Appendix A [The online supplement has not been copyedited.]

Geocoding Amadeus

Geocoding Amadeus was performed differently for each country. There is no standardized method, as each Amadeus data set had different values in terms of the geographic variables. First, we looked at the postal code (zip code) variable. Eurostat provides postal codes to NUTS region tables for each country in the European Union; however, in many cases the matches were geographically inaccurate. The postal code was still useful in some cases, especially in countries with relatively well-documented postal code systems. We then resorted to the region variable provided in Amadeus, which contains the general region in which a firm is located. The entries in the region variable often matched with a NUTS 2 or NUTS 3 name. In most cases, if a country had NUTS 3 names within the region variable, a simple merge was performed. In other countries the region variable was finer in scale, corresponding to local administrative units (LAUs), which are used by Eurostat to a lesser extent. Again, once the administrative level used in the region variable was identified, a merge was performed.

In the rare case where the region did not match any of the official Eurostat tables, we resorted to official country statistics websites to determine which administrative levels were used. Geocoding based on the region variable covered most of the Amadeus observations, and if a data set was incomplete, we used a combination of the city and region variables to geocode. This combination was used to prevent any errors which may arise due to duplicate city names in certain countries. String matching based on city and region was performed with the help of data from Geonames, a free geographic database which covers all countries and place names (https://www.geonames.org/). These data sets contain the relevant administrative boundaries, which often matched Eurostat's NUTS 2 or NUTS 3 official names, and again a simple merge was performed.
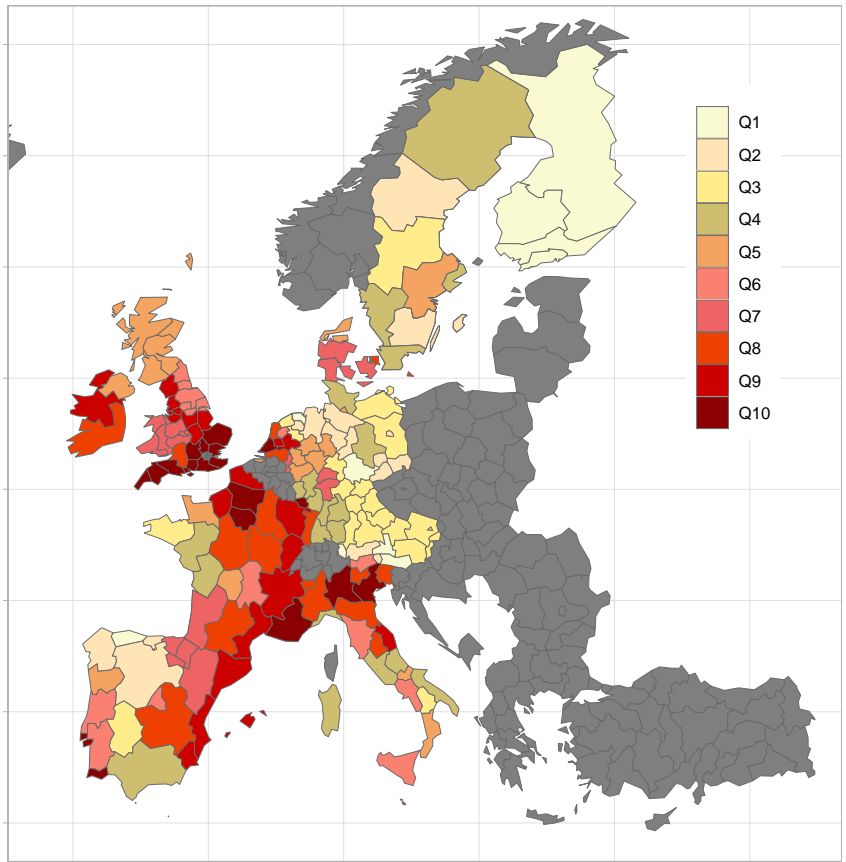
Appendix B

FIGURE B1. *Attitudes toward migration by NUTS 2 region, 2008–2016*
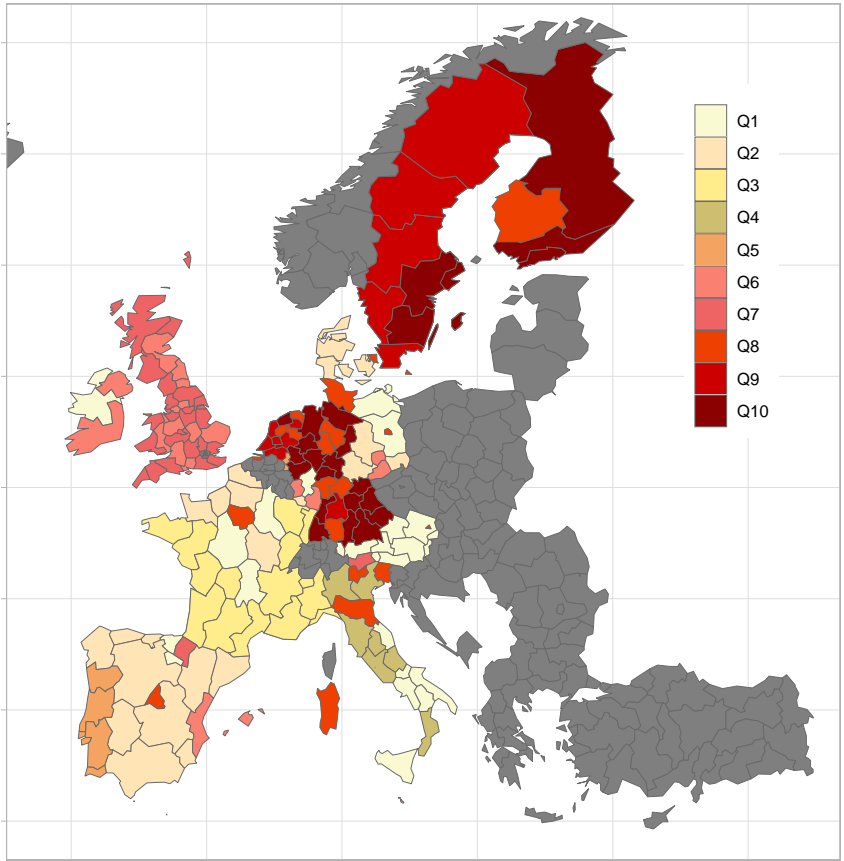
Note: Question: Is immigration bad or good for the country's economy? It is an 11-point scale from 0 (i.e. very bad for the economy) to 10 (i.e. very good for the economy). ESS (2022).

FIGURE B2. *Number of African migrants' stock in 2001, by NUTS 2 region*

Note: Eurostat (2019) and German Federal Statistical Office (2019).

FIGURE B3. *Share of low-productivity firms, by NUTS 2 region, 2008–2016*
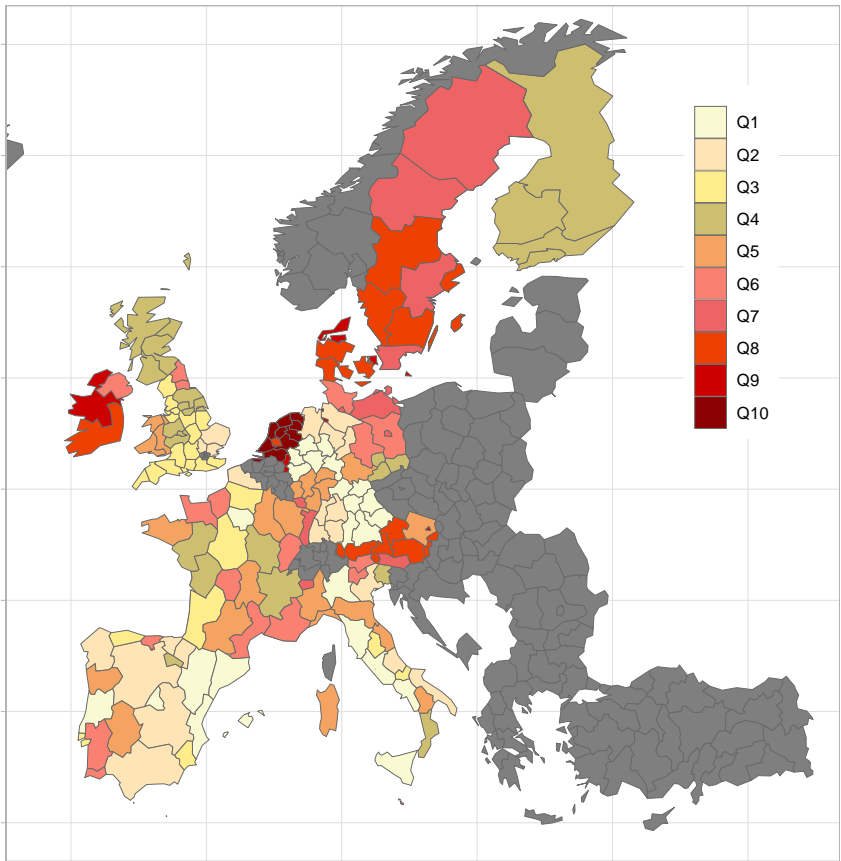
Note: Amadeus (2020).

