Local Employment and Political Effects of Trade Deals: Evidence from NAFTA

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Preliminary and incomplete. Comments welcome.

Abstract

We examine the economic, demographic and political evolution of communities that, in 1990, had substantial employment in industries that would face competition from Mexico via the 1994 North American Free Trade Agreement. These places suffer large employment losses (relative to the bottom quartile of counties, counties in the top quartile of NAFTA exposure see an eight percent decline in employment by 2000), concentrated in manufacturing. Despite economic decline, we find no detectable decline in population. However, voters respond: exposed counties (many in the upper South) begin the period more Democratic in terms of votes in House elections, but as NAFTA is debated in 1992-1994 they shift in the Republican direction and by 2000 vote majority-Republican in House elections. Each of these results is presented in event-study graphs that show visually compelling evidence of limited pre-trends and breaks in trend consistent with NAFTA as the key driver.

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1 Introduction

In late summer 1993, the Clinton administration released a letter signed by 283 economists, including twelve Nobel laureates, urging Congress to ratify the North American Free Trade Agreement (NAFTA). "[T]he assertions that NAFTA will spur an exodus of U.S. jobs to Mexico are without basis," the economists wrote. "The letter is part of a concerted White House campaign to rebut the criticisms of the trade agreement made by Texas billionaire Ross Perot, who has begun spending large amounts of his considerable fortune to promote his view that NAFTA will destroy American jobs," reported the *Los Angeles Times*.

The White House indeed succeeded in passing NAFTA in a close and bi-partisan vote a few months later, and it was implemented on January 1st, 1994. However, a quarter of a century later, it remains controversial. President Donald Trump made his opposition to NAFTA a key part of his successful 2016 campaign, claiming in the first presidential debate that "NAFTA is the worst trade deal maybe ever signed anywhere, but certainly ever signed in this country." While somewhat forgotten, as his administration was generally pro-free-trade, Senator Barack Obama campaigned against NAFTA in the 2008 Democratic primary, tying Hillary Clinton to her husband's championing of the policy. "[T]rade deals like NAFTA ship jobs overseas and force parents to compete with their teenagers to work for minimum wage at Wal-Mart. That's what happens when the American worker doesn't have a voice at the negotiating table, when leaders change their positions on trade with the politics of the moment."

In the economics literature, it has long been argued that despite being welfare-increasing overall, free trade creates some "losers." However, only recently have the costs to the losers received major attention in the profession. In particular, the important work of Autor *et al.* (2013) has highlighted the large and durable negative effects to local labor markets that were exposed to Chinese import competition from 1990 to 2007.

In light of its enduring political controversy and the renewed focus on the local effects of trade agreements, we revisit NAFTA. Surprisingly, the empirical, reduced-form evidence on local employment effects of trade agreements and imports more generally was rather sparse until the recent set of papers on the "China shock." The work on local employment effects of NAFTA is even more limited. In contrast to the work on NAFTA that does exist, which is much more structural in nature, we take a simple event-study approach to the question. We classify communities based on the share of their employment in industries that would become exposed to Mexican imports by the terms of NAFTA. We then examine how these communities evolve relative to others in the years before and after NAFTA.

Our main results can be classified as economic, demographic, and political. Economically,

NAFTA had a major, negative effect on employment in areas exposed to Mexican import competition. While most of our results use the exposure measure linearly, to discuss magnitudes we find it helpful to compare the top- and bottom-quartile group of communities in terms of NAFTA exposure. By 2000, counties (commuting zones) in the top quartile of our measure of NAFTA exposure saw an eight (six) percent decline in total employment, relative to the bottom quartile. These losses were concentrated in manufacturing and, importantly, exhibit no pre-trends prior to 1994. While we begin all of our analysis by showing trends with raw data, the basic shape of our event-study coefficients are unchanged as we add a large number of controls: pre-period measures (e.g., 1990 share with a college degree, share foreign-born, manufacturing share of employment) interacted with year fixed effects, to control flexibly for other secular changes (e.g., automation, skill biased technological change) that may affect communities differentially across time; the "China shock" measure from Autor *et al.* (2013) interacted with year fixed effects, to ensure we isolate the NAFTA effect from the rise of Chinese imports; and fixed effects at the state-year level, to pick up any policy or other unobserved variation within states across time.

The large employment losses might lead to population declines (as in Blanchard *et al.*, 1992, though they examine data from an earlier period), so we examine annual population measures, both estimates of persons (created by the Census) as well as administrative data (not estimates) of tax-filers from the IRS. Both sources of data tell the same story: population does not respond to NAFTA-driven employment losses, at least in the medium-run captured by our sample period. In the Census, we have the power to reject relatively small effects. In the Census data, the point estimate in our event-study graphs is actually positive (though small and insignificant) in 2000, and we can reject top-versus-bottom-quartile county population losses larger than 0.2 percent. Note that Autor *et al.* (2013) also find limited migration response to the China shock, so our result deepens the puzzle of why population does not appear to respond to these large, trade-driven employment shocks.

Having documented large, negative local employment effects in communities exposed to Mexican import competition, it is natural to return to our original motivation and ask how voters in these communities reacted. NAFTA was a major issue in the 1992 U.S. presidential campaign, with Ross Perot making opposition to it a major motivation for his third-party campaign, a third-party campaign that picked up 19 percent of the popular vote, making it the most successful such campaign since Teddy Roosevelt's run as the Bull Moose Party candidate in 1912. President Bill Clinton made passage of NAFTA a key goal of the first year of his administration, which he accomplished via a close, controversial and bi-partisan vote in November of 1993.

We focus on House election votes in most of our political analysis, as every House seat

is up for election every two years, allowing for a balanced panel of years.[1] While NAFTA-exposed counties (many in the upper South) begin the sample period more Democratic as measured by House election votes than the rest of the country, they exhibit a sharp change in trend and become increasingly Republican. In contrast to our employment effects, which show no pre-1994 pre-trend regardless of specification, this political turning point occurs in either the 1992 or the 1994 election, depending on the controls we include in the event-study analysis. We find this ambiguity unsurprising, given the political salience of NAFTA in the 1992 election, even though its provisions did not go into effect until January 1994. Beyond the ambiguity between 1992 and 1994, there is no political pre-trend in NAFTA-exposed counties from 1980 to 1990. The shift we document is large. While these counties are in 1990 the most Democratic of our four quartile groups, by 2000 they are the most Republican.

Our paper contributes to the literature on the local employment effects in rich countries of exposure to import competition from poorer countries. In the U.S. context, Autor *et al.* (2013) highlighted the large and lasting effects of Chinese import competition on exposed U.S. communities in terms of declining employment and labor force participation and rising transfer payments. Interestingly, there has not been parallel work of this type for NAFTA.

The literature on the effect of NAFTA on the U.S. has focused on examining the policy's impact on prices and trade flows as well as measuring its aggregate wage and welfare impact. Krueger (1999) documents the expansion of trade flows among the three North American countries during the first four years of NAFTA, with a potential trade diversion away from non-NAFTA countries. Romalis (2007) uses detailed trade flow and tariff data to estimate import supply and demand elasticities and evaluates the price and welfare impact on the U.S. The paper finds a positive impact on the trade quantities but moderate impact on prices and welfare. Caliendo and Parro (2014) develop a structural general equilibrium model that incorporates the sectoral linkages (e.g., intermediate goods and input-output linkages) and show that NAFTA had a positive impact on U.S.'s welfare by 0.08 percent, while it increased Mexico's welfare by 1.31 percent and decreased Canada's welfare by 0.06 percent.[2]

Perhaps the closest paper to ours is Hakobyan and McLaren (2016). They use decennial Census data and model industry-level effects of NAFTA (proxied as changes in earnings by industry from 1990 to 2000) as a function of both 1990 tariff levels and the change in tariff

[1]Obviously, House elections are determined by votes in Congressional Districts, which change over time. However, data breaking down these votes into counties is readily available and we use them so that we can examine consistent geographical unites over longer periods of time, as county boundaries are very stable.

