The Impact of Globalization on Domestic Employment

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Abstract: Immigrants and offshore workers become important disturbing factors of domestic employment in the globalized economy. In this study we build a model with this feature to test how the three groups of workers in the labor force interact using a panel data of 155 countries over the period 1990-2015. We find that while immigrants replaced native workers (especially highly skilled ones), offshore workers who produce intermediate input imports do not. The productivity effect of offshoring is stronger for developed economies while the substitution effect of immigration is stronger for developing countries. Furthermore, the productivity effects of immigration and offshoring are stronger when governments impose less restrictions on international trade and domestic labor market.

Keywords: immigration; offshoring; intermediate input imports; domestic employment; skill-bias effect

1. Introduction

Workers, researchers and policymakers in developed and developing countries alike have paid increasing attention to the impacts of immigration and offshoring on domestic labor markets. The issue can be understood from two sides. On the one hand, the cost-savings and specialization stemming from globalization directly reduce the demand for domestic labor and generate a "substitution effect" on natives. On the other hand, this process indirectly increases the productivity and production scale, which in turn raises the demand for native workers, creating a "productivity effect".

A substantial literature has emphasized that immigration can generate potential productivity effects through many channels, such as improving labor market efficiency (Borjas, 2001), providing complementary skills, abilities, and ideas for the local market (Peri and Sparber, 2009). Many papers find that the productivity effect of offshoring measured by imported intermediate inputs can reverse the direct substitution effect, and then generating a positive effect on domestic employment (Wright, 2014). However,

few studies control for immigration and offshoring in the analytical framework. This omission potentially biases the results.

To fill the gap in the existing literature, we aim to study the substitutability and complementarity between natives, immigrants, and offshore workers using the data covering 155 countries and the period 1990-2015. Immigration and offshoring are included in a unified framework, which can comprehensively explore the impact of globalization on domestic employment and answer two questions as follows. First, how increased globalization affects domestic employment? Second, which types of domestic workers (low-skilled or high-skilled ones) suffer or benefit the most from globalization? Third, which types of countries or labor markets suffer or benefit the most from globalization?

We develop our argument in two steps. First, building on Ottaviano et al. (2013), we construct a model in which immigrants, offshore workers, and domestic workers compete and substitute each other. In particular, our model predicts that: globalization can lead to both substitution effect and productivity effect on natives. The overall effect of globalization on natives depends on the relative magnitude of the two effects. Next, we test the main predictions using the panel data covering 155 countries and 26 years. We obtain two main conclusions. First, while immigrants replaced native workers, offshore workers do not, because offshore workers and immigrants have stronger substitutability. Second, the substitution effect and the productivity effect vary with the native's skills, the country's degree of development, and the degree of market protection.

Our research contributes to the literature in three aspects. First, we fill the theoretical gap in the literature by incorporating immigration and offshoring into the same analytical framework. In the surge of anti-globalization, it is of great practical significance for us to explore the impact of different types of labor mobility on domestic labor market at the country level. Second, our paper is methodologically robust. To avoid the endogeneity problem caused by different costs between cross-border and cross-region labor mobility (Borjas, 2003), we identify some novel instrumental variables to estimate the panel data model. Third, our empirical contribution is to disentangle the substitution effect and productivity effect among the three groups in the labor force. To our best knowledge, our paper is the first in the literature in this regard.

2. Brief literature review

Existing literature on international immigration mainly focuses on the impact of immigrants with different skills on domestic employment. High-skilled immigrants can

improve the fiscal condition in the host country by increasing tax revenues (Borjas, 1999; Foreman-Peck and Zhou, 2020), so the debate on the effects of immigration focus mainly on how low-skilled immigrants affect similarly educated native-born workers (Peri and Sparber, 2011). The traditional literature found immigration detrimental to low-skilled native employment because of the substitutability between low-skilled native workers and immigrants (Borjas, 2003; Aydemir and Borjas, 2007). However, some studies establish the substitutability to be imperfect because natives and immigrants have a different comparative advantage in occupations (Ottaviano and Peri, 2006). Second, the impact of immigrant diversity on domestic employment. Immigrant diversity can create new jobs by enhancing knowledge complementarity at the individual level, stimulating creativity, and increasing productivity (Ottaviano and Peri, 2006; Parrotta et al., 2014). Different from the above literature, we probe the impact of immigration on both high-skilled and low-skilled local employment from a global perspective.

Another piece of literature related to our paper is the impact of offshoring on domestic employment. First, the impact of offshoring on low-skilled natives has two-side. For one thing, offshoring can threaten the employment opportunities of natives especially unskilled natives (Navaretti et al., 2008); For another thing, the productivity effect of offshoring on the promotion of employment cannot be ignored, i.e., offshoring can also create jobs by increasing productivity (Grossman and Rossi-Hansberg, 2008). Second, several works of literature find that offshoring can promote the employment of high-skilled natives. Crinò (2010) showed that service offshoring increases the employment of high-skilled natives, using data for more than 100 US occupations over 1997–2006. The effect of offshoring can be enhanced by language skills (Foreman-Peck & Zhou, 2015). With Denmark data, Hummels et al. (2011) find that offshoring has a positive employment effect for high-skilled workers, but has a harmful employment effect for low-skilled ones.

As we know, Navaretti et al. (2008), Olney (2012) and Ottaviano et al. (2013) take offshoring and immigration into account at the same time. Navaretti et al. (2008) find that immigrants and offshore workers migrants and offshore workers can replace each other at the firm level. Olney (2012) explore the effects of globalization on wages. Our paper is closely related to Ottaviano et al. (2013). They study the effects of globalization on natives using data of 58 U.S. manufacturing industries over 2000-2007, and found that immigration other than offshoring has a positive effect on native employment. Different from Ottaviano et al. (2013), first, we use country-level panel data to capture the overall impact of globalization on domestic employment on a worldwide basis among 155 countries and for a much more extended period. Second, we find that offshoring can promote native employment while immigration harms at the country level.

3. Theoretical analysis

We use the model framework of Ottaviano et al. (2013) and explore how lower costs of immigration and offshoring affect domestic workers. For each country, the production function is as follows:

$$Y = AL^{\alpha}K^{(1-\alpha)} \tag{1}$$

where A is the total factor productivity, $\alpha$is labor output elasticity, and $\alpha \in (0,1)$. The labor composite is then transformed by the following function:

$$L(i) = \left[\int_0^1 L(i)^{\frac{\sigma-1}{\sigma}} di\right]^{\frac{\sigma}{\sigma-1}} \tag{2}$$

Where *i* is differentiated tasks (indexed $i \in [0,1]$). The larger *i* is, the more relatively high skills are required, the smaller *i* is, the more relatively low skills are required. $\sigma(\sigma > 0)$ is the elasticity of substitution between tasks.