FIGURE B4. *Correlation between African Migrants' Stock and Share of Low-productivity Firms*
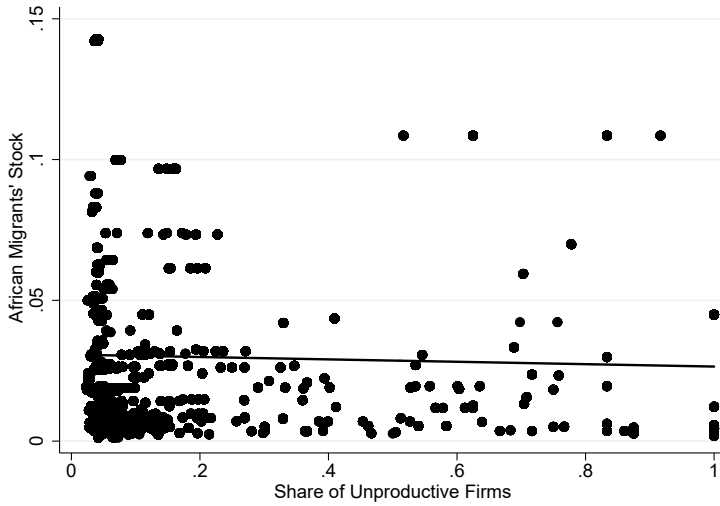
Note: Amadeus (2018), Eurostat (2019), and German Federal Statistical Office (2019).

FIGURE B5. *Correlation between African Migrants' Stock and TFPR*
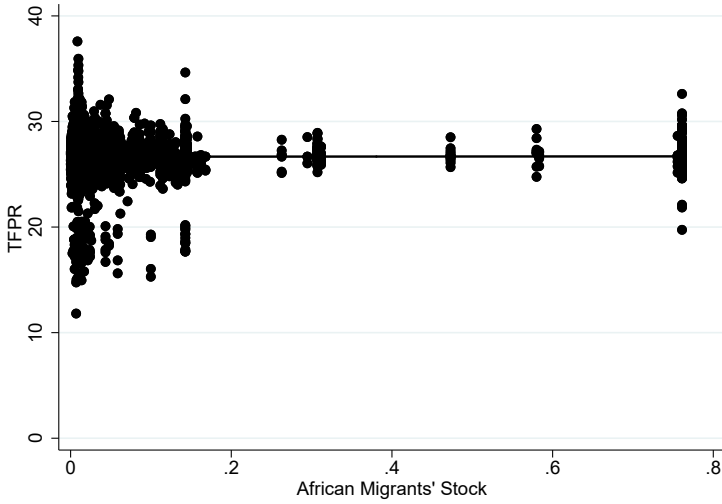
Note: Amadeus (2018), Eurostat (2019), and German Federal Statistical Office (2019).

FIGURE B6. *Correlation between African Migrants' Stock and Olley and Pakes*

Note: Amadeus (2018), Eurostat (2019), and German Federal Statistical Office (2019).

FIGURE B7. *Correlation between African Migrants' Stock and Levinsohn and Petrin*

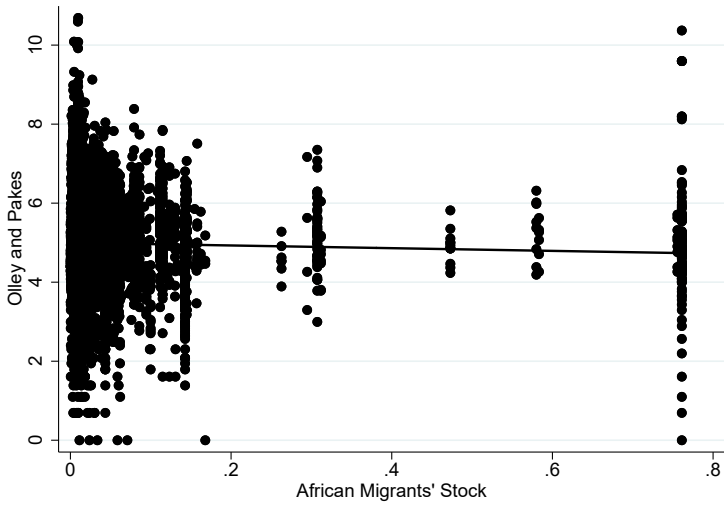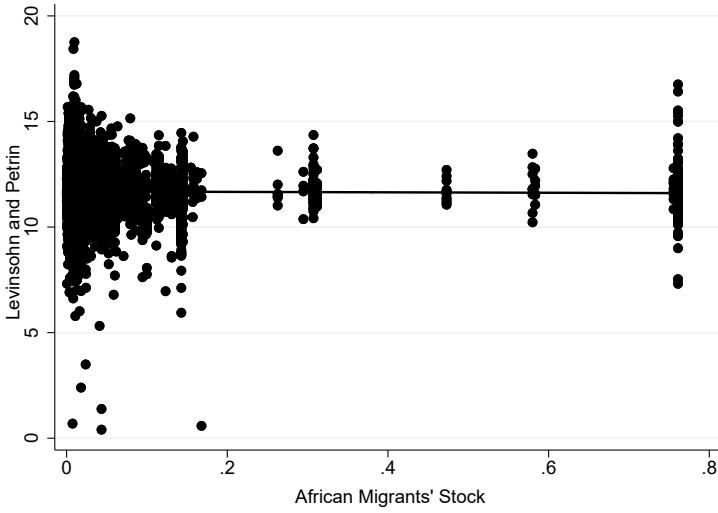Note: Amadeus (2018), Eurostat (2019), and German Federal Statistical Office (2019).

FIGURE B8. *Number of migrants from the Eastern Mediterranean route, 2008-2016*
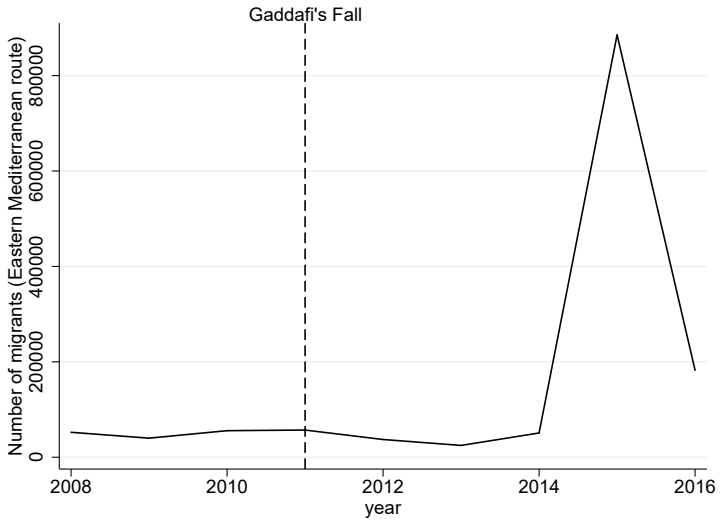
Note: Frontex (2019).

FIGURE B9. *Number of migrants from the Western Balkan Route route, 2008-2016*

FIGURE B10. *Graphical Test of the Parallel Trend Assumption (Low Share of Low-productivity Firms)*
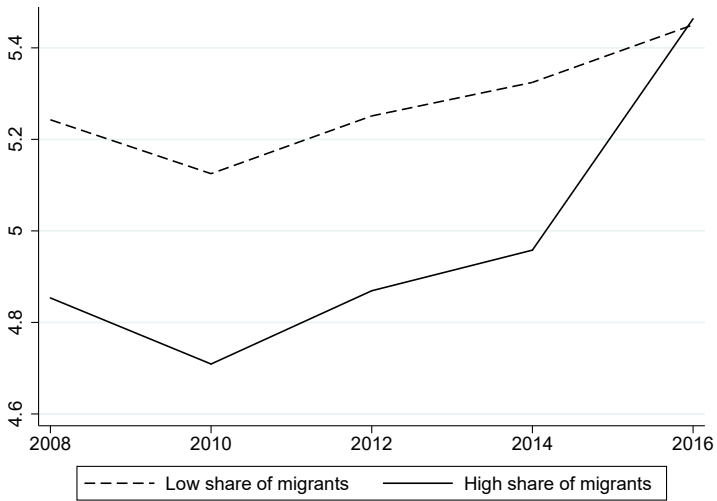
Note: Low Share of Low-productivity Firms includes values of *Share of Low-productivity Firms* below the median. Low share of migrants includes values of *African Migrants' Stock* below the median. High share of migrants includes values of *African Migrants' Stock* above the median.

TABLE B1. *Balance table: Low African Migrants' Stock vs High African Migrants' Stock*

Covariates	Low Share of African Migrants' Stock	High Share of African Migrants' Stock
	Mean	
Gender	1.54	1.51
Education	13.38	13.55
Age	50.96	50.51
Ideology	10.80	9.04
Share of Unproductive firms	0.12	0.12
Unemployment rate	0.02	0.02

Note: Low African Migrants' Stock are NUTS 2 regions with values of *African Migrants' Stock* below the mean. High African Migrants' Stock are NUTS 2 regions with values of *African Migrants' Stock* above the mean. The variables include "right refusal" and "don't know" answers. Sources: Amadeus data set, ESS, Eurostat, German Federal Statistical Office.

