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# Do immigrants displace native workers? Evidence from matched panel data<sup>☆</sup>

Pedro S. Martins <sup>a,\*</sup>, Matloob Piracha <sup>b</sup>, José Varejão <sup>c</sup>

- <sup>a</sup> Queen Mary University of London (and NovaSBE and IZA), School of Business and Management, Queen Mary, University of London, Mile End Road, London, E1 4NS, UK
- <sup>b</sup> School of Economics, Keynes College, University of Kent (and IZA), Canterbury, Kent CT2 7NP, UK
- <sup>c</sup> Faculdade de Economia, Universidade do Porto (and CEF.UP and IZA), Rua Roberto Frias, s/n, 4200-464 Porto, Portugal

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#### ABSTRACT

Using rich matched employer-employee panel data, we analyse the impact of immigrants on natives' employment. Unlike most of the existing literature, we draw on matched data and focus at the firm, occupation and worker levels, which enables us to link the labour market outcomes of natives and immigrants precisely at the locus where many popular beliefs are formed. This paper, therefore, provides a novel test of complementarity and substitutability between the natives and immigrants. Our main result shows that, contrary to previous evidence, natives at even the lower end of the skills spectrum have their employment *positively* affected by the presence of immigrants in the same firm and occupation. The results highlight the importance of suitable data to properly assess the impact of migration on host country's labour market.

#### 1. Introduction

The impact of immigration on a receiving country's economy, particularly its labour market, is a hotly debated topic. Although there is no consensus in the existing literature about the overall effect on natives' employment, there is still plenty of empirical evidence that shows that immigrants have a modest effect on the employment (and wages) of natives. Notwithstanding this evidence, the popular perception, including among some policymakers, is that immigrants 'steal' natives' jobs: for instance, many argue that when firms hire immigrants, they may be displacing or at least reducing the hiring of native workers. One reason why the difference between empirical evidence and people's perception might persist, as pointed out by Malchow-Moller et al. (2009), is that most of the empirical literature uses relatively aggregated data, i.e., considering changes in labour supply only at the regional level, to analyse the role of migrants on host country's labour markets. However, the debate in public opinion and social media about immigrants taking natives' jobs is probably based more at the interactions that occur at the firm level, as in the example mentioned above. This is another reason why it is important to analyse the overall impact using data at the firm

and worker levels, as we do in this paper, to properly address the (true and perceived) impacts of immigrants on natives' labour market outcomes.

Within the general structure in the existing literature, two opposing results have been obtained depending on the stated assumptions. For instance, Borjas (2003) uses US census data to analyse the labour market effects of large immigration flows in the 1980s and 1990s, assuming that similarly educated immigrants and natives have different work experiences and therefore are not perfect substitutes. In contrast to some previous literature (e.g. Card, 1990; Altonji and Card, 1991, and, more recently, Clemens and Hunt, 2017), Borjas (2003) and subsequent papers find a negative impact of immigration on the labour supply (and wages) of competing native workers. Card (2001) also uses 1990 US census data to study the impact of immigrant flows on natives' occupation-specific labour market outcomes in selected US cities. He treats natives and immigrants as a heterogeneous group as well, though similarly educated immigrants and natives are assumed perfect substitutes, and finds only a small negative effect on the employment prospects (and wages) of low-skilled workers in certain US gateway cities like Miami and Los

E-mail address: p.martins@qmul.ac.uk (P.S. Martins).

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Corresponding author.

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Similar modest effects of immigration have also been obtained for a number of European countries. Pischke and Velling (1997) use German county level data to analyse the employment effects of immigration on local labour markets. They study two measures of immigration: the change in the share of foreigners between 1985 and 1989 and one year gross and net flows of immigrants to an area. Using different model specifications, they show that there is little evidence for displacement effects of natives in the counties' labour markets due to immigration. Carrington and De Lima (1996) analyse the labour market impacts of retornados, refugees from Mozambique and Angola to Portugal from 1974 to 1976, many of which were natives to Portugal. They compared the Portuguese case with developments in France and Spain that were affected by similar shocks but did not experience a massive inflow of immigrants. In addition, they also made comparisons at the county level within Portugal. Their cross-country comparison results suggest that immigration had a "very modest" effect on the labour market in Portugal though the within-country comparison shows that immigrants diminish natives' labour market opportunities. However, the authors state that they "find the international comparisons more persuasive" and that their "overall results are consistent with the earlier literature: immigration does not have a large adverse effect on natives' labour market outcomes". Notwithstanding this conclusion, in a recent reappraisal of the same mass influx episode, Mäkelä (2017), using a synthetic control approach, concluded that the influx had a significant adverse effect on labour market outcomes in line with the standard textbook model.

