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Essays on Immigration and International Trade

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My dissertation studies the welfare and production effects of immigration and international trade, and how the two effects interact in the globalized economy.

In Chapter I, titled "Third-Country Effects of U.S. Immigration Policy" (Job Market Paper), Xing Guo and I study how the U.S. restrictions on skilled immigration affect the Canadian economy and the welfare of American workers. In 2017, there was a policy that tightened the eligibility criteria for U.S. visas and was immediately followed by a trend break in the number of skilled immigrant admissions to Canada. We use quasi-experimental variation introduced by this policy over time and across immigrant groups, along with U.S. and Canadian visa application data, to show that Canadian applications in 2018 were 30% larger than without the restrictions. We then study how the restrictions affected Canadian firms using comprehensive Canadian administrative databases containing the universe of employer-employee-linked records, immigration records, and international trade data. We find that the restrictions increased firms' production, exports, and employment of Canadian workers. Finally, we study the policy's impact on American workers by incorporating immigration policy into a multi-sector international trade model. With international trade, the increase in immigration to other countries due to the restrictions affects American wages through U.S. exports and consumption prices. We calibrate the model using our novel data and reduced-form estimates. We find that the welfare gains for American workers targeted for protection by the 2017 policy are up to 25% larger in a closed economy than in an economy with the observed trade levels.

In Chapter II, titled "Firm Heterogeneity and the Impact of Immigration: Evidence from German Establishments" (revise and resubmit at the *Journal of Political Economy*), Nicolas Morales and I use a detailed establishment-level dataset from Germany to document that large firms allocate a higher proportion of their wage bill to immigrants compared to small firms. We study both analytically and quantitatively the importance of this heterogeneity across firms in the effects of immigration on the welfare of native-born workers. To achieve this, we set up and estimate a model of international trade and immigration where heterogeneous firms choose their immigrant share. Two new adjustment mechanisms arise when firms have heterogeneous immigrant shares. First, native workers reallocate across firms towards firms that are less immigrant-intensive, which mitigates the competition effect between immigrants and natives in the labor market. Second, the gains are largely concentrated among the largest and most productive employers, which induces an additional aggregate productivity gain. We find that our model with no heterogeneity in immigrant share across firms underestimates the native workers' welfare gains by 11%.

In chapter III, titled "The International Price of Remote Work" (revise and resubmit at the *Review of Economic Studies*) ,Alberto Cavallo, Javier Cravino, Andres Drenik and I study how the price of remote work is determined in a globalized labor market using data from a large web-based job platform, where workers from around the world compete for remote jobs. Despite the global nature of the platform, we find that remote wages are higher for workers in regions with higher income per capita. This correlation is not accounted for by differences in workers' observable characteristics, occupations, or differences in the employers' locations. Instead, data on wage histories indicate that remote wages are partly determined by the conditions that workers face in their local labor markets. We also show that remote wages expressed in local currency move strongly with the dollar exchange rate of the worker's country and are highly sensitive to foreign competition. Finally, we identify occupations at high risk of being offshored based on the prevalence of cross-border contracts.

The next sections offer a detailed summary of each chapter.

1 Third-Country Effects of U.S. Immigration Policy

Restrictions on high-skilled immigration are becoming increasingly common in some developed countries that aim to protect domestic wages.[1] Other developed countries, however, are competing to attract high-skilled migrants, expecting their skills to meet the demands of key sectors, making these sectors more competitive in the global marketplace (Kerr, 2018). These conflicting policies alter the appeal of destinations for skilled workers. In fact, detractors of U.S. skilled immigration restrictions recently argued that such restrictions push skilled migrants to other more receptive developed countries.[2] If this is indeed the case, U.S. restrictions could make receptive countries more competitive in the global marketplace, ultimately affecting the U.S. economy through international trade. Despite the potential welfare implications for both the U.S. and the receiving economies, we do not yet know how such restrictions affect third countries and whether these effects spill back into the U.S. economy.

