How Do Low Skilled Immigrants Adjust to Chinese Import Shocks? Evidence using English Language Proficiency*

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Abstract

This paper examines the link between trade-induced changes in labor market opportunities and English language fluency among low-skilled immigrants in the United States. Many of the production-based manufacturing jobs lost in recent years due to Chinese import competition did not require strong English-speaking skills while many of the jobs in expanding industries, mostly in the service sector, did. Consistent with responses to these changing labor market opportunities, we find that a $1,000 increase in import exposure per worker in a local area led to an increase in the share of low skilled immigrants speaking English very well in that area by about half a percentage point. We show that part of this may be explained by selective migration, but we also present results consistent with actual improvements in their English language speaking abilities. For example, we show that low skilled immigrants in areas with more exposure to Chinese import competition became especially more likely to be enrolled in school compared to similarly low skilled natives. Regardless of whether low skilled immigrants respond to trade shocks via migration, active investments in language skills, or more passive on-the-job language learning, our results suggest that immigrants help to equilibrate labor markets.

Keywords: Immigrants, Language Fluency, Import Competition, Immigrant Assimilation

Journal of Economic Literature Classification: J10, J61

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1 Introduction

Most economists agree that international trade results in aggregate welfare gains but with these gains, as well as some losses, unevenly distributed across sectors. Suggestive of large welfare losses for certain people, Autor, Dorn, and Hanson (2013) find sizeable decreases in employment in the manufacturing sector in local areas specializing in industries competing with Chinese imports. The long-run welfare impacts of these job losses, however, depend on the ability of workers to move into expanding markets either by changing sectors or geographic locations. While Autor et al. (2013) find little evidence of such adjustments within the general population, we examine the impact of Chinese import competition on a population that is both highly represented in the manufacturing sector and that might be more adaptable than the general population: low skilled immigrants. Specifically, we examine whether, on average, the share of low skilled immigrants speaking English very well increases in areas that are more affected by Chinese import competition. We also consider whether any such changes are likely to be driven by actual improvements in English speaking abilities or selective migration into and out of local areas based on language abilities.

While in 1991, the share of total U.S. spending on Chinese goods was a little over half a percent, the figure rose more than seven-fold by the year 2007 (Autor et al. 2013) and has continued to grow since then (authors' own calculations).[1] This has led to large reductions in U.S. manufacturing employment. More generally, because of input-output linkages as well as other local general equilibrium effects, Chinese imports have decreased overall U.S. job growth (Acemoğlu et al. 2016). People living in areas with more Chinese-import induced job losses have received more transfer payments for unemployment, disability, retirement and healthcare (Autor et al. 2013), have experienced worsening physical and mental health (McManus and Schaur 2016) and have higher mortality rates (Peirce and Schott 2016). More recent evidence also points to declines in marriage (Autor, Dorn, and Hanson 2017), increases in out of wedlock

[1] Data on U.S. imports from China by year are available on the U.S. Census website (https://www.census.gov/foreign-trade/balance/c5700.html). Deflating the 2018 values to 2007 dollars using the Personal Consumption Expenditures (PCE) price index, we calculate that net imports increased 38 percent between 2007 and 2018.

births (Autor et al. 2017), and increases in political polarization (Autor, Dorn, Hanson, and Majlesi 2016).

The degree to which employment losses in certain manufacturing industries result in overall declines in welfare depends on workers' abilities to reallocate themselves either to different locations or to different jobs. While Autor et al. (2013) do not find evidence of migration responses to local Chinese import shocks, Greenland, Lopresti, and McHenry (2019) show that the local labor markets most exposed to trade shocks experienced a relative reduction in population growth over the following decade. We might conclude then that the harmful impacts of trade-induced manufacturing job loss would have been much worse had it not been for these migration responses, even though most of the migration responses occurred with a lag (Greenland et al. 2019).

There is also evidence that people make educational investments in response to Chinese import competition. Greenland and Lopresti (2016) find large increases in U.S. high school graduation rates in local labor markets most negatively affected by import completion. This result is consistent with a model in which high school students compare opportunity costs of staying in school to the expected future benefits of a high school degree and make decisions accordingly; Chinese import competition decreases the opportunity costs and increases the expected benefits of a high school degree. We contribute to the literatures on migration and human capital responses to trade shocks by studying the adjustments made by low skilled immigrants.

Low skilled immigrants may be especially susceptible to the negative consequences of trade shocks because their limited English speaking abilities may make moving to growing sectors, many of which are in the service sector, especially difficult. The reason immigrants are highly represented in the manufacturing sector (Andersson et al. 2014) may be precisely because production work does not require the English fluency of a native speaker. Production workers typically do not communicate with customers and clients, and given the repetitive nature of many manufacturing jobs, effective communication with managers and coworkers may not be very important. In fact, even rudimentary English speaking abilities may not be necessary if immigrants are able to segregate into plants employing mainly speakers of their native

language. While there is considerable evidence that immigrants who are better able to speak the host country's language earn higher wages (e.g., Bleakley and Chin, 2004), the returns to host country language skills depend on a worker's occupation and in some occupations, may be close to zero (Berman, Lang and Siniver, 2003).

While immigrants with weak English-speaking skills may find it difficult to move into sectors requiring English fluency within the same local geographic area, they may find it easier, compared to natives, to move to U.S. locations with less manufacturing job loss. Indeed, Cadena and Kovak (2016) show that low-skilled Mexican-born immigrants were more likely to migrate within the U.S. in response to Great Recession-induced labor market shocks than low-skilled natives. In addition, low skilled immigrants with limited English-speaking abilities may simply return to their home countries in response to poor local labor market conditions or choose not to go to affected areas when they first arrive in the United States.[2]

In addition to or instead of migrating, immigrants with limited English proficiency may also respond to the loss of manufacturing jobs by improving their English skills. Even the threat of job loss in the manufacturing sector may induce some immigrants to enroll in formal English classes or take other active steps to improve their English. Perhaps more importantly, when low-skilled immigrants lose their jobs in the manufacturing sector, they may take jobs in sectors requiring their use of English on-the-job. The increased exposure to the language is likely to increase fluency even without any active investments.

We start by examining whether, on average, English language proficiency among immigrants left in areas most affected by Chinese import exposure improves. Using data from the 1990-2000 Censuses as well as 2007-2008 American Community Surveys, we show that for every $1,000 increase in import exposure per worker in the US, the share of low skilled immigrants speaking English very well increases by about half of a percentage point. Further analyses suggest that this result is mainly driven by white non-

[2] The decreases in Mexican migration to the U.S. during the Great Recession were largest among young men with low levels of education, precisely the demographic group most affected by the economic downturn (Villarreal 2014). Interestingly, there does not appear to be strong, robust evidence that return migration to Mexico increased during the Great Recession (Passel, Cohn and Gonzalez-Barrera 2012; Rendall, Brownell, Kups 2011; Van Hook and Zhang 2011; Papademetriou et al. 2009)).