[2]There are papers that document the effect of NAFTA on Mexico, including Hanson (1998) that shows NAFTA affected the regional employment in Mexico by contracting manufacturing employment in Mexico City and increasing the manufacturing employment in northern Mexico.

levels between 1990 and 2000. We bring much less structure to our empirical approach, allowing each county's 1990-level of protection to have an unrestricted effect on employment (as well as myriad other outcomes) in every year of our sample period and then plot these estimated effects.[3] Our use of annual data as opposed to decennial data in much of this literature allows us to visually test for pre-trends and moreover show that breaks in trend are highly correlated in time with NAFTA's implementation.

It is interesting to speculate why there has been so little work on the local employment effects of NAFTA, and we can imagine at least two likely reasons. First, economists pushing for its passage in the early 1990s emphasized it would have small effects. A good example is the public letter referenced in the first paragraph of the paper. While signatories acknowledged that trade deals create "winners and losers," they stressed that the Mexican economy was too small to appreciably affect U.S. employment. Second, they also emphasized that the provisions of NAFTA would ease tariffs downward gradually. In fact, both claims are debatable. As we discuss in the next section, Mexican imports to the US were in fact greater in value to those from China until 2004. Moreover, more than half of the tariffs that existed on Mexican goods pre-NAFTA were set to zero immediately upon the agreement's implementation in January of 1994.[4]

We also contribute to a small but growing literature on the political effects of trade shocks. To date, this literature has found mixed results in the US context. In a follow-up to Autor *et al.* (2013) work on local labor markets, Autor *et al.* (2016) find that voters more impacted by Chinese import competition move ideologically to the right on average, sending more polarizing representatives to Congress as voters in initially Democratic districts send slightly more liberal candidates while voters in initially Republican districts send substantially more conservative candidates. Their findings echo papers on Germany and France that demonstrate that greater import competition results in a larger vote share for the far right party (Malgouyres (2017) and Dippel *et al.* (2015)). In the British case, greater exposure to trade predicts votes for Brexit (Colantone and Stanig (2018)). Che *et al.* (2017), on the other hand, using a longer time period (1990 to 2010 where Autor *et al.* (2016) examine 2002-2010) level of geography (counties, which stay constant over a 20 year period as op-

[3]Another issue with including both the change in tariff levels from 1990 to 2000 and the level of tariff levels in 1990 is that the two are nearly one-for-one (negatively) correlated,as tariffs do not change much from 1990 to 1993 and from 1994 to 2000 almost all tariffs go to zero as a result of NAFTA. Thus, identification is reliant on the relatively small share of industries whose tariffs do not go to zero by 2000.

[4]See U.S. Information Agency (1998), p. 25. Also, our documentation of tariff protection by year in the next Section shows a large and immediate decline in tariff rates, and then a slower convergence thereafter to zero.

posed to districts) and methodological approach (focusing on a policy change that resulted in greater Chinese import competition for some areas) than Autor *et al.* (2016) find that the most exposed to Chinese imports are more likely to vote Democratic.

By contrast, we find a clear shift in the Republican direction in places most exposed to NAFTA. We suspect that the difference in our results are those from previous papers, which largely focus on the China shock, is that NAFTA was more politically salient. The debate over NAFTA motivated a highly successful third-party presidential campaign in 1992 and remains a politically controversial point to this day. Why NAFTA captured political salience more than did trade relations with China is an interesting question for future work.

The rest of the paper is organized as follows. Section 2 provides a short background on NAFTA's provisions and provides some historical context for the agreement. Section 3 briefly describes our data sources, which for the most part will be familiar to most readers. Section 4 outlines the empirical strategy, which for the most part is a simple event-study approach. Section 5 describes the employment results, Section 6, the demographic results and Section 7 the political results. Section 8 concludes and offers ideas for future work.

2 Background on NAFTA and historical context

By 1992, diplomats from Canada, Mexico and the US had hammered out the details of an historic agreement to substantially reduce trade barriers across the North American continent, though the agreement awaited ratification by the governments of the three countries. In fact, trade between the US and Canada had mostly been tariff-free due to earlier agreements, so the debate over NAFTA in the US focused on whether to liberalize trade with Mexico.

As noted in the introduction and as we will detail more in Section 7, NAFTA became a major issue in the 1992 election in the US. President Clinton eventually secured its passage in November 1993, and many of its provisions went into effect in January 1994. While NAFTA phased out some tariffs more gradually, in fact over one-half of tariffs on Mexican goods were immediately set to zero in 1994.

Figure 1 shows the value of imports to the US from Mexico and Canada (and, for context, also includes China). While growing before NAFTA, Mexican imports enjoy more rapid growth beginning in 1994. Interestingly, despite the larger focus on China in the empirical labor economics literature, it is not until 2004 that China supplants Mexico as the most important low-income source of imports (though its rise since 2004 is indeed more rapid than any period for Mexico). For much of this period as it has been throughout much of the twentieth century, Canada is the most important trading partner for the US in terms

of import volumes, though there is no apparent inflection point in the mid-1990s, consistent with NAFTA having little impact on US-Canada trade flows.

Which industries were most affected by NAFTA? Not surprising given Mexico's comparative advantage in low-skilled labor, they were labor-intensive, low-wage manufacturing industries such as apparel, shoes, textiles and leather. It is important to note that these industries had long complained about import competition from poor countries and were declining even before NAFTA and the China Shock.[5] In fact, industry lobbyists often complained about an assumption among politicians and economists that these jobs were in "sunset industries" and moreover were low-quality jobs that were not worth saving. But at the time of NAFTA's passage, the apparel and textile industries still employed nearly two million people. Whether via a successful (at least in terms of visibility) Made-in-America campaign pitched toward consumers or other factors, employment decline had also slowed in these industries in the years leading up to NAFTA.

3 Data sources and construction of NAFTA exposure

3.1 Data sources

For the most part, our data come from well-known sources. Thus, we only briefly describe our data sources in the main text of the paper, relegating details to an online Data Appendix.

To examine local economic effects, we make use of the County Business Patterns data (CBPD), which provide total employment, payroll and number of establishments by county and year. The CBPD are administrative *annual* data, which allow us to perform event-study analysis to examine the evolution of community employment before and after NAFTA, in particular to examine pre-trends and to determine if breaks in trends are coincident with NAFTA's passage and implementation.

To examine population, we use Census and IRS data.

3.2 Construction of our exposure measure

Our exposure measure draws heavily from Hakobyan and McLaren (2016), though we create county- and CZ-level measures, whereas they examine exposure at the Public-Use Microdata Area (PUMA) level. In spirit, it is also very similar to that used by Autor *et al.* (2013), as it takes the vector of industry-level measures of exposure to import competition and, for each community, multiplies it by a vector of pre-period industry employment shares.

[5]Much of the information provided in this paragraph and the next is taken from Minchin (2012), a history of the decline of the U.S. textile industry.

Following Hakobyan and McLaren (2016), we begin by creating Mexico's "relative comparative advantage" (RCA) in a given industry $j \in \mathbf{I}$, using pre-NAFTA data:

$$\text{RCA}^j = \frac{\left(x^{MEX}_{j,1990}/x^{ROW}_{j,1990}\right)}{\left(\sum_i x^{MEX}_{i,1990}/\sum_i x^{ROW}_{i,1990}\right)}. \tag{1}$$

In the numerator of the above expression, $x^{MEX}_{j,1990}$ is the 1990 value of Mexican exports (to all countries, not just the US) in industry j, $x^{ROW}_{j,1990}$ is the 1990 value of the rest of the world's (ROW) exports (again, to all countries) in j. The ratio of the two expressions is roughly equal to Mexico's share of exports in industry j. Of course, the share will be in part driven by Mexico's size. The denominator adjusts for Mexico's *overall* share of all exports, not just those in industry j. Thus, the overall expression in equation (1) captures, in 1990, Mexico's relative advantage in producing exports in industry j relative to other industries $i \in \mathbf{I}$.

