.962)	(0.840)	(0.836)	(0.793)
Controls	NO	YES	YES	YES	YES
Instrument	-	-	IV1	IV2	IV3
First-stage coefficient	-	-	0.517	0.501	0.370
First-stage F-statistic	-	-	75.84	73.86	83.79
Observations	30	30	30	30	30

Notes: Robust standard error in parentheses. The independent variable is the sample of repatriates over the native population above 15. All outcomes refer to changes between 1960 and 1981. LFP, Employment share, Share Employee, Share Entrepreneurship, Share Employer and Share Self-employed are calculated as shares over the native working age population. The unemployment rate refers to the share of unemployed over the native labour force. Controls contain the following parameters in 1960: unemployed and entrepreneurs as share of working age population, inactive and population below 15 as share of total population, those with higher education as share of those above 15. IV1 is the instrument based on educational network effects, IV2 is the instrument based on network effects according to the colony lived in and IV3 is the basic Bartik instrument. All regressions contain three regional dummies: a dummy containing the NUTS 3 regions Centre and North, a dummy comprising Alentejo, Algarve, and Lisbon, and a dummy for the islands Azores and Madeira. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A10: Labour market effects of repatriates on female natives - different region fixed effects

	OLS		IV		
Outcomes for female natives	(1)	(2)	(3)	(4)	(5)
Δ LFP	-0.512	-0.655	-2.319*	-2.276*	-2.203*
	(0.581)	(0.979)	(1.027)	(1.028)	(1.030)
Δ Unemployment rate	-1.426	-1.231	0.114	0.112	0.089
	(0.733)	(0.924)	(0.536)	(0.527)	(0.530)
Δ Employment share	0.087	-0.113	-2.020*	-1.982*	-1.910*
	(0.596)	(1.043)	(0.970)	(0.968)	(0.972)
Δ Share Employee	-0.771	-0.399	-2.010***	-1.986**	-1.910**
	(0.558)	(0.738)	(0.600)	(0.606)	(0.604)
Δ Share Entrepreneur	0.604	0.034	-0.193	-0.182	-0.186
	(0.500)	(0.444)	(0.589)	(0.589)	(0.575)
Δ Share Employer	-0.014	-0.032	-0.072	-0.071	-0.069
	(0.031)	(0.031)	(0.038)	(0.038)	(0.037)
Δ Share Self-employed	0.618	0.066	-0.121	-0.111	-0.117
	(0.514)	(0.426)	(0.568)	(0.568)	(0.553)
Controls	NO	YES	YES	YES	YES
Instrument	-	-	IV1	IV2	IV3
First-stage coefficient	-	-	0.517	0.501	0.370
First-stage F-statistic	-	-	75.84	73.86	83.79
Observations	30	30	30	30	30

Notes: Robust standard error in parentheses. The independent variable is the sample of repatriates over the native population above 15. All outcomes refer to changes between 1960 and 1981. LFP, Employment share, Share Employee, Share Entrepreneurship, Share Employer and Share Self-employed are calculated as shares over the native working age population. The unemployment rate refers to the share of unemployed over the native labour force. Controls contain the following parameters in 1960: unemployed and entrepreneurs as share of working age population, inactive and population below 15 as share of total population, those with higher education as share of those above 15. IV1 is the instrument based on educational network effects, IV2 is the instrument based on network effects according to the colony lived in and IV3 is the basic Bartik instrument. All regressions contain three regional dummies: a dummy containing the NUTS 3 regions Centre and North, a dummy comprising Alentejo, Algarve, and Lisbon, and a dummy for the islands Azores and Madeira. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A11: Labour market effects of repatriates on male natives - municipality level

	OLS		IV		
Outcomes for male natives	(1)	(2)	(3)	(4)	(5)
Δ LFP	-0.053	-0.054	-0.395	-0.353	-0.399**
	(0.110)	(0.109)	(0.243)	(0.257)	(0.154)
Δ Unemployment rate	-0.069	0.026	0.132	0.138	0.135**
	(0.040)	(0.035)	(0.069)	(0.075)	(0.051)
Δ Employment share	0.015	-0.087	-0.518*	-0.481	-0.526**
	(0.114)	(0.116)	(0.256)	(0.268)	(0.165)
Δ Share Employee	-0.595**	-1.247***	-2.829***	-2.894***	-2.170***
	(0.227)	(0.181)	(0.413)	(0.442)	(0.238)
Δ Share Entrepreneur	-0.030	0.477**	1.702***	1.819***	1.018***
	(0.174)	(0.174)	(0.362)	(0.408)	(0.210)
Δ Share Employer	-0.188**	-0.135*	-0.110	-0.076	-0.166*
	(0.060)	(0.061)	(0.110)	(0.119)	(0.067)
Δ Share Self-employed	0.159	0.612**	1.812***	1.896***	1.184***
	(0.173)	(0.189)	(0.372)	(0.410)	(0.226)
Controls	NO	YES	YES	YES	YES
Instrument	-	-	IV1	IV2	IV3
First-stage coefficient	-	-	0.327	0.309	0.378
First-stage F-statistic	-	-	49.93	39.96	559.05
Observations	303	303	303	303	303

