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Foreign investors, firm level productivity, and European economic integration

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Abstract: Using a comprehensive sample of listed and unlisted firms from 34 European countries, we study firm-level manufacturing outcomes conditioned on foreign investment, country characteristics, and EU membership. Higher foreign ownership is associated with higher productivity but lower employment, particularly when the host or source country is an EU member and scores high on disclosure and investor protection, and low on corruption. We confirm our interpretation using staggered EU accession dates and industry-level external financial dependence interacted with a financial crisis. The subset of Eastern European countries appears to benefit from foreign investment and EU accession without losing jobs. Nevertheless, manufacturing outcomes associated with survey findings on public sentiment towards globalization and migration confirm the social and political costs of globalization.

Keywords: foreign direct investment, FDI, European Union, productivity, employment
JEL classifications: F15 F21 F61 F63 F65

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“The divide is no longer between the left and right but between patriots and globalists!”

Marine Le Pen, 5th February 2017

1. Introduction

Globalization is the process of goods, services, capital, people, and information moving across national borders and increasing connections between countries, businesses, and individuals. The resulting economic integration promises more efficient use of talent, technology, and resources and the convergence of wages, prices, managerial practices, and technology to the potential benefit of everyone. Over the past half century, many governments encouraged these flows, and ordinary citizens welcomed them as a path to a higher standard of living. Government policies can be a key contributor to this process. The most prominent ongoing effort to further globalization is the European Union (EU).¹ Originating with the European Economic Community created by the Treaty of Rome in 1957, today’s EU has 28 member states accounting for 20 percent of world GDP and 10 percent of world population.

However, the economic and political consequences of globalization are not straightforward. In 2016, much of the voting public in the developed world seethed with populist anger. Consequences include the Brexit vote in the UK, the outcome of the 2016 US presidential election, and the strong second place showing of Marine Le Pen in the French presidential election of 2017. Globalization is blamed for destroying jobs, degrading industries, and touching off deindustrialization in many once-prosperous communities.² There is academic evidence of both costs and benefits to globalization.³

¹ The EU is not the first attempt at integrating Europe’s economies. The German Customs Union (Zollverein) was established in 1834 and survived through Germany’s 1871 unification. The Latin Monetary Union specified a common gold currency for several European states from 1865 to 1927.

² Sauvart (2009) describes recent protectionist approaches to FDI under the guise of national interest especially in strategic sectors.

³ See, for example, Topalova and Khandelwa (2011), Dachs and Peters (2014) and Bloom, Draca, and Van Reenen (2016).

The purpose of our paper is to study the consequences of European economic integration and foreign direct investment (FDI) for European manufacturing firms. FDI, an important vector of globalization, brings not only capital but can enhance access to foreign markets, technology, human capital, and knowledge.⁴ Empirical research shows that foreign owned firms often out-compete less productive domestically owned rivals (Ge, Lai, and Zhu, 2015; Hsieh and Klenow, 2009). With a stock of inward FDI close to six trillion euros,⁵ the EU is a superb venue for studying the consequences of economic integration. There is already some evidence of European economic integration in financial markets.⁶ We look beneath the level of financial markets at the real workings of individual manufacturing firms. We document associations between foreign direct investment, EU economic institutions, and firm-level Total Factor Productivity (TFP), other measures of performance and capital deployment, and, critically for politics, employment. This allows us a deeper look at the consequences of economic integration beyond what financial market prices can show us.

We collect firm-level data on listed and unlisted firms from twenty-eight EU member states and six other countries (Bosnia and Herzegovina, Liechtenstein, Norway, Russia, Switzerland, and Turkey) from the Orbis database of Bureau Van Dijk.⁷ Our final sample spans 2001 to 2014, which includes most recent expansions of the Union, has several tens of thousands of firm-year observations. The sample includes 5497 foreign owned firms with 29,959 observations of the extent of foreign ownership. While a series of treaties and other agreements have clarified the EU's stance towards FDI,⁸ legal, regulatory, and disclosure practices, business cultures, and political views of globalization vary substantially across

⁴ A broadly related literature examines productivity spillovers from international trade. See, for example, Grossman and Helpman (1991) and Arcala and Ciccone (2004).

⁵ http://ec.europa.eu/eurostat/statistics-explained/index.php/Foreign_direct_investment_statistics

⁶ See Hardouvelis, Malliaropulos, and Priestley (2006) and Bekaert, Harvey, Lundblad, and Siegel (2013, 2019).

⁷ <https://www.bvdinfo.com/en-us/our-products/company-information/international-products/orbis>

⁸ These include Council Directive 88/361/EEC 1988), the Maastricht Treaty 1992), and the Lisbon Treaty (2007).

countries and through time. Indeed, the impact of FDI cannot be completely understood without considering the characteristics of the country of origin and the host country (Buckley, Clegg, and Wang, 2007). Therefore, we also condition our findings on country-level characteristics of the FDI source and destination countries. The cross-section of European countries is particularly useful as it varies in size, development, date of entering the EU, legal, regulatory, and disclosure practices, business culture, and politics. We exploit the most recent three expansions of the EU in 2004, 2007 and 2013 and compare firms located in the 13 newest member states to those in countries that have never been EU members. We also test implications of our predictions using the global financial crisis and a proxy for industry-level financial dependence.

A summary of our findings is as follows. On average across our entire sample, foreign ownership of a manufacturing firm in an EU country increases productivity but can cost jobs. Thus, globalization comes with both economic benefits and social costs. The institutional quality of the host country matters. The biggest productivity benefits of foreign investors are observed for firms located in EU members with better institutional quality and welcoming business environment. A particularly positive result is our finding that productivity rises while employment does not decline for FDI in the largely Eastern European countries admitted to the EU in 2004. Robustness tests confirm our interpretation, although potential biases due to the endogeneity of FDI remain. We show that national survey measures of anxiety about migration and unhappiness about globalization rise with increases in productivity. Our results are relevant to debates over globalization in electoral politics and among academic and policy-oriented economists.⁹

⁹ See, for example, Stiglitz (2002) and Rodrik (2011).

The balance of the paper is organized as follows. Section 2 and develops hypotheses to motivate and interpret our tests. Section 3 describes our data and methodology, Section 4 presents our empirical findings, and Section 5 is a summary and conclusion.

2. Testable hypotheses

There are large and persistent productivity differences across firms in the same industry (Syverson, 2011) reflecting differences in competition, technology spillover, international trade, human capital, management practices, IT and R&D, and regulation. Productivity appears sensitive to changes in law (Bertrand and Mullainathan, 2003), operating conditions (Giroud, 2013), and ownership (Lichtenberg and Siegel, 1990); Brav, Jiang, and Kim, 2015). Along these lines, there is widespread confidence among policymakers that FDI enhances productivity because it transfers foreign technology, knowledge, and other advantages in addition to capital.¹⁰ Our purpose is to test this belief.

We begin with a simple null hypothesis: The relationship between firm-level productivity and foreign investors is not associated with the host country's participation in European economic integration. Put another way, EU membership does not affect the performance of local manufacturing businesses. Our general alternative to this null predicts a positive effect for FDI in EU member states:

H1: Firm-level manufacturing productivity is higher for foreign owned companies located in EU member countries relative to those outside the EU.

FDI benefits manufacturing productivity, and increased openness and a higher quality legal and regulatory environment due to host country EU membership enhances those benefits. We examine several firm-level proxies for manufacturing firm productivity.

¹⁰ For example, see Javorcik (2014), Blalock and Gertler (2008), and Javorcik, Iacovone, and Fitriani (2014).

The effect of foreign investment and host EU membership on employment is a key issue in the politics of globalization. An efficient, cost-cutting foreign owner operating in the EU environment can lower the number of employees:

H2: The firm-level number of jobs is smaller for foreign direct investment hosted by an EU member relative to firms located outside the EU.

Alternatively, an efficient firm retains or increases employment to take full advantage of its competitive advantages and environment. We examine the firm-level number of employees to test H2, noting that it reflects the social costs and benefits associated with foreign investment, EU membership, and the institutional setting.

Patterns across the results of tests of these hypotheses can contribute to the political debate about globalization. For example, an “Efficient but Brutal” pattern combines H1 (high productivity) and H2 (reduced employment). Such a finding validates the anti-globalization claim that workers do not share in increased productivity and profitability brought on by foreign investment and EU membership. The happiest outcome, of course, is high values for productivity (H1) and employment (H2 is rejected).

We also offer predictions about the role of country-level institutional quality in both the host country and the foreign investor’s home country. La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998) detail the substantial differences across countries in laws and regulations that protect shareholders and creditors. Many key papers illustrate the significance of these differences.¹¹ More broadly, national or regional differences in law and regulation can affect legal system efficiency (Djankov, LaPorta, Lopez-de-Silanes, and Shleifer, 2003; Rodano, Serrano-Velarde, and Tarantino, 2016), labor conditions (Botero, Djankov, La Porta, Lopez de Silanes, and Shleifer, 2004; Venn, 2009; Borensztein, DeGregorio, and Lee, 1998), capital

¹¹ See, for example, Doidge, Karolyi, and Stulz (2004, 2007), Dyck and Zingales (2004), Bris and Cabolis (2008), Frésard and Salva (2010), Leuz, Lins, and Warnock (2010), Stulz and Williamson (2003), and Desai and Moel (2008).

market development (Alfaro, Chanda, Kalemli-Ozcan, and Sayek, 2004), and, ultimately, manufacturing productivity (Autor, Kerr, and Kugler, 2007; Bassanini, Luca, and Venn, 2009; Damiani, Pompei, and Ricci, 2016). Thus, EU membership can be particularly significant for foreign investment in relatively underdeveloped countries:

H3: Relative to firms located outside the EU, the effects predicted in H1 and H2 are enhanced for FDI in an EU member with a relatively weak local institutional environment for business.

Membership of the EU improves the business environment in a country with weak local institutions. Alternatively, the potential effect of EU membership merely compounds the benefits of higher-quality host country characteristics.¹² Put another way, H3 and its alternative suggest that a country's local institutional characteristics strongly influence how its membership of the EU affects foreign direct investment outcomes.

The characteristics of the home country of a foreign direct investor can also be significant:

H4: The effects predicted by H1 and H2 increase with the quality of the foreign investor's home country institutions relative to those from outside the EU.

Hymer (1970) offers a logical basis for this hypothesis. From Page 74: "This hypothesis, that the firms which have advantages are more likely to be from advanced countries, is consistent with the observed fact that the major exporters of direct investment are and have been the well-developed countries of Europe and, of course, the United States." Increased firm-level productivity resulting from foreign investment can be heightened if the foreign investor originates from a more developed country.

However, while a developed-country investor can enhance manufacturing performance in a host country with weak institutions, the gains can be feeble or even negative if that investor cannot adapt to a less-developed environment. Uncertainty about the workings of international

¹² National and regional differences can persist across EU members in corporate board regulation (Davies and Hopt, 2013), corporate law (Cumming, Groh, and Sofia, 2017), and competition (Cseres, 2010).

agreements to protect investors (Desai and Moel, 2008) can vary across countries and through time, even in countries that have agreed to adhere to the rules of the European Union. There is evidence that legal and regulatory practices that affect business are far from fully converged across EU member states. Thus, we can imagine complex alternatives to H4.¹³

3. Data and methodology

3.1 Data

Our primary data source is Orbis. Our sample starts with firms from all twenty-eight EU member states and six European countries outside the Union from 2001 to 2014¹⁴ and does not have survivorship bias. Because Orbis does not present ownership data in machine-readable format, we perform the following steps manually to record foreign ownership variables for every year a firm has non-missing data. We record the identity, country of origin, type, industry code, and direct ownership percentages held by each recorded shareholder. We identify a shareholder as foreign if the shareholder has a different country code than the firm's country code. We exclude firm-year observations with domestic ownership, foreign ownership, or their sum greater than 100%. Orbis retains a reported ownership percentage until new updated information arrives.