How much a U.S. county is likely to be affected by NAFTA depends on its pre-period reliance on employment from industries with the following two characteristics: (*a*) Mexico has large RCA in that industry, *and* (*b*) the industry had previously enjoyed tariff protection before NAFTA.

We can now write our full county-level vulnerability measure:

$$\text{Vulnerability}_{c,1990} = \frac{\sum_{j=1}^{J} L^{cj}_{1990}\text{RCA}^j\tau^j_{1990}}{\sum_{j=1}^{J} L^{cj}_{1990}\text{RCA}^j}, \tag{2}$$

where L^{cj}_{1990} is employment of industry j in county c in year 1990 and τ^j_{1990} is the ad-valorem equivalent tariff rate of industry j in 1990. We also construct an analogous CZ-level exposure measure. Note that the measure uses only *pre-period* measures of both Mexican RCA and community-level industrial composition, and thus does not pick up any endogenous reaction to NAFTA itself.

There are three conceptual points to discuss about the vulnerability expression in equation (2). First, it is a constant within county—as we take the τ^j values from 1990, it captures how much tariff protection from Mexican RCA a county enjoyed in 1990. The event-study specification asks what predictive value this county-level constant has in each year of the sample period.

Of course, while our τ^j_{1990} are taken from a specific year, the τ^j values in fact change over time, in particular a large decline in the mid-1990s due to NAFTA. Figure 2 shows, separately by quartile of 1990 vulnerability, how the protection measure in equation (2) changes if we allow the τ to follow their *actual* course over time (all other variables in the expression are kept at their 1990 levels). Before 1993, there is little change, as tariff rates

were largely stable in this pre-NAFTA period. Between 1993 and 1995, there is a large decline in protection, consistent with NAFTA setting the majority of tariffs to zero within the first year. By 2000, even the most protected quartile of counties by the 1990 measure have essentially zero tariff protection.

Second, as there is little change in tariffs between 1990 and 1993, and between 1994 and 2000 most tariffs go to zero, there is an extremely high correlation between 1990 tariffs and the 1990 to 2000 *change* in tariffs. Thus, "protection" from Mexican in 1990 is essentially the same as "vulnerability" or "exposure" to NAFTA and we use the expressions interchangeably.

Third, while similar in spirit to the ADH measure, one departure is that we focus on statutory changes in tariff protection instead of changes in actual import penetration. We view this modification as somewhat preferable, as actual imports are potentially endogenous to domestic demand (Autor *et al.*, 2013 themselves note this concern, and thus use Chinese import flows to *other* rich countries as an instrumental variable in many specifications). In principle, tariff reductions could have a direct effect on local employment without an actual rise in Mexican imports in once-protected industries: the announcement of the tariff reductions themselves could deter future investment in those domestic industries and thus reduce employment. But in practice, Mexican imports in once-protected industries indeed did rise after NAFTA. Appendix Figure A1 shows the value of three different groups of Mexican imports to the US from 1990 to 2000: those with no tariff protection in 1990 and then two groups of industries who enjoyed some protection in 1990 (split at the median 1990 tariff level). While the first group shows no change upon NAFTA's implementation, the other groups do, with a larger effect for those industries enjoying greater levels of protection in 1990. Thus, higher 1990 tariff levels for a given industry does indeed predict larger increases in Mexican imports post-NAFTA.

3.3 Geographic variation in the NAFTA exposure measure

While Figure 2 shows how tariff protection changed over time, Figure 3 shows how protection in 1990 (and thus vulnerability to NAFTA) varies geographically. The upper South exhibits the highest levels of vulnerability, but there are pockets of high-vulnerability areas within most states.

A natural question is how our measure of NAFTA vulnerability varies with exposure to the China shock in Autor *et al.* (2013). Many of the same industries were affected (textiles and apparel, e.g.). However, the correspondence is hardly one-for-one. At the CZ level, the (1990 population-weighted) correlation is 0.172. As noted, ADH often use an instrumented version of their exposure measure, and the correlation in that case is 0.420. Thus, while

positively correlated, they are not identical, though in all of our analysis we show results after flexibly controlling for the China-shock measures.

3.4 Summary statistics

Table 1 shows a variety of county-level summary statistics, separately by quartile of exposure. In terms of population, the most and least exposed quartiles are the most similar, both smaller than the second and third quartile. As expected, the same pattern holds for employment size and the number of establishments.

Individuals in our most exposed quartile begin our sample period the most reliant on manufacturing employment and the least likely to have a college degree, highlighting the importance of flexibly controlling for these attributes in order to isolate the effects of NAFTA from other events or secular changes such as skill-biased technological change or the China shock that could also disproportionately hurt these areas.

As the most vulnerable quartile is disproportionately Southern, it is not surprising it is less white than the other quartiles, as African-Americans have always disproportionately lived in the South. It also begins the period the least supportive of Republican candidates in House elections. While the South was no longer a Democratic stronghold by 1990, Democrats, in part because of their senior positions in Congress, still faired well in House and Senate elections in the region.

4 Empirical strategy

One of our contributions relative to the existing literature on local employment effects of trade agreements is that we present results in a very simple and transparent manner, which allows readers to easily inspect pre-NAFTA trends and to see if any changes are coincident with the implementation of the agreement.

We generally begin each section of our results (employment, demographic or political) by showing trends for four groups of communities: four quartiles as defined by the vulnerability measure. These trends are based on raw data, unadjusted except for normalization of each quartile to zero at 1993. While this approach is the most transparent, it is more difficult to summarize and adjust for covariates in a concise manner. We thus turn to a standard event-study approach for the bulk of our analysis, where instead dividing NAFTA exposure into quartiles we simply use (linearly) the measure in equation (2), interacting it with year

fixed effects. In particular, we estimate:

$$Y_{ct} = \alpha_c + \gamma_t + \sum_{\substack{\tilde{t}=1990 \\ \tilde{t}\neq 1993}}^{2001} \beta_t \left(\text{Vulnerability}_{c,1990}\right) \times \mathbb{1}\left(t = \tilde{t}\right) + \lambda X_{ct} + \epsilon_{ct}, \tag{3}$$

where Y_{ct} is a given outcome in community c in year t (employment, population, etc.); α_c are community (county or CZ) fixed effects; γ_t are year fixed effects, $\text{Vulnerability}_{c,1990}$ is the vulnerability index in c (measured, as discussed in the previous section, using data from 1990); X_{ct} include controls that vary within community over time (which we vary to probe robustness); and ϵ_{ct} is the error term. We cluster standard errors at the community (county or CZ) level.

Note that this equation does not directly use the schedule of tariff reductions implied by NAFTA (and plotted earlier in Figure 2). Instead, we allow the 1990 level of tariff protection to have an unrestricted effect in each year, captured by the β_t coefficients, and plot those estimated effects each year. We prefer to take a more agnostic approach to how the effects of tariffs play out over time and in particular prefer to allow unrestricted effects of the tariffs before 1994 to test for pre-trends.

5 Employment results

5.1 Main results

We begin by examining how employment in NAFTA-vulnerable counties trends relative to other counties around the time of the agreement's implementation. Figure 4 shows our four groups of counties, with data unadjusted except for each group's (log) employment level being normalized to zero in 1993. While the four series are nearly on top of one another from 1990 to 1994, they begin to diverge thereafter. By 2000, the most-exposed quartile has roughly five to ten log-points less than other counties relative to the 1994 baseline. Note also that the second-most-exposed quartile also shows a slowing of employment growth relative to the least-exposed half of counties, suggesting that the effect is not entirely driven by a few counties in the most-exposed quartile.

While Figure 4 has the virtue of transparency, event-study figures can more succinctly show robustness to various specification choices. The first series (squares) in Figure 5 plots the β estimates from a version of equation (3) where we control only for county and year fixed effects. The coefficient values in the four years before NAFTA (1990, 1991, 1992 and 1993) are all indistinguishable from zero (note that 1993 is the omitted category and normalized

to zero) and more importantly show no trend in either direction. But beginning in 1994 there is a steady decline in the coefficient values. The event-study coefficient is roughly -0.6 by 2000. Multiplying this coefficient by 0.08 (the difference in exposure between the most- and least-exposed quartile) implies an effect of roughly five log points, similar, as we would expect, to the implied effect in Figure 4.