Borjas (2006), however, argues that a number of these papers assess the "spatial correlations" model where the effect on natives within a locality/state is estimated. These models, according to him, assume away the setup within which a large immigrant flow in one region might mean an outflow of natives from that region to another. His analysis shows that once this native outflow is taken into account from one US state to another, the results could reveal more clearly the real impact of immigration: in this setup the natives move out of the region where immigration rates are higher, hence creating possible negative effects on natives. While his main focus is on the wages of natives, his overall results could be used to show that there is a clear implication for natives when their response to immigration supply shock is taken into account. One clear aspect of his paper, as well as a few others (e.g., Borjas et al., 2008), is the diverging results obtained once assumptions of a model are changed, even when using the same type of data.

Notwithstanding the extensive literature on the topic, it is clear that there is still no consensus on how immigrants affect the labour market for natives. This is partly because all of the papers discussed above assess net migration implications based on immigration flows at a regional level, primarily because of a lack of consistent disaggregated data, which means that the existing results possibly underestimate the impact of migration as they are not able to capture the true incidence either at the firm level or at each skill/occupation level. Borjas (2003; p.1370) acknowledges this inadequacy in the existing literature by stating: "I suspect that we can learn a great deal more about the labour market impact of immigration by documenting the many adjustments that take place, by workers and firms, both inside and outside the labour market, as immigration alters economic opportunities in many sectors of the economy".

Our main objective in this paper, therefore, is to contribute to the existing literature by using firm- and worker-level data as that has far more potential to capture certain key aspects of the impact of immigrants

on the employment opportunities of natives than the census or other regional data. More precisely, we want to analyse whether natives and immigrants are substitutes or complements at the firm, occupation and worker levels. To our knowledge the only other paper that addresses this issue at such a disaggregated level is Malchow-Moller et al. (2009). They use firm-level matched employer-employee data from Denmark and employ a competing risks duration model distinguishing between job-to-job and job-to-unemployment transitions to analyse the impact of immigration on native employment.<sup>2</sup> They find no evidence of immigrants displacing or "taking the jobs" of natives in Denmark. While our focus is similar to theirs, we use a different empirical approach and a different matched data set. We argue that by using matched employer-employee data we will be able to go beyond existing studies and bring the literature on the labour market effects of immigration closer to topics of interest to employment relations research, by examining how employers shape personnel policies when they can choose between the two types (native and immigrant) of workers.

In order to carry out the analysis we use the *Quadros de Pessoal*, which is a matched panel data set collected annually by the Portuguese Ministry of Employment for all employees in all (private) enterprises. The data set contains company-based information, socio-demographic characteristics of the employees, employment conditions and other relevant information about workers and private firms. Using different model specifications, we show that the natives and immigrants are 'complements' at most occupation levels, in the sense that they are jointly hired and fired. More precisely, we find that in the expansionary phase of the firm, the hiring strategy is not one of displacing natives with immigrants (for cost or other purposes) but rather the two groups are complementary in terms of new hiring by firms. Controlling for different skill-level groups as well as for temporary/permanent nature of the jobs, the estimates show that, contrary to the evidence from some existing literature, even at the lower end of the skills spectrum, natives are not affected by migration.

In conclusion, our paper sheds light on the important topic of whether immigrants have a detrimental effect on host country's labour markets, at the firm and occupation levels, and finds evidence inconsistent with the sometimes popular view that immigrants steal natives' jobs. A key advantage of working at the worker or within-firm level is that we are measuring the relation between the employment of natives and nonnatives precisely at the locus where many popular beliefs are formed; however, even in this case we do not find evidence of negative correlations. The results obtained have therefore implications for not only immigration policy in Europe but other migrant-receiving countries as well

The rest of the paper is organised as follows. The next section presents the estimation strategy used in this paper while a brief description of Portugal's immigration record as well as data and descriptive statistics are presented in Section 3. Section 4 discusses the results. Concluding remarks appear in the last section.

#### 2. Analytical/empirical framework

A standard approach to analyse the labour market effects of immigration is to use the competitive labour demand/supply model and determine the impact on equilibrium of a change in labour supply, with either treating natives and immigrants as homogenous in terms of their skill levels or treating them as having distinct skill levels. This strand of literature is based on the "spatial correlations" model (see Borjas, 1999) which primarily uses the flow of immigrants within a geographic location and estimates the effect on wages and employment from the resulting rightward shift of the labour supply curve.

Since this empirical methodology in the existing literature considers the net employment implication only at either the regional or industry

<sup>&</sup>lt;sup>1</sup> Similar results are obtained by Winter-Ebmer and Zimmerman (1999) for Germany, Winter-Ebmer and Zweimuller (1999) for Austria, Villosio and Venturini (2006) for Italy, Carrasco et al (2004) for Spain and Dustmann et al (2004) for the UK. However, Brucker et al (2011), using a different approach than the others, showed that immigrants have a negative effect on the internal mobility of natives in Italy. They argued that this could potentially have detrimental effect on natives who move from low employment to high employment regions. Finally, Latif (2015) showed that immigrants increase the overall unemployment rate in the Canadian provinces in the short but this effect disappears as immigrants acquire local job experience and/or host country specific human capital.

<sup>&</sup>lt;sup>2</sup> Malchow-Moller et al (2012) use the same Danish data to study the effects of immigration on natives' wages.

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