Each task can be managed by domestic workers (D), immigrant workers (M), and offshore workers (O). Following Ottaviano et al. (2013), we can get marginal cost pricing as follows:

$$p(i) = \begin{cases} c_O = \omega_O \beta t(i) a_D & 0 \le i \le I_{OM} \\ c_M = \omega_O \delta \tau(i) a_D & I_{OM} \le i \le I_{MD} \\ c_D = \omega_D a_D & I_{MD} \le i \le 1 \end{cases} \tag{3}$$

The wages of natives, immigrants and offshore workers are determined by ω_D, ω_M and ω_O, respectively. β is offshoring cost, δ is immigration cost, a_D is unit labor requirement. A person can chose earning ω_O in the country of origin or ω_M/δ in the country of destination with the indifference condition $\omega_M = \omega_O * \delta$.

Further, we can get the exact price index, defined as

$$P = a_D \left\{\int_{I_0}^{I_{OM}} [\omega_O \beta t(i)]^{1-\sigma} di + \int_{I_{OM}}^{I_{MD}} [\omega_O \delta \tau(i)]^{1-\sigma} di + (1 - I_{MD}) {\omega_D}^{1-\sigma}\right\}^{\frac{1}{1-\sigma}} \tag{4}$$

where I_{OM}、I_{MD} is the critical point, satisfying $c_O = c_M$; $c_M = c_D$, respectively.

so that employment levels are given by:

$$N_O = \int_{I_0}^{I_{OM}} N(i)di = \frac{1}{\omega_O}\left(\frac{P_O}{P}\right)^{1-\sigma}(P)^{-\frac{\alpha}{1-\alpha}}B \quad (5)$$

$$N_M = \int_{I_{OM}}^{I_{MD}} N(i)di = \frac{1}{\omega_O}\left(\frac{P_M}{P}\right)^{1-\sigma}(P)^{-\frac{\alpha}{1-\alpha}}B \quad (6)$$

$$N_D = \int_{I_{MD}}^{I_1} N(i)di = \frac{1}{\omega_H}\left(\frac{P_D}{P}\right)^{1-\sigma}(P)^{-\frac{\alpha}{1-\alpha}}B \quad (7)$$

where $B = (\alpha p_Y A)^{\frac{1}{1-\sigma}}K > 0$. Hence, total employment is $N = N_O + N_M + N_D$. The employment shares are given by:

$$s_O = \frac{(P_O)^{1-\sigma}}{(P_M)^{1-\sigma}+(P_O)^{1-\sigma}+(P_D)^{1-\sigma}(^{\omega_O}/_{\omega_D})} \quad (8)$$

$$s_M = \frac{(P_M)^{1-\sigma}}{(P_M)^{1-\sigma}+(P_O)^{1-\sigma}+(P_D)^{1-\sigma}(^{\omega_O}/_{\omega_H})} \quad (9)$$

$$s_D = \frac{(P_L)^{1-\sigma}}{(P_M)^{1-\sigma}+(P_O)^{1-\sigma}+(P_D)^{1-\sigma}(^{\omega_O}/_{\omega_H})} \quad (10)$$

We can deduce an alternative relationship among natives, immigrants, and off-shore workers:

$$\frac{\partial s_O}{\partial \delta} > 0,\ \frac{\partial s_M}{\partial \delta} < 0,\ \frac{\partial s_D}{\partial \delta} > 0 \quad (11)$$

$$\frac{\partial s_O}{\partial \beta} < 0,\ \frac{\partial s_M}{\partial \beta} > 0,\ \frac{\partial s_D}{\partial \beta} > 0 \quad (12)$$

The model results clearly show a substitution relationship between three groups of workers. According to the model, we cannot determine the impact of offshoring and immigration on the local employment level.

4. Econometric model and data

4.1. Specification

Following Ottaviano et al (2013) and Basso et al (2019), we constructed two sets of econometric models to explore the displacement effect and productivity effect of globalization on natives, respectively.

First, we begin by testing the relative substitutability of three groups through the extent to which they displace one another. The econometric model follows.

$$s_{st}^{D} = \Phi_{s}^{D} + \Phi_{t}^{D} + \alpha_{1} s_{st}^{M} + \alpha_{2} s_{st}^{O} + \alpha_{3} X_{st} + \varepsilon_{st}^{D} \quad (13)$$

$$s_{st}^{O} = \Phi_{s}^{O} + \Phi_{t}^{O} + \beta_{1} s_{st}^{M} + \beta_{2} X_{st} + \varepsilon_{st}^{O} \quad (14)$$

$$s_{st}^{M} = \Phi_{s}^{M} + \Phi_{t}^{M} + \gamma_{1} s_{st}^{O} + \gamma_{2} X_{st} + \varepsilon_{st}^{M} \quad (15)$$

Second, we estimate the impact of globalization on the employment levels of those three types. The econometric model follows.

$$lnN_{st}^{D} = \Phi_{s}^{D} + \Phi_{t}^{D} + \theta_{1} lnN_{st}^{M} + \theta_{2} lnN_{st}^{O} + \theta_{3} X_{st} + \varepsilon_{st}^{D} \quad (16)$$

$$lnN_{st}^{O} = \Phi_{s}^{O} + \Phi_{t}^{O} + \vartheta_{1} lnN_{st}^{M} + \vartheta_{2} X_{st} + \varepsilon_{st}^{O} \quad (17)$$

$$lnN_{st}^{M} = \Phi_{s}^{M} + \Phi_{t}^{M} + \mu_{1} lnN_{st}^{O} + \mu_{2} X_{st} + \varepsilon_{st}^{M} \quad (18)$$

and then, we estimate the impact of globalization on the aggregate employment regression:

$$lnN_{st} = \Phi_{s} + \Phi_{t} + \pi_{1} s_{st}^{M} + \pi_{2} s_{st}^{O} + \pi_{3} X_{st} + \varepsilon_{st} \quad (19)$$

where X_{st} stands for a set of control variables, Φ_{s}, Φ_{t} stands for country and year fixed effects, respectively, and ε_{st} is the error term.

(1) Measures for employment.

First, immigrant employment. The ILO set the minimum working age at 15 and defined the working-age population as 15 and above. We define all foreign-born workers over the age of 15 as immigrant employment.