For the sake of transparency, the raw data in Figure 4, but all of our event-study specifications (and our baseline specification heretofore) weight observations by 1990 county (or CZ) population, both to follow past literature in this area (Autor *et al.*, 2013) and, as one of our motivating questions is whether NAFTA had political consequences, to weight by voters (proxied by population). The first series weights observations by 1990 county population, and it suggests large effects, with the post-period coefficients reaching nearly -1.0 by 2000.

The 1990s was an active moment for state policy experimentation (e.g., the AFDC welfare waivers preceding the 1996 federal welfare reform act, Medicaid expansions, and state-level EITC introductions and expansions), so in the second series we add state-year fixed effects, to capture these policy reforms or any other unobserved change within states across time. Again, the coefficients do not move appreciably.

As noted, a major alternative explanation is that these effects are in fact picking up the China shock. In the third series, we add (to the controls already noted in the previous specifications) the ADH measure (a constant at the CZ level) interacted with each year fixed effect. To make the test more demanding, we use the IV version of their measure, as it happens to be more highly correlated with our NAFTA-exposure measure. In fact, controlling flexibly for the China shock makes little difference to our results. While it is perhaps on face surprising that the NAFTA effect appears independent from the China shock, at least in the medium-run timeframe of our analysis, it is predictable. First, while there is substantial overlap in the areas vulnerable to NAFTA and the China shock, as we discussed in Section 3, there is hardly perfect correlation; and, second, as we saw in Figure 1, the bulk of Chinese import competition arrives after our sample period ends.

As shown in Table 1, counties that would be more exposed to NAFTA were already different on important dimensions in 1990: for example, they had lower rates of college degree completion and higher reliance on manufacturing employment; they were also somewhat more exposed to the later China shock. The final series in Figure 5 adds the 1990 college-completion share of adults interacted with year fixed effects. The inclusion of this vector of controls does attenuate somewhat the shape of our event-study plot. We now lose the positive pre-trend and the pre-NAFTA coefficients become completely flat. Similar, the post-NAFTA dip is smaller. However, the overall effect of NAFTA remains highly evident visually. By

2000, the event-study coefficient is roughly -0.5, suggesting a roughly four log-point decline in employment of most- versus least-exposed county quartiles.

We relegate to Appendix Figure A2 to parallel analysis that allows share black, share foreign-born, and share-manufacturing to have their own effects in each year. None of these sets of controls effects the shape or magnitude of the event-study coefficients appreciably. Interestingly, this pattern (where controlling flexibly for pre-period education levels has some effect, but similarly controlling for manufacturing and share black or foreign-born do not) holds for our other outcome variables.

So far, we have shown results at the county level. We prefer the county over the CZ as our unit of analysis because CZs are not political units (and in fact often cross states). However, the employment results for CZs are very similar to those we find at the county level, as shown in Figure 6. One point worth highlighting is that testing for robustness to the ADH China shock is a more demanding check on our results when CZs are the unit of analysis, as the ADH China shock is at the CZ level and thus this CZ-level analysis allows a more apples-to-apples comparison with the CZ-level NAFTA shock. Again, however, we find that the NAFTA effect is little changed even after allowing the CZ-level China shock to have a separate effect each year of our sample period. As with the county-level analysis, the results are quite robust to adding state-year fixed effects and to adding 1990-CZ-manufacturing share of employment interactions with year fixed effects. Again as before, 1990-CZ-level college attainment interacted with year fixed effects is the set of controls that attenuates the results the most, but even so the effect of NAFTA is statistically significant and visually apparent in the event-study graphs.

5.2 Additional employment results

The timing of the employment declines in more versus less exposed counties is consistent with NAFTA playing an important role: trends until 1994 were either flat or even positive, with the break appearing coincident with the time of the agreement's implementation. As further corroboration, we break down these employment effects by industry. That is, we ask, in NAFTA-exposed counties (those with employment concentrated in NAFTA-exposed industries), was it indeed the NAFTA-exposed industries that drive the employment losses we have documented? Figure A3 shows that, at least through 1997, almost all of the employment losses were in the manufacturing sector, with losses in the non-manufacturing center small and not statistically significant. Unfortunately, this analysis cannot be extended easily after 1997, because in 1998 the CBP data substantially change their industry codes.

In the Appendix, we show some related employment results. Appendix Figure A4 and

A5 contain many of the same specifications as Figures 5 and A2, but has the log of total *payroll* as the outcome. The shapes of the event-studies are nearly identical, suggesting that changes in the composition of jobs with respect to wages is secondary to the loss of jobs themselves. Indeed, Appendix Figure A6 shows inconclusive results on a proxy for wages (total payroll divided by employment size), again suggesting limited wage effects. We also find noisy results for number of establishments (Appendix Figure A7). At least for textiles, one large mill closing would have large employment effects but limited effects on total establishment count, so we do not find this non-result surprising.

In sum, our evidence on employment levels show a decline employment in exposed versus unexposed counties that begins in 1994. Almost all of this decline is driven by within-state variation in NAFTA exposure, as including state-year fixed effects makes little difference to the event-study coefficients.

5.3 Disability Insurance Applications [incomplete]

We have confirmed that we can access county-level disability applications going back to 1990, but have not yet received these data.

6 Demographic results

Given the large employment losses in NAFTA-exposed counties relative to other counties, it is natural to ask if population adjusted as a response and if so which segments of the population.

6.1 Census population estimates

We begin this analysis with intercensal county population estimates. The Census produces these estimates by adjusting the decennial count interpolations for each county using annual vital statistics data on births and deaths as well as annual data from the IRS the migration of tax-filers.

Figure 7 is the exact analogue to 5 except that log county population is the variable of interest. In contrast to the employment results, which all showed a trend break in 1994, the baseline specification (the first series) shows no break over the entire sample period. In fact, in this specification, not a single event-study coefficient has a confidence interval that excludes zero. Note also that the y-axis range is much smaller than for the employment results, masking in fact how small the coefficients are relative to the log employment results. The bottom of the confidence interval for the coefficient in 2000 is roughly at -0.025, suggesting

that we can reject with 95% confidence population declines in the most- versus least-exposed counties greater than $.08 * .025 \approx 0.2$ percent. Recall that the same calculation suggested an eight percent decline in employment.

Adding covariates creates trends in the event-study coefficients, but in no case do those trends appear to break during the sample period, much less break in 1994. These results suggest that soon-to-be-NAFTA-exposed places were shrinking somewhat relative to places with similar characteristics, but that shrinking does not change pace after the agreement's implementation. It is hard to see any evidence in Figure 7 that NAFTA altered population patterns. While in the interest of space we do not show the raw trends for the four county quartiles as we did for the employment results, they can be found in Appendix Figure A8. As with the event-study graphs, there is no sign of a population response as a function of NAFTA exposure during our sample period.

6.2 Tax-filing population [incomplete]

A related question is how the population of *tax-filers* evolves over this sample period. The tax-filing population differs from the total population. Most obviously, children do not pay taxes but are counted by the Census, but even at a household level these counts can differ. Most importantly, many low-income households are not required to file federal income taxes. In 2018, for example, non-elderly married couples filing jointly would have no legal obligation to file federal taxes with the IRS unless their combined income exceeded $24,000.

Thus, a decline in the number of tax-filers in a county could indicate either a decline in actual population or a decline in the share of the population that files taxes.

6.3 School enrollment population [incomplete]

We have acquired these data have not had time to analyze them. We will also be able to examine the share of students that are sufficiently poor to qualify for the free and reduced-price lunch program.