Hispanics who start with a strong base level of English proficiency and relatively higher educational attainment, but who have been in the U.S. for less than ten years.

We then turn to examining whether the relationship between Chinese import exposure and English speaking abilities of low skilled immigrants is mainly a result of selective migration or actual improvements in English language proficiency among non-movers exposed to the shock. We start by exploring the relationship between Chinese import exposure and changes in characteristics of people that are difficult or impossible to change, such as race, gender, and age. We do not find any statistically significant impacts of import exposure on the composition of low skilled immigrants in terms of educational attainment, age, and years in the United States—characteristics we would expect to change along with language fluency if our results were mostly driven by migration patterns. On the other hand, when splitting our sample based on whether individuals have moved within the past few years, we find the largest improvement in English language proficiency among immigrants who have arrived from a different state or from abroad. This result suggests that new arrivers only go to areas negatively affected by trade shocks if they are already proficient in English or are prepared to become proficient.

Because our data does not allow us to follow the same immigrants over time, we cannot show conclusively that English-speaking abilities of individuals improved in response to changes in industrial structures. However, we do show that the low skilled immigrants in our sample living in areas with more import competition are more likely to be enrolled in school than those in areas that are less affected. Low-skilled natives are significantly less likely to be enrolled in school *in response to Chinese imports* compared to low skilled immigrants despite the fact that on average, they are more likely to be in school. Taken together with our analyses of migration patterns, we view these school enrollment results as suggestive that low skilled immigrants do respond to manufacturing job loss with actual improvements in English language fluency and general human capital but they are also likely to move to areas where the returns to their skills are higher.

Irrespective of whether low skilled immigrants are more likely than natives to respond to labor

market shocks via human capital investments or migration decisions, their responses are likely to help equilibrate labor markets. To explore this hypothesis, we compare the labor market outcomes of low skilled natives in areas with initially small numbers of low-skilled immigrants to those in areas with initially larger numbers of low skilled immigrants. Consistent with the findings of Cadena and Kovak (2016) that natives in areas with fewer Mexican-born immigrants were more negatively impacted by the Great Recession, we show that low-skilled natives in areas with initially fewer low-skilled immigrants had worse labor market outcomes in response to Chinese import exposure than those in areas with more low-skilled immigrants. We interpret this result as evidence that immigrants indeed help to equilibrate labor markets.

The remainder of the paper is organized as follows. Section 2 presents background and motivation for the study. Section 3 describes the data and our measurement of key variables. Section 4 describes our empirical approach and section 5 presents our baseline empirical results. Section 6 examines the mechanisms driving our baseline results, section 7 examines whether immigrants help equilibrate labor markets, and section 8 concludes.

2 Background

2.1 Migration Responses to Labor Market Shocks

It is well known that emigration is positively related to unemployment in the source country and negatively related to unemployment at the destination (Hatton and Williamson 2009). New research has shown that immigrants are more likely than natives to respond to local labor shocks. For example, Cadena and Kovak (2016) find that low-skilled Mexican-born immigrants were more responsive to Great Recession-induced local labor market shocks than were natives. Schündeln (2014) finds similar results using German data. If immigrants with limited English-speaking ability migrated out of or did not migrate to areas that were most affected by import shocks, we would observe improvements in average English fluency among the immigrants observed in these areas even if individuals did not experience actual improvements in English speaking ability as a result of the trade shocks

2.2 Human Capital Investment Responses to Changes in Labor Market Returns to Skill

In addition to the literature on migration, our paper also contributes to a literature on the impact of local labor market changes on human capital investment. Existing evidence suggests that people increase their investments in skills that become more highly valued in their local labor markets. Weinstein (2017) uses three exogenous market shocks to show that in universities in areas more exposed to sectoral shocks, the number of majors in sector-relevant fields increases. In a developing country context, Millett and Oster (2013) find that increases in high-skill IT service jobs in India promote school enrollment. Clingingsmith (2008, 2014) shows that the expansion of the manufacturing sector in India during the 20th century increased bilingualism and reduced district level language heterogeneity. We contribute to this literature by considering a low skilled population in a developed country context.

Language skills are an important form of host country-specific human capital for immigrants. While previous studies have shown a positive association between language skills and earnings (e.g. Angrist and Lavy, 1997; Dustmann and van Soest, 2002; and Bleakley and Chin, 2004), there is considerable variation in the extent to which immigrants become fluent in the host country language even after spending many years in the host country.[3] Much of the literature on language acquisition focuses on factors making learning a new language easier, for example, age at arrival (Bleakley and Chin, 2004) and the similarity between an immigrant's native language and the host country language (Adsera and Chiswick, 2007). Our paper considers whether increases in the labor market returns to learning the host country language influence immigrants' fluency in the host country language.

Because workers in the manufacturing sector are mainly engaged in routine manual work (Autor,

[3] About 9% of the U.S. population can be considered Limited English Proficient (LEP), and approximately 21% speak a language other than English at home (Zong and Batalova 2017). In the year 2012, more than 37 percent of immigrants living in the U.S. for 30 years or more were not able to speak English "very well" (Gambino, Acosta, and Grieco 2014).

2010), communication skills may not be as important in this sector. Managers are able to communicate instructions without requiring complex language and work within teams is probably not necessary. Most of the workers within manufacturing, those involved in production, do not often communicate with customers. Consistent with this idea that English language proficiency is less important for manufacturing workers, Chiswick and Miller (2010) show using O*NET data that workers in low-skilled occupations, such as production, transportation, and material moving occupations, have a distribution of English language importance scores skewed towards the left, while service and sales occupations have a relatively high mean score for the importance of English language fluency. According to recent research (Autor and Dorn, 2013; Autor et al., 2015), technological change has made social skills more highly rewarded in the labor market than routine physical skills. Consistent with the hypothesis that natives have a comparative advantage in jobs requiring social skills, Song (2019) shows that native-immigrant wage gaps widened more in metropolitan areas that were more strongly impacted by computerization. In our paper, we will consider whether Chinese import-induced changes in the share manufacturing sector in a local area led to changes in the English fluency of low skilled immigrants living in that area.

3 Data

3.1 Main Sample

Our data come from the five percent state samples of the U.S Census Integrated Public Use Micro Samples (IPUMS) data in 1980, 1990 and 2000 as well as the 3-year one percent sample of the American Community Survey (ACS) data from 2006 to 2008; the 1980 data is used only to construct our instrumental variable. These data are particularly well suited for this study because they contain information on immigrants' English proficiency and the large sample sizes allow us to create accurate measures of demographic characteristics within commuting zones for relatively small populations.[4]

[4] We do not use more recent data given Bloom et al.'s (2019) finding that the impact of Chinese imports disappeared after 2007.