We compute foreign ownership percentages by different types of foreign owners. Orbis identifies owners as a bank, other financial institution, insurance, industrial company, mutual or pension fund, foundation or research institute, public authority, state or other government, known individuals or families, employees, managers, or directors, private equity firms, venture

¹³ We do not examine Euro area membership in any of our tests. Switching to the euro can impose an undervalued or overvalued currency and lead to changes in firm-level productivity. Membership of the euro can benefit the productivity of a country's manufacturers by eliminating exchange rate transaction costs (McCallum, 1995; Rose, 2016) and spurring international trade. Higher variability of output and employment can result (Mundell, 1961; Flood and Hodrick, 1986; Griffin, Redding, and van Reenen, 2004; European Commission, 2013). However, it is not clear how these forces can affect local owned versus foreign-owned manufacturing firms differently.

¹⁴ We thank Bureau van Dyck for supplying additional data beyond ten years.

capital firms, and hedge funds.¹⁵ *Foreign Ownership (FO%)* is the sum of ownership percentages across all foreign shareholders for a given firm and year. A dummy variable equals one for firm-years with any foreign ownership and zero otherwise (*FO Dummy*).

We collect annual accounting data expressed in thousands of euros in a similar manner. Accounting and ownership data are merged by company code, name, and year.¹⁶ We include all manufacturing firms (that is, two-digit NACE Revision 2 codes¹⁷ from 10 to 33) with total assets greater than 10 million euros. Our final data set ranges from 34,749 firm-year observations for *TFP* to 70,410 for *Number of Employees*, of which approximately 25% have non-zero foreign ownership. Note that one year of data is needed to compute *TFP* so that all test results effectively span 2002 to 2014. Furthermore, we exclude two EU countries (Luxembourg and Malta) and two non-EU countries (Liechtenstein and Turkey) from *TFP* estimations because there was insufficient data to compute *TFP* for their firms.

3.2 Basic regression specification for manufacturing outcomes

We adopt the log-linear Cobb-Douglas production function of Brav, Jiang, and Kim (2015)¹⁸ and estimate it with OLS regressions as follows by:

¹⁵ We follow Kalemli-Ozcan, Sorensen, Villegas-Sanchez, Volosovych, and Yesiltas (2015) in processing Orbis ownership data. For ownership percentage presented with a character such as <., >, or $\pm$, we use the percentage noted after the symbol. We transate text codes using Orbis definitions as follows. WO is “wholly owned”, defined as $\geq 98\%$, and coded as 98%. MO is “majority owned”, defined as $\geq 50.01\%$, and coded as 50.01%. JO is “joint owned”, defined as $= 50\%$, and coded as 50%. NG is “negligible”, defined as $\leq 0.01\%$, and coded as 0.01%. BR is “branch” and is excluded as no percentage is indicated. When ownership is indicated as “-” or “n.a”, we assume it is missing. Owners described as “public” are not identified as either foreign or domestic because Orbis does not characterize the shareholder base for the publicly traded portion of firms.

¹⁶ We cross-check the company codes with the names of the companies as Orbis may change codes but company names are unchanged.

¹⁷ See <https://siccode.com/page/what-is-a-nace-code>.

¹⁸ Papers such as Olley and Pakes (1996), Levinsohn and Petrin (2003), and Topalova and Khandelwa (2011) focus on the simultaneity problem which can arise because productivity is related to the firm’s choice of labor and capital input to the production process. The finance literature tends to adopt simpler econometric specifications

$$\ln(Y_{ijt}) = \alpha_{jt} + \beta_{jt}^K \ln(K_{ijt}) + \beta_{jt}^L \ln(L_{ijt}) + \beta_{jt}^M \ln(M_{ijt}) + \varepsilon_{ijt} \quad (1)$$

In (1), the subscripts i , j , and t denote individual firm, two-digit NACE industry, and year respectively. Thus, α_{jt} is the average total factor productivity for the industry and time period, β_{jt}^K is the industry average elasticity of output with respect to capital, β_{jt}^L is the industry average elasticity of output with respect to labor, and β_{jt}^M is the industry average elasticity of output with respect to material costs. The residual, ε_{ijt} , estimates the *TFP* of the i th firm relative to the other firms in its industry at time t . Y_{ijt} is operating revenue, measured as the t sum of net sales, other operating revenues, and changes in inventory for firm i in industry j at time t . K_{ijt} is the sum of tangible and intangible fixed assets minus depreciation and amortization, L_{ijt} is the cost of employees and M_{ijt} is the cost of materials. All measures are adjusted for inflation using the wholesale price index of each country. We require that all variable observations needed for calculating *TFP* are non-missing and estimate a separate cross-sectional regression for each industry-year, a total of 983. Following Maksimovic and Philips (2013) and Brav, Jiang, and Kim (2015), the residuals are first winsorized at one percent and ninety-nine percent, then standardized by dividing it by its cross-sectional standard deviation for a given industry-year. For robustness, we also include estimates using the unstandardized raw *TFP* in our main or appendix tables. We also produce but do not report alternative estimates using the Levinsohn and Petrin (2003) methodology.

Our basic regression specification for *TFP* is:

(for example, Schoar, 2002) to produce firm-specific estimates of *TFP* in excess of industry average *TFP* as in equation (1) above. See Giroud (2013) for a discussion of the two approaches and results that are robust to different methods of computing *TFP*. We follow Brav, Jiang, and Kim (2015) and also check for robustness using the method of Levinsohn and Petrin (2003) for our key results.

$$\begin{aligned}
& \text{Total Factor Productivity}_{i,j,t} \\
&= \beta_1 \text{Foreign Ownership}_{i,j,t} + \beta_2 EU_{ct} \\
&+ \beta_3 \text{Foreign Ownership}_{i,j,t} \times EU_{ct} + \lambda \text{Controls}_{i,j,t} \\
&+ \gamma \text{Characteristics}_{c,t} + \alpha_c + \alpha_{jt} + \varepsilon_{it}
\end{aligned} \tag{2}$$

where the subscripts i , j , and t denote individual firm, industry, and time period respectively. *TFP* is Total Factor Productivity defined as above. The main independent variables in Equation (2) are *Foreign Ownership* as described above, *EU* (a dummy variable equal to one if the location country is a member of the EU and zero otherwise), and their interactions. *Controls* is a vector of firm-level control variables including *Debt/Assets* (total debt scaled by total assets), *Firm Age* (years since establishment), and a dummy variable, *Listed*, indicating whether the firm's equity is listed on a stock exchange.¹⁹ *Characteristics* is a vector of other factors such as country-level institutional quality variables and related interaction terms. Examples include the World Bank's extent of disclosure and investor protection indices and Transparency International's Corruption Perception index, which we will refer to as the *Anti-Corruption Index* for ease of interpretation.²⁰ All estimations include country and industry $\times$ year fixed effects (α_c and α_{jt}) to alleviate potential bias as our *TFP* variables are also industry-year level residuals. We use specifications similar to Equation (2) to explain other individual firm outcomes that we compute as follows. *Labor Productivity* equals the natural logarithm of net income per employee. *Number of Employees* equals the natural logarithm of number of employees. *Capital to Labor Ratio* equals the natural logarithm of the ratio of capital stock to number of employees. As we detail below, some tests also include interactive terms that combine *Foreign Ownership*, *EU*, and *Characteristics*.

3.3 Outline of robustness tests

¹⁹ We note both listing and delisting dates in computing this variable.

²⁰ Sources are databank.worldbank.org/data/reports.aspx?source=Doing-Business and www.transparency.org/country. This index is higher for a country that is relatively *less* corrupt.

We look for additional evidence of the effects predicted by our hypotheses with tests centered on events which can heighten or dampen the effects described by our hypotheses.

3.3.1 The global credit crisis and external financial dependence

The years 2008 and 2009 saw the global credit crisis, along with the related Euro crisis. These events affected all firms but particularly those in industries with a need to raise external capital.²¹ We predict that the loss in productivity and jobs in industries that are heavily dependent on external finance (Rajan and Zingales, 1998) is lower for foreign-owned firms located in EU countries. We adopt the methodology of Rajan and Zingales (1998) to measure external financial dependence and use data that matches our sample period borrowed from Bae, Bailey, and Kang (2021). The empirical specification for TFP is as follows:

$$\begin{aligned}
& \text{Total Factor Productivity}_{i,j,t} \\
&= \beta_1 \text{Foreign Ownership}_{i,j,t} + \beta_2 EU_{ct} + \lambda \text{Controls}_{i,j,t} \\
&+ \gamma \text{Characteristics}_{ct} + \beta_3 \text{External Financial Dependence}_j \\
&+ \beta_4 \text{External Financial Dependence}_j \\
&\times \text{Foreign Ownership}_{i,j,t} + \beta_5 \text{External Financial Dependence}_j \times EU_{ct} \\
&+ \beta_6 \text{External Financial Dependence}_j \times \text{Foreign Ownership}_{i,j,t} \times EU_{ct} \\
&+ \alpha_c + \alpha_{jt} + \varepsilon_{it}
\end{aligned} \tag{3}$$

The variable *External Financial Dependence_j* is the continuous measure developed by Rajan and Zingales (1998). We compute industry-level external financial dependence using US data because the US capital markets are highly developed, frictionless, and the external finance dependence of US firms is a good proxy for comparable industries elsewhere. For each US firm on the Compustat database, we compute:

²¹ See Bose, Mallick, and Tsoukas (2020) and Jacob (2021) for related evidence.

*External Financial Dependence*_{it} =

$$\frac{\sum_{t=2001}^{2014} \text{Capital expenditures}_{it} - \sum_{t=2001}^{2014} \text{Cash flow from operations}_{it}}{\sum_{t=2001}^{2014} \text{Capital expenditures}_{it}} \quad (4)$$

where i and t indicate firm and year, respectively. The summation reduces the impact of annual fluctuations. External Financial Dependence_j is the median of the firm-year measure computed in (4) across all firms in the j th industry according to the 4-digit US SIC. Using the median reduces the effect of outliers within an industry.

3.3.2 Country subsets for recent EU accessions

Our basic regressions use data that begins with calendar 2001. Thus, our sample consists largely of larger or more developed countries that were EU members during our entire sample period. To heighten the variability in EU membership across our sample, we also estimate regressions based on smaller numbers of countries and years that are more strongly focused on the impact of EU accession. First, we compare firms from countries that joined the EU in 2004 (Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia) to those from countries that joined later (Bulgaria and Romania in 2007 and Croatia in 2013) over the years from 2001 to 2006. Second, we compare firms from all countries that joined in 2004, 2007, and 2013 to those from all countries that never joined the EU over our full 2001 to 2014 sample period. These specifications test whether the impact of EU membership and FDI are merely driven by trends in the manufacturing outcomes of firms that were in the EU group throughout our sample period.

3.4 Public sentiment and manufacturing outcomes

In addition to the basic results and robustness tests described above, we look for evidence that manufacturing globalization has broader political consequences. Specifically, we relate several measures of anxiety about migration and globalization separately to each country-average productivity and employment outcomes:

$$PublicSentimentMeasure_{k,c,t} = \alpha + \beta_{k,m,c,t} ManufacturingOutcome_{m,c,t} + \varepsilon_{k,m,c,t} \quad (5)$$

The subscripts k , m , c , and t denote the k^{th} public sentiment measure, the m^{th} country average book value weighted manufacturing outcome, the country, and the time period. All regressions are estimated with both regular and country-clustered standard errors. Limitations to the power of these regressions given the number of countries and frequency of the sentiment measures are detailed below.