Second, offshore employment. Unfortunately, we do not have direct employment data for offshore workers. To estimate offshore employment, we drew upon Ottaviano et al. (2013) and assume that all enterprises in a country, whether exporting or not, need the same number of workers to produce a unit of intermediate products. The implicit assumption of this hypothesis is that the productivity of offshore workers (who produce intermediate import products) is consistent with native workers (who produce intermediate products) in the source countries of the intermediate imports.

Offshore employment is calculated as:

$$\text{offshore employment}_{st} = \sum_n native\ employment_{nt} * \frac{a_{knt}}{a_{nt}} \quad (20)$$

where Emp_{nt} represents the native employment of country n; a_{knt} is the imported intermediate inputs from country n to country k; a_{nt} is the total production of intermediate inputs of country n.

Third, native employment. ILO modeled estimates each country's employment (native employment and immigrant employment)[1], i.e., refers to all persons of working age who are engaged in producing goods or providing services for a short period time to earn remuneration or profits. we can calculate the native employment as each country's employment minus the immigrant employment.

In addition, our definitions of employment shares and employment levels are as follows: First, employment shares. The total employment is obtained by adding up three groups of workers: domestic employment, immigrant employment, and offshore employment. s_{st}^D, s_{st}^M, and s_{st}^O represent native employment, offshore employment, and immigrant employment as a share of total employment, respectively. Second, employment levels. lnN_{st}^D, lnN_{st}^M, lnN_{st}^O, and lnN_{st} are the logarithm of employment levels of those three groups.

(2) Control variables.

We also include a number of time-varying relevant controls. $lnPop_{st}$ is the logarithm of population size; $lnPerGDP_{st}$ is the logarithm of GDP per capita; $R\&D_{st}$ is measured by the share of $R\&D$ expenditure to GDP; $TerEdu_{st}$ stands for higher education enrollment rate; $GovSpe_{st}$ is measured by the share of government expenditure to GDP; FDI_{st} is net inflow of foreign direct investment; $Export_{st}$ is measured by the share of export to GDP. We also add WGI_{st}, which can be considered governance level for a country (Kaufmann et al, 2011).

4.2. Endogeneity issues

Endogenous problems may lead to the inaccuracy of benchmark estimation results. First, omitted variable bias. Omitted variables such as the country's unobservable

[1] The employment Includes "working" employees, i.e. those working for at least one hour in a job; An employee who is "absent from work" due to temporary absence or work schedule (e.g. shift, flextime, and overtime).

demand shock for immigrants and offshore workers might still be correlated with immigration or offshoring and trends in domestic employment. Second, reverse causality relationship between globalization and native employment.

We employ the instrumental variables approach (2SLS) to alleviate endogeneity concerns regarding our main variables of interest, immigration and offshoring. First, in the spirit of Ottaviano et al (2013), our main instrument for offshoring is a country-level tariff from the World Bank. Second, following Ortega and Peri (2013), our main instrument for immigration is a predictor obtained by gravity model.

We specify the following gravity model for immigration:

$$\begin{aligned} ImmSh_{snt} = {} & \tau_0 pop_{nt} + \tau_1 pop_{kt} + \tau_2 area_{nt} + \tau_3 area_{kt} + \tau_4 dist_{nk} + \tau_5 border_{nk} \\ & + \tau_6 landlocked_{nk} + \tau_7 comlang_{off}{}_{nk} + \tau_8 comlang_{ethno}{}_{nk} \\ & + \tau_9 colony_{nk} + \tau_{10} pop_{nt} * border_{nk} + \tau_{11} pop_{kt} * border_{nk} \\ & + \tau_{12} area_{nt} * border_{nk} + \tau_{13} area_{kt} * border_{nk} + \tau_{14} dist_{nk} \\ & * border_{nk} + \tau_{15} landlocked_{nk} * border_{nk} + \tau_{16} Immgri_{nk,\ 1990} \\ & + x_t + x_n + x_k + e_{nkt} \end{aligned} \tag{21}$$

Where $ImmSh_{nkt}$ is the immigrants from country *n* to country *k* as a share of total labor force in country *k*. pop_{nt} and pop_{kt} are the population of country *n* to country *k*, $area_{nt}$ and $area_{kt}$ are the area of each country, $dist_{nk}$ is the distance between the two countries, $border_{nk}$, $landlocked_{nk}$, $comlang_{off}{}_{nk}$, $comlang_{ethno}{}_{nk}$, and $colony_{nk}$ are a dummy for whether country *n* and *k* share a border, a dummy for whether of them is a landlocked country, a dummy for speaking a common official primary language, a dummy for speaking a de facto language, a dummy for shared colonial past. $Immgri_{nk,\ 1990}$ is bilateral migration stock from *n* to *k* in 1990. The interactions also included to increase the predictive power of the regression. Finally, x_t, x_n, and x_k are a year fixed effect and country fixed effect, respectively. e_{nkt} is the error term. Finally, we aggregate $ImmSh_{nkt}$ at country *k*-time level.

4.3. Data description

The international migration data come from the United Nations Migration

Database (UN DESA). The UN DESA database has one feature that makes it invaluable for the type of empirical analysis that we conduct in this article, i.e., it is very comprehensive and contains data on bilateral migration from 232 countries (or territories) around the world. Second, the International Labour Organization (ILO) modeled estimates each country's labor force (the domestic employment and the immigrant employment)[2], i.e., refers to all persons of working age who are engaged in producing goods or providing services for a short period time to earn remuneration or profits. Third, the country-industry-time level intermediate imports data for estimating the number of offshore workers comes from the EORA database, which covers the period 1990-2015 and contains input and output data for 26 sectors (products) in 190 countries. Fourth, the additional controls are from the World Bank.

Because the immigrant data is only available every five years, refer to Naghavi and Strozzi (2015), our dataset comprises 5-year averages. Table 1 reports some basic descriptive statistics. As can be seen from table 1, first, the number of offshore workers is the largest (15.4865), accounting for 49.55% of the total employment (local workers + offshore workers + international immigrants); The number of local workers took the second place (15.3863), accounting for 44.4% of the total employment; The number of international immigrants is the smallest, accounting for only 6.06% of the total employment. Secondly，table 1 reports descriptive statistics on country-level tariffs and our gravity based predictors for immigration share, which are the core of our instrumental-variables strategy. Third，table 1 reports descriptive statistics on the some of our main control variables. $lnPop_{st}$ and $lnPerGDP_{st}$ are in logarithms; $R\&D$, $TerEdu_{st}$, $GovSpe_{st}$, FDI_{st} , and $Export_{st}$ are represented in shares.

Table 1 Summary statistics.