Appendix C

FIGURE C1. *The effect of migrants on attitudes toward migration for different shares of low-productivity firms (dummy) in NUTS 2 regions*
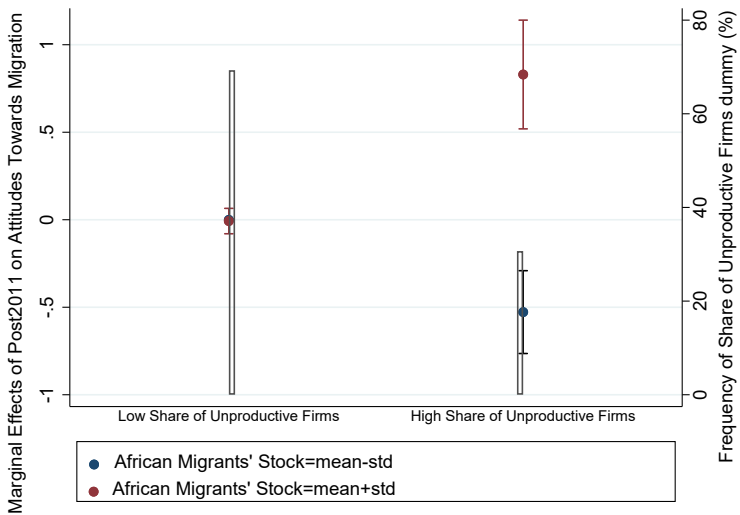
Note: Low Share of Low-productivity Firms includes values of *Share of Low-productivity Firms* below the mean. High Share of Low-productivity Firms includes values of *Share of Low-productivity Firms* above the mean. The predictions for Low Share of Low-productivity Firms are overlapping for regions with low and high shares of African migrants. 95% C.I.

FIGURE C2. *The effect of migrants on attitudes toward migration for different shares of low-productivity firms in NUTS 2 regions, 2010–2012*

Note: The predictions are plotted from Model 4 in Table 5. 95% C.I.

TABLE C1. *Main models (with entropy balancing)*

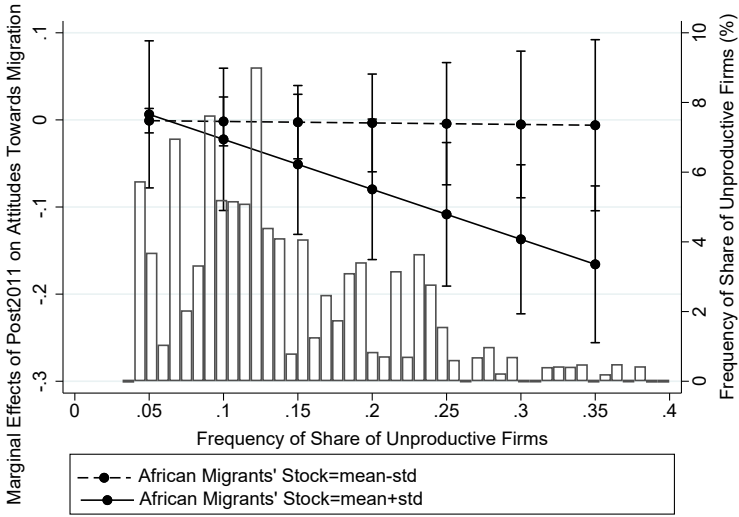|	(1)	(2)	(3)	(4)
	OLS			
	Migrants are good for the economy			
Share of Low-productivity Firms	2.653**	-0.577	-0.043	0.412
	(1.066)	(0.639)	(0.798)	(0.870)
African Migrants' Stock*Share of Low-productivity Firms	-53.708**	4.175	8.896	2.050
	(22.918)	(14.258)	(14.334)	(23.521)
African Migrants' Stock*Post 2011	-0.914*	-1.696	-0.804	-4.056
	(0.464)	(1.229)	(2.440)	(2.828)
Share of Low-productivity Firms*Post 2011	-1.435***	-0.824	-2.002	-2.508
	(0.505)	(0.802)	(1.968)	(2.086)
African Migrants' Stock*Post 2011*Share of Low-productivity Firms	26.775***	31.911***	30.692***	41.823***
	(7.385)	(8.615)	(8.772)	(10.267)
Constant	4.987***	4.956***	4.576***	5.390***
	(0.047)	(0.088)	(0.152)	(0.378)
NUTS-2 fixed effects	Yes	Yes	Yes	Yes
Wave fixed effects	Yes	Yes	Yes	Yes
NUTS-2 specific trends	No	Yes	Yes	Yes
Controls (individual level)	No	No	Yes	Yes
Controls (natives' internal migration)	No	No	No	Yes
Observations	46,797	46,797	46,797	46,797
Number of regions	116	116	116	116
R-squared	0.051	0.062	0.092	0.093

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Note: OLS with standard errors clustered at the level of NUTS 2 region in parentheses. Unit of observation is individual-region-wave. The outcome variable in all models is attitudes in favor of economic migration. All models include the weights obtained by entropy balancing. Regions with low and high (i.e. below and above the median) share of African migrants are balanced with respect share of low-productivity firms (pre-treatment values), attitudes toward migration (pre-treatment values), age, level of education, employment status, gender, and ideology. Sources: Amadeus data set, ESS, Eurostat, German Federal Statistical Office.

TABLE C2. *Migrants and refugees (full models)*

	(1)	(2)	(3)	(4)	(5)	(6)
	OLS					
	Migrants are good for the economy					
Sub-Saharian Migrants' Stock	5.244**			-52.436		
	(2.351)			(96.123)		
Share of Unproductive Firms	-0.620	-2.442	-2.178	-1.811	-0.627*	0.147
	(0.398)	(1.981)	(2.494)	(1.398)	(0.329)	(1.240)
Sub-Saharian Migrants' Stock*Share of Unproductive Firms	15.356			-8.223		
	(19.688)			(32.321)		
Sub-Saharian Migrants' Stock*Post 2011	-5.659*			-14.316***		
	(3.364)			(3.149)		
Share of Unproductive Firms*Post 2011	-1.969**	-1.321	0.518	1.297	-1.505*	-1.615*
	(0.976)	(1.263)	(1.611)	(1.454)	(0.764)	(0.826)
Sub-Saharian Migrants' Stock*Post 2011*Share of Unproductive Firms	96.804***			163.510***		
	(25.239)			(30.659)		
North African Migrants' Stock		1.264	31.737			
		(0.882)	(30.143)			
North African Migrants' Stock*Share of Unproductive Firms		46.420	40.553			
		(44.737)	(47.019)			
North African Migrants' Stock*Post 2011		-1.537*	-3.348**			
		(0.846)	(1.537)			
North African Migrants' Stock*Post 2011*Share of Unproductive Firms		44.306***	57.670***			
		(10.200)	(13.272)			
Middle East Migrants' Stock			-518.378	418.107		49.209
			(505.374)	(715.698)		(49.350)
Middle East Migrants' Stock*Share of Unproductive Firms			0.073	224.047		-129.630
			(259.387)	(246.362)		(205.742)
Middle East Migrants' Stock*Post 2011			38.769	80.637***		
			(25.017)	(22.843)		
Middle East Migrants' Stock*Post 2011*Share of Unproductive Firms			-321.446	-619.348***		
			(202.846)	(205.117)		
African Migrants' Stock*Share of Unproductive Firms					5.642	10.476
					(7.868)	(11.505)
African Migrants' Stock*Post 2011					-2.407*	-2.432
					(1.262)	(1.549)
African Migrants' Stock*Post 2011*Share of Unproductive Firms					45.962***	49.088***
					(10.116)	(11.050)
African Migrants' Stock*Post 2014					0.458	
					(0.831)	
Share of Unproductive Firms*Post 2014					0.824	0.055
					(0.989)	(2.240)
African Migrants' Stock*Post 2014*Share of Unproductive Firms					-1.014	
					(9.303)	
Middle East Migrants' Stock*Post 2014						6.781
						(23.824)
Middle East Migrants' Stock*Post 2014*Share of Unproductive Firms						88.758
						(237.367)
Constant	5.240***	5.335***	7.792***	3.032	5.432***	5.074***
	(0.089)	(0.095)	(2.450)	(3.338)	(0.081)	(0.388)
NUTS-2 fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Wave fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
NUTS-2 specific trends	Yes	Yes	Yes	Yes	Yes	Yes
Controls (individual level)	No	No	No	No	No	No
Controls (natives' internal migration)	No	No	No	No	No	No
Observations	57,171	45,822	45,822	57,171	57,171	57,171
Number of regions	199	162	162	162	199	199
R-squared	0.064	0.068	0.068	0.064	0.064	0.064

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Note: OLS with standard errors clustered at the level of NUTS 2 region in parentheses. Unit of observation is individual-region-wave. The outcome variable in all models is attitudes in favor of economic migration.
Sources: Amadeus data set, ESS, Eurostat, German Federal Statistical Office.