One challenge to answering these questions is the absence of significant changes to laws regulating U.S. skilled worker visas since the early part of this century. This paper exploits a sudden change in the interpretation of the law at the beginning of 2017 that tightened the eligibility criteria for college-educated immigrants applying for U.S. H-1B visas.[3] Immediately following this policy change, Canada experienced a surge in the number of skilled immigrant admissions, equivalent to 76,000 additional admissions in the period between 2018 and 2019.[4] This inflow represents 3.5% of the stock of college-educated immigrants in Canada, or about 2% of all workers in the high-skilled service sector. To what extent did the U.S. restrictions cause this increase in skilled immigration to Canada? How did this immigrant influx affect Canadian production, exports, and Canadian workers' welfare? How does the influx of workers to Canada and other economies ultimately impact American workers' welfare via international trade?

We address these questions by exploiting plausible exogenous variation introduced by the policy across time and immigrant groups. We combine this variation with a novel dataset to document the impact of these restrictions on Canadian immigration and firms. Our novel dataset includes U.S. work visa application data obtained through a Freedom of Information Act (FOIA) request, a novel Canadian visa application dataset, and Canadian administrative databases containing the universe of employer-employee-linked records, immigration records, and data on international trade in goods and services. Finally, we develop a new general equilibrium model of immigration and international trade to study the welfare effects of the policy and the role of international trade in determining the policy's efficacy in increasing American wages.

The new policy was implemented through policy memorandums issued by U.S. Citizenship and Immigration Services and became effective immediately. By the end of 2018, there was a decrease of 140,000 H-1B approvals (relative to trend) and an unprecedented spike in H-1B denial rates. Denial rates increased from about 6% in 2016 to 16% in 2018. The policy memorandums had different effects on the eligibility criteria in different occupations, which disproportionately affected immigrants from certain nationalities based on their propensity to apply for U.S. visas. We use this variation across time and immigrant groups to provide

[1] For example, the United Kingdom implemented Brexit, and during President Trump's administration, the number of U.S. immigrant visas dropped by 25% between 2016 and 2019.

[2] See the Congress hearing *"How Outdated U.S. Immigration Policies Push Top Talent to Other Countries"*.

[3] The H-1B program is the main pathway for college-educated workers seeking to migrate to the U.S.

[4] We refer to admissions granted under permanent residence programs commonly used by skilled workers.

reduced-form evidence of the restrictions' effects on the Canadian economy and calibrate the model.

We first document that the increasing H-1B denial rates led to an increase in skilled immigration to Canada, using Canadian permanent residence visa application data. We estimate the effect of the policy on the change in the number of Canadian applications for immigrant groups that were differently affected by the policy introduction. Our event-study estimates imply that a 10 percentage point increase in H-1B denial rates increases Canadian applications by 30%. A back-of-the-envelope calculation suggests that for every four forgone H-1B visas, there is an associated increase of one Canadian application. These estimated (relative) effects are remarkably similar to those observed in the time series, which suggests potentially large effects on production.

We then document a large impact of the immigrant influx on Canadian firms, using our Canadian administrative dataset. To that end, we derive a shift-share exposure, which is motivated by the role of firms as channels for immigrant networks (e.g. referrals, Egger et al. (2021)) and our model. This measure implies that firms with a workforce composition tilted to the affected nationalities and occupations are relatively exposed.[5] We use this variation across firms and time variation within an event-study framework to estimate the effect of the policy. We find that firms that were more exposed to the immigrant inflow increased sales. For instance, for the median-sized firm in the skilled service sector, an additional immigrant hired in 2017-2018 translated into 3.2% larger sales in 2018. Exports are an important margin of adjustment as they account for about 40% of the increase in sales. Consistent with a strong increase in production, we find that more-exposed firms not only hired more immigrants but also native-born workers. Our estimates imply that a firm hired, on average, 0.5 additional native workers per new immigrant. The increase in production is likely driven by a drop in labor costs, as we find reductions in earnings per worker and per native-born worker at relatively exposed firms.