Variable	Obs	Mean	Std.Dev.	Min	Max
Employment shares					
s_{st}^{D}	253	0.4440	0.1141	0.0806	0.9023
$L\_s_{st}^{D}$	253	0.0738	0.0410	0.0039	0.3046
$H\_s_{st}^{D}$	253	0.3701	0.0960	0.0272	0.7939
s_{st}^{M}	253	0.0606	0.0663	0.0011	0.2743
s_{st}^{O}	253	0.4955	0.0921	0.0143	0.6883
Employment levels					
lnN_{st}^{D}	253	15.3863	1.6977	11.7745	19.9319
$L\_lnN_{st}^{D}$	253	13.4771	1.8117	9.9804	18.1659
$H\_lnN_{st}^{D}$	253	15.2006	1.6966	11.5578	19.8058

[2] The employment Includes "working" employees, i.e., those working for at least one hour in a job; An employee who is "absent from work" due to temporary absence or work schedule (e.g., shift, flextime, and overtime).

lnN_{st}^{M}	253	12.5725	1.8545	8.5903	17.6508
lnN_{st}^{O}	253	15.4865	1.7218	9.9601	19.8748
lnN_{st}	253	16.2373	1.6250	12.7060	20.6026
Instrumental variable					
IV_immsh_{st}	253	0.0121	0.8747	-2.7234	2.4004
$IV\_lntariffs_{st}$	253	22.4144	3.9586	10.7790	31.5180
Control variable					
$lnPop_{st}$	253	16.4162	1.6483	12.5128	21.0096
$lnPerGDP_{st}$	253	8.4505	1.3740	5.2038	11.4922
$R\&D_{st}$	253	0.5857	0.7936	0.0023	4.2206
$TerEdu_{st}$	253	36.0003	23.7896	0.5996	99.8090
$GovSpe_{st}$	253	23.5805	12.5904	1.3403	89.8726
WGI_{st}	253	0.8277	4.7491	-9.9228	11.0904
FDI_{st}	253	5.2319	17.3586	-7.2342	269.0722
$Export_{st}$	253	36.9127	19.0495	0.3379	130.6859

5. Empirical results and analysis

5.1. Baseline regression results

5.1.1 Effects on employment shares

Table 2 reports the displacement effect among immigrants, offshore workers, and natives[3]. As can be seen from Columns (3) and (4), After solving the endogenous problem, the coefficient of the immigrant share remains negative and significant, Still, the coefficient of offshore share is non-significant. Columns (5) - (6) report the estimation results with offshore share and immigrant share of employment as the dependent variable, respectively. Focusing on the 2SLS coefficients, we see that immigrant share of employment has a negative effect on offshore share of employment, and vice versa.

In conclusion, first, we find that offshore workers who produce intermediate input imports replaced immigrants instead of natives. Second, compared with offshore workers, immigrants have a greater substitution for natives.

Table 2 Baseline results of immigration and offshoring on domestic employment share, 2SLS estimates.

	First-step		Second-step			
	s_{st}^{M}	s_{st}^{O}	s_{st}^{D}	s_{st}^{D}	s_{st}^{O}	s_{st}^{M}

[3] Because the shares must sum to 1, the immigrant and offshore worker shares are collinear, and so we follow Ottaviano et al (2013), and then estimate their effects separately (as the sole regressors in separate regressions).

	(1)	(2)	(3)	(4)	(5)	(6)
$ImmSh_{st}$	0.0742***					
	(0.0236)					
$lntariff_{st}$		0.0031***				
		(0.0011)				
s_{st}^{M}			-0.6200***		-0.3800*	
			(0.2108)		(0.2108)	
s_{st}^{O}				0.3890		-1.3890***
				(0.5269)		(0.5269)
$lnPop_{st}$	0.1356***	-0.1305***	0.0804***	0.0571	-0.0804***	-0.0571
	(0.0246)	(0.0179)	(0.0290)	(0.0708)	(0.0290)	(0.0708)
$lnPerGDP_{st}$	-0.0331***	0.0092*	-0.0009	0.0160	0.0009	-0.0160
	(0.0063)	(0.0051)	(0.0087)	(0.0105)	(0.0087)	(0.0105)
$R\&D_{st}$	0.0018	0.0030	-0.0005	-0.0010	0.0005	0.0010
	(0.0057)	(0.0043)	(0.0037)	(0.0064)	(0.0037)	(0.0064)
$TerEdu_{st}$	-0.0001	0.0002	-0.0002*	-0.0002	0.0002*	0.0002
	(0.0002)	(0.0001)	(0.0001)	(0.0002)	(0.0001)	(0.0002)
$GovSpe_{st}$	-0.0003	-0.0004*	0.0003	0.0006*	-0.0003	-0.0006*
	(0.0003)	(0.0002)	(0.0002)	(0.0003)	(0.0002)	(0.0003)
WGI_{st}	0.0038**	-0.0023**	0.0015	0.0006	-0.0015	-0.0006
	(0.0015)	(0.0011)	(0.0012)	(0.0022)	(0.0012)	(0.0022)
FDI_{st}	0.0000	-0.0001	0.0001	0.0001	-0.0001	-0.0001
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
$Export_{st}$	0.0001	0.0001	-0.0001	-0.0002	0.0001	0.0002
	(0.0002)	(0.0002)	(0.0001)	(0.0002)	(0.0001)	(0.0002)
$Constant$	-1.9357***	2.4626***	-0.7797*	-0.7278	1.7797***	1.7278
	(0.4129)	(0.2988)	(0.4236)	(1.3312)	(0.4236)	(1.3312)
Country effects	YES	YES	YES	YES	YES	YES
Time effects	YES	YES	YES	YES	YES	YES
F statistics	37.29	132.30	—	—	—	—
N	253	253	253	253	253	253
R^2	—	—	0.990	0.970	0.984	0.912
adj. R^2	—	—	0.984	0.952	0.975	0.859

Note: The asterisks, ***, ** and *, indicate that the coefficients are significant at the 1%, 5% and 10% levels, respectively. Unless otherwise explained, the following tables use the same notation.

5.1.2 Effects on employment levels

Table 3 reports our results of the productivity effect of immigration and offshoring. We can draw two main conclusions: Firstly, immigration has significantly reduced the employment level of natives and offshore workers; Secondly, offshoring has significantly reduced the employment level of immigrants other than natives. In conclusion,

offshoring other than immigration has a significant productivity effect on local employment.

Table 3 Baseline results of immigration and offshoring on employment levels, 2SLS estimates.