Our main sample consists of immigrants between the ages of 18 to 65, from non-English speaking countries,[5] who arrived in the US after age 18 and who have completed at most a high school degree—those with any college attendance (even less than a year) are dropped from the sample to ensure that we do not include international students who have not yet completed their college degrees. We also drop those immigrants who report speaking only English since for them, English is likely their native language despite their being born abroad. Our justification for dropping childhood immigrants is that they are typically fluent in English by the time they join the labor market (Bleakley and Chin 2004). We restrict our sample to low skill immigrants because they are more likely to work in production within the manufacturing sector. They are also less likely to have been fluent in English before coming to the United States making them more sensitive to changes in U.S. industrial structure. For constructing all of the variables in our analysis, we keep only individuals living in the mainland US. Because our analysis relies on making comparisons across geographic areas, we drop individuals without detailed geographic information, that is, those in unidentified country groups (in 1980) or PUMAs (starting in 1990).

Our measure of English proficiency is based on answers to the survey question: "How well does this person speak English?" The question has four possible responses: "very well," "well," "not well", and "not at all." Following Bleakley and Chin (2004), we create an English fluency dummy variable equal to one for immigrants speaking English "very well" and zero otherwise.[6]

The goal of this paper is to study how low-skilled immigrants respond to industrial structure changes in local labor markets. Following Autor et al. (2013), we measure labor markets using commuting zones (CZs)—areas resembling metropolitan statistical areas in that they are created so that most inhabitants

[5] English speaking countries are defined as countries from which more than half the recent adult immigrants speak English at home (Bleakley and Chin, 2004). Countries with English as an official language are excluded from the sample. Puerto Rico is classified as a non-English speaking country (Details can be found in Appendix Table A1).

[6] Because this information is self-reported (or reported by the household member filling out the survey), the English-speaking ability variable may suffer from measurement error. Different people might have different answers to the English-speaking ability question even holding constant actual English-speaking ability. We note, however, that while measurement error in a dependent variable will yield more imprecise estimates, they will not be biased.

live and work within the same area but differ in that they cover the entire United States including rural areas. By 1990 definitions, there are 741 commuting zones in the U.S. and 722 in the mainland. Just as in Autor et al. (2013), although we start with the individual-level data from the IPUMS, we eventually aggregate the data to the commuting-zone year level.[7]

3.2 Measuring Chinese Import Shocks to Local Areas

To measure Chinese import exposure in each CZ, we follow Autor et al. (2013) in interacting the change in US imports from China in each industry with the share of workers in that commuting zone working in that industry and summing this across all industries in the commuting zone. More specifically,

$$\Delta IPW_{it}^{u} = \sum_{j} \frac{L_{ijt}}{L_{it}} \frac{\Delta M_{ucjt}}{L_{ujt}} \quad (1)$$

where ΔM_{ucjt} is the change in the dollar value of imports in industry *j* to the U.S., *u*, from China, *c*, in a ten-year or equivalent period from *t* to *t+1*, L_{ujt} is the start of period employment in industry *j* in the entire US, L_{it} is the start of period employment in CZ *i*, and L_{ijt} is the start of period employment in industry *j* in CZ *i*. Thus, the variation in ΔIPW_{it}^{u} stems from differences by CZ in start-of-period industrial structures.[8]

3.3 Descriptive Statistics

Our data is aggregated to the CZ-year level. Our main variables are constructed as decadal differences, 1990-2000 and 2000-2007. Table 1 presents descriptive statistics of the 1432 cells in our data (716 commuting zones multiplied by 2 decadal differences) separated by whether the changes in import exposure are above or below median import exposure in the sample. As can be seen from the table, the share of low-skilled immigrants who speak English very well generally decreased by about four percentage points in this time period, but the decrease was smaller in magnitude in commuting zones with more Chinese import

[7] There are six CZs not included in our sample because there were no low skilled immigrants sampled in these commuting zones. The six commuting zones are: 04103, Calhoun County, AR; 27102, Lincoln County, MN; 27602, Ziebach County, SD; 27603, Haakon County, SD; 27604, Jones County, SD; 27605, Mellette County, SD. We use 716 commuting zones in our baseline sample.

[8] We use the variable constructed in Autor, Dorn, and Hanson (2013) and made available on David Dorn's website. Further details on this variable as well as other commuting zone-level variables are provided in Appendix A1.

exposure. Table 1 also presents descriptive statistics on start of period commuting zone characteristics, again separated by whether the commuting zone experienced above or below average changes in Chinese import exposure in the ten years following that base period. As can be seen from the table, the low skilled immigrants in high exposure commuting zones are less likely to have high school degrees, are more likely to be Hispanic and less likely to be Asian, and are significantly more likely to be employed in manufacturing. The table also presents start of period descriptive statistics for the general working age population of the commuting zones (not just the low skilled immigrants in our sample). Relationships mirror those for the low skilled immigrants: In CZs with larger increases in import exposure, the share of the working age population employed in manufacturing is higher. These commuting zones also have a slightly larger share of the population with college degrees.[9]

4 Empirical Approach

To identify the impact of changes in industrial structure on English language fluency, we exploit variation across commuting zones in exposure to Chinese import competition. Following Autor et al. (2013), our baseline empirical specification is a stacked first difference model of the form,

$$\Delta \text{ENG}_{it} = \alpha \Delta IPW_{it}^{u} + W_{it}\beta_1 + X_{it}\beta_2 + \gamma_t + \varepsilon_{it} \quad (2)$$

where the dependent variable, ΔENG_{it} , is the decadal change between year *t* and year *t+1* in the share of low skilled immigrants in CZ *i* that speak English very well. The right hand side variable of interest, ΔIPW_{it}^{u}, measures the change in Chinese import exposure in commuting zone *i* between the year *t* and ten years later.

[9] While we constructed our own aggregate characteristics for the low skilled immigrants in our baseline model, the data on working age population characteristics were obtained from David Dorn's website.

The vector, W_{it} , contains a set of demographic characteristics of commuting zone i measured at the start of decade. These include characteristics like share of the working age population that is college educated and share female in the labor market, but also the share of the commuting zone workforce employed in manufacturing at the start of the period. This is an especially important control variable for our analysis because commuting zones may be strongly affected by Chinese imports both because they have more people employed in the manufacturing sector and because the particular manufacturing industries in those commuting zones are in direct competition with Chinese imports. Commuting zones with larger manufacturing sectors may be very different commuting zones focusing in other industries and so the characteristics of people in the manufacturing-centric commuting zones may have evolved over time for reasons unrelated to Chinese import competition (for example, technological change). By controlling for base period share of the workforce employed in manufacturing, we are implicitly comparing the evolution of English speaking abilities of immigrants residing in commuting zones with very similar initial industrial structures but with some facing more competition from imports from China than others. The vector, X_{it}, controls for characteristics of the low-skilled immigrant population in the commuting zone, including the share with a high school degree, average age, average years in the U.S., share female, and the share of different races.