4. Empirical results

4.1 Overview of the data

Summary statistics on firm performance, employment, the number of foreign-controlled firms, and the extent of foreign ownership of those firms by country are presented in Appendix 2 Table 1. There is great variability across countries. Note that *TFP* is measured as a residual with zero mean and unit standard deviation. Thus, a negative (positive) *TFP* means the country's manufacturers are typically less (more) productive than industry peers. We also present results on raw unstandardized *TFP* for robustness. Standardizing raw *TFP* by dividing it by the standard deviation can yield noisier estimates of average *TFP* for countries with a small number of industries and firms.²²

Panel A of Table 1 focuses on *TFP* aggregated into EU and non-EU and foreign-owned versus domestically-owned groups. *TFP* is computed as a regression residual. Therefore, across the full sample of 34,749 firm-years, the average *TFP* is zero, its standard deviation is 0.99, and it ranges from -7.70 to 7.64. For the subsample of 31,807 firm-years for which the host country is an EU member, the summary statistics for *TFP* are very similar. Differences emerge,

²² It is difficult to benchmark our firm-level *TFP* estimates. We use firm-years screened as described in Section 3.1 and the regression specification (2) that pools countries and controls for our specific NACE industry classifications. The results cannot be compared to those from country aggregate data (see, for example, Feenstra, Inklaar, and Timmer (2015) and <https://www.rug.nl/ggdc/productivity/pwt/pwt-releases/pwt100>), different exclusion criteria, or different industrial categories. For example, the number of firm-years from Lithuania is small and reflects government policies that emphasize innovation and productivity (https://www.oecd.org/lithuania/RIT_HIA_Lithuania.pdf). We thank the referee for raising this issue.

however, when we split this subsample into firms owned within the host country versus firms whose owners are outside the host country. Amongst these firms, average *TFP* is 0.12 for foreign owners (7,422 firm-years) and -0.03 for domestic owners (24,365 firm-years). This contrasts with what is found for the non-EU hosted sample of 2942 firm-years. The average *TFP* for foreign owned firms (576 firm-years), -0.06, is lower than that for domestic owned firms (2,366 firm-years), -0.05. These statistics suggest that the combination of host country in or out of the EU and owner in or out of the host country is significant to the firm's efficiency. The difference-in-differences is positive and statistically significant, indicating that the gap between foreign owned and locally owned firms is largest in EU member countries. This is consistent with H1.

Panel B of Table 1 offers an example of the investment and productivity effects we seek to detect. Industry-specific EU anti-dumping and anti-subsidy penalties against Chinese producers of steel and related products are relevant for EU firms in these industries.²³ We have competing predictions about the impact of these events. They can increase productivity if they shield European steel producers from destructive actions by Chinese steel producers. They can decrease productivity if they reduce competitive pressure on European steel producers. Across our sample of 1,538 firm-years for manufacturers in EU member states that are classified as “steel industry”,²⁴ there are 789 firm-years observed with actions against Chinese steel producers in force and 749 firm-years observed at other times. Comparing the productivity of foreign versus locally owned steel-related firms, the average *TFP* for foreign-owned EU hosted steel related firms increases from 0.02 without protection against Chinese steel producers to 0.21 under protection. This is larger than what is observed for their locally owned

²³ See detailed records of such events at <https://trade.ec.europa.eu/doclib/html/113191.htm>.

²⁴ For each such regulatory action and each relevant NACE industry code (2410, 2420, 2432, 2434, 2441, 2442, 2443, 2444, 2445, 2452, 2593, 2594, or 2732, depending on the terms of the regulatory action), we set a dummy variable equal to one for years starting with the action initiation and ending with the action termination or expiry. To compute the *TFP* summary statistics, we then sort firm-years into treated and control groups.

counterparts, which see a decline in *TFP* from -0.01 without protection to -0.07 under protection. Thus, it appears that the competitiveness of foreign-owned firms is not weakened by protection, unlike local-owned firms. The difference-in-differences is positive and statistically significant, indicating that the advantage of EU protection is larger for foreign owned steel firms.

4.2 Baseline regression estimates

Table 2 presents estimates of our baseline regression. It documents how four manufacturing firm outcomes (*TFP*, *Labor Productivity*, *Number of Employees*, *Capital to Labor Ratio*) are associated with foreign ownership and location in an EU member state.

The key slope coefficient estimates in the table are those for $EU \times ForOwner$ because they test H1 for productivity measures and H2 for employment. The slope coefficients are strongly significantly positive for both versions of *TFP* in columns (1) through (4), insignificant for *Labor Productivity* in columns (5) and (6), strongly significantly negative for *Number of Employees* in columns (7) and (8), and insignificant for *Capital to Labor Ratio*. The significance of foreign ownership is invariant to whether it is measured by intensity (percent foreign ownership) or extent (whether or not there is any foreign ownership).

In Specification (1) for *TFP*, foreign ownership is measured as a percentage. The estimated slope on the interactive is 0.242. Given that the average fraction of foreign ownership is about 40% (Table 1) the typical effect is 0.242 times 0.4, that is, *TFP* is almost 10% higher. In Specification (2) for *TFP*, foreign ownership is indicated by a dummy variable. The estimated slope on $EU \times ForOwner$, is 0.174. By construction, the standard deviation of *TFP* is 1 so the coefficient tells us that *TFP* averages 17.4% higher for a firm with foreign ownership hosted in an EU member. Therefore, it seems that foreign ownership and EU membership are significant for *TFP*.

We can also sketch a few magnitudes and comparative statics for *Number of Employees*. In Specification (8), the slope coefficient on the interactive is -0.164. The standard deviation

of *Number of Employees* is about 9,500, and the natural log of this number is almost 4. Therefore, $(-0.164/4)$ implies that foreign ownership plus location in an EU member state implies a slightly smaller number of employees. In Specification (7), the slope coefficient on the interactive is -0.347. The average *Number of Employees* is about 1600 per firm. Multiply this by -0.347 and we see that a typical foreign owned firm in an EU member state has approximately 500 fewer employees. Thus, for firm-years with both foreign ownership and location in an EU member state, *TFP* is strongly significantly higher while the number of jobs is strongly significantly lower. This evidence is consistent with H1 and H2. The combination of foreign ownership and location in the EU produces a trade-off, that is, a more efficient firm but fewer jobs.

4.3 Incorporating characteristics of the host and owner home countries

Next, we look for evidence that the institutional quality of the host country and the foreign owner's home country affect associations between manufacturing outcomes, FDI, and EU location. Specifically, we augment the specifications of Table 3 by conditioning on country characteristics.

Panel A of Table 3 presents results of regressions of *TFP* on controls, host EU dummy, ownership indicators, host country characteristics, and interactives. All specifications use Industry $\times$ Year fixed effects. Columns (1) through (3) present results for percent foreign ownership while columns (4) through (6) present results for the foreign owner dummy variable. The key slope coefficient estimates are those for $EU \times ForOwner \times BusEnv$. They test H3, that is, changes in productivity and employment associated with foreign ownership and EU membership are largest for countries with better business environment. In five of the six specifications, the slope on $EU \times ForOwner \times BusEnv$ is significantly positive. Put another way, *TFP* is higher for a manufacturing firm with foreign ownership and location in an EU member state with a relatively good business environment. This supports H3: the productivity

benefits of foreign ownership and EU membership are weaker for EU members with lower quality business environments.

We can be more specific about the scale and relative importance of host country characteristics as follows. *Disclosure* and *Investor Protection* both range from 0 to 10, but consider the estimated slope, 0.204, on $EU \times ForOwner \times BusEnv$ in Specification (5) when *Investor Protection* is the host country characteristic and *Foreign Ownership* is measured with the simple dummy variable. That slope is over three times larger than that on *Disclosure*, indicating that, when combined with EU membership, host country *Investor Protection* contributes more than *Disclosure*. Furthermore, *Anti Corruption* runs from 0 to 100. If equal in impact to *Investor Protection*, the estimated slope on $EU \times ForOwner \times BusEnv$ in Specification (6) should be roughly one-tenth the size of the estimated slope in Specification (5). However, it is five times larger than this prediction, suggesting that *Anti Corruption* is more important than *Investor Protection*.

Panel B repeats the specifications of Panel A using our second dimension of manufacturing productivity as the dependent variable. *Labor Productivity* is measured with the natural logarithm of net income in thousands of euros divided by the number of employees. Although this is not computed in the same manner as *TFP* and, thus, cannot be thought of as a decomposition of *TFP*, it can offer clues about the components of *TFP*. Once again, the most important slope coefficient estimates are those for $EU \times ForOwner \times BusEnv$ because they test H3. The findings are similar to what is reported for *TFP* in Panel A. In five of the six specifications, the slope on $EU \times ForOwner \times BusEnv$ is significantly positive. As with the previous table, these findings support H3. The labor productivity benefits of foreign ownership and EU membership are stronger for firms located in EU member countries with a relatively high quality business environment.

Next, we look for evidence of the social costs associated with the apparent gains in productivity documented in previous tables when *TFP* or *Labor Productivity* serve as the

dependent variable. Job creation or destruction drive much of the political controversy surrounding globalization. Therefore, we use the natural log of the firm's number of employees as the dependent variable in specifications following those used for *TFP* and *Labor Productivity* in panels A and B. Panel C reports the results. As in the previous two panels, the key slope coefficient estimates are those for $EU \times ForOwner \times BusEnv$. These slope estimates are uniformly significantly negative across all six specifications in Panel C. This means that there are fewer jobs at a foreign owned manufacturing firm located in an EU state with a high quality business environment. This supports H3.

In Panel D, *Capital to Labor Ratio* is significantly negatively associated with the triple interaction of *EU*, percent *Foreign Ownership*, and either *Disclosure* quality or *Investor Protection*. This suggests that more capital per worker is attracted when a host country is an EU member, the investor is foreign, and the host country's disclosure quality and investor protection are relatively weak. This suggests that EU membership and FDI can benefit a less developed country. However, this interpretation is not definitive as the slope coefficient on $EU \times ForOwner \times BusEnv$ is positive or insignificant for dummy variable foreign ownership or business environment measured with *Anti Corruption*.

Next, we seek evidence of H4, that is, the idea that the home country characteristics of the owner are associated with firm-level manufacturing outcomes. H4 predicts that foreign owners from an advanced country heighten the effects predicted by H1 for productivity and H2 for employment. We measure associations between our manufacturing firm outcomes and the characteristics of the home country of the foreign owner, rather than the characteristics of the host country as examined in the three previous tables.

Table 4 presents the results. Again, the key slope coefficient estimates are those for $EU \times ForOwner \times BusEnv$. In this table, *Business Environment* is one of our three country level characteristics but, unlike Table 3, they are measured for the home country of the firm's foreign owner. There are several significant slope coefficients among the estimates for the triple

interactive terms. In specifications (1) and (2), positive slopes indicate that location in an EU member and foreign ownership from a home country that scores high on disclosure quality or investor protection is associated with higher *TFP*. This is consistent with H4. Put another way, productivity can be enhanced by a foreign owner from a high quality environment who invests in a firm in another EU country. Positive slopes in specifications (4) and (5) indicate a similar effect for labor productivity, thereby providing further support for H4. In specification (9), there is a significantly positive slope coefficient on the triple interactive with *Anti Corruption*, indicating that a foreign owner from a low corruption EU country can enhance employment. Thus, there is no evidence that a foreign investor from a high quality environment reduces employment.

4.4 Results of robustness tests

4.4.1 Evidence on the global credit crisis and external financial dependence

Next, we attempt to validate our interpretation of the baseline results by exploiting an important shock, the global credit crisis of 2008 and 2009. During this crisis, *TFP* and labor productivity increased concurrently with unemployment (Petrosky-Nadeau, 2013). However, financially vulnerable firms reduced employment further (Giroud and Mueller, 2017; Huber, 2018) and experienced a decline in *TFP* growth in the aftermath of the crisis (Duval, Hong and Timmer, 2020). Foreign ownership and location in an EU member state can alter these tendencies. Foreign-owned firms with better access to finance and enjoying the higher institutional quality environment of the EU can overcome the challenges of a credit crunch and increase productivity. Accordingly, we re-examine our main findings while controlling for external dependency and credit crisis.