7 Political responses

As noted in the introduction, the debate over NAFTA was a major political topic in the 1992 and 1994 national elections. Bill Clinton made passing NAFTA in Congress a major goal of the first year of his administration, and Vice President Al Gore defended NAFTA on behalf of the administration in a nationally televised debate against Ross Perot, who emphasized throughout the potential job losses that would arise from the agreement. Over 38 percent of

registered voters reported having watched all or part of the debate, with an additional thirty percent saying they watched at least a "little" or had since heard or read about it.[6] NAFTA was the subject of at least two Saturday Night Live sketches in 1993, both highlighting the potential job losses for Americans claimed by detractors of the agreement.[7]

Given that NAFTA was politically salient and, given the evidence in Section 5 appeared to have led to concentrated employment losses in exposed counties, we now examine how political allegiance in those counties changed.

7.1 Event-study results

For the most part, we take the same approach to our political analysis as we have followed so far, except that our dependent variable occurs every other year, as we focus on House election outcomes. For this reason, we extend our sample period back to 1980 as otherwise it would be more difficult to test for pre-trends. It is essential to test for pre-trends in the political analysis in particular: Democratic identification in the South more generally has been trending downward since the late 1940s (Kuziemko and Washington, 2018), and if this decline was differentially pronounced in areas of the South vulnerable to NAFTA then we would mistakenly attribute voters turning away from Democrats to NAFTA when in fact it was longer-run trend.

Because of the important role of NAFTA in the 2016 election, we extend our post-period to 2016, though readers are free to discard evidence this far from the original 1994 event. Except for the extension of the sample period and our observing the dependent variable biannually instead of annually, the analysis remains identical to those in the previous sections.

Figure 8 shows trends for our four groups of counties. Unlike earlier graphs where we normalized these otherwise raw trends to zero in 1993, here we show the four series completely unadjusted (no normalization) as pre-period levels are in this case quite interesting. The three groups of counties least affected by NAFTA trend very similarly in the pre-period (and the post-period for that matter). In the pre-period, the Republican share of the two-party House vote bounce between forty-five and fifty percent for all three of these groups. The most NAFTA-vulnerable group, however, is decidedly less Republican-leaning (as proxied by House election votes), bouncing between thirty-five and forty percent. Figure 8 shows that counties that were soon to be exposed to NAFTA undergirded the solid Democratic control of the House of Representatives throughout the 1980s. However, beginning in 1992,

[6] Our calculations from the November 1993 WSJ/NBC poll micro-data.

[7] See `https://www.nbc.com/saturday-night-live/video/mexican-stereotype/n10486` and `https://www.nbc.com/saturday-night-live/video/united-we-stand-america/n10497` for the videos.

the gap between this group and the other three begins by close and by 1996, these once solidly Democratic counties are indistinguishable from the other three groups.

Figure 9 shows the House election outcomes using our standard event-study specification and its variants. Unlike the employment and other economic outcomes, which had a clear break beginning in 1994 (the year of NAFTA implementation), our baseline specification shows a break beginning in the 1992 election. Given the large role that the debate over whether to ratify NAFTA played in the 1992 election, it is not clear that 1994 as opposed to 1992 is the most legitimate start of the "post-period" for the *political* analysis.

Adding state-year fixed effects generally does not change the event-study coefficients, though now 1994 appears more like the break in trend than does 1992. It appears that *within states*, NAFTA-exposed counties break from their pre-period trend in 1994, even if the break occurs in 1992 when both within- and between-state variation in NAFTA exposure is considered. As we have found throughout the previous analysis, adding the ADH CZ-level measure interactions with year fixed effects (the second series in Figure 9) makes no appreciable difference to the event-study coefficients.

Again, as with previous outcomes, the set of covariates that most attenuates the implied effects of NAFTA are the 1990 college share interacted with year fixed effects. But even with this specification, we find a visually compelling shift in the two-party Democratic share of vote in House races. In this specification, there is a flat pre-trend with no coefficient's confidence interval exclude zero, but in the post-period an average coefficient value of roughly -0.75 (compared to the other specifications, where the post-period coefficient values are more like -1.5).

What do these magnitudes suggest in terms of actual political outcomes? Again, multiplying the coefficients by 0.08 gives a sense of the shift for the most- versus least-affected quartile of counties, so the post-period coefficients suggest a shift between six and twelve percentage points away from the Democrats. Of course, in a first-past-the-post system with two major parties, the importance of this shift depends whether the county is in a "swing" district, where Democrats and Republicans split votes roughly evenly. As an extreme example, suppose that all NAFTA-exposed counties were in Congressional Districts that were at least seventy percent Democratic. Then the shift we document would make races closer, but not affect the party composition of the House, as the Democrats would still win the majority of votes in each of these Congressional District.

[Simulating the effects on actual House election outcomes TBD.]

7.2 Evidence from microdata [incomplete]

Figure 9 makes clear that, throughout the 1980s, NAFTA-vulnerable counties exhibited a steady Democratic lean in House elections, but beginning in 1992 or 1994 (depending on the specification) shift decisively in the Republican direction. While consistent with NAFTA driving this shift, the early 1990s were a politically eventful period which witnessed a (Southern) Democratic winning a presidential election for the first time in twelve years, the rise of charismatic Republican Congressional leaders such as Newt Gingrich and his 1994 Contract with America campaign, the continued decline of unions (key allies in Democratic get-out-the-vote efforts), and the growth of political media outlets such as C-Span and Fox News.

In this section, we provide corroborating evidence from micro-data that NAFTA is a plausible trigger for the shift we document in this section. Our data come from all of the *Wallstreet Journal*/NBC News polls from 1992 and 1993 that ask respondents their opinion of NAFTA. All of these surveys also ask standard demographic and political party identification.

As some context, the first column of Table 2 shows that views toward NAFTA follow expected demographic patterns: it is opposed by blue-collar workers and union households and supported by respondents who have a college degree and households in the highest-income category ($75,000 annual income and above in each survey). Interestingly, women are more opposed to NAFTA than men. Note that in general those who oppose NAFTA compose key members in the Democratic coalition: union households, blue-collar workers, less affluent voters, and women.

Indeed, col. (2) shows that self-identified Democrats oppose NAFTA more than other respondents, nearly six percentage points less, relative to an average support of only 27 percent. That *Democrats* opposed a major policy being explicitly pushed by a Democratic president provides further plausibility for our story that NAFTA helps explain the loss of Democratic votes: these disappointed Democratic voters could react by not voting, voting for third-party candidates such as Ross Perot, or switching parties. Had we in fact found that self-identified Republicans were most opposed to NAFTA, there would be no obvious mechanism why their reacting in anger at its passage could in fact *increase* Republican vote shares (even if they further disliked Clinton, they were already Republican).

While the survey does not provide geographic detail beyond Census region, we can see in col. (3) that the South and Midwest oppose NAFTA more than other regions, the areas that Figure 3 showed were more vulnerable to NAFTA.

In fact, col. (4) shows that it is in fact *Democrats* in these two regions that drive opposition to NAFTA. Outside of the South and Midwest, Democrats are not differentially

opposed to NAFTA and, except for Democrats, the South and Midwest are not differentially opposed to NAFTA. Thus, opposition to NAFTA occurs differentially among Democrats in the regions that NAFTA differentially affected. This relationship holds when, in col. (5), we add standard demographic and economic controls.

In these regressions, we do not drop individuals if they report not having an opinion or not knowing enough about the subject. In Appendix Table A1 we show that results are robust to dropping these observations.