TABLE C3. *Productivity and size*

	(1)	(2)
	OLS	
	Migrants are good for the economy	
Share of Unproductive Firms	5.563***	3.375***
	(1.062)	(0.994)
African Migrants' Stock*Share of Unproductive Firms	-100.821***	-78.239***
	(24.602)	(19.879)
African Migrants' Stock*Post 2011	-0.829	-0.872
	(1.349)	(1.780)
Share of Unproductive Firms*Post 2011	-4.108***	-3.593***
	(1.347)	(1.173)
African Migrants' Stock*Post 2011*Share of Unproductive Firms	61.096***	39.800***
	(14.773)	(13.616)
Share of Unproductive Firms (small)	-0.659*	
	(0.358)	
African Migrants' Stock*Share of Unproductive Firms (small)	16.051	
	(13.201)	
Share of Unproductive Firms (small)*Post 2011	0.216	
	(0.450)	
African Migrants' Stock*Post 2011*Share of Unproductive Firms (small)	-22.851**	
	(10.564)	
Share of Unproductive Firms (large)		-0.848
		(0.595)
African Migrants' Stock*Share of Unproductive Firms (large)		20.778
		(14.215)
Share of Unproductive Firms (large)*Post 2011		-0.124
		(0.396)
African Migrants' Stock*Post 2011*Share of Unproductive Firms (large)		-2.729
		(8.337)
Constant	4.786***	5.001***
	(0.107)	(0.201)
NUTS-2 fixed effects	Yes	Yes
Wave fixed effects	Yes	Yes
NUTS-2 specific trends	No	No
Controls (individual level)	No	No
Controls (natives' internal migration)	No	No
Observations	56,436	56,442
Number of regions	187	194
R-squared	0.087	0.086

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Note: OLS with standard errors clustered at the level of NUTS 2 region in parentheses. Unit of observation is individual-region-wave. The outcome variable in all models is attitudes in favor of economic migration. Sources: Amadeus data set, ESS, Eurostat, German Federal Statistical Office.

TABLE C4. *Individual-level heterogeneous effects*

	(1)	(2)	(3)	(4)
		OLS		
		Migrants are good for the economy		
	Low Education	High Education	Low Automation	High Automation
Share of Unproductive Firm	-1.123**	0.607	-2.150	-0.202
	(0.449)	(0.437)	(1.955)	(0.276)
African Migrants' Stock*Share of Unproductive Firms	18.224*	-20.788	47.158	-16.162**
	(11.021)	(12.631)	(42.103)	(7.062)
African Migrants' Stock*Post 2011	-2.096	-2.582**	-2.626	-2.040**
	(1.456)	(1.235)	(1.710)	(0.949)
Share of Unproductive Firms*Post 2011	-1.478	-1.901**	-1.558	-1.743**
	(1.104)	(0.876)	(1.115)	(0.858)
African Migrants' Stock*Post 2011*Share of Unproductive Firms	44.909***	33.863***	37.716***	46.195***
	(11.318)	(10.419)	(13.349)	(7.736)
Constant	3.838***	7.148***	5.741***	4.736***
	(0.085)	(0.062)	(0.072)	(0.076)
NUTS-2 fixed effects	Yes	Yes	Yes	Yes
Wave fixed effects	Yes	Yes	Yes	Yes
NUTS-2 specific trends	Yes	Yes	Yes	Yes
Controls (individual level)	No	No	No	No
Controls (natives' internal migration)	No	No	No	No
Observations	32,141	25,029	33,761	23,409
Number of regions	199	197	198	198
R-squared	0.070	0.064	0.072	0.071

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Note: OLS with standard errors clustered at the level of NUTS 2 region in parentheses. Unit of observation is individual-region-wave. The outcome variable in all models is attitudes in favor of economic migration. Low Education implies no college degree. High Education implis college degree. Low Automation implies low risk of being replaced by AI. High Automation implies low risk of being replaced by AI. Sources: Amadeus data set, ESS, Eurostat, German Federal Statistical Office, Gingrich 2019.

TABLE C5. *Main results (dropping 2008)*

	(1)	(2)	(3)	(4)
	OLS			
	Migrants are good for the economy			
Share of Low-productivity Firms	4.866***	-0.395	0.127	1.280
	(0.837)	(1.545)	(1.597)	(1.487)
African Migrants' Stock*Share of Low-productivity Firms	-101.476***	1.802	0.992	-17.684
	(17.809)	(33.269)	(32.856)	(30.123)
African Migrants' Stock*Post 2011	-1.203***	-2.490*	-1.124	-5.563
	(0.408)	(1.463)	(2.675)	(3.890)
Share of Low-productivity Firms*Post 2011	-2.166***	-1.761*	-3.355**	-4.182**
	(0.445)	(0.999)	(1.667)	(1.802)
African Migrants' Stock*Post 2011*Share of Low-productivity Firms	41.195***	43.745***	41.934***	58.346***
	(6.831)	(10.285)	(10.037)	(13.168)
Constant	5.078***	5.545***	5.075***	6.389***
	(0.028)	(0.047)	(0.141)	(0.369)
NUTS-2 fixed effects	Yes	Yes	Yes	Yes
Wave fixed effects	Yes	Yes	Yes	Yes
NUTS-2 specific trends	No	Yes	Yes	Yes
Controls (individual level)	No	No	Yes	Yes
Controls (natives' internal migration)	No	No	No	Yes
Observations	45,889	45,889	45,679	45,679
Number of regions	143	143	143	143
R-squared	0.058	0.070	0.102	0.103

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Note: OLS with standard errors clustered at the level of NUTS 2 region in parentheses. Unit of observation is individual-region-wave. The outcome variable in all models is attitudes in favor of economic migration. Sources: Amadeus data set, ESS, Eurostat, German Federal Statistical Office.

TABLE C6. *Main results (NUTS 3 regions)*

	(1)	(2)	(3)	(4)
	OLS			
	Migrants are good for the economy			
Share of Low-productivity Firms	13.485***	8.367***	10.182***	10.102***
	(3.832)	(1.784)	(1.759)	(1.466)
African Migrants' Stock*Share of Low-productivity Firms	-178.249***	-64.465**	-57.654**	-50.825***
	(34.050)	(26.454)	(23.607)	(19.115)
African Migrants' Stock*Post 2011	2.097	-13.281***	-29.216***	-33.014***
	(5.407)	(4.151)	(10.536)	(10.688)
Share of Low-productivity Firms*Post 2011	-5.629**	-9.525***	-12.024***	-13.131***
	(2.205)	(1.474)	(1.879)	(1.529)
African Migrants' Stock*Post 2011*Share of Low-productivity Firms	60.394***	119.283***	118.201***	130.318***
	(19.563)	(14.942)	(15.416)	(12.663)
Constant	3.582***	2.951***	2.300***	1.509***
	(0.511)	(0.274)	(0.304)	(0.341)
NUTS-3 fixed effects	Yes	Yes	Yes	Yes
Wave fixed effects	Yes	Yes	Yes	Yes
NUTS-3 specific trends	No	Yes	Yes	Yes
Controls (individual level)	No	No	Yes	Yes
Controls (natives' internal migration)	No	No	No	Yes
Observations	10,967	10,967	10,945	10,945
Number of regions	69	69	69	69
R-squared	0.072	0.081	0.121	0.122

Robust standard errors in parentheses *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Note: OLS with standard errors clustered at the level of NUTS 3 region in parentheses. Unit of observation is individual-region-wave. The outcome variable in all models is attitudes in favor of economic migration. Sample of countries: Ireland, Netherlands, and Sweden. Sources: Amadeus data set, ESS, Eurostat, German Federal Statistical Office.