Table 5 presents estimates of Equation (3) to examine associations between firm outcomes, external financial dependence, and foreign ownership when the firm is located in an EU member state. The key explanatory variable is the triple interactive $EU \times Dependence \times ForOwner$. We predict that location in an EU member state and foreign ownership allows a

firm to overcome its dependence on external finance more readily so that the slope coefficient on these terms should be larger, accentuating our basic findings. Columns (1) through (4) are based on all firm years. The slope coefficient on the triple interactive is significantly positive for *Total Factor Productivity*, *Labor Productivity*, and *Capital to Labor Ratio*, and significantly negative for *Number of Employees*. As predicted, the pressure of external financing needs magnifies the increased productivity and decreased employment reported for our basic specifications earlier. In Column (6) the positive coefficient on the triple interactive for *Labor Productivity* shows that the impact of EU host and foreign owner is particularly strong during the crisis for the externally dependent firm.

4.4.2 Evidence on country subsets for recent EU accessions

Table 6 re-estimates the baseline regressions of Table 2 over subsets of countries and years for greater emphasis on firms from countries that entered the EU during our sample period. In contrast, our Table 2 results include firms from many countries that were EU members during our entire sample period. Panel A covers the years 2001 to 2006 and compares firms from countries that joined the EU in 2004 to firms from countries that were not yet EU members during those six years. Estimated slopes on the interactive $EU\ Join \times ForOwner$ are strongly significantly positive for *TFP* and *Capital to Labor Ratio* and are insignificant for *Labor Productivity* and *Number of Employees*. This suggests that these firms are run more efficiently and receive more capital without any increased pressure on workers and their job security. This is consistent with an unambiguously positive outcome, that is, higher productivity (H1) with no reduction of employment (H2 is rejected). In contrast, Table 2 shows that EU host plus FDI is associated with higher productivity but fewer jobs, that is, the “Efficient but Brutal” outcome we described earlier in the paper. Note that, except for Cyprus and Malta, all the countries admitted to the EU in 2004 were less developed formerly communist states in Eastern Europe. Their firms are compared to those of near peers (Bulgaria, Romania, and Croatia) prior to

joining the EU. Thus, our evidence suggests that this group of less developed but rapidly evolving countries benefited greatly from EU accession in 2004.

Panel B of Table 6 covers the entire 2001 to 2014 sample and compares firms from countries that joined the EU in 2004, 2007, and 2013 to firms from countries that never joined the EU. This set of countries adds Bulgaria (2007), Romania (2007), and Croatia (2013) to the 2004 set of countries. Their firms are then compared to firms from countries that never joined the EU (Bosnia and Herzegovina, Liechtenstein, Norway, Russia, Switzerland, and Turkey) rather than countries which joined the EU after 2006 (that is, Bulgaria, Romania, and Croatia). The Panel B findings look more like those for the Table 2 baseline regressions: productivity and capital per worker rise but employment declines.

4.5. Manufacturing outcomes and public sentiment

The quote from Marine Le Pen at the beginning of this paper suggests the importance of globalization, foreign investment, and voter satisfaction for politics. We conclude our work with some simple impressionistic evidence on links between our manufacturing outcomes and several measures of public sentiment. We collect several political measures including two measures of anxiety about uncertain migration policies and migration itself expressed in news stories, two surveys of satisfaction with home country or the EU, and one measure of populist or extremist voting in national legislative elections. We interpret these variables as reflecting anxiety and unhappiness about globalization.

Table 7 presents variable definitions and summarizes estimates of Equation (5) using our productivity and foreign investment measures. The table entries indicate the sign of the association and its statistical significance under two sets of standard errors. The significance of the findings is limited by the small number of available observations. In two of four specifications to explain news and survey measures, the slopes for *TFP* are significantly negative. More efficient firms are associated with decreased anxiety and unhappiness about globalization. In contrast, specifications for Migration Policy Uncertainty, Migration Fear, and

Unfavorable opinions about the EU Labor Productivity are significantly positive. More efficient management of workers is associated with increased anxiety and unhappiness about globalization. Similarly, slopes on Foreign Ownership are significantly positive in explaining Migration Policy Uncertainty, Migration Fear, Unfavorable opinions about the EU, and Populist Vote. Thus, higher foreign ownership is associated with increased anxiety and unhappiness about globalization. This highlights the contrast and tension between the benefits and social costs of foreign direct investment and economic integration.

5. Summary and conclusions

As the world's largest recipient of FDI flows, the European Union offers a unique setting for studying globalization, its consequences for manufacturing productivity, and the potential for populist political pushback. We find that several dimensions of manufacturing performance are associated with location in the EU and foreign ownership. Our conclusions stand up to a variety of robustness tests and controls. Furthermore, our subsample tests suggest that the largely Eastern European less developed countries admitted to the EU in 2004 enjoyed higher manufacturing productivity without any loss of employment.

Thus, economic integration and foreign investment appear to contribute to manufacturing efficiency. However, there are often substantial costs associated with these benefits. Firm-level employment declines in our baseline full sample results. Furthermore, political costs are evident in survey evidence and in voting. There is some validity to the complaints about globalization voiced by some populist European politicians. Our results contribute to the globalization debate and shed light on the links between productivity gains and job losses. As Europe struggles with increasing income inequality, economic insecurity, labor unrest, and political tension, further work is needed on employment issues and on the distribution of the benefits of globalization.

References

- Aghion, Philippe, Bacchetta, Philippe, Rancière, Romain, and Rogoff, Kenneth, 2009, Exchange rate volatility and productivity growth: The role of financial development, *Journal of Monetary Economics* 56, 494 – 513.
- Alcala, Francisco, and Ciccone, Antonio, 2004, Trade and Productivity, *The Quarterly Journal of Economics* 119, 613 - 646.
- Alfaro, Lauro, Chanda, Areendam, Kalemli-Ozcan Sebnem, and Sayek, Selin, 2010, Does foreign direct investment promote growth? Exploring the role of financial markets on linkages, *Journal of Development Economics* 91, 242 - 256.
- Autor, D., Kerr, William, and Kugler, Adriana D., 2007, Does Employment Protection Reduce Productivity? Evidence from the US, *The Economic Journal* 117, 189 - 217.
- Bae, Kee-Hong Bae, Bailey, Warren, and Kang, Jisok, 2021, Why is stock market concentration bad for the economy?, *Journal of Financial Economics* 140, 436-459.
- Bassanini Andrea, Luca, Nunziata, and Venn, Danielle, 2009, Job Protection Legislation and Productivity Growth in OECD Countries, *Economic Policy* 24, 349 - 402.
- Baxter, Marianne, and Stockman, Alan C., 1989, Business Cycles and the Exchange-Rate Regime, *Journal of Monetary Economics* 23, 377 - 400.
- Bekaert, Geert, Harvey, Campbell R., Lundblad, Christian T., and Siegel, Stephan, 2013, The European Union, the Euro, and equity market integration, *Journal of Financial Economics* 109, 583 - 603.
- Bekaert, Geert, Harvey, Campbell R., Lundblad, Christian T., and Siegel, Stephan, 2019, Economic and Financial Integration in Europe, in Haliassos, M., Allen, F., Langenbucher, K., and Faia, E., eds., “Capital Markets Union and Beyond,” Cambridge MA: MIT Press, 69-83.
- Bena, Jan and Ferreira, Miguel A. and Matos, Pedro P. and Pires, Pedro, 2016, Are Foreign Investors Locusts? The Long-Term Effects of Foreign Institutional Ownership, Darden Business School

Working Paper No. 2640045. Available at SSRN: <https://ssrn.com/abstract=2640045>.

- Blalock, G., and P. J. Gertler. 2008, Welfare Gains from Foreign Direct Investment through Technology Transfer to Local Suppliers, *Journal of International Economics* 74, 402 - 421.
- Bloom, Nicholas, Brynjolfsson, Erik, Foster, Lucia, Jarmin, Ron S., Saporta Eksten, Itay, and Van Reenen, John, 2013, *Management in America*, US Census Bureau Center for Economic Studies Paper No. CES-WP-13-01.
- Bloom, Nicholas, Draca, Mirko, and Van Reenan, John, 2016, Trade Induced Technical Change? The Impact of Chinese Imports on Innovation, IT and Productivity, *The Review of Economic Studies* 83, 87 - 117.
- Bodnar, Gordon M., and Gentry, William M., 1993, Exchange rate exposure and industry characteristics: Evidence from Canada, Japan, and the U.S., *Journal of International Money and Finance* 12, 29 – 45.
- Borensztein, E, De Gregorio, J. and Lee, J. W., 1998, How does foreign direct investment affect economic growth, *Journal of International Economics* 45, 115 – 135.
- Bose, Udichibarna, Mallick, Sushanta, and Tsoukas, Serafeim, 2020, Does easing access to foreign financing matter for firm performance?, *Journal of Corporate Finance* 64, 101639.
- Botero, J.C., Djankov, S., La Porta, R., Lopez –de-Silanes, F., and Shleifer, A., 2004. The Regulation of Labor, *Quarterly Journal of Economics* 119, 1339 - 1382.
- Brav, Alon, Jiang, Wei, and Kim, Hyunseob, 2015, The Real Effects of Hedge Fund Activism: Productivity, Asset Allocation, and Labor Outcomes, *Review of Financial Studies* 28, 2723 – 2769.
- Bris, Arturo, and Cabolis, Christos, 2008, The Value of Investor Protection: Firm Evidence from Cross-Border Mergers, *Review of Financial Studies* 21, 605 - 648.
- Bruhn, M. and Love, I., 2014, The Real Impact of Improved Access to Finance: Evidence from Mexico, *Journal of Finance* 69, 1347-1376.

- Buckley, Peter, Jeremy Clegg and Wang Chengqi, 2007, Is the relationship between inward FDI and spillover effects? An Empirical Investigation of the Case of China. *Journal of International Business Studies*, 38, 447-459.
- Butzbach, O, Fuller, DB, Schnyder, G., 2020, Manufacturing discontent: National institutions, multinational firm strategies, and anti-globalization backlash in advanced economies, *Global Strategy Journal* 10: 67– 93. <https://doi.org/10.1002/gsj.1369>
- Caves, R.E., 1974, Multinational firms, competition and productivity in host country markets, *Economica* 41, 176 - 193.
- Cobb, C. W., and Douglas, P. H., 1928, A Theory of Production, *American Economic Review* 18 (Supplement), 139 – 165.
- Cseres, K., 2010, Comparing laws in the enforcement of EU and national competition laws, *European Journal of Legal Studies* 3, 7 - 44.
- Cumming, Douglas J., Groh, Alexander Peter, and Johan, Sofia, 2017, Same Rules, Different Enforcement: Market Abuse in Europe, *Journal of International Financial Markets, Institutions and Money*, forthcoming. Available at SSRN: <https://ssrn.com/abstract=3047340>
- Dachs, Bernhard, and Peters, Bettina, 2014, Innovation, employment growth, and foreign ownership of firms, *Research Policy* 43, 214 - 232.
- Damiani, Mirella, Pompei, Fabrizio, and Ricci, Andrea, 2016, Temporary Employment Protection and TFP Growth, *International Labour Review* 155, 587 - 622.
- Davies, Paul L. and Hopt, Klaus J., 2013, Boards in Europe – Accountability and Convergence, *American Journal of Comparative Law* 61, 301 – 375.
- Desai, Mihir, Gompers, Paul, and Lerner, Josh, 2003, Institutions, Capital Constraints and Entrepreneurial Firm Dynamics: Evidence from Europe, NBER Working Papers 10165, National Bureau of Economic Research, Inc.
- Desai, Mihir A., and Moel, Alberto, 2008, Czech Mate: Expropriation and Investor Protection in a Converging World, *Review of Finance* 12, 221 - 251.