Notes: Robust standard error in parentheses. The independent variable is the sample of repatriates over the native population above 15. All outcomes refer to changes between 1960 and 1981. LFP, Employment share, Share Employee, Share Entrepreneurship, Share Employer and Share Self-employed are calculated as shares over the native working age population. The unemployment rate refers to the share of unemployed over the native labour force. All regression contain dummies for NUTS 2 regions. Controls contain the following parameters in 1960: unemployed and entrepreneurs as share of working age population, inactive and population below 15 as share of total population, those with higher education as share of those above 15. IV1 is the instrument based on educational network effects, IV2 is the instrument based on network effects according to the colony lived in and IV3 is the basic Bartik instrument. The regressions are run at the municipality level. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A12: Labour market effects of repatriates on female natives - municipality level

	OLS		IV		
Outcomes for female natives	(1)	(2)	(3)	(4)	(5)
Δ LFP	-0.231	-0.499*	-2.199***	-2.414***	-1.130***
	(0.222)	(0.198)	(0.494)	(0.556)	(0.262)
Δ Unemployment rate	-0.724***	-0.098	0.626*	0.685*	0.299
	(0.198)	(0.160)	(0.263)	(0.290)	(0.167)
Δ Employment share	0.068	-0.379	-2.085***	-2.292***	-1.060***
	(0.227)	(0.197)	(0.478)	(0.534)	(0.256)
Δ Share Employee	-0.252	-0.575***	-2.192***	-2.344***	-1.247***
	(0.165)	(0.137)	(0.442)	(0.490)	(0.201)
Δ Share Entrepreneur	0.100	-0.004	0.019	-0.028	0.056
	(0.158)	(0.160)	(0.310)	(0.317)	(0.238)
Δ Share Employer	-0.009	-0.019*	-0.060**	-0.061**	-0.045***
	(0.010)	(0.009)	(0.019)	(0.020)	(0.011)
Δ Share Self-employed	0.110	0.015	0.079	0.033	0.100
	(0.159)	(0.160)	(0.310)	(0.318)	(0.239)
Controls	NO	YES	YES	YES	YES
Instrument	-	-	IV1	IV2	IV3
First-stage coefficient	-	-	0.327	0.309	0.378
First-stage F-statistic	-	-	49.93	39.96	559.05
Observations	303	303	303	303	303

Notes: Robust standard error in parentheses. The independent variable is the sample of repatriates over the native population above 15. All outcomes refer to changes between 1960 and 1981. LFP, Employment share, Share Employee, Share Entrepreneurship, Share Employer and Share Self-employed are calculated as shares over the native working age population. The unemployment rate refers to the share of unemployed over the native labour force. All regression contain dummies for NUTS 2 regions. Controls contain the following parameters in 1960: unemployed and entrepreneurs as share of working age population, inactive and population below 15 as share of total population, those with higher education as share of those above 15. IV1 is the instrument based on educational network effects, IV2 is the instrument based on network effects according to the colony lived in and IV3 is the basic Bartik instrument. The regressions are run at the municipality level.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A13: Labour market effects of repatriates on male natives - sample robustness