Because the model is estimated in first differences, we have two observations for each commuting zone: one for the difference between 1990 and 2000 and the other for the difference between 2000 and 2007. To allow for differences across decades in changes of English speaking abilities of immigrants across the entire U.S., we include decade fixed effects, γ_t, which we estimate by including a dummy variable equal to one for commuting zone differences between 2000 and 2007. We note that the estimates from our first difference model are similar to what we would get from estimating a more traditional three period fixed effects model. Standard errors are clustered at the state level throughout.

If changes in our measure of import exposure across commuting zones arise mostly from supply shocks in China, then we might interpret our estimated α as the impact of imports-induced job losses in a

commuting zone on the English language fluency of immigrants in that commuting zone. A potential concern with this estimation strategy is that the changes in CZ import competition are instead driven by U.S. demand shocks. For example, if people in the U.S. start demanding more smartphones, then China would export more smart phones to the U.S., but at the same time, U.S.-based smart phone manufacturers would also produce more smart phones. If this is true, commuting zones with more smartphone production may even have better labor market opportunities than those specializing in other industries, despite the fact that they are exposed to more Chinese import competition. Thus, demand-induced changes in Chinese exports will only attenuate our estimates of the impact of import exposure.

To address this issue, we follow Autor et al. (2013) in instrumenting for Chinese import exposure with a variable constructed from changes in Chinese imports to other developed countries, namely, Australia, Denmark, Finland, Germany, Japan, New Zealand, Spain, and Switzerland:

$$\Delta IPW_{it}^{o} = \sum_j \frac{L_{ijt-1}}{L_{ujt-1}} \frac{\Delta M_{ocjt}}{L_{it-1}} \quad (3)$$

where ΔM_{ocjt} is the change in imports from China to the eight other high-income countries. These changes are driven by Chinese supply-side factors as well as demand-side factors specific to those other countries. Another source of potential bias with our exposure measure, shown in equation (1) is that contemporaneous employment may be affected by anticipated trade exposure in the future. To address this issue, Equation (3) differs from equation (2) in that the start-of-period employment levels are replaced with employment levels from the prior decade. Using lagged employment will lessen this simultaneity bias. If the demand-side factors are rather idiosyncratic, i.e. not correlated with U.S. demand, then the IV strategy will identify the impact of Chinese import exposure stemming solely from improvements in Chinese productivity and openness to trade.[10] If this is the case, we expect our IV estimates to be larger in magnitude than our OLS estimates.

[10] Using a gravity-based measurement of import exposure, Autor et al. (2013) present evidence suggesting that correlated import demand shocks across countries are not important drivers of results.

5 Empirical Results

5.1 Baseline Findings

Table 2 displays our baseline results. Controlling for base period manufacturing share in addition to base period immigrant characteristics, column 1 shows that the share of low skilled immigrants speaking English very well increases in in local areas with more exposure to Chinese import competition. As can be seen in column 2, the magnitude of the estimated impact of import exposure decreases slightly when state fixed effects are added to the model but the estimate remains positive and statistically significant. Column 3 presents results when base period share of the commuting zone working age population that has a college degree and share female in the labor force are added to the model. Our estimate of interest decreases again but not substantially.

Next, we turn to the IV analysis. Column 5 shows that the IV is positively associated with Chinese import exposure, and the F statistic of 53.7 points to a strong first stage. The two stage least squares estimates in column 4 suggest that for every $1,000 increase in import exposure per worker, the share of low skilled immigrants in the commuting speaking English very well increases by 0.46 percentage points. For comparison, this same increase in import exposure reduces manufacturing employment per working-age population by 0.60 percentage points (Autor et al. 2013). As expected, the IV estimates are larger in magnitude than the OLS estimates suggesting that U.S. demand shocks may be attenuating the OLS estimates, but the difference is very small. We note, however, that it is certainly possible for demand shocks in other countries to be correlated with demand shocks in the U.S.; this would attenuate even our IV estimates.

A more worrisome issue arises if the IV is correlated with commuting zone level characteristics associated with improvements in English proficiency for reasons unrelated to Chinese import exposure or even industrial structure more broadly. To address this concern, we regress *past* changes in English

proficiency of immigrants on *future* changes in Chinese import exposure. If, for example, Chinese import competition and English language fluency of immigrants in a commuting zone were both increasing over time but Chinese import exposure was not causing the changes in English proficiency, then we would expect to estimate a positive coefficient on future changes in Chinese import exposure. If instead, our baseline estimates reflect causal relationships, we should see no statistically significant impacts. Results from this placebo regression are shown in Appendix Table 1. The change in import exposure from 2000 to 2007 in a commuting zone has no statistically significant impact on the change in English fluency among immigrants from 1990 to 2000 in that commuting zone. In fact, the estimate has a negative sign.

5.2 Heterogeneity

As a first step towards understanding the main drivers of our baseline results, we examine which immigrants are most affected by changes in import competition. We start by testing for heterogeneity by level of English fluency. In column 1 of Panel A in Table 4, we reproduce our baseline estimates using changes in share of immigrants speaking English very well as the dependent variable. In column 2 of the same panel, we replace the dependent variable with changes in share of immigrants speaking English either well or very well, thereby decreasing the threshold for fluency. While 29 percent of our sample speaks English very well, 56 percent speak it well or very well. Interestingly, Chinese imports do not have a statistically significant impact on improvements in English fluency as measured by the share of speakers with abilities above this lower threshold. In the last column, results are shown for even a lower threshold and again, no statistically significant impacts. We conclude from this analysis that any language-based changes resulting from Chinese imports occur at the top of the English speaking distribution. This is certainly consistent with average or above average English speakers who have lost their manufacturing jobs taking jobs in the service sector and then improving their English further with the extra practice, but we cannot rule out selective migration at the top of the English-speaking distribution driving results.

In Panel B of Table 4, we conduct the analysis separately by race, and results suggest that our findings are driven by whites. Some caution should be used in comparing estimates across the different columns because many of the commuting zone-year cells end up with very few observations when we cut the sample by race. Indeed, the number of observations in column 1 differs from the number in the baseline sample because there were 212 commuting zone-year cells with zero low skilled white immigrants in them.[11] In Panel C, we separate the sample by years in the United States. Estimated impacts are larger among immigrants who have been in the U.S. for fewer than ten years. This result that may not be surprising given that both language improvements and migration are more likely among young, recent arrivers. Finally, in Panel D, we separate the sample by education. To create the estimates in columns 1 and 2, we separate our baseline sample of immigrants with no more than a high school degree into a group with less than a high school degree (column 1) and another with a high school degree (column 2). Estimated impacts are stronger for those with a high school degree.

6 Mechanisms: Selective Migration vs. English Proficiency Improvements

We now turn to an investigation of the mechanisms driving the relationship between Chinese import competition and English fluency among low-skilled immigrants. In response to trade-induced manufacturing job losses, do the English speaking abilities of immigrants actually improve or is it that the least English proficient immigrants leave (or do not move to) the hardest hit areas? We are not able to perfectly distinguish between these mechanisms, all of which may be occurring at the same time. Instead, we present several pieces of indirect evidence suggesting that both mechanisms may be at play.