Finally, we develop a general equilibrium model to study the welfare effects of the policy, and the extent to which the expansion of economies absorbing the immigrants affects American workers' welfare via international trade. The model's novel aspect is to incorporate immigration policy into a standard model of immigration and international trade. There are multiple sectors, countries, and worker types given by their nationality and occupation. The international trade component is based on a Ricardian model where production features constant returns to scale and requires immigrants and native workers from different occupations, who are imperfect substitutes. Workers decide whether and to which destination country to migrate based on exogenous probabilities of obtaining visas, which is motivated by our evidence. These probabilities are the immigration policy tool. Workers also choose sectors. Since worker types differ in their pattern of comparative advantage, the supply of labor to sectors is nationality-occupation-specific. Thus, an immigrant inflow induces a larger labor supply shock to sectors with a workforce composition tilted toward nationalities and occupations with a larger inflow.

We derive an expression for the impact of an increase in the U.S. visa denial rate on American workers' welfare that is composed of a direct and indirect effect. The direct effect depends on how substitutable immigrants and American workers are, and the extent to which U.S. sectors contract due to the lower immigrant labor. This effect tends to be present in standard models of immigration. The indirect effect depends on how the restrictions impact migration

[5] In practice, due to lack of occupation data at the firm, our empirical measure exploits differences across firms due to the nationality composition of their workforce and the occupational composition of their industry.

flows to other economies, which is affected by the substitutability between emigrating to the U.S. and emigrating to other economies. An inflow of workers reduces production costs and increases production in the receiving economies, particularly in sectors that intensively use worker groups of the incoming immigrants. This increase in the production of foreign competitors diminishes the international price of American goods and, in turn, decreases American wages. Simultaneously, the drop in production costs abroad benefits American workers by providing access to cheaper imported goods and services, increasing their wages' purchasing power. The overall indirect effects on American workers in a specific sector can be either positive or negative, depending on how the export prices of U.S. sectors and the import prices for consumers adjust.

Our analytical results also show the role of certain shares and structural parameters in the welfare effects of the policy. We estimate the elasticity of substitution between emigrating to the U.S. and Canada directly from a coefficient of an equation that we derive from the model. For this estimation, we use our cross-border visa application data and the variation introduced by the policy change. We calibrate other key parameters following an indirect inference approach. We estimate regression coefficients using model-generated data and match them with coefficient estimates obtained using real data, which are based on our earlier event-study estimates. We use our data to calibrate the relevant shares, including the migration shares of each group, the share of each worker group in the costs of a sector, and the bilateral trade shares.

We find that the spike in U.S. visa denial rates observed in 2017 increases immigration to Canada, especially among computer scientists, and leads to a 3.4% overall increase in immigrant labor. This inflow decreases the welfare of Canadian computer scientists because the incoming immigrants are relatively close substitutes. However, the inflow increases the welfare of workers in other occupations because Canadian sectors expand, especially high-skilled service sectors. For instance, in these sectors, the welfare of computer scientists decreases by 2.9% and that of lower-skilled workers increases by 0.9% approximately. The overall welfare increase for all Canadian workers is 0.2%.

In the U.S., immigrant labor decreases by 1.6% and is particularly pronounced among computer scientists. As a result, we find that the rise in U.S. denial rates benefits primarily American computer scientists but tends to harm American workers employed in other occupations, especially if their sector contracts. For instance, the welfare of computer scientists in high-skilled service sectors increases by 0.7% and that of lower-skilled workers decreases by 0.3%. The overall welfare effect for American workers is close to zero. These effects on American workers include both direct and indirect effects. We assess the importance of the indirect effects by simulating the same policy in a global economy without international trade. We find that the welfare gains for American computer scientists, the group presumably targeted for protection by the policy, are up to 25% higher in an economy without international trade, compared to one with the current trade levels. This result indicates that the restrictions may reduce competition between immigrants and American workers in the U.S. labor market, but competition may still exist through the international trade of goods that embody the labor services of these immigrants.