	First--step		Second-step			
	lnN_{st}^{M}	lnN_{st}^{O}	lnN_{st}^{D}	lnN_{st}^{D}	lnN_{st}^{O}	lnN_{st}^{M}
	(1)	(2)	(3)	(4)	(5)	(6)
$ImmSh_{st}$	0.6205*					
	(0.3365)					
$lntariff_{st}$		0.0274***				
		(0.0095)				
lnN_{st}^{M}			-0.3768**		-0.6034*	
			(0.1854)		(0.3214)	
lnN_{st}^{O}				0.6309**		-1.1731*
				(0.2682)		(0.6769)
$lnPop_{st}$	1.4799***	0.1689	1.4924***	0.8570***	1.0154**	1.5743***
	(0.3507)	(0.1562)	(0.2693)	(0.1335)	(0.4669)	(0.3371)
$lnPerGDP_{st}$	-0.2825***	0.0967**	-0.0046	0.0213	-0.0430	-0.1415
	(0.0902)	(0.0440)	(0.0653)	(0.0499)	(0.1132)	(0.1260)
$R\&D_{st}$	0.3009**	0.0048	0.1229**	0.0251	0.1569	0.2688***
	(0.0806)	(0.0377)	(0.0604)	(0.0287)	(0.1047)	(0.0726)
$TerEdu_{st}$	-0.0007	0.0000	-0.0004	-0.0002	-0.0004	-0.0008
	(0.0023)	(0.0010)	(0.0008)	(0.0008)	(0.0014)	(0.0021)
$GovSpe_{st}$	-0.0055	-0.0048**	-0.0028*	0.0011	-0.0063**	-0.0092**
	(0.0038)	(0.0019)	(0.0017)	(0.0015)	(0.0030)	(0.0038)
WGI_{st}	-0.0186	-0.0203**	-0.0067	0.0173*	-0.0383**	-0.0518**
	(0.0218)	(0.0100)	(0.0086)	(0.0100)	(0.0149)	(0.0252)
FDI_{st}	-0.0004	-0.0002	-0.0005	-0.0001	-0.0007	-0.0010
	(0.0015)	(0.0007)	(0.0005)	(0.0005)	(0.0009)	(0.0014)
$Export_{st}$	-0.0022	-0.0039***	-0.0016	0.0017	-0.0052***	-0.0068*
	(0.0029)	(0.0013)	(0.0011)	(0.0014)	(0.0019)	(0.0036)
$Constant$	-9.4923*	11.4335***	-4.1394*	-8.4482**	6.7890*	6.0704
	(5.8838)	(2.6001)	(2.2758)	(3.4931)	(3.9451)	(8.8177)
Country effects	YES	YES	YES	YES	YES	YES
Time effects	YES	YES	YES	YES	YES	YES
F statistics	148.48	616.15	—	—	—	—
N	253	253	253	253	253	253
R^2	—	—	0.998	0.997	0.993	0.986
adj. R^2	—	—	0.996	0.996	0.988	0.977

Table 4 shows the results of the effect of globalization on total employment. To avoid the endogeneity problem, we also offer 2SLS estimation results, which show that

the coefficient of immigration is negative and statistically, and the coefficient of offshoring remains positive.

Table 4 Baseline results of immigration and offshoring on total employment, 2SLS estimates.

	First--step		Second-step	
	s_{st}^{M}	s_{st}^{O}	lnN_{st}	lnN_{st}
	(1)	(2)	(3)	(4)
$ImmSh_{st}$	0.0742***			
	(0.0236)			
$lntariff_{st}$		0.0031***		
		(0.0011)		
s_{st}^{M}			-1.4730**	
			(0.7352)	
s_{st}^{O}				2.3858**
				(0.9878)
$lnPop_{st}$	0.1356***	-0.1305***	1.0422***	1.1685***
	(0.0246)	(0.0179)	(0.1011)	(0.1327)
$lnPerGDP_{st}$	-0.0331***	0.0092*	0.0036	0.0221
	(0.0063)	(0.0051)	(0.0305)	(0.0197)
$R\&D_{st}$	0.0018	0.0030	0.0001	-0.0015
	(0.0057)	(0.0043)	(0.0130)	(0.0120)
$TerEdu_{st}$	-0.0001	0.0002	0.0003	-0.0001
	(0.0002)	(0.0001)	(0.0004)	(0.0004)
$GovSpe_{st}$	-0.0003	-0.0004*	-0.0014**	-0.0005
	(0.0003)	(0.0002)	(0.0007)	(0.0006)
WGI_{st}	0.0038**	-0.0023**	0.0022	0.0040
	(0.0015)	(0.0011)	(0.0042)	(0.0042)
FDI_{st}	0.0000	-0.0001	-0.0003	-0.0001
	(0.0001)	(0.0001)	(0.0002)	(0.0002)
$Export_{st}$	0.0001	0.0001	-0.0002	-0.0004
	(0.0002)	(0.0002)	(0.0005)	(0.0004)
$Constant$	-1.9357***	2.4626***	-0.9111	-4.2645*
	(0.4129)	(0.2988)	(1.4772)	(2.4956)
Country effects	YES	YES	YES	YES
Time effects	YES	YES	YES	YES
F statistics	37.29	132.30	—	—
N	253	253	253	253
R^2	—	—	0.999	0.999
adj. R^2	—	—	0.999	0.999

These results are different from the literature. Our results show that immigration negatively affects on both domestic employment share and native employment level.

Previous literature studies found that immigrants engaged in complementary work with natives, thus having a positive impact on domestic employment. The reason for this difference lies in the different research perspectives. The existing literature takes the United States and other developed countries as research objects, and finds that immigrants are engaged in low-complexity jobs. In contrast, natives are engaged in high-complexity jobs, and immigrants can have a positive impact on local employment through labor division and specialization. But from a global macro perspective, we should not underestimate the skill levels of immigrants and the complexity of their occupations. We pay close attention to the fact that more than 67% of immigrants to OECD countries have university degrees[4].

5.2. Skill heterogeneity of domestic workers

Developed countries such as the United States and Europe have successively introduced and revised laws and regulations related to immigration, aiming to attract foreign high-tech talents and alleviate the problem of the high-end labor shortage. At the same time, the entry of ordinary workers should be more strictly controlled to avoid excessive welfare spending and damage to low-skilled natives. Also, Navaretti et al. (2008) and Harrison and Mcmillan (2011) find firm-level evidence that compared with skilled workers, offshoring has a greater substitution for unskilled workers. The question we are interested in is whether low-skilled natives are more vulnerable to globalization.

Unfortunately, the lack of data on skills and education levels in countries around the world makes it impossible to explore the impact of globalization on local workers with different skills and education levels. Given that local workers aged 15-24 are either less educated or have less work experience, we define local workers aged 15-25 as unskilled and workers aged over 25 as skilled. We examine the impact of globalization on natives with different skills.