- Djankov, S., LaPorta, R., Lopez-de-Silanes, F., and Shleifer, A., 2003, Courts, *Quarterly Journal of Economics* 118, 453-517.
- Doidge, Craig, Karolyi, G. Andrew, and Stulz, René M., 2004, Why are foreign firms listed in the U.S. worth more? *Journal of Financial Economics* 71, 205-238.
- Doidge, Craig, Karolyi, G. Andrew, and Stulz, René M., 2007, Why do countries matter so much for corporate governance?, *Journal of Financial Economics* 86, 1-39.
- Duval, R., Hong, G.H. and Timmer, Y., 2020, Financial Frictions and Great Productivity Slowdown, *The Review of Financial Studies*, 33, 475-503.
- Dyck, Alexander, and Luigi Zingales, 2004, Private Benefits of Control: An International Comparison, *Journal of Finance* 59, 537-600.
- European Commission, 2013, Focus: Catching up Processes in the Euro Area, *Quarterly Report in the Euro Area* 12 (1), 7 – 18.
(http://ec.europa.eu/economy_finance/publications/qr_euro_area/2014/pdf/qrea1_section_1_en.pdf)
- European Commission, 2014, The drivers of Total Factor Productivities in Catching up Economies, *Quarterly Report in the Euro Area* 13 (1), 5-19.
- European Commission, 2014, Investment Protection and Investor-to-State Dispute Settlement (ISDS) in EU agreements, available at
http://trade.ec.europa.eu/doclib/docs/2014/march/tradoc_152273.pdf.
- Feenstra, Robert C., Robert Inklaar, and Timmer, Marcel P., 2015, "The Next Generation of the Penn World Table" *American Economic Review*, 105(10), 3150-3182, available for download at www.ggdc.net/pwt
- Filatochev, I., Stephan, J., and Jindra, B., 2008, Ownership Structure, Strategic Controls and Export Intensity of Foreign-invested Firms in transition Economies, *Journal of International Business Studies*, 39, 1133-1148.

- Flood, R. P., and Hodrick, Robert J., 1986, Real aspects of exchange rate regime choice with collapsing fixed rates, *Journal of International Economics* 21, 215 - 232.
- Flood, R.P., Rose, A.K., 1995, Fixing exchange rates: a virtual quest for fundamentals, *Journal of Monetary Economics* 36, 3–37.
- Friedrich, Christian, and Schnabel, Isabel, and Zettelmeyer, Jeromin, 2013, Financial integration and growth — Why is Emerging Europe different? *Journal of International Economics* 89, 522 - 538.
- Ge, Ying, Lai, Huiwen, and Zhu, Susan Chun, 2015, Multinational price premium, *Journal of Development Economics* 115, 181 - 199.
- Giroud, Xavier, 2013, Proximity and Investment: Evidence from Plant-Level Data, *The Quarterly Journal of Economics* 128, 861 – 915.
- Giroud, X. and Mueller, H. M., 2017, Firm leverage, consumer demand, and employment losses during the great recession. *Quarterly Journal of Economics* 132:271–316.
- Griffin, R., Redding, S., and van Reenen, J., 2004, Mapping the two faces of R&D: Productivity Growth in a Panel of OECD Industries, *The Review of Economics and Statistics* 86, 883 - 895.
- Gormley, T. A. and Matsa, D. A., 2014, Common Errors: How to (and Not to) Control for Unobserved Heterogeneity, *Review of Financial Studies* 27, 617 - 661.
- Grossman, G., M., and Helpman, E., 1991, Trade, Knowledge spillovers and Growth, *European Economic Review*, 35, 517-526.
- Hardouvelis, Gikas A., Malliaropulos, Dimitrios, and Priestley, Richard, 2006, EMU and European Stock Market Integration, *Journal of Business*, 79, 365 – 392.
- Hsieh, Chang-Tai, and Klenow, Peter J., 2009, Misallocation and Manufacturing TFP in China and India, *The Quarterly Journal of Economics* 124, 1403 - 1448.
- Huber, K., 2018, Disentangling the effects of a banking crisis: Evidence from German firms and counties, *American Economic Review* 108, 868–98.

- Hymer, S. H., 1960, The International Operations of National Firms: A Study of Direct Foreign Investment, PhD Dissertation. The MIT Press, 1976. Cambridge, MA.
- Jacob, Martin, 2021, Dividend taxes, employment, and firm productivity, *Journal of Corporate Finance* 69, 102040.
- Javorcik, Beata S., 2014, Does FDI bring good jobs to host countries?, Policy Research working paper WPS 6936. Washington, DC: World Bank Group
- Javorcik, Beata; Iacovone, Leonardo; Fitriani, Fitria. 2014. Trade integration, FDI, and productivity (policy note 2). Policy Note on Openness, Growth, and Productivity in Indonesia's Development Agenda; no. 2. Washington, D.C.: World Bank Group.
- Jorion, Philippe, 1990, The exchange rate exposure of U.S. multinationals, *Journal of Business* 63, 331 – 345.
- Kalemli-Ozcan, S., Sorensen, B., Villegas-Sanchez, C., Volosovych, V. and S. Yesiltas, 2015, How to Construct Nationally Representative Firm Level data from the ORBIS Global Database, NBER Working Paper No. 21558.
- Kalcheva, Ivalina and Lins, Karl V., 2007, International Evidence on Cash Holdings and Expected Managerial Agency Problems, *Review of Financial Studies* 20, 1087 – 1112.
- Konings, Jozef, and Vandenbussche, Hylke, 2008, Heterogeneous responses of firms to trade protection, *Journal of International Economics* 76, 371-383.
- Kutan, Ali M., and Yigit, Taner M., 2007, European integration, productivity growth and real convergence, *European Economic Review* 51, 1370 – 1395.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R., 1998, Law and finance, *Journal of Political Economy* 106, 1113–1155.
- La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert Vishny, 2002, Investor protection and corporate valuation, *Journal of Finance* 57, 1147 - 1170.
- Lee, Kevin, Pesaran, M. Hashem, and Smith, Ron, 1997, Growth and Convergence in Multi-country Empirical Stochastic Solow Model, *Journal of Applied Econometrics* 12, 357 - 392.

- Leuz, Christian, Lins, Karl V., and Warnock, Francis E., 2010, Do Foreigners Invest Less in Poorly Governed Firms?, *Review of Financial Studies* 23, 3245 – 3285.
- Levinsohn, J., and Petrin, A., 2003, Estimating Production Functions Using Inputs to Control for Unobservables, *The Review of Economic Studies* 70, 317 - 341.
- Li, X., 2013, Productivity, restructuring, and the gains from takeovers, *Journal of Financial Economics* 109, 250 – 271.
- Lichtenberg, F., 1992, *Corporate takeovers and productivity*, Cambridge, MA: The MIT Press.
- Lichtenberg, F., and D. Siegel, 1990, The effects of leveraged buyouts on productivity and related aspects of firm behavior, *Journal of Financial Economics* 27, 165 – 194.
- McCallum, J., 1995, National Borders matter: Canada-US regional trade patterns, *American Economic Review*, 85(3). 615-623.
- Mundell, R., 1961, A Theory of Optimum Currency Areas, *American Economic Review*, 51, 657-665.
- Maksimovic, V., and G. Phillips, 2001, The market for corporate assets: Who engages in mergers and asset sales and are there efficiency gains?, *Journal of Finance* 56, 2019 – 2065.
- Olley, G. Steven, and Pakes, Ariel, 1996, The Dynamics of Productivity in the Telecommunications Equipment Industry, *Econometrica* 64, 1263 – 1297.
- O’Rourke, K., 2019, Economic History and Contemporary Challenges to Globalization, *The Journal of Economic History*, 79(2), 356-382.
- Petrosky-Nadeau, N. 2013. “TFP during a credit crunch.” *Journal of Economic Theory* 148, 1150–1178
- Rajan, R., Zingales, L. 1998. “Financial dependence and growth.” *American Economic Review* 88, 559-586.
- Roberts, Michael R. and Whited, Toni M., 2012, Endogeneity in Empirical Corporate Finance, Simon School Working Paper No. FR 11-29.

- Rodrik, D., 2011, *Globalization Paradox: Democracy and the Future of the World Economy*, W.W. Norton, New York and London.
- Rose, A.K., 2016, *Why Do Estimates of the EMU Effect On Trade Vary so Much?*, NBER Working Paper 22678.
- Sauvant, Karl P., 2009. FDI protectionism is on the rise. Policy Research working paper ; no. WPS 5052. Washington, DC: World Bank.
- Schoar, Antoinette, 2002, The Effect of Diversification on Firm Productivity, *The Journal of Finance* 62, 2379 – 2403.
- Solow, Robert M., 1957, Technical Change and the Aggregate Production Function, *The Review of Economics and Statistics* 39, 312 – 320.
- Siglitz, J., 2002, *Globalization and its Discontents*, W.W. Norton, New York and London.
- Sondermann, David, 2012, Productivity in the euro area: any evidence of convergence?, European Central Bank working paper 1431.
- Syverson, Chad, 2011, What Determines Productivity?, *Journal of Economic Literature* 49, 326 - 365.
- Topalova, Petia, and Khandelwa, Amit, 2011, Trade Liberalization and Firm Productivity: The Case of India, *Review of Economics and Statistics* 93, 995 – 1009.
- Van Reenen, J., 1997, Why has Britain had slower R&D Growth? *Research Policy*, 26, 493-507.
- Venn, Danielle, 2009. Legislation, Collective Bargaining and Enforcement: Updating the OECD Employment Indicators, OECD working paper 89 www.oecd.org/els/workingpapers.
- Williamson, Rohan, 2001, Exchange rate exposure and competition: Evidence from the automotive industry, *Journal of Financial Economics* 59, 441 – 476.

Table 1. Total Factor Productivity summarized by EU membership and ownership type

Sample is all manufacturing firms. Total Factor Productivity is measured as a regression residual. Foreign-owned firm is defined as a firm with a foreign ownership percentage greater than zero. EU indicates firm-years when the host country is an EU member. Anti-dumping/subsidy action indicates EU anti-dumping/subsidy action against Chinese steel producers is in force. Difference-in-Difference computed using unstandardized TFP is reported in brackets.

	Observations	Mean	Standard Deviation	Minimum	Maximum
<u>Panel A. All firm-years</u>	34,749	0	0.99	-7.7	7.64
EU	31,807	0.000	0.98	-7.7	7.64
Foreign	7,442	0.120	1.02	-6.96	7.22
Domestic	24,365	-0.030	0.97	-7.7	7.64
Difference		0.150***			
Non-EU	2,942	-0.050	1.1	-6.07	5.58
Foreign	576	-0.064	1.21	-5.22	5.5
Domestic	2,366	-0.049	1.06	-6.07	5.58
Difference		-0.015			
Difference-in-Differences		0.165*** [0.071***]			
<u>Panel B. Steel firm-years</u>	1,538	0	0.99	-6.74	7.21
No EU Anti-dumping/subsidy action	749	0	0.92	-5.65	6.43
Foreign	115	0.02	0.91	-5.01	3.19
Domestic	634	-0.01	0.92	-5.64	6.42
Difference		0.03			
EU Anti-dumping/subsidy action	789	0	1.06	-6.74	7.22
Foreign	202	0.21	1.28	-4.34	7.22
Domestic	587	-0.07	0.97	-6.74	4.96
Difference		0.28***			
Difference-in-Differences		0.248* [0.066**]			

Table 2. Explaining manufacturing outcomes with foreign ownership, host country membership of the European Union, and their interactions

This table reports pooled panel OLS regressions with heteroscedasticity consistent robust standard errors corrected for correlation across industry-year clusters reported underneath each coefficient estimate and including Industry $\times$ Year and country fixed effects. See Table 1 for sample sizes. Dependent variables are measures of manufacturing outcomes. ForOwner is ownership percent (FO%) or a dummy which equals one if foreign ownership is nonzero (FO dummy). EU is a dummy variable equal to one if the host country is an EU member. Constant is not reported to save space. See earlier tables and Appendix for definitions of independent variables. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level respectively.