8 Conclusion

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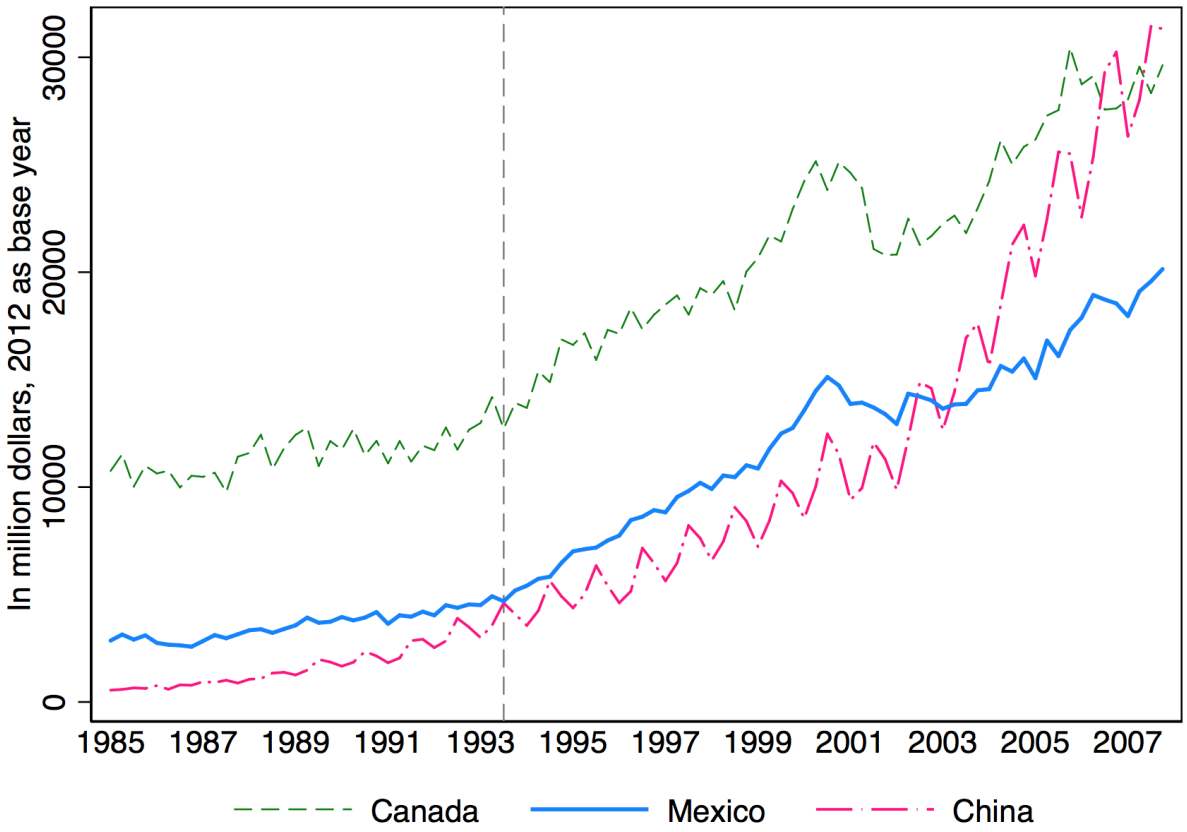
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Table 1: County characteristics for four vulnerability quartiles

Quartile (lower quartile : less vulnerable)	1	2	3	4
pre-NAFTA employment				
Log total num. of employment	8.071	9.223	9.034	8.674
Log total annual payroll	10.849	12.069	11.849	11.400
pre-NAFTA political preference				
Republican house vote share (1980-1988)	0.464	0.478	0.481	0.383
Demographics				
Population	35387.78	139239.05	103992.67	48040.51
Share of white	0.907	0.905	0.904	0.845
Share of manufac. employment	0.085	0.132	0.135	0.175
Share of college grad.	0.132	0.158	0.139	0.113
Number of counties	753	756	754	755

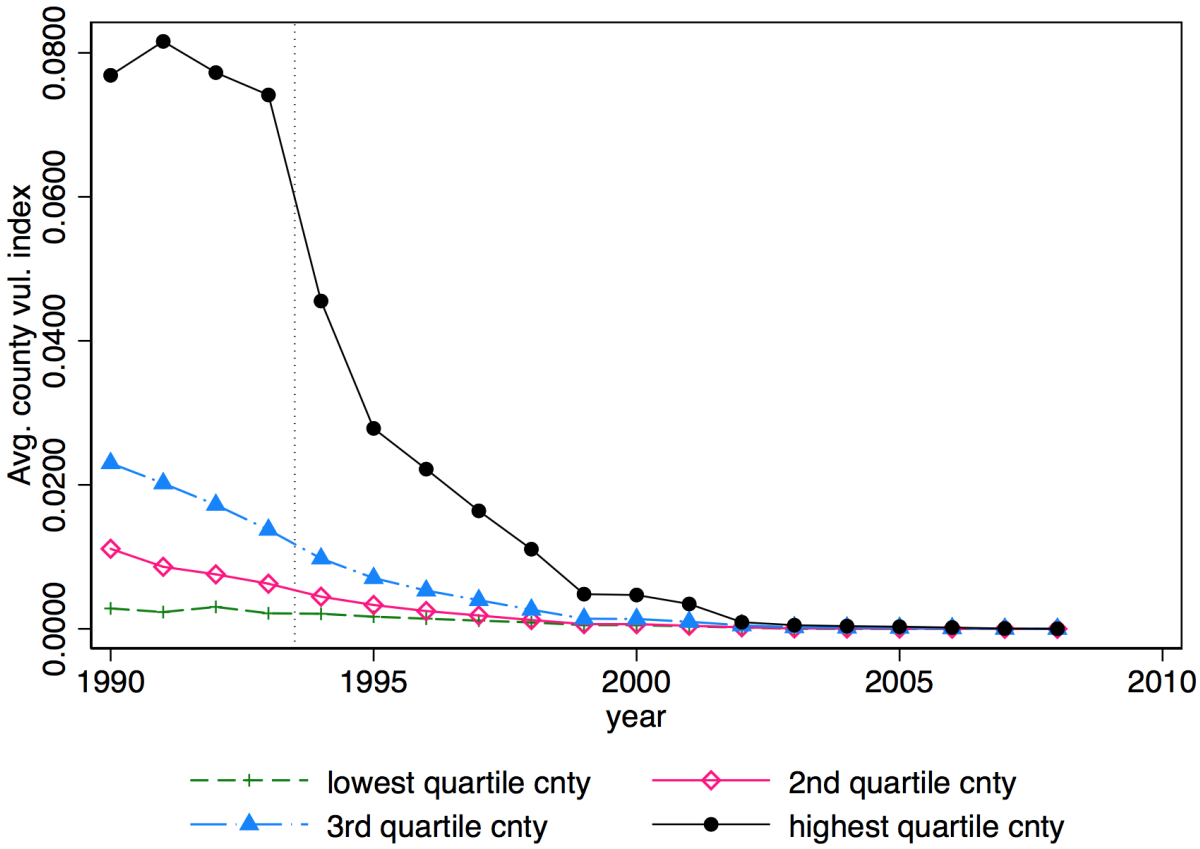
Note : The table contains average county characteristics by county vulnerability quartiles. The first quartile contains counties with 1990 vulnerability in the bottom 25th percentile, the second quartile between the 25th and the 50th percentile, the third quartile between the 50th and the 75th percentile, and the fourth in the top 25th percentile.