TABLE C7. *Main results (other cutoff points of firm's productivity)*

	(1)	(2)	(3)	(4)
			OLS	
	Migrants are good for the economy			
Share of Low-productivity Firms (10 percentile)	-0.131			
	(0.469)			
African Migrants' Stock*Share of Low-productivity Firms (10 percentile)	-27.157*			
	(14.501)			
African Migrants' Stock*Post 2011	-1.644	-1.966	-2.264*	-1.916
	(1.278)	(1.396)	(1.351)	(1.337)
Share of Low-productivity Firms (10 percentile)*Post 2011	-0.894			
	(0.548)			
African Migrants' Stock*Share of Low-productivity Firms (10 percentile)*Post 2011	30.110***			
	(10.868)			
Share of Low-productivity Firms (20 percentile)		-0.986**		
		(0.381)		
African Migrants' Stock*Share of Low-productivity Firms (20 percentile)		21.239		
		(45.605)		
Share of Low-productivity Firms (20 percentile)*Post 2011		-1.451**		
		(0.660)		
African Migrants' Stock*Share of Low-productivity Firms (20 percentile)*Post 2011		36.432***		
		(6.531)		
Share of Low-productivity Firms (30 percentile)			-0.843**	
			(0.340)	
African Migrants' Stock*Share of Low-productivity Firms (30 percentile)			31.519	
			(39.142)	
Share of Low-productivity Firms (30 percentile)*Post 2011			-1.754**	
			(0.835)	
African Migrants' Stock*Share of Low-productivity Firms (30 percentile)*Post 2011			39.488***	
			(7.695)	
Share of Low-productivity Firms (40 percentile)				-0.668**
				(0.286)
African Migrants' Stock*Share of Low-productivity Firms (40 percentile)				7.401
				(7.211)
Share of Low-productivity Firms (40 percentile)*Post 2011				-1.481*
				(0.833)
African Migrants' Stock*Share of Low-productivity Firms (40 percentile)*Post 2011				34.353***
				(7.854)
Constant	5.313***	5.327***	5.288***	5.337***
	(0.072)	(0.109)	(0.100)	(0.062)
NUTS-2 fixed effects	Yes	Yes	Yes	Yes
Wave fixed effects	Yes	Yes	Yes	Yes
Trends	Yes	Yes	Yes	Yes
Observations	56,473	56,622	56,740	57,135
Number of regions	187	192	196	197
R-squared	0.064	0.064	0.064	0.064

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Note: OLS with standard errors clustered at the level of NUTS 2 region in parentheses. Unit of observation is individual-region-wave. The outcome variable in all models is attitudes in favor of economic migration. Sources: Amadeus data set, ESS, Eurostat, German Federal Statistical Office.

Appendix D

The role of the 2008 financial crisis and of the refugees

We perform further tests to rule out some potential confounding factors in our analysis. First, we explore the role of the 2008 global financial crisis. The concern is that our pre-treatment period are the years 2009 and 2010, in which the financial crisis hit the hardest in Europe. To address this concern, we rerun the main analysis with a longer pre-treatment period including the years 2005-2008. In doing so, we have to relax the assumption that the Benghazi agreement prevented the flow of migrants to Europe. Luckily, the flow of migrants from 2005 to 2008 was relatively low compared to the numbers post-2011.[70]

Table D3 shows that our results are unchanged even if we include a longer pre-treatment. Moreover, our results remain virtually the same if we include a triple interaction term (and related double interaction terms) among firms' exports over sales, *Post 2011*, and *African Migrant Stock* on the right-hand side (Table D4).[71] The rationale is that the financial crisis may have affected productive firms in economically more vibrant regions more than productive firms in economically less vibrant regions through the trade channel, thereby reducing the foreign demand for goods. To the extent that African migrants relocate to economically vibrant regions, this can pose a threat to our identification. Controlling for the trade channel at the firm level rules out the possibility that exporting activities in the presence of the financial crisis are a confounding factor. In sum, the global financial crisis does not seem responsible for our findings.

Second, after the collapse of the Libyan government, there was the Syrian crisis, which brought a large number of refugees to Europe. Thus, it may be that our results are driven by Syrian refugees rather than economic migrants from Africa. While this mechanism would be in line with our conceptual framework, we have already discussed the reasons why we believe that it is implausible. First, refugees are not allowed to integrate into labor markets in the short term. Second, refugees are typically allocated evenly across geographical areas in most European countries. If so, their allocation is likely to be orthogonal *African Migrant Stock* and so does not pose a

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70. In these estimates, we use a 10 percent random sample for computational reasons.
71. We use pre-treatment value of exports over sales, since export activities may be affected by flow of migrants, as we show in the case study of Sweden.

threat to identification. Third, the flow of Syrian migrants comes overwhelmingly more from the Balkan route and the Eastern Mediterranean route than from the Central Mediterranean route and was quite limited before 2014, according to Frontex (see Figures A8 and A9).

To further rule out the possibility that the Syrian crisis affects our estimates, we rerun the main models including a triple interaction among *Middle East Migrant Stock × Post 2011 × TFPR*.[72] The identification assumption is the same as for African migrants. That is, Syrian refugees relocate more in areas where Syrian migrants have previously settled due to a network effect. Even including this triple interaction term (and related double interaction terms) does not change our results, showing that the Syrian crisis has little to do with our findings (Table D5).

Figures & tables

FIGURE D1. *Graphical Test of the Parallel Trend Assumption*
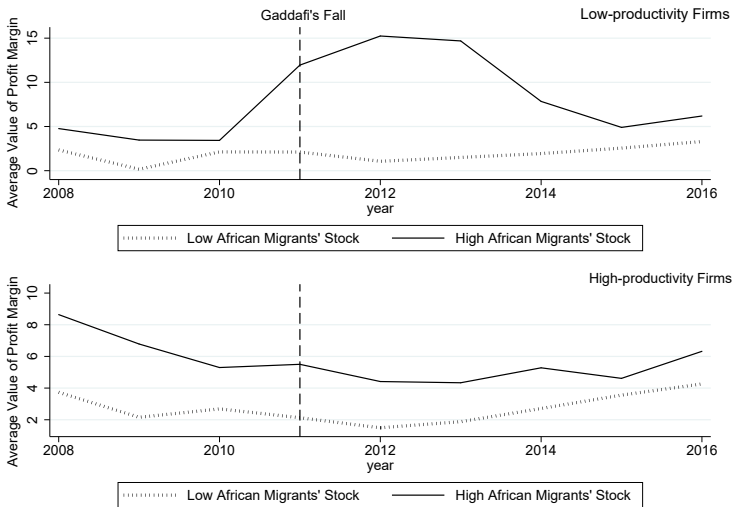
Note: Low African migrant stock and high African migrant stock report respectively one standard deviation below the mean and one standard deviation above the mean of *African Migrant Stock*.

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72. Data come from Moriconi, Peri, and Turati 2019

TABLE D1. *Mechanism: Labor cost channel*

	(1)	(2)	(3)	(4)
	OLS			
	Average Cost per Employee			
TFPR	0.154***	0.157***	0.090***	0.092***
	(0.009)	(0.009)	(0.011)	(0.012)
African Migrants' Stock*Post 2011	-0.253***	-0.252***	-0.231***	-0.231***
	(0.052)	(0.051)	(0.050)	(0.050)
TFPR*Post 2011	-0.067***	-0.072***	-0.068***	-0.069***
	(0.009)	(0.010)	(0.009)	(0.009)
African Migrants' Stock*TFPR	0.017**	0.017*	0.011	0.011
	(0.009)	(0.009)	(0.010)	(0.010)
African Migrants' Stock*Post 2011*TFPR	0.132***	0.132***	0.121***	0.121***
	(0.026)	(0.027)	(0.026)	(0.026)
Constant	35.781**	5.358***	4.084***	-9.746***
	(14.601)	(0.587)	(0.571)	(0.649)
Industry Controls	No	No	Yes	Yes
Firm Controls	No	No	Yes	Yes
Region Controls	No	No	No	Yes
NUTS-2 fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	No	No	No
Country-year fixed effects	No	Yes	Yes	Yes
Region specific trends	Yes	Yes	Yes	Yes
Observations	995,089	995,088	994,886	962,761
Number of regions	183	183	183	133
R-squared	0.710	0.710	0.743	0.742

Robust standard errors in parentheses *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Note: OLS with standard errors clustered by NUTS 2 region in parentheses. Unit of observation is firm-region-year. The outcome variable in all models is average cost per employee. Sources: Amadeus data set, Eurostat, German Federal Statistical Office.

TABLE D2. *Mechanism: Employment channel*

	(1)	(2)	(3)	(4)
	OLS			
	Number of Employees			
TFPR	-0.649***	-0.637***	-0.637***	-0.659***
	(0.055)	(0.055)	(0.056)	(0.057)
African Migrants' Stock*Post 2011	0.137***	0.132***	0.136***	0.135***
	(0.046)	(0.046)	(0.050)	(0.050)
TFPR*Post 2011	0.068***	0.054***	0.054***	0.047**
	(0.018)	(0.018)	(0.018)	(0.018)
African Migrants' Stock*TFPR	-0.006	-0.007	-0.007	-0.007
	(0.014)	(0.013)	(0.013)	(0.013)
African Migrants' Stock*Post 2011*TFPR	-0.079**	-0.077***	-0.078***	-0.077***
	(0.031)	(0.029)	(0.029)	(0.027)
Constant	57.682***	-16.071***	-16.235***	22.282***
	(14.355)	(1.997)	(2.096)	(2.563)
Industry Controls	No	No	Yes	Yes
Firm Controls	No	No	Yes	Yes
Region Controls	No	No	No	Yes
NUTS-2 fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	No	No	No
Country-year fixed effects	No	Yes	Yes	Yes
Region specific trends	Yes	Yes	Yes	Yes
Observations	1,064,325	1,064,324	1,064,324	1,063,961
Number of regions	183	183	183	183
R-squared	0.312	0.314	0.314	0.330

Robust standard errors in parentheses *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Note: OLS with standard errors clustered by NUTS 2 region in parentheses. Unit of observation is firm-region-year. The outcome variable in all models is average cost per employee. Sources: Amadeus data set, Eurostat, German Federal Statistical Office.