[11] Recall that our dependent variable is the decadal change in the language abilities of immigrants in the commuting zone. If there are no immigrants with a particular characteristic (like race) in the initial IPUMS sample in either the base year or the end year, we are not able to calculate a difference and so the commuting zone-year observation is dropped in our aggregate analysis. While this issue results in differences in the number of observations across groups, it is not likely to result in large differences in coefficient estimates because the dropped cells tend to have very small populations and we weight our observations (the commuting zone-year cells) by the start year population of the commuting zone.

As an initial exercise, we examine the relationship between import exposure and characteristics that are either impossible or at least difficult for a person to change. Changes in the gender and race composition of a local area are most likely driven by population movements, for example. For ease of comparison, we reproduce our baseline results in column 1 of Table 4 where we show rather strong and statistically significant impacts of trade exposure on the share of immigrants speaking English very well. Performing this exercise on other, difficult or impossible to change characteristics, we do not see similar patterns. Trade shocks do not seem to be associated with the share of the low skilled immigrant population that is a high school graduate (column 2), that is Hispanic (column 6), or that is white (column 5). Commuting zones with more exposure to import competition do tend to have younger immigrants (column 3) who have been in the U.S. for fewer years (column 4), but even these estimates are relatively small and not statistically significant. Strangely, column 7 shows that the share of low-skilled immigrants in a commuting zone who are female decreases quite substantially in response to increased import exposure. Since it is unlikely that this result is driven by sex changes, this finding may be interpreted as suggesting that our language results may also be driven by migration patterns, but given the statistically insignificant estimates of effects on the other composition measures, the results in Table 4 do not make a strong case for the migration mechanism.

Next, we separate our sample based on where people were living five years (in 1990 or 200) or one year (in 2006-2008) prior to the survey: in the same house, in a different house but the same state, in a different state, or abroad. If our baseline results are driven mostly by actual improvements in English language fluency for non-migrating individuals, we would expect to see the largest increases in the sample of non-movers. If instead, selective migration within the U.S. is driving our results, we should see the largest increases among people who have moved between states. Lastly, if our results are driven by the decisions of newly arrived immigrants---those with the worst English skills going only to commuting zones spared from Chinese import competition—then we should see the strongest results for those who recently arrived from abroad.

The results shown in Panel A of Table 5 may be most consistent with the last explanation. Only for the low skilled immigrants who recently arrived from abroad (within the past year or five years) is the relationship between Chinese import exposure and the share of low skilled immigrants speaking English very well statistically significant (see column 4). We note, however, that newly arrived immigrants have the most incentive to make language improvement investments, and because they tend to be young, they may also be better able to learn a new language. The point estimate is also quite large in the sample of state movers, but caution is required in interpreting this result given that it is statistically insignificant. Indeed the number of commuting zones with at least one low skilled immigrant who has moved states in recent years (926) is much smaller than the number of commuting zones with at least one low skilled immigrant coming from abroad (1,048) or who has not moved (1,388).

We next consider whether the language results are mirrored by migration patterns separated by general human capital characteristics. Panel B of Table 5 suggests that this is not the case. The relationship between Chinese import exposure and the change in the likelihood of holding a high school degree (as opposed to less than a high school degree) is actually negative for those who have come from farther away. When interpreted in conjunction with the results in Panel A, Panel B suggests that only those with the lowest educational attainments move to areas hardest hit by Chinese imports but conditional on educational attainment, they tend to be most fluent in English.

We now turn to an examination of whether low skilled immigrants are indeed making English language improvements in areas hit hardest by trade. Specifically, we consider the impact of Chinese import exposure on the likelihood that low skilled immigrants, who are age 18 or above and who have never been enrolled in college, are enrolled in school. We note that our measure of school enrollment only includes schooling which leads to a high school diploma or a college degree; English as a Second Language (ESL) classes would not be counted in this measure. Also, because we drop from the sample even those who attended college for less than a year, our enrollment measure is not picking up college attendance. However, we believe that participation in GED classes improves English speaking abilities of immigrants regardless

of the subjects being taught. Moreover, school enrollment can be viewed as an active investment in the skills that are being more rewarded in labor markets affected by trade.

Column 1 of Table 6 shows that Chinese import exposure increases the likelihood that low skilled immigrants in the commuting zone are enrolled in school. For comparison, we also consider the same test but run on a sample of low-skilled native born individuals. Consistent with Greenland and Lopresti's (2016) findings that high school graduation rates increase in areas with more Chinese import exposure, we do estimate a positive and statistically significant impact of import exposure on the likelihood that natives are enrolled in school, but the magnitude of the impact is substantially smaller for natives than it is for immigrants.

7 Equilibrating Labor Markets

While it is certainly interesting to consider the mechanisms driving the relationship between Chinse import exposure and the share of low skilled immigrants in the commuting zone who speak English very well, for the purposes of equilibrating the labor market, the mechanisms do not matter. Regardless of whether low skilled immigrants are responding to import-induced labor market changes by adjusting their skill set or by migrating to where their skills are more highly rewarded, the natives, who may not be as willing or able to make these types of changes, will benefit. In other words, were it not for the skill investments or migration decisions made by immigrants, the wage and employment consequences of import exposure on natives may have been much worse.

To investigate this hypothesis, we turn now to examining the employment and wage impacts of Chinese import exposure on low skilled natives depending on whether they live in commuting zones with large initial populations of low skilled immigrants. If immigrants indeed help equilibrate the labor market, then we would expect less negative impacts in the areas with more immigrants.

Table 7 presents evidence that this is indeed the case. Panel A shows that although the estimates of the impact of Chinese import exposure on employment of low skilled native are statistically insignificant in commuting with above mean shares of low skilled immigrants, the point estimate in the below mean sample (column 1) is larger in magnitude than the estimate in the above mean sample (column 2). Column 3 shows that the difference between these two samples is statistically significant at the five percent level. Panel B shows that in commuting zones with below-mean shares of low skilled immigrants, import exposure leads to statistically significant decreases in weekly wages of low skilled natives (column 1) while in commuting zones with above-median shares of low skilled immigrants, import exposure has a statistically insignificant smaller estimated impact on native wages (column 2). While the difference between the two estimates in this model are not statistically significant, we view these results as broadly consistent with immigrants' roles in equilibrating labor markets. Taken together, our results are very much in line with the findings of Cadena and Kovak (2016) that the harmful impacts of the Great Recession on natives were smaller in areas with more Mexican-born immigrants.

8 Conclusion

This paper examines the impact of Chinese import competition on low-skilled immigrants' language skills. Our results suggest that for every $1,000 increase in import exposure per worker, the share of low-skilled immigrants who speak English very well increases about half of a percentage point. This result is driven by whites, with a high school degree (but not more), who have been in the U.S. for ten years or less, and who most likely start with a fairly advanced level of English proficiency.