Figure 1: US imports from Canada, China, and Mexico



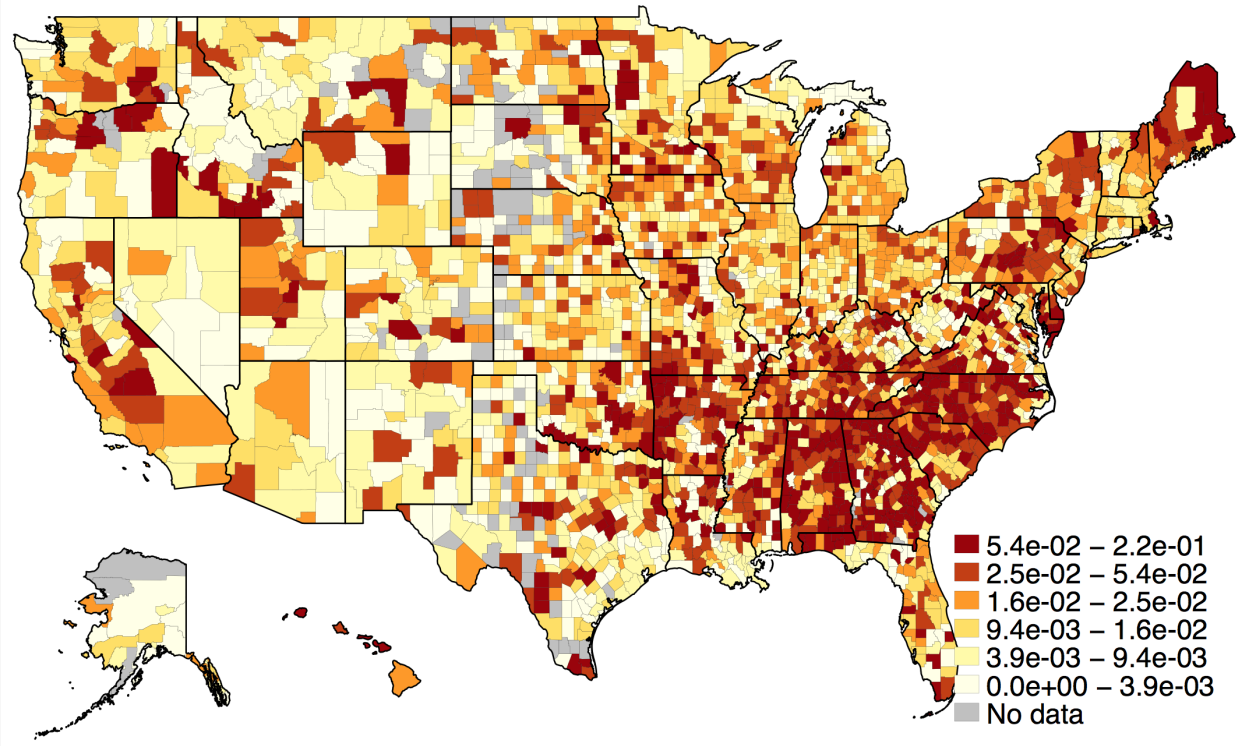
Note : The figure contains the time series of the value of goods imported by the US, based on the custom basis from Canada, China, and Mexico. (the Federal Reserve Economic Data Series). The import values are inflation-adjusted using the quarterly-level personal consumption expenditures available from the FRED.

Figure 2: Protection across time



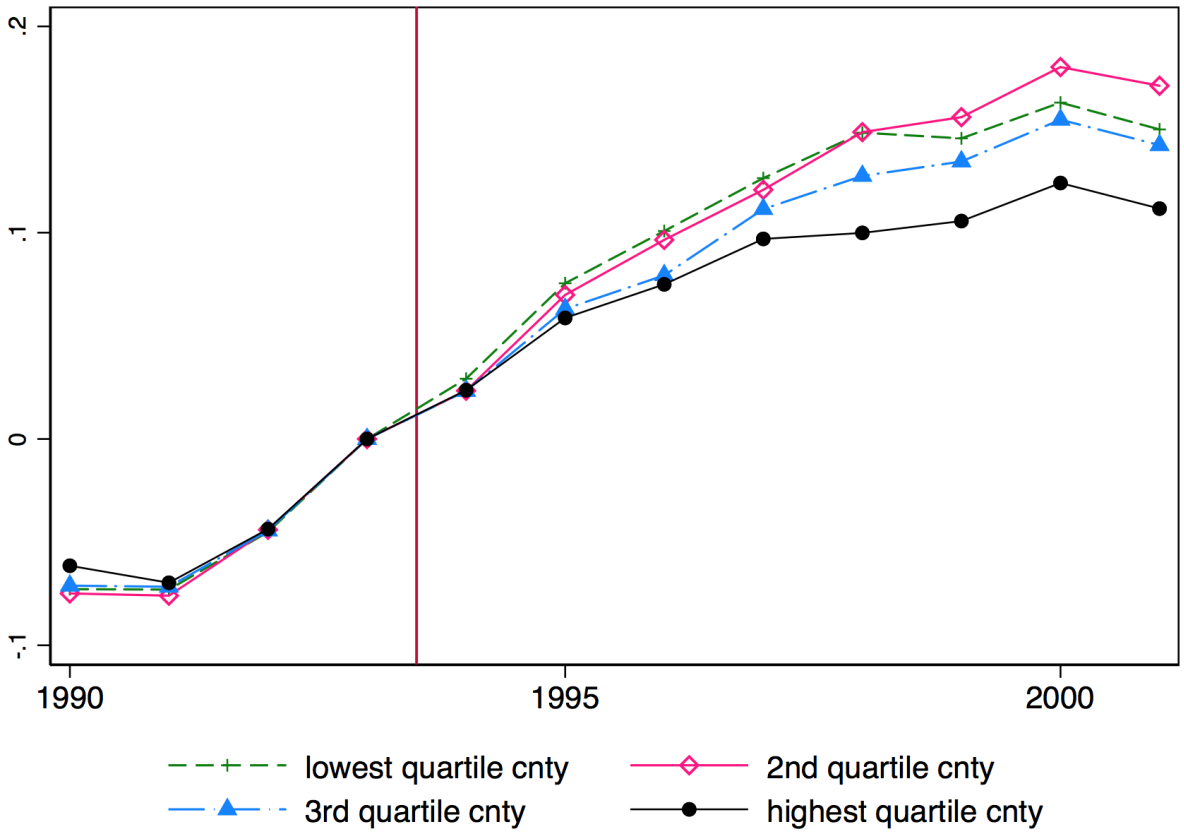
Note : The figure shows the weighted average tariff protection across time by each quartile of 1990 county vulnerability. The county-year level protection is an average of the annual industry-level tariff rate of industries, weighted by industry-composition of the county and industry-level RCA in and 1990.

Figure 3: Vulnerability across space



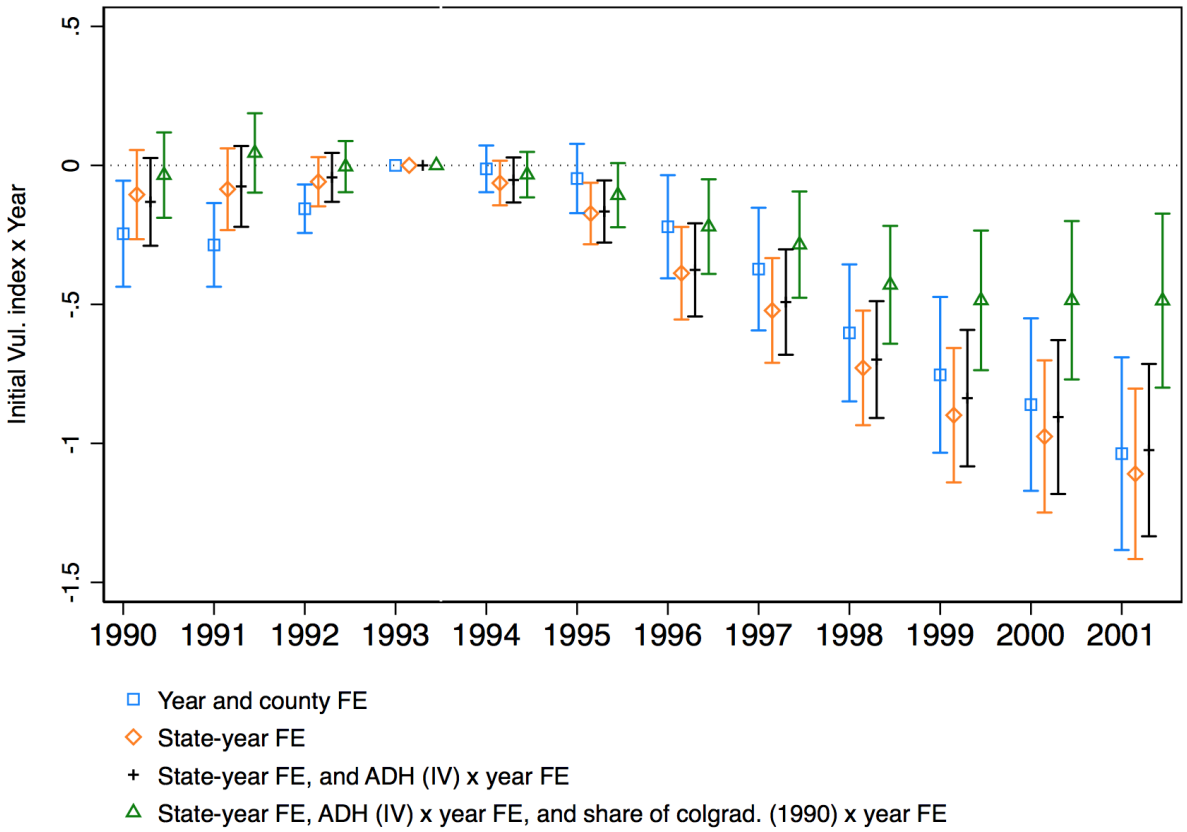
Note : The map graphs the geographic variation in 1990 county vulnerability. The 1990 county vulnerability is an average of industry-level tariff rate of industries, weighted by industry-composition of the county and industry-level RCA in and 1990.