2 Firm Heterogeneity and the Impact of Immigration: Evidence from German Establishments

During the past two decades, the number of immigrants in developed countries increased by more than 80%, which has fueled the academic and public debate regarding the impact of immigration on native workers. To study this question, most of the literature has assumed, implicitly or explicitly, that a representative firm exists. However, firms are heterogeneous along many dimensions such as size, productivity, export behavior, and demand for labor. In this paper, we ask whether such heterogeneity across firms matters to understand the effect of immigration on the welfare of native workers.

We start by using a detailed establishment-level dataset from Germany to document a new dimension of heterogeneity: large employers are more immigrant-intensive than small employers. We then show analytically and quantitatively that ignoring this heterogeneity leads to biased welfare gains from immigration. First, when firms are homogeneous, the elasticity of substitution between immigrants and natives in the labor market coincides with the within-firm elasticity. However, when firms are heterogeneous, the aggregate immigrant-native substitution elasticity depends on the within-firm elasticity and the elasticity of substitution across firms or goods. Thus, having different immigrant-intensities across firms allows for natives and immigrants to specialize in working for different employers, which makes them less substitutable in the labor market. Second, when firms are heterogeneous, the marginal cost gains are predominantly concentrated among the largest firms, which induces a stronger aggregate price decline. We find that if we ignore this heterogeneity, the welfare gains from an increase in immigration would be underestimated by 11%.

To characterize the relationship between employer size and immigrant intensity, we use a comprehensive employer-employee matched dataset of social security records in Germany between 2003 and 2011. We show that the median establishment in the top wage bill decile spends 5.6% of their wage bill on immigrants, while the median establishment in the fifth decile spends almost half of that (2.9%), and the median establishment in the bottom decile spends even less (0.4%). This relationship is stronger in the tradable sector, where the immigrant share of the top decile is 8%, while the immigrant share at the bottom decile is zero. We explore the mechanisms behind this relationship and provide evidence suggesting that firms may incur fixed hiring costs to start recruiting immigrants. We also rule out confounders such as differences in worker skills, production technologies, and local labor markets.

Next, we set up a model with heterogeneous firms to quantify the general equilibrium adjustment and welfare implications of an influx of immigrants. The model incorporates a tradable and non-tradable sector, the decision to export (Melitz, 2003), and crucially, the decision to hire immigrant labor. Consumers have preferences over a set of goods in each sector, which are aggregated in a CES fashion. Each good is produced by a single firm that can use immigrant and native labor as inputs, which we consider imperfect substitutes in production (Peri and Sparber, 2009, 2011).

We model the immigrant hiring decision following the input-sourcing literature (Antràs et al., 2017; Blaum, 2019; Blaum et al., 2018; Halpern et al., 2015). Firms can choose to hire immigrant labor, but to do so they must incur two types of fixed costs: an initial fixed cost to start hiring immigrants, and an additional fixed cost for any new country they source immigrants from. Such fixed cost structure has two implications supported by the data. First, larger and more productive firms will be more likely than small firms to hire immigrants in equilibrium.

Second, larger firms will also find it profitable to recruit immigrants from more countries and spend a larger share of their wage bill on immigrants. To fully capture the rich relationships between size and immigrant intensities across firms observed in the data, the model allows for two sources of firm heterogeneity: innate productivity and the cost of hiring immigrants, which are both drawn from a joint distribution.

We use a simplified version of this model to analytically show that the welfare predictions of a model that ignores the relationship between firm size and immigrant share are biased. To this end, we compare the welfare gains between our model with full heterogeneity and a model without heterogeneity in immigrant intensities. The sign of the bias depends on whether the elasticity of substitution between immigrants and natives is larger or smaller than the elasticity of demand, which regulates the change in the scale of production. When the substitution effect is stronger than the scale effect, immigrants crowd-out natives at immigrant-intensive firms who are reallocated toward native-intensive firms. By specializing in producing different goods than immigrants, natives become less substitutable in the labor market, and the downward pressure on wages induced by competition with immigrants is weaker than when natives do not reallocate across firms. Such reallocation across firms implies that the aggregate elasticity of substitution in the model with full heterogeneity is lower than in the model without heterogeneity, which makes the welfare gains from immigration larger.