Table 5 Presents the Results. The explained variables in column (1) and column (2) are respectively the proportion of local skilled and non-quantitative labor force, and the results show that immigration significantly substitutes for the local skilled labor force, while outsourcing has no significant impact on the local labor force. The explained variables in columns (3) and (4) are the logarithms of the local skilled and non-quantitative labor forces, respectively. The results show that immigrants are not conducive to the increase of the employment scale of skilled and unskilled labor, but

[4] Data from OECD DIOC database，http://www.oecd.org/els/mig/dioc.htm.

outsourcing has significantly increased the employment scale of local workers.

Table 5 Skill distribution and heterogeneous effects of immigration and offshoring, 2SLS estimates.

	$L\_s_{st}^D$		$H\_s_{st}^D$		$L\_lnN_{st}^D$		$H\_lnN_{st}^D$	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
s_{st}^M	0.0929		-0.7125***					
	(0.1197)		(0.1941)					
s_{st}^O		0.1143		0.2775				
		(0.1735)		(0.4672)				
lnN_{st}^M					-0.9710**		-0.3689*	
					(0.4643)		(0.2222)	
lnN_{st}^O						0.9978**		0.9106**
						(0.4703)		(0.3869)
$lnPop_{st}$	-0.0442***	-0.0192	0.1246***	0.0768	2.6780***	1.1810***	1.7415***	1.0538***
	(0.0165)	(0.0233)	(0.0267)	(0.0627)	(0.6745)	(0.2342)	(0.3228)	(0.1927)
$lnPerGDP_{st}$	-0.0029	-0.0080**	0.0020	0.0240**	-0.1730	-0.0151	0.0039	-0.0133
	(0.0050)	(0.0035)	(0.0081)	(0.0093)	(0.1635)	(0.0876)	(0.0782)	(0.0720)
$R\&D_{st}$	0.0014	0.0014	-0.0019	-0.0024	0.2077	-0.0558	0.1666**	0.0762*
	(0.0021)	(0.0021)	(0.0034)	(0.0057)	(0.1512)	(0.0504)	(0.0724)	(0.0415)
$TerEdu_{st}$	-0.0001	-0.0001	-0.0001	-0.0001	-0.0020	-0.0012	-0.0003	-0.0002
	(0.0001)	(0.0001)	(0.0001)	(0.0002)	(0.0021)	(0.0014)	(0.0010)	(0.0012)
$GovSpe_{st}$	0.0001	0.0001	0.0001	0.0004	-0.0023	0.0063**	-0.0038*	0.0008
	(0.0001)	(0.0001)	(0.0002)	(0.0003)	(0.0043)	(0.0026)	(0.0021)	(0.0022)
WGI_{st}	-0.0007	-0.0001	0.0022**	0.0007	-0.0124	0.0345**	0.0004	0.0310**
	(0.0007)	(0.0007)	(0.0011)	(0.0020)	(0.0215)	(0.0175)	(0.0103)	(0.0144)
FDI_{st}	-0.0000	0.0000	0.0001	0.0001	-0.0007	0.0002	-0.0006	-0.0001
	(0.0000)	(0.0000)	(0.0001)	(0.0001)	(0.0013)	(0.0010)	(0.0006)	(0.0008)
$Export_{st}$	-0.0002***	-0.0002***	0.0001	0.0000	-0.0045	0.0016	-0.0012	0.0031
	(0.0001)	(0.0001)	(0.0001)	(0.0002)	(0.0027)	(0.0025)	(0.0013)	(0.0021)
$Constant$	0.8631***	0.4449	-1.6429***	-1.1801	-16.3146***	-20.6967***	-8.6047***	-15.9576***
	(0.2404)	(0.4382)	(0.3900)	(1.1804)	(5.6998)	(6.1262)	(2.7274)	(5.0401)
Country effects	YES	YES	YES	YES	YES	YES	YES	YES
Time effects	YES	YES	YES	YES	YES	YES	YES	YES
F statistics	37.29	132.20	37.29	132.20	148.48	616.15	148.48	616.15
N	253	253	253	253	253	253	253	253
R^2	0.975	0.975	0.988	0.967	0.986	0.993	0.996	0.994
adj. R^2	0.959	0.960	0.980	0.947	0.978	0.989	0.994	0.991

5.3. Country heterogeneous and the effects of globalization

With the gradual improvement of developing countries' economic status and the continuous improvement of their education systems, immigration has gradually changed

from a one-way flow of South-North migration to a two-way flow between South-North or South-South migration. Based on this, this paper will further explore the impact of immigration and offshoring on local employment in developing and developed countries.

Table 6 shows the estimated results of the impact of immigration and offshoring on the employment share of developed and developing countries. The results show that immigration has a significant substitution effect on local employment in developing countries. The possible reason is that, compared with developing countries, developed countries have highly advanced education and scientific research system, good salary, working and living conditions, a highly open and inclusive social environment, and broad space and opportunities for individual development (Solimano, 2002). Most of the immigrants who flow into developing countries are low-skilled immigrants, which makes it challenging to form complementary advantages with local people, and ultimately show up as a substitute for local employment. Second, for developed countries, international immigrants are more likely to replace offshore workers than local workers. This research conclusion is consistent with Ottaviano et al. (2013). The possible reason is that: (i) there is stronger substitutability between immigrants and offshore workers than between immigrants and natives; (ii) immigrant, native, and offshore workers are relatively specialized in tasks of different skill complexity; and, in particular, (iii)immigrants are relatively specialized in low complexity tasks, natives in high complexity tasks, and offshore workers in medium complexity tasks.

Table 7 shows the estimated results of the impact of international migration and offshore outsourcing on the scale of employment in developed and developing countries. The results show that compared with developing countries, offshore outsourcing has a significant role in promoting the full employment scale of developed countries. The possible reason is that for developing countries, offshore outsourcing in developing countries is mainly to seek high-quality intermediate inputs. Further, the increase in the import scale of high-quality intermediate inputs can improve the demand of enterprises for local high-skilled workers through supporting R&D effects. However, due to the lack of local highly skilled workers in developing countries, offshore outsourcing is challenging to have a positive productivity effect on the scale of employment. For developed countries, offshore outsourcing in developed countries mainly saves production costs, and the resulting productivity effect can encourage enterprises to expand the demand for labor.