	IV 1 - based on educational network effect				
Outcomes for male natives	(1)	(2)	(3)	(4)	(5)
ΔLFP	-0.109	-0.097	-0.133	-0.201	-0.113
	(0.298)	(0.265)	(0.364)	(0.551)	(0.309)
Δ Unemployment rate	0.217	0.194	0.229	0.401	0.226
	(0.121)	(0.107)	(0.146)	(0.226)	(0.123)
Δ Employment share	-0.333	-0.296	-0.135	-0.615	-0.346
	(0.323)	(0.289)	(0.417)	(0.604)	(0.333)
Δ Share Employee	-3.974***	-3.541***	-4.509***	-7.345***	-4.135***
	(0.912)	(0.824)	(1.049)	(1.791)	(0.902)
ΔShare Entrepreneur	3.128***	2.787***	3.736***	5.781***	3.255***
	(0.773)	(0.696)	(0.899)	(1.506)	(0.767)
Δ Share Employer	-0.687***	-0.612***	-0.854***	-1.270***	-0.715***
	(0.160)	(0.142)	(0.189)	(0.304)	(0.167)
Δ Share Self-employed	3.815***	3.400***	4.590***	7.051***	3.970***
	(0.858)	(0.773)	(0.979)	(1.680)	(0.854)
Controls	YES	YES	YES	YES	YES
N of repatriates in sample	310,199	351,427	258,148	219,117	245,619
First-stage coefficient	0.520	0.583	0.385	0.281	0.499
First-stage F-statistic	56.73	51.69	76.61	40.29	60.48
Observations	30	30	30	30	30

Notes: Robust standard error in parentheses. The independent variable is the sample of repatriates over the native population above 15. All outcomes refer to changes between 1960 and 1981. LFP, Employment share, Share Employee, Share Entrepreneurship, Share Employer and Share Self-employed are calculated as shares over the native working age population. The unemployment rate refers to the share of unemployed over the native labour force. All regression contain dummies for NUTS 2 regions. Controls contain the following parameters in 1960: unemployed and entrepreneurs as share of working age population, inactive and population below 15 as share of total population, those with higher education as share of those above 15. IV1 is the instrument based on educational network effects, IV2 is the instrument based on network effects according to the colony lived in and IV3 is the basic Bartik instrument. (1) excludes students from the sample of repatriates, (2) uses an age range of 15-64 years, (3) uses as age range 25-59 years (4) excludes all inactive repatriates, (5) includes only Portuguese-born repatriates. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A14: Labour market effects of repatriates on female natives - sample robustness

	IV 1 - based on educational network effect				
Outcomes for male natives	(1)	(2)	(3)	(4)	(5)
Δ LFP	-1.900**	-1.693**	-2.326**	-3.512**	-1.977**
	(0.702)	(0.625)	(0.853)	(1.350)	(0.722)
Δ Unemployment rate	0.070	0.062	0.158	0.129	0.073
	(0.527)	(0.470)	(0.624)	(0.975)	(0.548)
Δ Employment share	-1.612*	-1.437*	-1.949*	-2.980*	-1.678*
	(0.671)	(0.598)	(0.807)	(1.287)	(0.690)
Δ Share Employee	-1.950***	-1.737***	-2.303**	3.603**	-2.029***
	(0.584)	(0.519)	(0.710)	(1.127)	(0.594)
Δ Share Entrepreneur	0.141	0.126	0.115	0.261	0.147
	(0.466)	(0.415)	(0.552)	(0.859)	(0.485)
Δ Share Employer	-0.073*	-0.065*	-0.0832	-0.135*	-0.076*
	(0.035)	(0.031)	(0.0425)	(0.064)	(0.036)
Δ Share Self-employed	0.214	0.191	0.198	0.396	0.223
	(0.455)	(0.405)	(0.539)	(0.839)	(0.473)
Controls	YES	YES	YES	YES	YES
N of repatriates in sample	310,199	351,427	258,148	219,117	245,619
First-stage coefficient	0.520	0.583	0.385	0.281	0.499
First-stage F-statistic	56.73	51.69	76.61	40.29	60.48
Observations	30	30	30	30	30

Notes: Robust standard error in parentheses. The independent variable is the sample of repatriates over the native population above 15. All outcomes refer to changes between 1960 and 1981. LFP, Employment share, Share Employee, Share Entrepreneurship, Share Employer and Share Self-employed are calculated as shares over the native working age population. The unemployment rate refers to the share of unemployed over the native labour force. All regression contain dummies for NUTS 2 regions. Controls contain the following parameters in 1960: unemployed and entrepreneurs as share of working age population, inactive and population below 15 as share of total population, those with higher education as share of those above 15. IV1 is the instrument based on educational network effects, IV2 is the instrument based on network effects according to the colony lived in and IV3 is the basic Bartik instrument. (1) excludes students from the sample of repatriates, (2) uses an age range of 15-64 years, (3) uses as age range 25-59 years (4) excludes all inactive repatriates, (5) includes only Portuguese-born repatriates. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