These results may be driven by actual improvements in immigrants' English speaking abilities, either via active investments in English classes or more passive on-the-job learning, or by selective migration into or out of trade hit areas based on English proficiency. Because our data do not allow us to track individuals over time, we cannot perfectly distinguish between these two broad mechanisms. In fact,

we present evidence consistent with both mechanisms driving our results.

Regardless of whether our findings are driven by actual English language learning or selective migration, they provide further support for an often-ignored potential benefit of low skilled immigration to natives. Because immigrants tend to be more responsive to labor market shocks than natives, they can dampen negative impacts of labor market shocks to specific local areas by helping to equilibrate local labor markets. Our results also suggest that even people who are the most negatively affected by trade can and often do make investments that may actually improve their long run outcomes. Perhaps instead of discouraging trade, policymakers may consider facilitating these investments.

References

[1] Angrist, Joshua D. and Victor Lavy. 1997. "The Effect of a Change in Language of Instruction on the Returns to Schooling in Morocco." Journal of Labor Economics, Vol.15, No.1 ,pp. S48-S76.

[2] Autor, D. H. 2010. "The Polarization of Job Opportunities in the U.S. Labor Market." The Hamilton Project.

[3] Autor, D. H., D. Dorn and Gordon H. Hanson. 2013. "The China Syndrome: Local Labor Market Effects of Import Competition in the United States." American Economic Review, Vol.103, No.6, pp.2121-68.

[4] Azam, Mehtabul, Aimee Chin and Nishith Prakash. 2013. "The Returns to English-Language Skills in India." Economic Development and Cultural Change, Vol. 61, No.2, pp. 335-367

[5] Baily, M. N. and B. P. Bosworth. 2014. "US Manufacturing: Under- standing Its Past and Its Potential Future." Journal of Economic Perspectives, Vol.28, No.1, pp.3-26.

[6] Bartik, Timothy J. 1991. "Who Benefits from State and Local Development Policies?" Kalamazoo, MI: W.E. Upjohn Institute.

[7] Beiser, Morton N.M.N. and Feng Hou. 2006. "Ethnic identity, resettlement stress and depressive affect among Southeast Asian refugees in Canada." Social Science & Medicine, Vol.63, Issue.1, pp.137-150.

[8] Blanchard, Olivier Jean and Lawrence F. Katz. 1992. "Regional Evolutions." Brookings Papers on Economic Activity, Vol.23, Issue 1, pp. 1-61.

[9] Bleakley, Hoyt and Aimee Chin. 2004. "Language Skills and Earnings: Evidence from Childhood Immigrants." Review of Economics and Statistics, Vol.86, No.2, pp.481- 496.

[10] Bloom, Nicholas, Handley Kyle, Kurman Andre and Philip Luck. 2019. “The Impact of Chinese Trade on U.S. Employment: The Good, The Bad, and The Debatable.” Unpublished draft.

[11] Borjas. George J. 2000. “Ethnic Enclaves and Assimilation.” Swedish Economic Policy Review, Vol 7, No.2, pp. 89-122.

[12] Cadena, Brian C. and Brian K. Kovak. 2016. “Immigrants Equilibrate Local Labor Markets: Evidence from the Great Recession.” American Economic Journal: Applied Economics, Vol. 8, No. 1, pp. 257-90.

[13] Charles, K.K., E. Hurst and M.J. Notowidigdo. 2013. "Manufacturing Decline, Housing Booms, and Non-Employment." Tech. Rep., NBER Working Paper No. 18949, National Bureau of Economic Research.

[14] Chin, Aimee. 2015 "Impact of Bilingual Education on Student Achievement." IZA World of Labor (March 2015):131.

[15] Chiswick, Barry R. 2008. "The Economics of Language: An Introduction and Overview." IZA

Discussion Paper No. 3568.

[16] Chiswick, Barry R., and P. W. Miller. 1995. "The Endogeneity be- tween Language and Earnings: International Analyses." Journal of Labor Economics, Vol.13, No.2, pp.246–288.

[17] Chiswick, Barry R. and P.W. Miller. 2008. "A Test of the Critical Period Hypothesis for Language Learning." Journal of Multilingual and Multicultural Development, Vol.29, No.1, pp.16–29.

[18] Chiswick, Barry R., and P. W. Miller. 2001. "A Model of Destination- Language Acquisition: Application to Male Immigrants in Canada." Demography, Vol.38, No.3, pp.391–409.

[19] Chiswick, Barry R., Y.L. Lee and P.W. Miller. 2005. "Family Matters: The Role of the Family in Immigrants' Destination Language Acquisition." Journal of Population Economics, Vol. No.4, pp.631–647.

[20] Chiswick, Barry R. and Zhiling Wang. 2016. "Social Contacts, Dutch Language Proficiency and Immigrant Economic Performance in the Netherlands: A Longitudinal Study." IZA Discussion Paper No. 9760.

[21] Church,Jeffrey and Ian King. 1993."Bilingualism and Network Externalities." The Canadian Journal of Economics, Vol. 26, No. 2, pp. 337- 345.

[22] Clingingsmith, David. 2014. "Industrialization and Bilingualism in India." Journal of Human Resources, Vol.49, No.1, pp. 73–109.

[23] Colby Sandra L. and Ortman Jennifer M. 2015. "Projections of the Size and Composition of the U.S. Population: 2014 to 2060." U.S. Census Bureau. Report number: P25-1143.

[24] Cutler, David M., Edward L. Glaeser and Jacob L. Vigdor. 2008. "When Are Ghettos Bad? Lessons from Immigrant Segregation in the United States." NBER Working Paper No. 13082

[25] Dustmann, Christian. 1999. "Temporary Migration, Human Capital, and Language Fluency of Migrants." Scandinavian Journal of Economics, Vol.101, No.2, pp.297-314.

[26] Dustmann, Christian and Arthur van Soest. 2002."Language and the Earnings of Immigrants." Industrial and Labor Relations Review, Vol.55, Issue 3, pp. 473-492.

[27] Dustmann, Christian and Francesca Fabbri. 2003. "Language Proficiency and Labor Market Performance of Immigrants in the UK." The Economic Journal, Vol. 113, Issue 489, pp. 695-717.

[28] Furtado, Delia and Tao Song. 2014. "Trends in the Returns to Social Assimilation: Earnings Premiums among U.S. Immigrants that Marry Natives." IZA Discussion Paper No. 8626.

[29] Gambino, Christine P., Yesenia D. Acosta, and Elizabeth M. Grieco. 2014. "English-Speaking Ability of the Foreign-Born Population in the United States: 2012." American Community Survey Reports.

[30] Gould, Eric D. 2015. "Explaining the Unexplained: Residual Wage Inequality, Manufacturing Decline, and Low-Skilled Immigration." C.E.P.R. Discussion Paper 10649.

[31] Isphording, I. E. 2015. "What Drives the Language Proficiency of Immigrants?" IZA World of Labor (August 2015):177.