	Total Factor Productivity		Unstandardized Total Factor Productivity		Labor productivity		Number of Employees		Capital to Labor Ratio	
	FO%	FO Dummy	FO%	FO Dummy	FO%	FO Dummy	FO%	FO Dummy	FO%	FO Dummy
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
EU $\times$ ForOwner	0.242***	0.174***	0.101***	0.0845***	0.114	0.0604	-0.347***	-0.164***	-0.0907	-0.104
	0.0668	0.0567	(0.0241)	(0.0224)	0.134	0.0836	0.0727	0.056	(0.110)	(0.0907)
EU	0.122	0.125	0.0271	0.0255	0.177*	0.193**	0.0385	0.0224	0.411***	0.422***
	0.147	0.146	(0.0375)	(0.0378)	0.097	0.0978	0.0981	0.0999	(0.0823)	(0.0832)
ForOwner	-0.0863	-0.0277	-0.0459**	-0.0337	0.306**	0.298***	0.545***	0.604***	0.166	0.208**
	0.0636	0.0551	(0.0218)	(0.0207)	0.131	0.0805	0.0712	0.0554	(0.109)	(0.0917)
Debt/Assets	-0.596***	-0.598***	-0.199***	-0.201***	-1.335***	-1.351***	-0.0376	-0.0275	1.039***	1.039***
	0.0352	0.0351	(0.0151)	(0.0151)	0.0471	0.0467	0.0362	0.0361	(0.0333)	(0.0336)
Firm Age	-0.0014***	-0.0014***	-0.000458***	-0.000467***	-0.0012***	-0.0013***	0.00511***	0.0051***	-0.000435***	-0.000454***
	0.000151	0.00015	(4.77e-05)	(4.79e-05)	0.000149	0.000148	0.000329	0.000323	(0.000142)	(0.000142)
Listed	0.168***	0.108***	0.0635***	0.0434***	0.0508*	-0.116***	1.314***	1.124***	0.517***	0.466***
	0.0257	0.0258	(0.0109)	(0.0102)	0.0262	0.0281	0.0309	0.0291	(0.0264)	(0.0278)
Observations	32443	32443	32.478	32.478	40986	40986	62695	62695	46.272	46.272
R-squared	0.024	0.022	0.056	0.057	0.227	0.228	0.241	0.252	0.107	0.108
Industry-years	415	415	432	432	476	476	476	476	442	442

Table 3. Host country business environment measures and manufacturing outcomes

This table reports selected coefficient estimates from Table 2 regressions extended with host country business environment proxies (“BusEnv”) and interactions with EU dummy (“EU”) and foreign ownership (“ForOwner” = “FO%” or “FO Dummy”). See Table 2 and Appendix for details of specification and variables. All specifications include Industry × Year fixed effects. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level respectively.

	Panel A: Dependent variable is TFP						Panel B: Dependent variable is Labor Productivity					
	FO% and BusEnv is:			FO Dummy and BusEnv is:			FO% and BusEnv is:			FO Dummy and BusEnv is:		
	Disclosure	Investor Protection	Anti-Corruption	Disclosure	Investor Protection	Anti-Corruption	Disclosure	Investor Protection	Anti-Corruption	Disclosure	Investor Protection	Anti-Corruption
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
EU × ForOwner × BusEnv	0.0226	0.192**	0.219***	0.0581*	0.204***	0.101**	0.0659	0.360***	0.293***	0.137***	0.485***	0.185***
	0.045	0.0966	0.0712	0.0347	0.0715	0.0438	0.0645	0.129	0.0452	0.0372	0.0895	0.0281
EU × ForOwner	0.23	-0.768	-1.436**	-0.108	-0.951**	-0.58	-0.168	-1.873**	-1.611***	-0.697***	-2.709***	-1.041***
	0.314	0.631	0.593	0.238	0.454	0.352	0.412	0.756	0.29	0.227	0.524	0.2
EU × BusEnv	0.0249*	0.0506	-0.120***	0.0158	0.0314	-0.114***	-0.0410*	-0.295***	-0.297***	-0.0921**	-0.461***	-0.310***
	0.0146	0.0309	0.0225	0.0179	0.0352	0.0233	0.0243	0.0529	0.0207	0.0361	0.0852	0.0218
ForOwner × BusEnv	0.0235	-0.027	-0.190***	-0.0593*	-0.125*	-0.0894**	0.00827	-0.196	-0.258***	-0.0878**	-0.370***	-0.176***
	0.0435	0.0922	0.0697	0.0336	0.0688	0.0415	0.0629	0.125	0.0429	0.0353	0.0851	0.0261
EU	-0.0242	-0.128	1.013***	0.037	-0.00693	0.956***	0.242**	1.624***	1.957***	0.552***	2.629***	2.011***
	0.108	0.201	0.177	0.138	0.238	0.184	0.111	0.269	0.151	0.203	0.492	0.157
ForOwner	-0.348	-0.0196	1.389**	0.262	0.644	0.636*	0.00655	1.203*	1.734***	0.711***	2.351***	1.298***
	0.303	0.609	0.589	0.232	0.445	0.345	0.395	0.717	0.272	0.202	0.484	0.184
BusEnv	0.0250*	0.0349	0.0660***	0.0409**	0.0584	0.0611***	0.0289	0.255***	0.312***	0.0792**	0.419***	0.328***
	0.0148	0.0312	0.0212	0.0185	0.0376	0.0219	0.0239	0.0525	0.0202	0.0352	0.0832	0.0215

Table 3 continued.

	Panel C: Dependent variable is Number of Employees						Panel D: Dependent variable is Capital to Labor Ratio					
	FO% and BusEnv is:			FO Dummy and BusEnv is:			FO% and BusEnv is:			FO Dummy and BusEnv is:		
	Disclosure	Investor Protection	Anti-Corruption	Disclosure	Investor Protection	Anti-Corruption	Disclosure	Investor Protection	Anti-Corruption	Disclosure	Investor Protection	Anti-Corruption
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
EU × ForOwner × BusEnv	-0.294***	-0.406***	-0.172***	-0.188***	-0.502***	-0.200***	-0.103**	-0.201**	0.118**	0.000239	0.0606	0.0794*
	0.0459	0.0903	0.0351	0.0229	0.0426	0.027	0.0422	0.0973	0.0531	0.0222	0.0457	0.0411
EU × ForOwner	1.541***	2.140***	0.867***	0.832***	2.800***	1.023***	0.692**	1.253**	-1.025**	-0.00239	-0.467	-0.722**
	0.299	0.563	0.267	0.131	0.247	0.199	0.286	0.619	0.414	0.131	0.283	0.335
EU × BusEnv	0.144***	0.442***	0.261***	0.154***	0.552***	0.301***	-0.0182	-0.148***	-0.282***	-0.0277*	-0.209***	-0.289***
	0.0159	0.0339	0.0189	0.0165	0.0311	0.0191	0.0123	0.0235	0.0281	0.0154	0.0325	0.0326
ForOwner × BusEnv	0.91***	0.183**	0.0765**	0.124***	0.307***	0.153***	0.100**	0.203**	-0.0986*	0.0174	-0.0221	-0.0679*
	0.0452	0.0899	0.033	0.0222	0.0416	0.025	0.0411	0.0948	0.052	0.0211	0.0431	0.0402
EU	-0.419***	-2.135***	-1.443***	-0.493***	-2.855***	-1.701***	-0.123	0.620***	1.906***	-0.0646	1.023***	1.970***
	0.0885	0.186	0.135	0.0949	0.188	0.141	0.0903	0.142	0.219	0.126	0.237	0.26
ForOwner	-0.574*	-0.506	0.0224	0.055	-1.144***	-0.237	-0.663**	-1.254**	0.905**	-0.0376	0.312	0.708**
	0.292	0.558	0.248	0.124	0.24	0.184	0.278	0.601	0.403	0.124	0.265	0.326
BusEnv	-0.161***	-0.473***	-0.244***	-0.172***	-0.571***	-0.287***	-0.0188	0.0646***	0.236***	-0.0141	0.117***	0.243***
	0.0147	0.0314	0.0201	0.0159	0.0293	0.0201	0.012	0.0234	0.0278	0.0151	0.0312	0.0321

Table 4. Home country business environment measures and manufacturing outcomes

This table reports selected coefficient estimates from Table 2 regressions extended with home country business environment proxies (“BusEnv”) and interactions with EU dummy (“EU”) and foreign ownership (“ForOwner” = “FO%”). See Table 2 and Appendix for details of specification and variables. All specifications include Industry $\times$ Year fixed effects. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level respectively.

	Total Factor Productivity			Labor Productivity			Number of Employees			Capital to Labor Ratio		
	Disclosure	Investor Protection	Anti-Corruption	Disclosure	Investor Protection	Anti-Corruption	Disclosure	Investor Protection	Anti-Corruption	Disclosure	Investor Protection	Anti-Corruption
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
EU $\times$ ForOwner $\times$ BusEnv	0.395***	1.367***	0.0999	0.410**	0.797***	0.271	-0.0957	-0.0667	0.840**	0.00141	0.237	0.0318
	0.125	0.335	0.654	0.165	0.276	0.514	0.119	0.251	0.406	0.117	0.222	0.458
EU $\times$ ForOwner	-2.219***	-7.546***	-0.681	-2.893***	-4.918***	-3.059	1.510**	1.302	-6.428*	-0.897	-2.242*	-0.703
	0.639	1.777	5.821	1.07	1.554	4.423	0.728	1.343	3.495	0.803	1.281	4.031
EU $\times$ BusEnv	-0.393***	-1.270***	-0.0755	-0.350***	-0.656***	-0.465	0.0165	0.0794	-0.814**	0.0296	-0.125	0.0718
	0.119	0.316	0.589	0.126	0.202	0.432	0.108	0.218	0.376	0.101	0.2	0.404
ForOwner $\times$ BusEnv	-0.286**	-1.063***	-0.11	-0.390**	-0.653**	-0.217	0.00208	-0.0152	-0.781*	-0.00506	-0.181	0.148
	0.12	0.329	0.654	0.163	0.27	0.505	0.115	0.24	0.404	0.115	0.219	0.456
EU	1.599**	6.454***	0.119	2.467***	4.040***	4.456	-0.807	-1.068	6.426**	0.705	1.621	-0.227
	0.779	1.539	5.184	0.913	1.172	3.733	0.728	1.206	3.222	0.74	1.107	3.575
ForOwner	1.602***	5.953***	0.751	2.937***	4.318***	2.781	-1.281*	1.153	5.686	0.928	1.958	-0.709
	0.58	1.723	5.836	1.049	1.517	4.365	0.716	1.304	3.467	0.795	1.261	4.019
BusEnv	0.277**	0.953***	0.129	0.312**	0.485**	0.402	0.0364	-0.0595	0.804**	-0.0257	0.0888	-0.202
	0.116	0.317	0.59	0.124	0.198	0.424	0.102	0.205	0.373	0.0997	0.197	0.402

Table 5. External financial dependence and the global credit crisis

This table extends the Table 2 baseline regressions with a proxy for the external financial dependence of the firm. Dependence equals the industry median of the 2001 to 2014 firm-year sum of capex minus cash flow divided by the 2001 to 2014 capex. See Rajan and Zingales (1998). Bae, Bailey, and Kang (2021) detail the computation. ForOwner is percent foreign ownership (“FO%”). All specifications include Industry $\times$ Year and country fixed effects. Constant and control variables are not reported to save space. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level respectively.