TABLE D3. *Main results (long pre-treatment period)*

	(1)	(2)	(3)	(4)
	OLS			
	Profit Margin			
TFPR	2.870***	2.874***	2.535***	2.597***
	(0.192)	(0.184)	(0.202)	(0.206)
African Migrants' Stock*Post 2011	4.246***	3.982***	4.222***	4.218***
	(1.478)	(1.498)	(1.537)	(1.541)
TFPR*Post 2011	-1.231***	-1.241***	-1.225***	-1.270***
	(0.231)	(0.218)	(0.215)	(0.219)
African Migrants' Stock*TFPR	-0.174	-0.139	-0.140	-0.149
	(0.215)	(0.204)	(0.199)	(0.200)
African Migrants' Stock*Post 2011*TFPR	-2.026**	-2.031**	-2.183***	-2.179***
	(0.806)	(0.796)	(0.822)	(0.822)
Constant	238.926	-115.099***	-195.968***	-33.513*
	(210.755)	(35.058)	(37.724)	(17.255)
Industry Controls	No	No	Yes	Yes
Firm Controls	No	No	Yes	Yes
Region Controls	No	No	No	Yes
NUTS-2 fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	No	No	No
Country-year fixed effects	No	Yes	Yes	Yes
Region specific trends	Yes	Yes	Yes	Yes
Observations	254,556	254,553	248,739	240,505
Number of regions	183	183	183	133
R-squared	0.043	0.045	0.058	0.057

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Note: OLS with bootstrapped standard errors clustered by NUTS 2 region in parentheses. Unit of observation is firm-region-year. The outcome variable in all models is profit margin. 10 percent random subsample of the full data set. Sources: Amadeus data set, Eurostat, German Federal Statistical Office.

TABLE D4. *Main results (including firms' export/sales)*

	(1)	(2)	(3)	(4)
	OLS			
	Profit Margin			
TFPR	2.532***	2.514***	2.219***	2.240***
	(0.163)	(0.143)	(0.161)	(0.165)
African Migrants' Stock*Post 2011	4.188***	4.012***	4.256***	4.252***
	(1.381)	(1.380)	(1.425)	(1.429)
TFPR*Post 2011	-1.002***	-0.985***	-0.980***	-0.981***
	(0.143)	(0.132)	(0.137)	(0.141)
African Migrants' Stock*TFPR	0.002	0.077	0.059	0.060
	(0.221)	(0.210)	(0.192)	(0.191)
African Migrants' Stock*Post 2011*TFPR	-1.780**	-1.846**	-1.981***	-1.987***
	(0.730)	(0.719)	(0.725)	(0.723)
Post 2011*Export/Sales	0.005	0.001	-0.008	-0.010
	(0.005)	(0.006)	(0.006)	(0.007)
African Migrants Stock*Export/Sales	-0.006***	-0.006***	-0.008***	-0.008***
	(0.002)	(0.002)	(0.002)	(0.002)
African Migrants Stock*Export/Sales*Post 2011	-0.014	-0.014	-0.012	-0.012
	(0.009)	(0.009)	(0.010)	(0.010)
Constant	-659.087**	-891.766***	-955.370***	-18.923
	(317.776)	(15.322)	(16.571)	(21.726)
Industry Controls	No	No	Yes	Yes
Firm Controls	No	No	Yes	Yes
Region Controls	No	No	No	Yes
NUTS-2 fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	No	No	No
Country-year fixed effects	No	Yes	Yes	Yes
Region specific trends	Yes	Yes	Yes	Yes
Observations	1,012,796	1,012,795	989,315	957,122
Number of regions	183	183	183	133
R-squared	0.043	0.044	0.056	0.055

Robust standard errors in parentheses *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Note: OLS with bootstrapped standard errors clustered by NUTS 2 region in parentheses. Unit of observation is firm-region-year. The outcome variable in all models is profit margin. Sources: Amadeus data set, Eurostat, German Federal Statistical Office.

TABLE D5. *Confounding: including Middle East Migrants' Stock*

	(1)	(2)	(3)	(4)
		OLS		
		Profit Margin		
TFPR	2.542***	2.521***	2.229***	2.251***
	(0.162)	(0.143)	(0.160)	(0.165)
African Migrants' Stock*Post 2011	5.191***	5.153***	5.571***	5.582***
	(1.844)	(1.863)	(1.933)	(1.938)
TFPR*Post 2011	-0.988***	-0.967***	-0.957***	-0.958***
	(0.146)	(0.138)	(0.144)	(0.148)
African Migrants' Stock*TFPR	-0.165	-0.114	-0.131	-0.131
	(0.299)	(0.279)	(0.278)	(0.277)
African Migrants' Stock*Post 2011*TFPR	-2.340**	-2.376**	-2.568**	-2.576**
	(1.104)	(1.075)	(1.091)	(1.087)
Middle East Migrants Stock*Post 2011	-106.107	-128.347	-147.748	-149.422
	(108.045)	(110.556)	(113.913)	(113.985)
Middle East Migrants Stock*TFPR	16.653	16.361	13.844	13.819
	(29.866)	(30.179)	(31.538)	(31.587)
Middle East Migrants Stock*Post 2011*TFPR	48.647	48.666	56.365	56.775
	(56.175)	(55.771)	(57.489)	(57.181)
Constant	-664.799*	-894.563***	-955.022***	-14.983
	(350.445)	(16.311)	(17.356)	(22.250)
Industry Controls	No	No	Yes	Yes
Firm Controls	No	No	Yes	Yes
Region Controls	No	No	No	Yes
NUTS-2 fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	No	No	No
Country-year fixed effects	No	Yes	Yes	Yes
Region specific trends	Yes	Yes	Yes	Yes
Observations	1,012,796	1,012,795	989,315	957,122
Number of regions	183	183	183	133
R-squared	0.042	0.043	0.055	0.055

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Note: OLS with bootstrapped standard errors clustered by NUTS 2 region in parentheses. Unit of observation is firm-region-year. The outcome variable in all models is profit margin. Sources: Amadeus data set, Eurostat, German Federal Statistical Office.

TABLE D6. *Productivity and size*

	(1)	(2)	(3)	(4)
	OLS			
	Profit Margin			
TFPR	2.678***	2.689***	2.388***	2.409***
	(0.165)	(0.145)	(0.165)	(0.170)
African Migrants' Stock*Post 2011	2.173***	2.033***	2.131***	2.128***
	(0.650)	(0.664)	(0.658)	(0.663)
TFPR*Post 2011	-1.045***	-1.062***	-1.075***	-1.075***
	(0.139)	(0.128)	(0.130)	(0.134)
African Migrants' Stock*TFPR	-0.209	-0.162	-0.243	-0.244
	(0.212)	(0.202)	(0.197)	(0.197)
African Migrants' Stock*Post 2011*TFPR	-1.459***	-1.497***	-1.553***	-1.556***
	(0.520)	(0.507)	(0.488)	(0.485)
Small Firm	-1.936***	-2.380***	-1.461***	-1.484***
	(0.224)	(0.208)	(0.266)	(0.278)
Small Firm*Post 2011	-0.418**	0.117	0.171	0.138
	(0.172)	(0.189)	(0.190)	(0.197)
African Migrants' Stock*Small Firm	0.391***	0.491***	0.626***	0.633***
	(0.082)	(0.097)	(0.140)	(0.143)
African Migrants' Stock*Post 2011*Small Firm	2.137***	2.012***	2.051***	2.048***
	(0.713)	(0.690)	(0.677)	(0.675)
Constant	-652.823***	-892.108***	-955.647***	-18.414
	(227.712)	(14.256)	(15.066)	(20.912)
Industry Controls	No	No	Yes	Yes
Firm Controls	No	No	Yes	Yes
Region Controls	No	No	No	Yes
NUTS-2 fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	No	No	No
Country-year fixed effects	No	Yes	Yes	Yes
Region specific trends	Yes	Yes	Yes	Yes
Observations	1,012,796	1,012,795	989,315	957,122
Number of regions	183	183	183	133
R-squared	0.045	0.046	0.058	0.057

Robust standard errors in parentheses *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Note: OLS with bootstrapped standard errors clustered by NUTS 2 region in parentheses. Unit of observation is firm-region-year. The outcome variable in all models is profit margin. Sources: Amadeus data set, Eurostat, German Federal Statistical Office.