[32] Jiménez, Tomás R. 2011. “Immigrants in the United States: How Well Are They Integrating into Society?**”** Washington, DC: Migration Policy Institute.

[33] Laliberté, Jean-William. 2019. “Language skill acquisition in immigrant social networks: Evidence from Australia.” Labour Economics, Vol. 57, pp.35-45

[34] Lang, Kevin and Erez Siniver. 2006. “The Return to English in a Non-English Speaking Country: Russian Immigrants and Native Israelis in Israel." NBER Working Paper 12464.

[35] Lazear, Edward. 1999. "Culture and Language." Journal of Political Economy, Vol. 107, Issue S6, pp. S95-S126.

[36] Lenneberg, Eric H. 1967. "Biological foundations of language." New York: John Wiley and Sons.

[37] Lindstrom, David P. 2019. “Mexican Migrant Integration in the United States, 1965–2015.” The ANNALS of the American Academy of Political and Social Science, 684(1), 85–104.

[38] Mcmanus, Walter. 1990. "Labor Market Effects of Language Enclaves: Hispanic Men in the United States." Journal of Human Resources, Vol.25, Issue. 2, pp.228-252.

[39] Oster, Emily and Bryce Millett Steinberg. 2013. "Do IT Service Centers Promote School Enrollment? Evidence from India." Journal of Development Economics, Vol.104, pp.123-135.

[40] Schündeln, Matthias . 2014. “Are Immigrants More Mobile Than Natives? Evidence From Germany.” Journal of Regional Science, Vol. 54, No. 1, pp. 70–95.

[41] Song, Tao. 2019. “Honey, Robots Shrunk My Wage! Native-Immigrant Wage Gaps and Skill Biased Technological Change.” Unpublished draft.

[42] Tilly, C. 2011. “The impact of the economic crisis on international migration: a review.” Work, Employment and Society, 25(4), 675–692.

[43] Weinstein, Russell. 2017."Local Labor Markets and Human Capital Investments." IZA Discussion Paper No. 10598

[44] Zoghi, Masoud, Seyyed Ali Kazemi and Ali Kalani. 2013. "The Effect of Gender on Language Learning." Journal of Novel Applied Sciences, 2(S4): 1124-1128.

Table 1: Descriptive Statistics

	Change in Import Exposure in CZ		
	Low	High	Total Sample
	(1)	(2)	(3)
Change imports from China to US / worker	1.05	2.16	1.84
	(0.57)	(1.59)	(1.47)
Among low skilled immigrant population			
Change in percentage speaking English very well	-5.45	-3.77	-4.25
	(5.20)	(4.02)	(4.46)
Average age$_{-1}$	40.80	41.14	41.04
	(2.91)	(2.90)	(2.91)
Average years in the US$_{-1}$	12.64	13.04	12.92
	(2.45)	(2.22)	(2.29)
Percentage female$_{-1}$	49.92	50.52	50.35
	(6.23)	(4.64)	(5.15)
Percentage with high school degree$_{-1}$	30.57	27.84	28.63
	(11.06)	(8.13)	(9.15)
Percentage non-Hispanic white$_{-1}$	14.01	14.59	14.42
	(12.75)	(12.79)	(12.78)
Percentage non-Hispanic black$_{-1}$	2.49	1.96	2.12
	(3.86)	(3.13)	(3.37)
Percentage Asian$_{-1}$	17.22	11.92	13.45
	(12.91)	(8.41)	(10.20)
Percentage Hispanic$_{-1}$	64.37	70.29	68.58
	(20.53)	(16.42)	(17.90)
Percentage married$_{-1}$	62.51	61.70	61.93
	(6.93)	(5.08)	(5.68)
Percentage of immigrants employed in manufacturing$_{-1}$	10.14	17.38	15.30
	(5.83)	(7.11)	(7.51)
Among whole commuting zone population			
Percentage employed in manufacturing$_{-1}$	11.52	17.43	15.73
	(5.23)	(5.68)	(6.16)
Percentage of employment among women$_{-1}$	62.40	62.40	62.40
	(6.22)	(4.70)	(5.18)
Percentage of college-educated population$_{-1}$	53.35	52.13	52.48
	(7.61)	(6.11)	(6.60)
Number of observations	716	716	1432

Table 2: Baseline Regressions

Dependent Variable:	Change in Share Speaking English Very Well				Change imports from China to US / worker
Estimation:	OLS	OLS	OLS	IV	First Stage
	(1)	(2)	(3)	(4)	(5)
Δ Import from China to US/ Worker	0.509***	0.438***	0.369**	0.459**	
	(0.137)	(0.122)	(0.150)	(0.228)	
Δ Import from China to Other Countries/ Worker					0.547***
					(0.0746)
Constant	-33.45***	-41.64***	-49.71***	-49.08***	-1.855
	(6.641)	(9.533)	(12.55)	(12.27)	(2.428)
Observations	1,432	1,432	1,432	1,432	1,432
R-squared	0.170	0.287	0.292	0.291	0.735
Low skilled immigrant controls	Y	Y	Y	Y	Y
State FE	N	Y	Y	Y	Y
Whole population controls	N	N	Y	Y	Y
Dependent variable mean (levels, not changes)	29.18	29.18	29.18	29.18	1.918
F statistic first stage				53.72	

Notes: N=1,432 (716 × 2 time periods). See Table 1 for description of variables and sample. The IV regression includes the full vector of controls from column (3). All regressions include a dummy for the 2000-2007 period. Robust standard errors are clustered at the state level. Stacked first difference models are weighted by the start-of-period CZ share of the national immigrant population. *** p<0.01, ** p<0.05, * p<0.1

Table 3: Heterogeneity of Impacts of Chinese Import Exposure

Panel A: Heterogeneity by Measure of English Fluency			
Dependent Variable:	Change in Share Speaking English…		
	Very Well	Well or Very Well	Speak English
Δ Import from China to US/ Worker	0.459**	0.107	0.254
	(0.228)	(0.419)	(0.184)
Observations	1,432	1,432	1,432
Average Dependent Variable (Levels)	0.292	0.564	0.849
F	53.72	53.72	53.72

Panel B: Heterogeneity by Race				
Dependent variable:	Change in Share Speaking English Very Well			
Sample:	White	Black	Asian	Hispanics
Δ Import from China to US/ Worker	3.206***	0.280	0.543	0.329*
	(1.196)	(2.427)	(0.545)	(0.177)
Observations	1,220	158	1,242	1,288
R-squared	0.146	0.323	0.101	0.150
Average Dependent Variable (Levels)	0.568	0.337	0.249	0.222
F	42.17	20.77	124.7	39.81

Panel C: Heterogeneity by Years in the U.S.		
Dependent variable:	Change in Share Speaking English Very Well	
Sample: In the U.S…	>10 Years	<= 10 Years
Δ Import from China to US/ Worker	0.177	0.731***
	(0.364)	(0.218)
Observations	1,396	1,348
R-squared	0.318	0.159
Average Dependent Variable (Levels)	0.366	0.212
F	80.52	35.82