Table 6 The effect of globalization on employment share in different countries, 2SLS estimates.

	s_{st}^{D}		s_{st}^{O}	s_{st}^{M}
	(1)	(2)	(3)	(4)
Panel A : developing countries				
s_{st}^{M}	-0.6950*		-0.3050	
	(0.3576)		(0.3576)	
s_{st}^{O}		6.2838		-7.2838
		(9.1082)		(9.1082)
Control variables	YES	YES	YES	YES
Country effects	YES	YES	YES	YES
Time effects	YES	YES	YES	YES
F statistics	17.15	171.82	17.15	171.82
N	145	145	145	145
R^2	0.990	0.557	0.991	.
adj. R^2	0.983	0.213	0.984	.
Panel B : developed countries				
s_{st}^{M}	-1.0068		0.0068	
	(0.6368)		(0.6368)	
s_{st}^{O}		0.0600		**-1.0600****
		(0.4314)		**(0.4314)**
Control variables	YES	YES	YES	YES
Country effects	YES	YES	YES	YES
Time effects	YES	YES	YES	YES
F statistics	35.94	68.25	35.94	68.25
N	108	108	108	108
R^2	0.985	0.965	0.976	0.931
adj. R^2	0.976	0.942	0.959	0.885

Table 7 The effect of globalization on employment levels in different countries, 2SLS estimates.

	lnN_{st}^{D}		lnN_{st}^{O}	lnN_{st}^{M}	lnN_{st}	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A : developing countries						
lnN_{st}^{M}	-0.0405		-0.2999			
	(0.0972)		(0.2263)			
lnN_{st}^{O}		-0.0028		-6.4699		
		(0.3246)		(4.3259)		
s_{st}^{M}					0.7591	
					(1.2833)	
s_{st}^{O}						-13.0254
						(16.7077)
Control variables	YES	YES	YES	YES	YES	YES
Country effects	YES	YES	YES	YES	YES	YES
Time effects	YES	YES	YES	YES	YES	YES
F statistics	102.31	451.73	102.31	451.73	17.15	171.82

N	145	145	145	145	145	145
R^2	0.999	0.999	0.997	0.862	1.000	0.995
adj. R^2	0.999	0.999	0.994	0.754	0.999	0.992
Panel B : developed countries						
lnN_{st}^{M}	10.8201		4.3943			
	(174.1750)		(68.3400)			
lnN_{st}^{O}		0.6062**		-0.4669		
		(0.2667)		(0.5705)		
s_{st}^{M}					-2.0293	
					(2.1013)	
s_{st}^{O}						2.8618***
						(0.7476)
Control variables	YES	YES	YES	YES	YES	YES
Country effects	YES	YES	YES	YES	YES	YES
Time effects	YES	YES	YES	YES	YES	YES
F statistics	135.58	869.80	135.58	869.80	35.94	68.25
N	108	108	108	108	108	108
R^2	.	0.997	0.753	0.988	0.999	1.000
adj. R^2	.	0.995	0.587	0.980	0.999	0.999

5.4. Labor market heterogeneous and the effects of globalization

Labor market protection has two sides. On the one hand, strengthening the protection of the labor market can maintain an equal labor-enterprise relationship and a fair market environment (Acharya et al, 2014), and improve the welfare of vulnerable groups such as women and the disabled. On the other hand, the government's intervention in the labor market will lead to the decline of business flexibility, increase enterprise cost, and inhibit productivity progress(Autor et al, 2007; Bjuggren, 2018). We can speculate that globalization will have a heterogeneous impact on employment in the low-regulation and the high- regulation labor markets.

Table 8 shows the estimated results of the impact of international migration and offshore outsourcing on the employment share of the low and high employment protection markets. It can be seen that, first, labor market protection avoids the excessive substitution of offshore workers for local workers. The possible reason is that due to labor market protection policies, enterprises may have to pay additional costs if they choose to hire offshore workers engaged in the production of the same task rather than local workers. Therefore, to save production costs, labor market protection will encourage enterprises to hire offshore workers who are complementary to local workers in production tasks. Second, labor market protection has led to the mutual substitution between international immigrants and offshore workers. The possible reason is that

labor market protection increases the production cost of enterprises. Enterprises will selectively hire low-cost international immigrants or offshore workers to ensure local employment.

Table 9 shows the estimated results of the impact of international migration and offshore outsourcing on the employment scale of low employment protection market and high employment protection. We can see that compared with the soft employment protection markets, international migration has a more significant negative impact on the employment scale of the high employment protection market. The possible reason is that, based on the high employment protection market, the previous research shows that international migration has a significant substitution effect on offshore and local workers, which is not conducive to expanding the overall employment scale. Second, enterprises need to pay extra production costs to hire migrant workers, which makes it challenging to promote the evolution of the broad employment scale through cost savings.

In conclusion, we find that the government's protection of the labor market can indeed avoid the substitution effect of globalization on local employment to some extent, Still, at the same time, it is not conducive to improving the overall employment scale.

Table 8 The effect of globalization on employment share in different labor market, 2SLS estimates.

	s_{st}^{D}		s_{st}^{O}	s_{st}^{M}
	(1)	(2)	(3)	(4)
Panel A : low-regulation labor market				
s_{st}^{M}	-1.0519***		0.0519	
	(0.3807)		(0.3807)	
s_{st}^{O}		-2.4649***		1.4649**
		(0.6793)		(0.6793)
Control variables	YES	YES	YES	YES
Country effects	YES	YES	YES	YES
Time effects	YES	YES	YES	YES
F statistics	60.56	146.36	60.56	146.36
N	127	127	127	127
Panel B : high-regulation labor market				
s_{st}^{M}	-0.7195***		-0.2805**	
	(0.1431)		(0.1431)	
s_{st}^{O}		1.0535		-2.0535**
		(0.9151)		(0.9151)
Control variables	YES	YES	YES	YES

Country effects	YES	YES	YES	YES
Time effects	YES	YES	YES	YES
F statistics	23.88	92.15	23.88	92.15
N	97	97	97	97

Table 9 The effect of globalization on employment levels in different labor market, 2SLS estimates.