TABLE D7. *Two-period Analysis*

	(1)	(2)	(3)	(4)
	OLS			
	Profit Margin			
TFPR	2.352***	2.515***	2.317***	2.339***
	(0.191)	(0.158)	(0.175)	(0.180)
African Migrants' Stock*Post 2011	4.409***	4.296***	4.530***	4.529***
	(1.494)	(1.497)	(1.554)	(1.558)
TFPR*Post 2011	-0.558***	-0.771***	-0.736***	-0.736***
	(0.146)	(0.137)	(0.143)	(0.148)
African Migrants' Stock*TFPR	0.247	0.247	0.232	0.233
	(0.183)	(0.180)	(0.172)	(0.171)
African Migrants' Stock*Post 2011*TFPR	-2.366***	-2.354***	-2.506***	-2.513***
	(0.835)	(0.833)	(0.854)	(0.854)
Constant	-1.690***	-1.718***	-19.038*	-16.787
	(0.240)	(0.234)	(10.368)	(11.077)
Industry Controls	No	No	Yes	Yes
Firm Controls	No	No	Yes	Yes
Region Controls	No	No	No	Yes
NUTS-2 fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	No	No	No
Country-year fixed effects	No	Yes	Yes	Yes
Region specific trends	Yes	Yes	Yes	Yes
Observations	504,816	504,815	493,021	475,504
Number of regions	183	183	183	133
R-squared	0.048	0.048	0.060	0.059

Robust standard errors in parentheses *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Note: OLS with bootstrapped standard errors clustered by NUTS 2 region in parentheses. Unit of observation is firm-region-post-2011. The outcome variable in all models is profit margin. Sources: Amadeus data set, Eurostat, German Federal Statistical Office.

TABLE D8. *Firms' Assets per Employee*

	(1)	(2)	(3)	(4)
	OLS			
	Assets per Employee			
TFPR	0.327***	0.327***	0.322***	0.327***
	(0.022)	(0.022)	(0.022)	(0.023)
African Migrants' Stock*Post 2011	-0.086***	-0.090***	-0.092***	-0.095***
	(0.030)	(0.029)	(0.028)	(0.029)
TFPR*Post 2011	-0.012	-0.012	-0.026**	-0.038***
	(0.012)	(0.013)	(0.010)	(0.009)
African Migrants' Stock*TFPR	-0.017	-0.015	-0.015	-0.015
	(0.013)	(0.012)	(0.012)	(0.012)
African Migrants' Stock*Post 2011*TFPR	0.048***	0.047***	0.049***	0.051***
	(0.013)	(0.013)	(0.014)	(0.014)
Constant	85.643***	-6.918***	-12.908***	-14.605***
	(12.522)	(1.278)	(1.359)	(0.975)
Industry Controls	No	No	Yes	Yes
Firm Controls	No	No	Yes	Yes
Region Controls	No	No	No	Yes
NUTS-2 fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	No	No	No
Country-year fixed effects	No	Yes	Yes	Yes
Region specific trends	Yes	Yes	Yes	Yes
Observations	1,065,010	1,065,009	1,065,009	995,346
Number of regions	183	183	183	133
R-squared	0.426	0.427	0.437	0.441

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Note: OLS with bootstrapped standard errors clustered by NUTS 2 region in parentheses. Unit of observation is firm-region-year. The outcome variable in all models is firms' assets per employee. Sources: Amadeus data set, Eurostat, German Federal Statistical Office.

Appendix E

Micro-Level Data for Sweden

To identify the effect of migration on firms' performance across the productivity distribution of firms, we need detailed micro-level data. We have access to such data in the form of administrative registers of Statistics Sweden. Merging the registers needed is facilitated by the presence of unique identifiers of all residents, establishments and firms in Sweden.[73] For both individuals, establishments and firms, we also know the geographic location at the municipality level.[74]

For this study, we merge four administrative sources. For information about individuals, we use the Longitudinal Integrated Database for Health Insurance and Labour Market Studies (LISA). LISA includes very detailed information about the characteristics of all individuals (from 15 years of age).[75] LISA is based on a number of registers, importantly for our purposes, the total population register, the register-based labor market statistics database, the education and occupation registers, and the structural business statistics.[76] Importantly, these data contain information about individuals' migration history (if any). However, immigrants' specific country of origin is not provided, due to restrictions at Statistics Sweden. Instead their origin is classified as belonging to one of a limited number of regional groupings, such as, Africa or the Americas. LISA also contains information that we use on individuals' highest education attainment.[77]

For a brief overview of Swedish migration, see, e.g., Hatzigeorgiou and Lodefalk (2013). Here we just note that Sweden has gone from being a country of emigration after WWII to a country of substantial immigration. In recent years, Sweden has been the country in the EU that has received the second-largest number of asylum seekers, this in association with the crisis in Syria. Today, the share of immigrants in the population of Sweden is 19.6 percent, excluding asylum seekers and others not

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73. All subjects in the data have been de-identified by Statistics Sweden to preserve their confidentiality, replacing the identification numbers with new ones. Moreover, data were accessed only in a safe environment provided by Statistics Sweden.

74. Sweden currently has 290 municipalities, many of which have less than 10,000 inhabitants.

75. See Ludvigsson et al. 2019 for a review and account of LISA as well as its use in medical research.

76. Migration information is included in LISA but we have complemented it with additional information from the immigration and emigration register (1968-2008) of the Total Population Register (TP).

77. In addition, LISA includes a range of other individual level data, e.g., on gender, age, civil status, income, pension and unemployment benefits.

registered in Sweden. Major sources of immigration, besides neighbouring Nordic countries, are South-East European and Middle Eastern countries, but Sweden also has a relatively large African immigrant stock, which has increased in recent years.

For information about firms, we use the Structural Business Statistics (FEK). It provides granular data on the input and output of all active firms in the private sector that has at least one employee, except for firms in the financial industry.[78] FEK includes information from income statements, balance sheets, business and earnings statistics, as well as register-based labor market statistics. To control for firm age, we use the Labour Dynamics in Firms and Workplaces (FAD) register. FAD contains register data and indicators generated by Statistics Sweden that assist in analysing the dynamics of firms and workplaces.[79]

Foreign Trade Statistics (UH) provides detailed longitudinal data on firms' bilateral trade. Goods trade data are at the 8-digit Combined Nomenclature level (corresponding to HS at the 6-digit level). Goods trade data are comprehensive for non-EU trade (from the Swedish Customs). Data are truncated for intra-EU trade (from Statistics Sweden), but about 96% of intra-EU trade is included. For intra-EU trade, a firm's annual exports/imports with the rest of the union has to amount to SEK X mn to be recorded, with X being 9 and 4.5 for imports/exports, respectively, in the years 2015 onward; 4.5, from 2009-2014; 2.2 and 4.5 for imports/exports, respectively, in the years 2005-2008; and 1.5 in the years 1998-2004. Data on services trade are from a stratified survey among approximately 6,000 firms (GATS modes 1, 2 and 4), with the largest firms in terms of turnover or trade are regularly included. Trade in services is defined as a cross-border transaction related to a contract on services sales.

In a nutshell, we have access to longitudinal information on the universe of individuals and virtually all active private sector firms with at least one employee. We merge these data to the firm-level to enable econometric analysis of the distributional effects of migration on firm performance. In doing this, we may also study how migration affects firm performance, e.g., sales and exports as well as firm exit, and firm behaviour, e.g., in terms of the hiring and firing of workers. Our study period for Sweden is 2009 to 2015, but we additionally use data on migration stocks from year

78. A firm is considered active if it has paid taxes for employees, value-added or income that year. The main source of information in the FEK is the Swedish Tax Authority.

79. For example, this information can be used to establish whether a firm that occurs is new or merely an old firm with a new company label, e.g., after a merger with another firm.

2001.

Data and Empirical Strategy

Data   Swedish firm-level data have three features that are not present in Amadeus: 1) they include the *universe* of firms; 2) they are geolocated at the level of municipality, which is a much smaller administrative unit than NUTS 2 regions; 3) they report workers' characteristics, e.g. native or African and skilled or unskilled.

We rely on the following outcomes: number of African workers, number of native workers, number of unskilled workers, number of skilled workers, and number of native workers leaving the company.[80] The expectations are that employment of African workers, who are treated as low-skilled by European labor markets, will increase differentially more in low-productivity firms than in high-productivity firms after 2011. In addition, we are able to explore whether migrants lead to a displacement of native workers differentially more in low-productivity firms than in high-productivity firms after 2011. Moreover, the Swedish data allows us to explore income dynamics of African and native workers pre- and post-migration flowAs mentioned, Swedish firm-level data are geolocated at the level of municipality. There are 290 municipalities in Sweden. The data report the two-digit NACE industry categorization in which each firm operates. The time span covers the period between 2009 and 2015.

Empirical strategy   The model specification is similar to the one described in equation 2. The key independent variable is a triple interaction between share of African migrants in each municipality in 2001, *TFPR*, and a dummy, which scores one after 2011. We estimate and dichotomize *TFPR* in the same way as in Amadeus. We include year, municipality, and two-digit industry fixed effects as well as all the controls described above. We also add municipality-specific linear trends to validate the parallel trend assumption. We run OLS regressions with robust standard errors clustered at the level of municipality.

Results

Table E2 digs into other mechanisms at play. In particular, we explore how the flow of migrants affects employment among African and native workers as well as among

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80. Unskilled workers are those without secondary education.

unskilled and skilled workers. Results indicate that in areas with a large share of African migrants 1) employment of African workers increases differentially more in low-productivity firms than in high-productivity firms after 2011 (Model 1); 2) employment of native workers in low-productivity firms does not change after 2011 and, if anything, it increases (Model 2); 3) native workers are *not* more likely to leave low-productivity firms after 2011 (Model 3); and 4) employment of unskilled workers increases differentially more in low-productivity firms than in high-productivity firms after 2011 (Models 4 and 5).