Panel D: Heterogeneity by Completed Schooling

Dependent variable:	Change in Share Speaking English Very Well	
Sample:	< High School	High School
Δ Import from China to US/ Worker	0.188	1.135***
	(0.197)	(0.430)
Observations	1,384	1,384
R-squared	0.257	0.240
Average Dependent Variable (Levels)	0.225	0.411
F	48.29	68.04

Notes: See Table 1 for description of variables and sample. The IV regression includes the full vector of controls from column (3). All regressions include a dummy for the 2000-2007 period. Robust standard errors are clustered at the state level. Stacked first difference models are weighted by the start-of-period CZ share of the national immigrant population. *** p<0.01, ** p<0.05, * p<0.1

Table 4: Changes in Composition

Dependent variable:	Δ Share Speaking English Very Well	Δ Share with High School Degree	Δ Average Age	Δ Average Years in the US	Δ Share Non-Hispanic White	Δ Share Hispanic	Δ Share Female
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Δ Import from China to US/ Worker	0.459**	-0.0589	-0.0988	-0.0716	0.279	-0.460	-0.381**
	(0.228)	(0.268)	(0.0718)	(0.0617)	(0.324)	(0.526)	(0.148)
Observations	1,432	1,432	1,432	1,432	1,432	1,432	1,432
R-squared	0.291	0.676	0.747	0.783	0.594	0.503	0.404
Average Dependent Variable (Levels)	0.171	0.286	41.04	12.92	0.144	0.686	0.503
F	53.72	54.13	54.56	53.72	52.86	52.86	51.93

Notes: See Table 1 for description of variables and sample. The IV regression includes the full vector of controls from column (3). All regressions include a dummy for the 2000-2007 period. Robust standard errors are clustered at the state level. Stacked first difference models are weighted by the start-of-period CZ share of the national immigrant population. *** p<0.01, ** p<0.05, * p<0.1

Table 5: Heterogeneity by Recent Migration History

Panel A: Language Proficiency				
Sample:	Same House	Migrated within Same State	Migrated from Different State	Migrated from Abroad
Dependent variable:	Change in Share Speaking English Very Well			
Δ Import from China to US/ Worker	0.184	0.146	2.643	1.435**
	(0.233)	(0.341)	(1.797)	(0.648)
Observations	1,388	1,214	926	1,048
R-squared	0.400	0.171	0.069	0.203
Average Dependent Variable (Levels)	0.204	0.166	0.208	0.112
F	95.90	55.41	18.71	27.99
Panel B: Educational Attainment				
Dependent variable:	Change in Share with High School Degree			
Δ Import from China to US/ Worker	0.504	-1.287**	-0.134	-2.159*
	(0.353)	(0.524)	(1.280)	(1.168)
Observations	1,388	1,214	926	1,048
R-squared	0.598	0.488	0.296	0.341
Average Dependent Variable (Levels)	9.250	0.269	0.330	0.318
F	93.90	55.94	18.67	28.60

Notes: See Table 1 for description of variables and sample. The IV regression includes the full vector of controls from column (3). All regressions include a dummy for the 2000-2007 period. Robust standard errors are clustered at the state level. Stacked first difference models are weighted by the start-of-period CZ share of the national immigrant population. *** p<0.01, ** p<0.05, * p<0.1

Table 6: Impact of Chinese Imports on School Enrollment of Low Skilled Immigrants and Natives

Dependent variable:	Change in Share Enrolled in School	
Sample:	Low Skilled Immigrants	Low Skilled Natives
Δ Import from China to US/ Worker	0.521***	0.191***
	(0.150)	(0.0703)
Observations	1,432	1,444
R-squared	0.327	0.337
Average Dependent Variable (Levels)	5.57	6.45

Notes: See Table 1 for description of variables and sample. The IV regression includes the full vector of controls from column (3). All regressions include a dummy for the 2000-2007 period. Robust standard errors are clustered at the state level. Stacked first difference models are weighted by the start-of-period CZ share of the national immigrant population. *** p<0.01, ** p<0.05, * p<0.1

Table 7: Low Skilled Immigrants Equilibrating Labor Markets

	(1)	(2)	(3)
	Share Low-Skilled Immigrant below Mean in Base Period	Share Low-Skilled Immigrant above Mean in Base Period	Difference
Panel A:			
Dependent variable: Change in log of employed population			
Dependent variable sample: Low-skilled working age natives			
Δ Import from China to US/ Worker	-0.0122**	-0.00698	0.0190**
	(0.00560)	(0.0118)	(0.00836)
Observations	1,048	395	1,443
R-squared	0.258	0.778	0.549
Average Dependent Variable	9.801	10.01	9.858
F	32.08	11.27	10.39
Panel B:			
Dependent variable: Change in log of weekly wage			
Dependent variable sample: Low-skilled working age natives			
Δ Import from China to US/ Worker	-0.00719**	0.000699	0.0000410
	(0.00298)	(0.0117)	(0.00545)
Observations	1,048	395	1,443
R-squared	0.510	0.554	0.481
Average Dependent Variable	6.401	6.453	6.415
F	31.13	9.958	9.636

Notes: See Table 1 for description of variables. The IV regression includes the full vector of controls from column (3). In panel B, we only include those who worked full-time full-year in the previous year, not in unpaid jobs. All regressions include a dummy for the 2000-2007 period. Robust standard errors are clustered at the state level. Stacked first difference models are weighted by start-of-period CZ share of the national immigrant population. *** p<0.01, ** p<0.05, * p<0.1

Appendix Table 1: Placebo Regression, Regressing Past Changes in Language Fluency on Future Changes in Import Exposure

Dependent variable:	Change in Share Speaking English Very Well
Δ Import from China to US/ Worker$_{t+1}$	-0.625
	(0.449)
Observations	716
R-squared	0.572
Average Dependent Variable (Levels)	37.26
F	25.74

Notes: See Table 1 for description of variables and sample. The IV regression includes the full vector of controls from column (3). Robust standard errors are clustered at the state level. Stacked first difference models are weighted by the start-of-period CZ share of the national immigrant population. *** p<0.01, ** p<0.05, * p<0.1

Appendix Table 2: Heterogeneity by Gender

Dependent variable:	Change in Share Speaking English Very Well	
Sample:	Males	Females
Δ Import from China to US/ Worker	0.485**	0.462
	(0.199)	(0.328)
Observations	1,334	1,414
R-squared	0.162	0.293
Average Dependent Variable (Levels)	0.169	0.173
F	43	68.51

Notes: See Table 1 for description of variables and sample. The IV regression includes the full vector of controls from column (3). All regressions include a dummy for the 2000-2007 period. Robust standard errors are clustered at the state level. Stacked first difference models are weighted by the start-of-period CZ share of the national immigrant population. *** p<0.01, ** p<0.05, * p<0.1