	lnN_{st}^{D}		lnN_{st}^{O}	lnN_{st}^{M}	lnN_{st}	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A : low-regulation labor market						
lnN_{st}^{M}	-0.6100		-1.0979			
	(0.5951)		(1.1916)			
lnN_{st}^{O}		-1.5378		4.5773		
		(1.4875)		(4.5492)		
s_{st}^{M}					-0.8750	
					(1.2880)	
s_{st}^{O}						2.4383*
						(1.3810)
Control variables	YES	YES	YES	YES	YES	YES
Country effects	YES	YES	YES	YES	YES	YES
Time effects	YES	YES	YES	YES	YES	YES
F statistics	89.09	219.49	89.09	219.49	60.56	146.36
N	127	127	127	127	127	127
Panel B : high-regulation labor market						
lnN_{st}^{M}	-0.3138***		-0.1790**			
	(0.0866)		(0.0834)			
lnN_{st}^{O}		1.3149**		-5.2305*		
		(0.5493)		(2.6735)		
s_{st}^{M}					-1.5184**	
					(0.6782)	
s_{st}^{O}						2.8244**
						(1.3966)
Control variables	YES	YES	YES	YES	YES	YES
Country effects	YES	YES	YES	YES	YES	YES
Time effects	YES	YES	YES	YES	YES	YES
F statistics	205.24	2595.59	205.24	2595.59	23.88	92.15
N	97	97	97	97	97	97

6. Further analysis

This section uses the index of skill bias to further verify whether migration and outsourcing lead to specialization. The so-called skill-bias index means that when the skill-bias index is extensive, it indicates that the productivity difference between higher

education workers and ordinary workers is larger. After the immigration or offshoring, the division of labor is clearer, so it is not necessarily the case that low-skilled workers are less productive in simple production than high-skilled workers are in complex occupations.

According to the theoretical deduction of Peri (2012), the skill preference index is defined as:

$$\beta_{kt} = \frac{(\omega_{kt}^{H})^{\frac{\sigma}{\sigma-1}} h_{kt}^{\frac{1}{\sigma-1}}}{(\omega_{kt}^{H})^{\frac{\sigma}{\sigma-1}} h_{kt}^{\frac{1}{\sigma-1}} + (\omega_{kt}^{L})^{\frac{\sigma}{\sigma-1}} (1-h_{kt})^{\frac{1}{\sigma-1}}} \tag{22}$$

where ω_{kt}^{L} is equals to 1; ω_{kt}^{H} is the average hourly wage of high-skilled workers; h_{kt} give the fraction of high-skilled workers. To estimate the value of β_{kt}, firstly, we assume that wages paid to each group are equal to the marginal productivity of a particular skill (D'Amuri et al. ,2010), and we further follow the hypothesis of Hall and Jones (1999) and Ortega and Peri (2013), that is, the wage of high-skilled workers is 1.503 times that of low-skilled workers. the parameter σ is the elasticity of substitution between workers with difference skills. Following Ortega and Peri (2013), we set this parameter equals 1.5, and then check the robustness of our most relevant results to a value of 1.4 and of 1.6.

Table 10 shows the estimated impact of international migration and offshore outsourcing on national skill specialization. We can see that international migration rather than offshore outsourcing leads to the discipline of skills. The traditional literature divides workers into high-skilled and low-skilled based on educational level. It assumes that high-skilled workers and low-skilled workers are entirely complementary, while high (low) skilled workers are wholly substituted. Peri and Sperber (2009) found that the substitution effect based on task or language may also occur between immigrants with the same educational level and local workers. The estimation results in this paper are similar. Unlike offshore outsourcing, local and migrant workers with the same level of education can engage in different production tasks. For example, locals have comparative advantages in communication. Immigrants are involved in labor-intensive occupations, while locals are engaged in communication-intensive fields (Peri and Sparser, 2009).

Table 10 The effect of immigration and offshoring on skill specialization, 2SLS estimates.

	$\sigma = 1.4$	$\sigma = 1.5$	$\sigma = 1.6$	$\sigma = 1.4$	$\sigma = 1.5$	$\sigma = 1.6$
	(1)	(2)	(3)	(4)	(5)	(6)

s_{st}^{M}	-0.0686**	-0.1001*	-0.1194*			
	(0.0343)	(0.0519)	(0.0671)			
s_{st}^{O}				0.0238	0.0271	0.0212
				(0.0454)	(0.0691)	(0.0901)
$lnPop_{st}$	0.0321***	0.0476***	0.0575***	0.0272***	0.0394***	0.0464***
	(0.0047)	(0.0071)	(0.0092)	(0.0061)	(0.0093)	(0.0121)
$lnPerGDP_{st}$	-0.0005	-0.0005	-0.0002	0.0017*	0.0028**	0.0039**
	(0.0014)	(0.0022)	(0.0028)	(0.0009)	(0.0014)	(0.0018)
$R\&D_{st}$	-0.0004	-0.0008	-0.0011	-0.0004	-0.0008	-0.0011
	(0.0006)	(0.0009)	(0.0012)	(0.0005)	(0.0008)	(0.0011)
$TerEdu_{st}$	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
$GovSpe_{st}$	0.0000	0.0001	0.0001	0.0001***	0.0001**	0.0001**
	(0.0000)	(0.0000)	(0.0001)	(0.0000)	(0.0000)	(0.0001)
WGI_{st}	0.0006***	0.0008**	0.0008**	0.0004**	0.0005*	0.0005
	(0.0002)	(0.0003)	(0.0004)	(0.0002)	(0.0003)	(0.0004)
FDI_{st}	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
$Export_{st}$	0.0001***	0.0001***	0.0002***	0.0001***	0.0001***	0.0002***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
$Constant$	0.4591***	0.1886*	0.0057	0.5106***	0.2819	0.1436
	(0.0689)	(0.1043)	(0.1348)	(0.1146)	(0.1745)	(0.2277)
Country effects	YES	YES	YES	YES	YES	YES
Time effects	YES	YES	YES	YES	YES	YES
F statistics	37.29	37.29	37.29	132.30	132.30	132.30
N	253	253	253	253	253	253
R^2	0.952	0.963	0.969	0.960	0.969	0.973
adj. R^2	0.923	0.941	0.950	0.937	0.951	0.958

7. Conclusions

In this paper, we model the impacts of globalization in the labor market (i.e. immigration and offshoring) on domestic employment. We test the model predictions using a comprehensive panel data covering 155 countries over the period 1990-2015. We found that immigration (permanent labor inflow), rather than offshoring (temporary labor inflow), has a substitution effect on natives, and offshoring increases the demand for natives through a productivity effect. In addition, we found that: (1) immigrants mainly replace natives in developing countries rather than developed countries, while offshoring increases the employment level of natives in developed countries. (2) Compared with the low-regulation labor market, globalization has a small substitution effect on natives in the high-regulation labor market, but it is not conducive to the improvement of the overall employment level in the high-regulation labor market.

In conclusion, the impact of globalization on domestic employment is not as bad as many native workers' fear. While our results highlight the role of the lower immigration cost in reducing domestic employment, the threat from immigration should not be exaggerated. Policymakers need to recognize those differences between immigration and offshoring and give full play to the positive effects.

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