Figures A20 and A21 show the effect for African and unskilled workers' employment graphically. After 2011, in areas with a large share of African migrants, low-productivity firms increase the employment of African and unskilled workers differentially more than low-productivity firms in areas with a small share of migrants. The same is not true for high-productivity firms, for which the marginal effect of the interaction of African Migrant Stock and *Post2011* is not significant.[81]

In addition, Models 6 and 7 show the results for the average income for native and African workers. While we report the figures with the graphical effect of the triple interaction term (see Figures A25 and A26), we summarize the main findings here. First, we find no evidence that the average income of native workers decreases in low-productivity firms located in municipalities with a large share of African migrants after 2011. If anything, the average income of native workers decreases significantly only in high-productivity firms, suggesting that native workers employed in low-productivity firms are better off than their colleagues employed in high-productivity firms. Second, we find that the average income of African workers decreases in low-productivity firms located in municipalities with a large share of African migrants after 2011.

This finding validates the reduction-of-labor-cost mechanism highlighted in the previous analysis. It also shows that insiders, i.e. native low-skilled workers, are relatively sheltered from competition with foreign workers in Sweden due to the presence of trade unions and coordinated wage bargaining. This result echoes the one uncovered by Dal Bó et al (2022). It is also in line with previous studies claiming that low-skilled natives are not in direct competition with migrants, who are hired for jobs that natives do not want to hold anymore (Docquier et al 2014).

In sum, the case of Sweden corroborates the key finding of this paper: Low-

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81. Figures A22 and A23 report the graphical effects of the other outcome variables. None of these effects is significant.

productivity firms benefit from migration flows. The fine-grained analysis allows us to pin down the mechanisms highlighted by our conceptual framework: Cheap African and unskilled workers are employed in low-productivity firms more than in high-productivity firms after the migration flow starting in 2011. Moreover, we find no support for a displacement effect, i.e. African workers being hired in low-productivity firms at the expense of native workers. If anything, migrants have an indirect positive effect on native employment and income through a direct positive effect on firms' profitability.
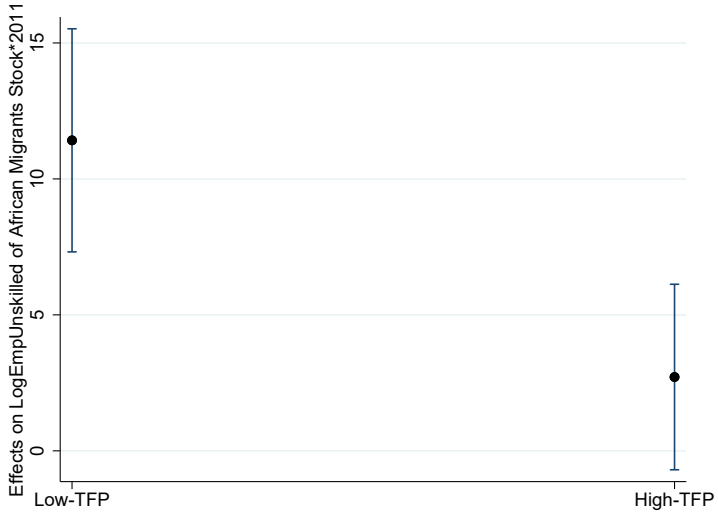
Figures & tables

FIGURE E1. *The effect of migrants on firms' employment of African workers for different levels of productivity*
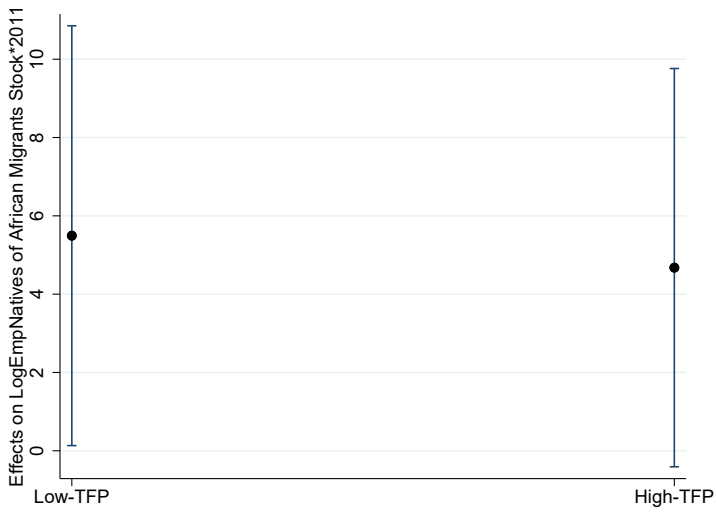

Note: The predictions are plotted from Model 1 in Table 4. "LogEmpAfr" refers to the (log of) number of African workers. 95% C.I.

FIGURE E2. *The effect of migrants on firms' employment of unskilled workers for different levels of productivity*
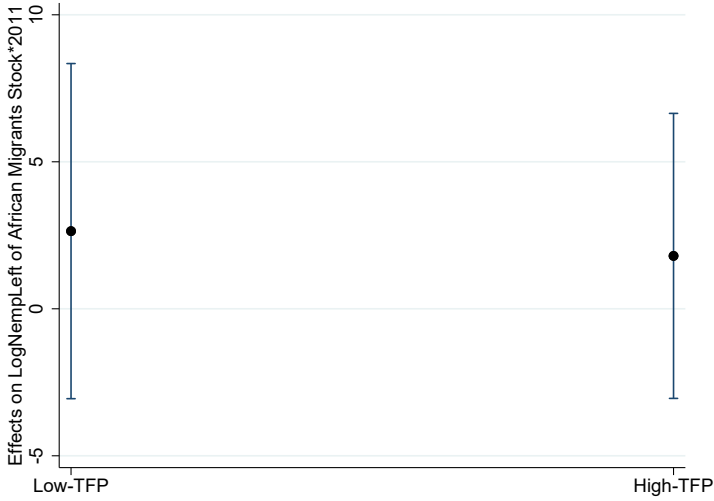

Note: The predictions are plotted from Model 14in Table 4. "LogEmpUnskilled" refers to the (log of) number of unskilled workers. 95% C.I.

FIGURE E3. *The effect of migrants on firms' employment of native workers for different level of productivity*

Note: The predictions are plotted from Model 2 in Table 4. 'LogEmpNatives' refers to the (log of) number of native workers. 95% C.I.

FIGURE E4. *The effect of migrants on native workers leaving firms for different level of productivity*

Note: The predictions are plotted from Model 3 in Table 4. 'LogNempLeft' refers to the (log of) number of native workers leaving firms. 95% C.I.

FIGURE E5. *The effect of migrants on firms' income of native workers for different level of productivity*

Note: The predictions are plotted from Model 6 in Table 4. 95% C.I.

FIGURE E6. *The effect of migrants on firms' income of African workers for different level of productivity*

Note: The predictions are plotted from Model 7 in Table 4. 95% C.I.

TABLE E1. *Mechanisms: African Workers vs. Native Workers and Unskilled vs. Skilled Workers*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
				OLS			
	Number of African workers	Number of employed native workers	Number of native workers leaving the company	Number of employed unskilled workers	Number of employed skilled workers	Average income of native workers	Average income of African workers
TFPR	0.012	-0.124***	-0.393***	-0.064*	0.101**	19.255	-40.156
	(0.02)	(0.03)	(0.05)	(0.03)	(0.05)	(15.03)	(67.31)
African Migrants Stock*Post 2011	11.018***	6.309*	3.484	20.124***	-10.689***	2,201.854**	-9,827.420*
	(1.60)	(3.72)	(5.24)	(3.57)	(3.65)	(1,061.95)	(5,164.72)
TFPR*Post 2011	0.001	0.002	-0.240***	-0.017	-0.228***	14.597**	-55.589
	(0.01)	(0.02)	(0.04)	(0.03)	(0.03)	(7.17)	(64.33)
African Migrants Stock*TFPR	-13.343***	3.384**	11.581***	-3.810*	1.126	8,597.958***	-1,369.179
	(0.99)	(1.43)	(2.69)	(2.03)	(2.16)	(775.32)	(3,275.80)
African Migrants Stock*Post 2011*TFPR	**-5.024***	**-0.816**	**-0.843**	**-8.705***	**4.042***	**-2,519.214***	**5,136.777***
	(1.08)	**(1.03)**	**(2.47)**	**(1.52)**	**(1.67)**	**(684.27)**	**(2,856.04)**
Municipality FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Municipality Trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,355,287	1,355,282	1,355,287	1,355,287	1,355,287	1,277,557	49,971
Number of municipalities	290	290	290	290	290	290	290
R-squared	0.082	0.092	0.114	0.317	0.219	0.166	0.238

Robust standard errors in parentheses *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Note: OLS with bootstrapped standard errors clustered by municipality in parentheses. Unit of observation is firm-municipality-year. Sources: LISA (TP), UH (FEK), FEK, FAD.