	All firm-years				2008 to 2009 only			
	Total Factor Productivity	Labor Productivity	Number of Employees	Capital to labor ratio	Total Factor Productivity	Labor Productivity	Number of Employees	Capital to Labor ratio
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
EU $\times$ Dependence $\times$ ForOwner	0.167**	0.304***	-0.151**	0.208**	0.0267	0.862***	-0.2	0.0917
	0.0671	0.0965	0.0671	0.0874	0.104	0.269	0.207	0.205
ForOwner	-0.107*	0.319**	0.521***	0.154	-0.261**	0.833*	0.843***	0.16
	0.0642	0.132	0.0721	0.109	0.099	0.424	0.195	0.241
Dependence	0.0985*	0.0861	0.223**	0.103	0.146	0.0469	0.218	0.0328
	0.0553	0.0709	0.0871	0.0688	0.12	0.178	0.235	0.184
ForOwner $\times$ Dependence	-0.127**	-0.283***	0.102	-0.168*	-0.0396	-0.854***	0.153	-0.0842
	0.0624	0.0943	0.0661	0.0915	0.0949	0.258	0.208	0.214
EU	0.116	0.188*	0.0301	0.407***	-0.662***	-0.129	1.420***	1.269***
	0.153	0.0986	0.0963	0.0819	0.122	0.34	0.269	0.381
EU $\times$ ForOwner	0.265***	0.102	-0.324***	-0.0754	0.412***	-0.368	-0.627***	-0.0729
	0.0672	0.135	0.0729	0.11	0.118	0.445	0.191	0.244
EU $\times$ Dependence	-0.166***	-0.0836*	-0.0467	-0.138***	-0.154**	-0.15	-0.0231	-0.0666
	0.0376	0.0439	0.0561	0.0441	0.0749	0.11	0.185	0.117
Observations	32441	40973	62678	46263	6200	6597	10285	8270
R-squared	0.056	0.091	0.203	0.108	0.063	0.101	0.222	0.127
Number of industry-years	415	476	476	442	64	68	68	68

Table 6. Recent EU accessions

This table re-runs Table 2 over subsets of countries and years to focus on associations between manufacturing outcomes and host country EU membership. Panel A sample is countries that joined the EU in 2004 versus countries that joined later. Time period is 2001 to 2006, that is, three years before the 2004 event and three years starting with that event. Panel B sample is countries that joined the EU in 2004, 2007, and 2013 versus countries that never joined the EU. Time period is 2001 to 2014. ForOwner is foreign ownership dummy variable. See Table 2 and Appendix for details of specification and variables. All specifications include Industry $\times$ Year and country fixed effects. Constant and control variables are not reported to save space. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level respectively.

	Panel A: EU Join = dummy for countries acceding in 2004				Panel B: EU Join = dummy for countries acceding in 2004, 2007, or 2013			
	Total Factor Productivity	Labor Productivity	Number of Employees	Capital to Labor Ratio	Total Factor Productivity	Labor Productivity	Number of Employees	Capital to Labor Ratio
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
EU Join $\times$ ForOwner	0.740**	0.231	-0.0975	0.588**	0.477***	0.460***	-0.541***	0.278***
	0.328	0.431	0.322	0.25	0.0804	0.118	0.0707	0.0969
EU Join	-0.0210	-0.403	0.118	0.625**	1.510***	1.200***	-2.385***	0.514***
	0.491	0.314	0.241	0.267	0.179	0.335	0.15	0.129
ForOwner	-0.552*	0.376	0.256	0.0955	-0.259***	0.229**	0.760***	0.249***
	0.319This	0.43	0.323	0.231	0.0613	0.1	0.0568	0.0869
Observations	506	870	1.525	635	4.241	3.847	8.436	5.246
R-squared	0.227	0.252	0.096	0.235	0.121	0.246	0.381	0.127
Industry-years	128	161	177	137	376	404	445	403

Table 7. Manufacturing outcomes and public sentiment

This table presents regressions that relate measures of public sentiment to country average book value weighted manufacturing outcomes. All regressions are estimated with both regular and country-clustered standard errors. Conventional statistical significance is indicated with *, **, and *** while country-clustered statistical significance at the 5% level is indicated by †. *Migration Policy Uncertainty* and *Migration Fear* are constructed from frequency of keywords in news stories in France, Germany, and the UK. We use the last quarter of the year for our sample period. Higher value indicates greater anxiety. See https://www.policyuncertainty.com/immigration_fear.html and <https://voxeu.org/article/immigration-fears-and-policy-uncertainty>. *Country Dissatisfaction* is fraction of survey responses indicating “dissatisfied” to the question “Overall, are you satisfied or dissatisfied with the way things are going in our country today?”. *EU Very Unfavorable* is fraction of survey responses indicating “very unfavorable view of the European Union.” Surveys are conducted by Pew Research Center’s (<https://www.pewresearch.org/>) annually from 2002 to 2014 irregularly over many but not all EU states. *Populist Vote* is fraction of national legislative election vote won by populist, right-wing, extremist, or fascist political parties. For multiple-round elections, we use the first-round outcome. For bicameral legislatures, we use a simple average of upper and lower house outcomes. Source is online summaries of elections. See, for example, https://en.wikipedia.org/wiki/2021_German_federal_election. Sample is all EU member states and country-years when there is an election.

Dependent variable	Independent variable	Slope		Standard Error	Standard Error Clustered	Observations	R ²	Countries
Migration Policy Uncertainty	Total Factor Productivity	-142.4	*,†	73.11	13.11	35	0.109	3
Migration Policy Uncertainty	Unstandardized TFP	-302.5	†	220	27.5	35	0.056	3
Migration Policy Uncertainty	Number of Employees	-60.78		90.39	68.77	39	0.013	3
Migration Policy Uncertainty	Labor Productivity	265.5	**,†	105.3	138.4	36	0.166	3
Migration Policy Uncertainty	Capital to Labor Ratio	-137.5		122.5	51.54	36	0.038	3
Migration Policy Uncertainty	Foreign Ownership	1,057	***	357.2	684	39	0.20	3
Migration Fear	Total Factor Productivity	-39		45.47	14.58	35	0.023	3
Migration Fear	Unstandardized TFP	-87.29	†	133.6	27.5	35	0.014	3
Migration Fear	Number of Employees	15.01		51.47	47.38	39	0.002	3
Migration Fear	Labor Productivity	184	***,†	54.18	32.78	36	0.265	3
Migration Fear	Capital to Labor Ratio	97.3		72.69	51.54	36	0.053	3
Migration Fear	Foreign Ownership	342	†	218.7	100.7	39	0.065	3
Country Dissatisfaction	Total Factor Productivity	-9.686	*,†	5.725	3.508	71	0.048	13
Country Dissatisfaction	Unstandardized TFP	-23.79	†	17.63	9.811	71	0.034	13
Country Dissatisfaction	Number of Employees	-0.143		9.373	8.451	74	0.000	13
Country Dissatisfaction	Labor Productivity	-11.27		7.034	9.036	69	0.044	12
Country Dissatisfaction	Capital to Labor Ratio	-0.866		7.327	13.27	72	0.000	13
Country Dissatisfaction	Foreign Ownership	16.84		30.15	35.78	74	0.005	13
EU Very Unfavorable	Total Factor Productivity	-0.564		5.828	4.507	44	0.000	11

EU Very Unfavorable	Unstandardized TFP	1.556		15.95	9.73	44	0.000	11
EU Very Unfavorable	Number of Employees	4.705		4.827	5.759	45	0.028	11
EU Very Unfavorable	Labor Productivity	8.897	*	5.169	5.135	44	0.085	11
EU Very Unfavorable	Capital to Labor Ratio	10.67		5.475	9.211	44	0.106	11
EU Very Unfavorable	Foreign Ownership	28.56	†	20.6	7.78	45	0.055	11
Populist Vote	Total Factor Productivity	-0.742		0.985	0.868	282	0.002	26
Populist Vote	Unstandardized TFP	-2.252		2.052	2.467	282	0.003	26
Populist Vote	Number of Employees	-1.731		1.085	1.024	371	0.007	28
Populist Vote	Labor Productivity	-1.072		0.885	0.869	333	0.005	28
Populist Vote	Capital to Labor Ratio	-0.378		0.73	0.929	319	0.001	26
Populist Vote	Foreign Ownership	6.211	†	4.128	2.581	372	0.007	28

Appendix 1: Variable Definitions

Manufacturing Outcomes	
TFP	Standardized Total Factor Productivity following Brav et al (2015)
Unstandardized TFP	Total Factor Productivity estimated as a residual by Brav et al (2015)
Number of Employees	Natural logarithm of number of employees
Labor Productivity	Natural logarithm of Net income per employee
Capital to Labor Ratio	Natural logarithm of capital stock to number of employees
Control Variables	
Debt/Assets	total debt /total assets
Firm Age	Firm age in years
EU	=1 when a country accedes to EU and 0 otherwise
Listed	=1 when a company becomes listed and 0 otherwise
Foreign Ownership Measures (ForOwner)	
Foreign Ownership (FO%)	direct foreign ownership percentage
Foreign Ownership dummy (FO dummy)	if foreign ownership percentage >0, 1, 0
Host Country Business Environment proxies	
Disclosure	World Bank Doing Business extent of disclosure index (0-10)
Investor protection	World Bank Doing Business extent of investor protection index (0-10)
Anti-Corruption	Transparency International corruption perception index (0-100) Higher score means lower corruption
Foreign Owner Home country business environment	Average of business environment score of each foreign owner with >25% ownership stake
Public Sentiment Measures	
Migration Policy Uncertainty	<i>Migration Policy Uncertainty</i> and <i>Migration Fear</i> are constructed from frequency of keywords in news stories in France, Germany, and the UK. We use the last quarter of the year for our sample period. Higher value indicates greater anxiety.
Migration Fear	See https://www.policyuncertainty.com/immigration_fear.html and https://voxeu.org/article/immigration-fears-and-policy-uncertainty .
Country Dissatisfaction	<i>Country Dissatisfaction</i> is fraction of survey responses indicating “dissatisfied” to the question “Overall, are you satisfied or dissatisfied with the way things are going in our country today?”. <i>EU Very Unfavorable</i> is fraction of survey responses indicating “very unfavorable view of the European Union.”
EU Very Unfavorable	Surveys are conducted by Pew Research Center’s (https://www.pewresearch.org/) annually from 2002 to 2014 irregularly over many but not all EU states.
Populist Vote	<i>Populist Vote</i> is fraction of national legislative election vote won by populist, right-wing, extremist, or fascist political parties. For multiple-round elections, we use the first- round outcome. For bicameral legislatures, we use a simple average of upper and lower house outcomes. Source is online summaries of elections. See, for example, https://en.wikipedia.org/wiki/2021_German_federal_election . Sample is all EU member states and country-years when there is an election.

Appendix 2: Table 1. Summary statistics

Sample is all manufacturing firms. Number of Employees is raw for this table but is natural log for subsequent tables. Foreign-owned firm has foreign ownership percentage greater than zero. Each cell reports the mean of annual observations, the standard deviation in parentheses, and the total number of observations in brackets.

	Total Factor Productivity (TFP)	Unstandardized TFP	Labor Productivity (1000 euro)	Number of Employees	Capital to Labor Ratio	Number of domestic- owned Firms	Number of foreign- owned firms	Fraction of foreign ownership in foreign- owned firms
Austria	-0.32 (0.73) [206]	-0.10 (0.28) [206]	27.08 (60.28) [188]	4243 (8246.55) [343]	295 (850.54) [236]	16	51	0.31 (0.35) [277]
Belgium	0.13 (1.21) [1426]	0.01 (0.55) [1430]	107.91 (551.79) [1420]	1663 (8158.22) [1945]	103 (740.94) [1508]	80	171	0.48 (0.43) [1186]
Bulgaria	0.71 (1.12) [15]	0.22 (0.37) [15]	7.11 (8.74) [11]	1015 (600.06) [20]	34 (20.01) [15]	0	2	0.37 (0.36) [20]
Croatia	-1.18 (1.08) [103]	-0.29 (0.35) [103]	-1.46 (13.20) [65]	902 (1394.31) [151]	112 (288.07) [106]	9	17	0.29 (0.33) [87]
Cyprus	-0.54 (0.49) [2]	-0.13 (0.12) [2]	164.39 (408.94) [41]	269 (241.77) [102]	1236 (2351.31) [46]	16	13	0.20 (0.21) [44]
Czech Republic	-0.14 (0.90) [483]	-0.04 (0.27) [483]	27.82 (274.74) [470]	1212 (2650.91) [651]	106 (955.71) [497]	32	59	0.82 (0.32) [352]
Denmark	-0.14 (1.41) [36]	-0.02 (0.40) [36]	63.54 (308.87) [811]	1491 (4428.68) [1094]	417 (2399.67) [730]	116	143	0.30 (0.42) [593]
Estonia	0.09 (0.36) [5]	0.02 (0.08) [5]	20.08 (24.84) [36]	733 (690.76) [49]	163 (192.10) [23]	0	7	0.45 (0.35) [49]
Finland	-0.22 (0.84) [2214]	-0.07 (0.28) [2214]	33.23 (138.17) [2066]	1416 (6645.79) [3104]	203 (550.05) [2302]	227	161	0.44 (0.46) [1004]
France	0.18 (1.01) [1817]	0.07 (0.34) [1817]	34.31 (144.84) [1157]	11209 (37857.67) [2559]	269 (2875.05) [1844]	191	297	0.23 (0.32) [1577]
Germany	-0.04 (0.87) [5961]	0.00 (0.38) [5961]	33.12 (139.23) [6054]	3165 (3582.31) [8355]	196 (2459.34) [6461]	600	574	0.33 (0.41) [3388]
Greece	-1.47	-0.46	6.58	589	156		121	0.22