The *magnitude of the bias* depends on the elasticity of demand, the elasticity of substitution between immigrants and natives, and the joint distribution between firm-level productivity and firm-level immigrant-hiring costs. Following Oberfield and Raval (2014), we estimate the elasticity of demand from the average firms' markups (i.e., the ratio of revenue to total costs). The substitution between immigrants and natives is structurally estimated using the firm's first-order condition with respect to immigrant and native labor. We regress the firm-level relative wage between immigrants and natives on relative employment, following an IV approach as in Ottaviano and Peri (2012). Since the quantities in our model are in effective units of labor, we provide a model-based method to back out the effective units from data on labor quantities and wages.

Given the estimates of these two elasticities, we estimate the joint distribution of productivities and costs to match the observed dispersion and correlation between firm-level revenues and immigrant-intensities in the data. These parameters are jointly estimated with the remaining parameters of the model through a Simulated Method of Moments (SMM) approach to match key targeted micro- and macro-level moments in Germany between 2003 and 2011. We show that the estimated model is capable of replicating the cross-sectional distribution of immigrant intensities across firms, even for important untargeted moments in the distribution.

We validate the model by comparing our model-predicted treatment effects of an increase in immigration across firm sizes with the observed treatment effects estimated independently from the model. Specifically, we regress firm revenues and the relative wage bill between immigrants and natives on the share of immigrants in the local labor market and its interaction with firm size. To identify the causal effect, we follow Ottaviano and Peri (2012) and instrument the share of immigrants in a labor market with a shift-share instrument that exploits country-of-origin variation in the initial network of immigrants across regions. For establishments in the tradable sector, we find that a 1% increase in the share of immigrants in the local labor market increases revenues for firms in the top decile by 2.16%, while it decreases revenues in the bottom decile by 0.42%. We also show that large establishments in the tradable sector become more immigrant-intensive than small establishments. For establishments in the non-tradable

sector, we find weak heterogeneous effects in their response to immigration. The model does a good job in replicating the observed relative responses to immigration across firms in both sectors.

We use the estimated model to measure the welfare effects of a 20% increase in the total number of immigrants, which is what happened in Germany between 2011 to 2017 after the country unified its labor market with other EU countries. We find that native workers in both sectors benefit from immigration since wages are higher due to larger domestic and international demand, and prices are lower due to lower production costs. Revenues and profits increase for both sectors, but more so in the tradable sector, where firms are more intensive in immigrant labor. Natives reallocate within sector toward less immigrant-intensive firms and across sectors toward the non-tradable sector. In monetary terms, welfare gains from immigration amount to $4 billion for native workers and $15 billion for firm owners.

Finally, for our welfare results, we quantify the significance of accounting for the heterogeneity in the immigrant share. To do so, we keep the same estimates of the elasticity of substitution and the elasticity of demand, and re-estimate the remaining parameters of our model for the case where all firms spend the same share of their wage bills on immigrants. Such model is equivalent to a quantitative model estimated without firm-level data on immigrant labor, a data limitation commonly faced by the literature. Overall, the model without heterogeneity understates the change in welfare of natives by 11%, which is driven by an underestimation of both the drop in the price level and the increase in wages caused by immigration. The bias can be explained by two main components. First, the aggregate elasticity of substitution between immigrants and natives in the heterogeneous model is lower than when ignoring heterogeneity in the immigrant share. Second, even when using the same aggregate elasticity in both models, the largest and most productive firms, by being immigrant-intensive, benefit the most from the endogenous productivity gains generated by immigrants. As a result, their unit cost of production and the aggregate price drops by more than when ignoring heterogeneity.