A.2 Figures

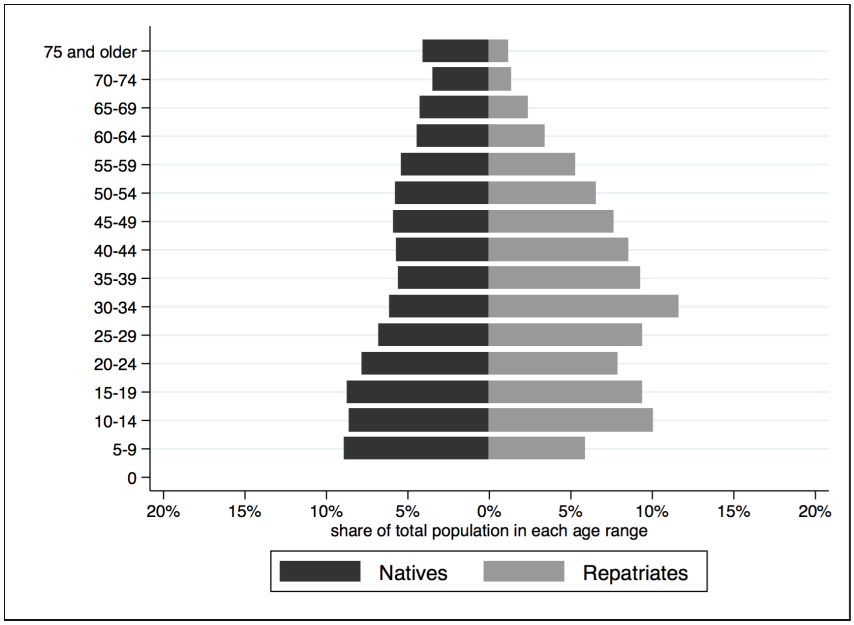

Figure A1 Age pyramid natives vs repatriates in 1981. The age range below five is not displayed as the data set on repatriates only contains repatriates above the age of seven. Source: census of 1981, Statistics Portugal, own construction.

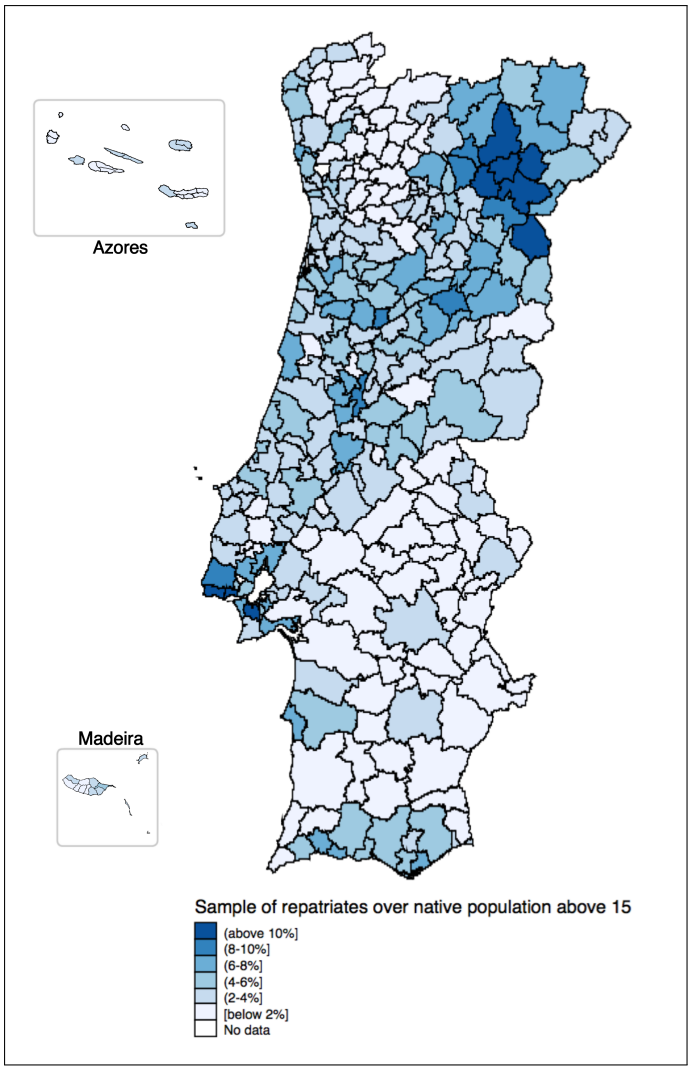

Figure A2 Repatriate settlement across municipalities in 1981. Source: census of 1981, Statistics Portugal, own construction.

Figure A3 NUTS 3 and NUTS 2 regions according to the 2002 definition. Different colors indicate different NUTS 3 regions, while the black outlines show NUTS 2 regions. Source: Statistics Portugal.