	(0.37)	(0.14)	(31.34)	(1145.55)	(251.71)	86		(0.31)
	[9]	[9]	[510]	[1475]	[1158]			[700]
Hungary	-0.17	-0.07	16.80	2176	97		25	0.54
	(0.86)	(0.35)	(50.20)	(5243.72)	(147.02)	22		(0.36)
	[220]	[220]	[164]	[321]	[227]			[139]
Ireland	-0.32	-0.08	58.85	2386	227		66	0.46
	(0.30)	(0.09)	(229.08)	(11657.72)	(449.34)	42		(0.39)
	[7]	[7]	[229]	[441]	[262]			[282]
Italy	0.12	0.04	33.61	789	276		610	0.40
	(0.93)	(0.37)	(222.79)	(4279.76)	(3927.35)	1013		(0.43)
	[10750]	[10750]	[9494]	[13868]	[11016]			[4006]
Latvia	-0.72	-0.20	6.51	607	108		15	0.59
	(0.42)	(0.14)	(11.71)	(473.83)	(166.08)	2		(0.39)
	[7]	[7]	[77]	[115]	[42]			[101]
Lithuania	1.91	0.85	7.67	606	106		41	0.44
	(3.21)	(1.24)	(28.42)	(575.78)	(231.44)	29		(0.38)
	[20]	[20]	[386]	[560]	[98]			[291]
Luxembourg			266.05	28518			18	0.38
			(750.13)	(70828.29)		0		(0.34)
			846]	[93]				[99]
Malta			50.30	105			1	0.23
			(34.57)	(72.07)		3		(0.07)
			[8]	[14]				[4]
Netherlands	0.21	0.07	123.51	2227	1425		276	0.56
	(1.33)	(0.45)	(523.82)	(10718.68)	(26233.88)	206		(0.46)
	[864]	[864]	[1786]	[2989]	[1839]			[1492]
Poland	0.35	0.11	18.05	1461	111		193	0.59
	(1.34)	(0.46)	(51.92)	(5031.72)	(347.46)	131		(0.42)
	[931]	[940]	[1064]	[2164]	[1039]			[1063]
Portugal	0.13	0.06	63.98	1130	272		47	0.54
	(1.15)	(0.45)	(418.42)	(2342.98)	(992.02)	55		(0.42)
	[568]	[568]	[385]	[720]	[562]			[310]
Romania	0.36	0.15	16.57	12645	75		5	0.38
	(1.02)	(0.38)	(16.53)	(13510.76)	(56.75)	0		(0.36)
	[18]	[18]	[20]	[26]	[19]			[26]
Slovakia	0.03	0.02	15.63	1482	93		26	0.77
	(1.44)	(0.48)	(61.64)	(2836.96)	(240.12)	16		(0.28)
	[137]	[137]	[109]	[205]	[142]			[102]
Slovenia	0.10	0.27	8.61	4382	72		6	0.06
	(1.47)	(0.81)	(13.00)	(4328.74)	(42.27)	0		(0.17)
	[9]	[9]	[22]	[39]	[26]			[39]
Spain	-0.17	-0.05	38.70	1089	221		363	0.54
	(0.90)	(0.30)	(181.94)	(4253.62)	(2043.85)	343		(0.43)
	[4560]	[4565]	[4229]	[5856]	[4670]			[2557]

Sweden	-0.34 (1.02) [1630]	-0.19 (0.46) [1632]	54.37 (234.10) [2625]	1220 (5710.23) [3284]	1207 (26395.90) [2538]	214	229	0.31 (0.42) [1151]
U.K.	-0.17 (0.69) [54]	-0.05 (0.22) [54]	108.67 (533.73) [10169]	802 (3322.81) [14491]	431 (6954.22) [10194]	1263	1450	0.46 (0.46) [6240]
All EU	0.00 (0.99) [32052]	0.00 (0.38) [32079]	55.33 (296.77) [43642]	1653 (9656.03) [65034]	370 (8913.03) [47600]	4712	4987	0.43 (0.44) [27179]
Bosnia	-1.19 (0.22) [12]	-0.67 (0.17) [12]	4.93 (3.95) [13]	3509 (2225.50) [14]	192 (87.42) [12]	1	1	0.33 (0.17) [5]
Liechtenstein			25.03 (33.72) [20]	6636 (9743.47) [31]		3		
Norway	-0.04 (1.02) [2475]	0.00 (0.49) [2487]	275.01 (815.06) [991]	669 (2822.66) [3378]	2322 (17003.53) [2883]	315	178	0.55 (0.47) [1097]
Russia	0.39 (1.60) [24]	0.15 (0.61) [24]	73.62 (410.71) [605]	7299 (16843.04) [942]	428 (2172.41) [250]	25	147	0.22 (0.32) [863]
Switzerland	0.22 (1.30) [186]	0.17 (0.66) [186]	46.53 (101.24) [420]	8413 (26170.28) [754]	447 (1358.21) [420]	22	114	0.18 (0.22) [589]
Turkey			14.58 (69.56) [51]	990 (1698.30) [257]	40 (133.42) [81]	32	70	0.33 (0.34) [226]
All Non EU	-0.02 (1.05) [2697]	0.01 (0.50) [2709]	153.47 (596.90) [2100]	4080 (15292.18) [5376]	1918.36 (15157.60) [3646]	398	510	0.35 (0.41) [2780]
Total Observations	34749	34788	45742	70410	51246	5110	5497	29959
Number of observations with non-zero foreign ownership	8018	8028	13148	20480	12511			

Appendix 2: Table 2. Host country business environment measures and Unstandardized manufacturing TFP

This table reports selected coefficient estimates from Table 2 regressions extended with host country business environment proxies and interactions with EU dummy and foreign ownership. Dependent variable is unstandardized TFP for comparison to findings for standardized TFP reported in Panel A of Table 3. All specifications include Industry $\times$ Year fixed effects. Constant and control variables are not reported to save space. See Table 2 and appendix 1 for variable definitions for details of specification and variables. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level respectively.

Dependent variable is Unstandardized TFP						
	FO% and BusEnv			FO dummy and BusEnv		
	Disclosure (1)	Investor Protection (2)	Anti-Corruption (3)	Disclosure (4)	Investor Protection (5)	Anti-Corruption (6)
EU $\times$ ForOwner $\times$ BusEnv	-0.00214	0.0342	0.0662***	0.0161	0.0650**	0.0314**
	0.0163	0.0345	0.0203	0.0121	0.0259	0.0144
EU $\times$ ForOwner	0.162	-0.0474	-0.393**	0.0121	-0.269	-0.149
	0.117	0.228	0.161	0.0851	0.164	0.108
EU $\times$ BusEnv	0.0126**	0.0221*	-0.0423***	0.0108	0.0163	-0.0401***
	0.00534	0.0121	0.00952	0.00679	0.0146	0.00994
ForOwner $\times$ BusEnv	0.0157	0.0143	-0.0520***	-0.0165	-0.0337	-0.0255**
	0.0163	0.035	0.0187	0.0121	0.026	0.0128
EU	-0.0651	-0.108	0.321***	-0.0550	-0.0755	0.301***
	0.04	0.0774	0.0682	0.0524	0.0967	0.0716
ForOwner	-0.185	-0.173	0.352**	0.0431	0.144	0.158
	0.115	0.23	0.155	0.0845	0.167	0.103
BusEnv	0.00300	0.00170	0.0214***	0.00679	0.00654	0.0199**
	0.00587	0.0134	0.00812	0.00744	0.0168	0.00854

Appendix 2: Table 3. Home country business environment measures and unstandardized manufacturing TFP

This table reports selected coefficient estimates from Table 2 regressions extended with home country business environment proxies and interactions with EU dummy and foreign ownership. Dependent variable is unstandardized TFP for comparison to findings for standardized TFP reported in Panel A of Table 4. See Table 2 and Appendix 1 for variable definitions and details of specification. All specifications include Industry $\times$ Year fixed effects. Constant and control variables are not reported to save space. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level respectively.

Dependent variable is Unstandardized TFP			
	Disclosure	Investor Protection	Anti-Corruption
	(4)	(5)	(6)
EU $\times$ ForOwner $\times$ BusEnv	0.112*	0.427***	0.0443
	0.064	0.152	0.264
EU $\times$ ForOwner	-0.599**	-2.332***	-0.276
	0.285	0.755	2350
EU $\times$ BusEnv	-0.116*	-0.403***	-0.0271
	0.0607	0.148	0.235
ForOwner $\times$ BusEnv	-0.0794	-0.336**	-0.0344
	0.063	0.152	0.264
EU	0.435	2.031***	0.0373
	0.299	0.701	2101
ForOwner	0.434	1.875**	0.212
	0.271	0.745	2356
BusEnv	0.0807	0.306**	0.0314
	0.0601	0.149	0.235

Appendix 2: Table 4. External financial dependence, the global credit crisis, and Unstandardized TFP

This table extends the Table 2 baseline regressions with a proxy for the external financial dependence of the firm as in Table 5 but replaces standardized TFP with raw unstandardized TFP. See Table 2 and Appendix 1 for variable definitions and details of specification. All specifications include Industry $\times$ Year and country fixed effects. Constant and control variables are not reported to save space. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level respectively.

	<u>All firm-years</u>	<u>2008 to 2009 only</u>
	Unstandardized TFP	Unstandardized TFP
EU $\times$ Dependence $\times$ ForOwner	0.0708***	0.0300
	0.0237	0.044
ForOwner	-0.0537**	-0.122***
	0.0219	0.0457
Dependence	0.0354**	0.0566
	0.0175	0.0406
ForOwner $\times$ Dependence	-0.0567**	-0.0355
	0.0219	0.0403
EU	0.0251	-0.176***
	0.0398	0.039
EU $\times$ ForOwner	0.110***	0.176***
	0.0243	0.0552
EU $\times$ Dependence	-0.0640***	-0.0637*
	0.0134	0.0341
Observations	32476	6210
R-squared	0.057	0.068
Number of industry-years	432	68

Appendix 2: Table 5. Repeating the baseline regressions over country subsets for recent EU accessions and unstandardized manufacturing TFP

This table runs the regressions of Table 2 over subsets of countries and years to focus more precisely on associations between manufacturing outcomes and host country EU membership. Dependent variable is unstandardized TFP for comparison to findings for standardized TFP reported in Table 6. In Panel A, the sample is countries that joined the EU in 2004 versus countries that joined later. The time period is 2001 to 2006, that is, three years before the 2004 event and three years starting with that event. In Panel B, the sample is countries that joined the EU in 2004, 2007, and 2013 versus countries that never joined the EU. The time period is 2001 to 2014. See Table 2 and Appendix 1 for details of specification and variables. All specifications include Industry $\times$ Year and country fixed effects. Constant and control variables are not reported to save space. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level respectively.

	EU Join indicates 2004	EU Join indicates 2004, 2007, or 2013
EU Join $\times$ ForOwner	0.143	0.159***
	0.0894	0.0285
EU Join	0.0525	0.867***
	0.141	0.0623
ForOwner	-0.117	-0.0971***
	0.0856	0.0253
Observations	509	4.262
R-squared	0.166	0.088
Industry-years	131	389