3 The International Price of Remote Work

An increasing number of jobs are being done remotely, a trend that accelerated dramatically during the COVID pandemic.[6] Remote work can be done from anywhere, even across international borders, which can make these jobs easier to offshore.[7] By globally integrating labor markets, the rise of remote work can have a profound impact on the levels and dynamics of wages across the world.[8] Will wages be equalized across remote workers located in different countries? How will such wages respond to international shocks? Which remote jobs are more likely to be offshored? While these questions are crucial for understanding the future of wages in both developing and developed countries, there is limited research on how the price of remote work is determined in globalized labor markets.

This paper uses new data from a large web-based job platform to shed light on these questions. Web-based job platforms match employers and workers located around the world who trade tasks that are delivered remotely, providing a window into a globalized market for remote work. The number of such platforms has tripled over the past decade. By 2020, hundreds of web-based job platforms had facilitated millions of international transactions totaling over

[6] Bloom et al. (2022), Aksoy et al. (2022), and Hansen et al. (2022).
[7] Blinder and Krueger (2013).
[8] Baldwin (2016, 2019) and ILO (2021).

50 billion US$ (ILO 2021). The emergence of these platforms coincided with the dramatic growth in ICT-Enabled Service trade, which quadrupled in the US since the year 2000 and now accounts for 70% (800 billion US$) of all US service trade.[9]

Our dataset is sourced from one of the largest platforms in the market today. It has several features that make it particularly well suited for our purposes. First, workers are located around the world and compete for the same jobs. These jobs can be done remotely, require little capital other than a computer, and encompass a wide range of occupations, ranging from accountants to web developers. This makes the platform the ideal marketplace for studying the international price of remote work. Second, the dataset is very rich: in addition to hourly wages, it contains extensive information on worker characteristics such as experience, earnings, quality ratings, and standardized test scores and certifications. This information is essential for understanding cross-country wage differences, as it facilitates the comparison of workers around the world. Third, the data record the workers' job histories in the platform (wages, earnings, and start date of each job), which are necessary for understanding how remote wages respond to shocks. Finally, the job histories contain the employers' identities and locations, which in conjunction with the workers' locations, allow us to identify which jobs are being offshored.

We first document large differences in remote wages across workers located in different countries. For example, the wages of Indian workers are, on average, a third of those of US workers. In fact, the country of the workers accounts for at least a quarter of the variance of wages in the data. Furthermore, remote wages are strongly correlated with the GDP per capita in the worker's country: the elasticity of wages to GDP per capita is 0.22. We document a very similar elasticity between remote wages and GDP per capita across US states. These elasticities are not accounted for by observable differences in worker and job characteristics, differences in the employers' locations, or the fact that workers work for different employers. We show, however, that remote wages are more equalized across countries than non-remote wages.

We propose a model of a global remote labor market that rationalizes these observations. In the model, workers from different locations are imperfect substitutes and can choose to work either in their local or in the remote labor market. Equilibrium remote wages vary across locations if workers have different productivities or face different local wages. We disentangle these two alternative hypotheses by estimating a model-based exchange rate pass-through (ERPT) regression. We show that the partial elasticity of dollar wages with respect to the exchange rate between the dollar and the currency in the worker's location is 0.20, which is in line with the cross-country elasticity of remote wages to GDP per capita. Under the assumption that changes in exchange rates affect local wages denominated in dollars but are uncorrelated to changes in remote workers' productivity, this result indicates that remote wages are tied to the conditions that workers face in their local labor markets.

We also study how remote wages respond to other international shocks. Our estimates imply that (partial) ERPT into local currency wages is 80%. This is in sharp contrast to non-remote wages, which typically do not respond to movements in exchange rates at short horizons.[10] We further show that a worker's wage reacts strongly to changes in the wages of other workers on the platform. Guided by the model, we regress the change in a worker's wage on an index measuring the changes in wages of a worker's competitors. To overcome endogeneity issues, we

[9] U.S. Bureau of Economic Analysis, Table 3.1. International Services (accessed Sept 30, 2021).

[10] This finding is not mechanically accounted for by remote wages being sticky in dollars, as we obtain a similar elasticity when focusing on a subsample of dollar wages that do change in a particular period.

exploit that workers in different sectors face competitors from different countries, and construct a model-based instrument for changes in competitors' wages that uses variation in the inflation and exchange rate changes in the competitors' countries. We find that workers adjust their wages in response to changes in their competitors' wages with an elasticity of 0.74. Since most of our workers work from outside the US, this means that US remote workers are exposed to shocks that affect their foreign competitors.

Finally, we use our data to shed light on which occupations are more likely to be offshored. Existing measures of 'offshorability' typically hinge on subjective judgments of the different attributes of a job. Such judgments are often based on whether a job can be performed remotely. For example, Blinder and Krueger (2013) establish that a job is easily offshorable if it involves extensive use of computers/email, processing information/data entry, talking on the telephone, or analyzing data. Instead, we directly measure the frequency with which US jobs are offshored by computing the share of US contracts in an occupation in which the worker is located outside the US. The data on cross-border contracts reveal that whether a job is done remotely is an imperfect proxy for whether a job is actually being offshored. For instance, less than a third of grant writer jobs in the platform are offshored, even though all of them are performed remotely. We show that wages are less dispersed across countries in occupations that are more frequently offshored.

References

Aksoy, C. G., J. M. Barrero, N. Bloom, S. J. Davis, M. Dolls, and P. Zarate (2022). Working from home around the world. *Brookings Papers on Economic Activity*.

Antràs, P., T. C. Fort, and F. Tintelnot (2017). The Margins of Global Sourcing: Theory and Evidence from U.S. Firms. *American Economic Review 107*(9), 2514–64.

Baldwin, R. (2016). *The Great Convergence: Information Technology and the New Globalization*. Harvard University Press.

Baldwin, R. (2019). *The Globotics Upheaval: Globalization, Robotics, and the Future of Work*. Oxford University Press.

Blaum, J. (2019). Global Firms in Large Devaluations. *Working paper*.

Blaum, J., C. Lelarge, and M. Peters (2018). The Gains from Inp Trade with Heterogeneous Importers. *American Economic Journal: Macroeconomics 10*.

Blinder, A. S. and A. B. Krueger (2013). Alternative Measures of Offshorability: A Survey Approach. *Journal of Labor Economics 31*(S1), 97–128.

Bloom, N., R. Han, and J. Liang (2022, July). How hybrid working from home works out. Working Paper 30292, National Bureau of Economic Research.

Egger, D., D. Auer, and J. Kunz (2021). Effects of migrant networks on labor market integration, local firms and employees.

Halpern, L., M. Koren, and A. Szeidl (2015). Imported Inputs and Productivity. *American Economic Review 105*(12), 3660–3703.

Hansen, S., P. J. Lambert, N. Bloom, S. J. Davis, R. Sadun, and T. Bledi (2022). Remote work across jobs, companies, and countries. *Working Paper*.

ILO (2021). The role of digital labour platforms in transforming the world of work. World employment and social outlook 2021, World Employment and Social Outlook.

Kerr, W. R. (2018). *The gift of global talent: How migration shapes business, economy & society*. Stanford University Press.

Melitz, M. (2003). The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity. *Econometrica 71*, 1695–1725.

Oberfield, E. and D. Raval (2014). Micro Data and Macro Technology. Technical report, National Bureau of Economic Research.

Ottaviano, G. I. and G. Peri (2012). Rethinking the Effect of Immigration on Wages. *Journal of the European economic association 10*(1), 152–197.

Peri, G. and C. Sparber (2009, July). Task Specialization, Immigration, and Wages. *American Economic Journal: Applied Economics 1*(3), 135–169.

Peri, G. and C. Sparber (2011). Highly-Educated Immigrants and Native Occupational Choice. *Industrial Relations 50:3*.