Figure 4: Average log of employment trends for four vulnerability quartiles (normalized)



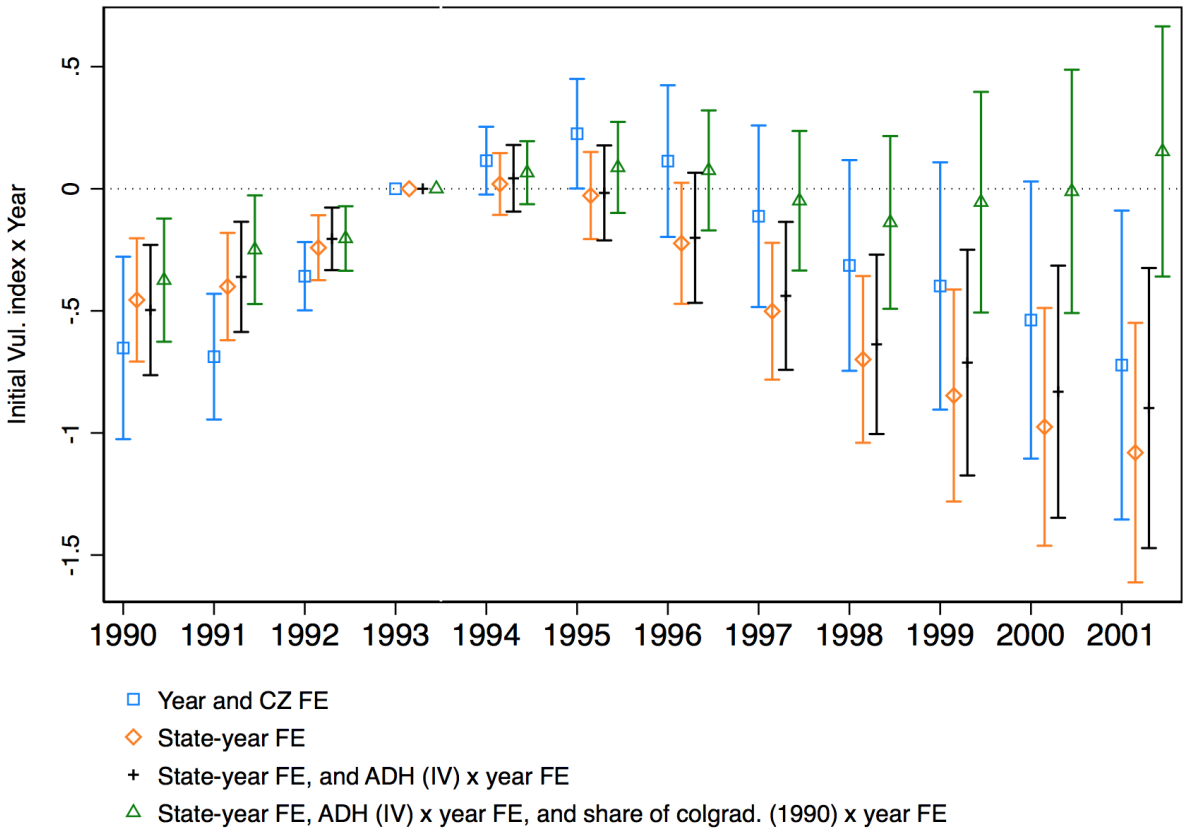
Note : The figure shows log of total employment trends from 1990 to 2001 by 1990 county vulnerability quartiles. Log of total employment is computed using the CBPD.

Figure 5: Event-study employment graph



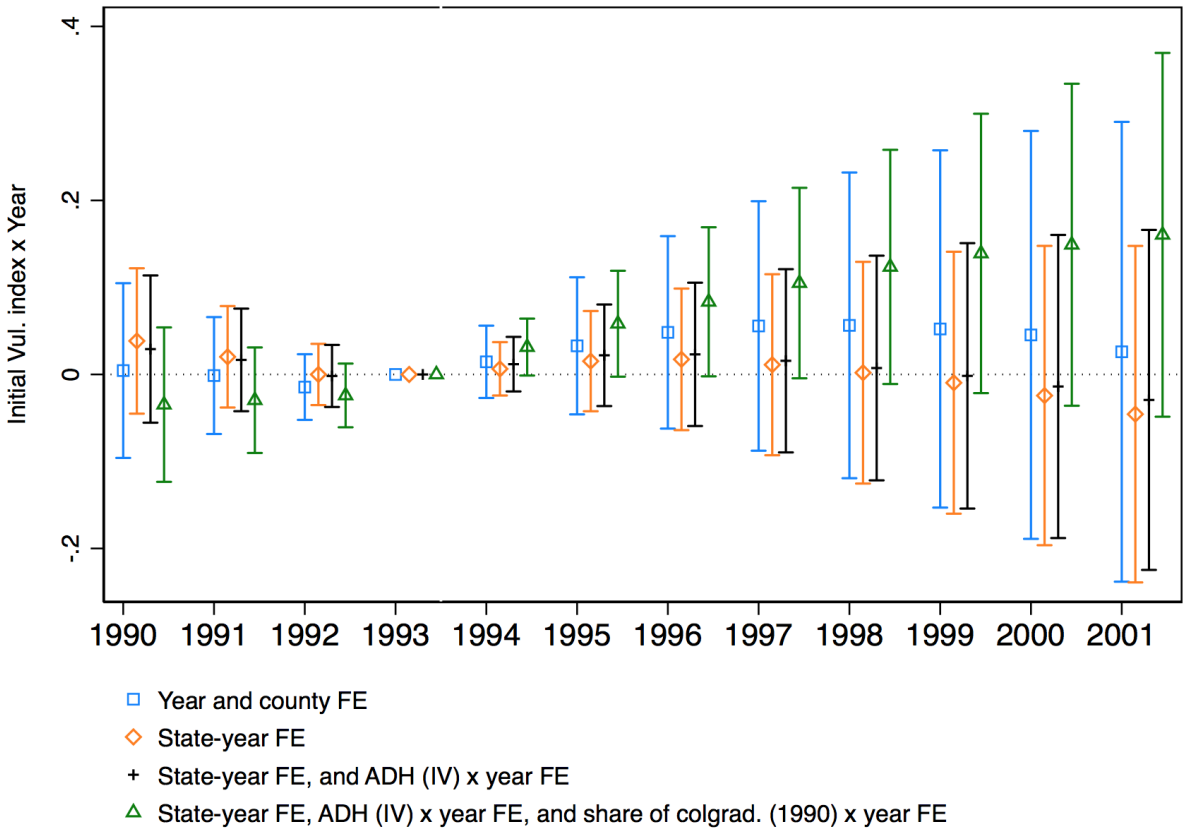
Note : The figure shows the event-study coefficient estimates from different specifications of equation (3), where log of total employment is the dependent variable. All specifications are weighted by 1990 county population. The first series shows the coefficient estimates from a specification where we control for only county and year fixed effects. The specification for the second series includes county and year fixed effects and state-year fixed effects. The third specification includes county and year fixed effects, state-year fixed effects, and CZ-level measure of Chinese import exposure from Autor, Dorn and Hanson (2013) interacted with year fixed effects. The fourth specification includes everything from the third specification, with share of college graduates in 1990 interacted with year fixed effects.

Figure 6: Event-study employment graph in CZ level



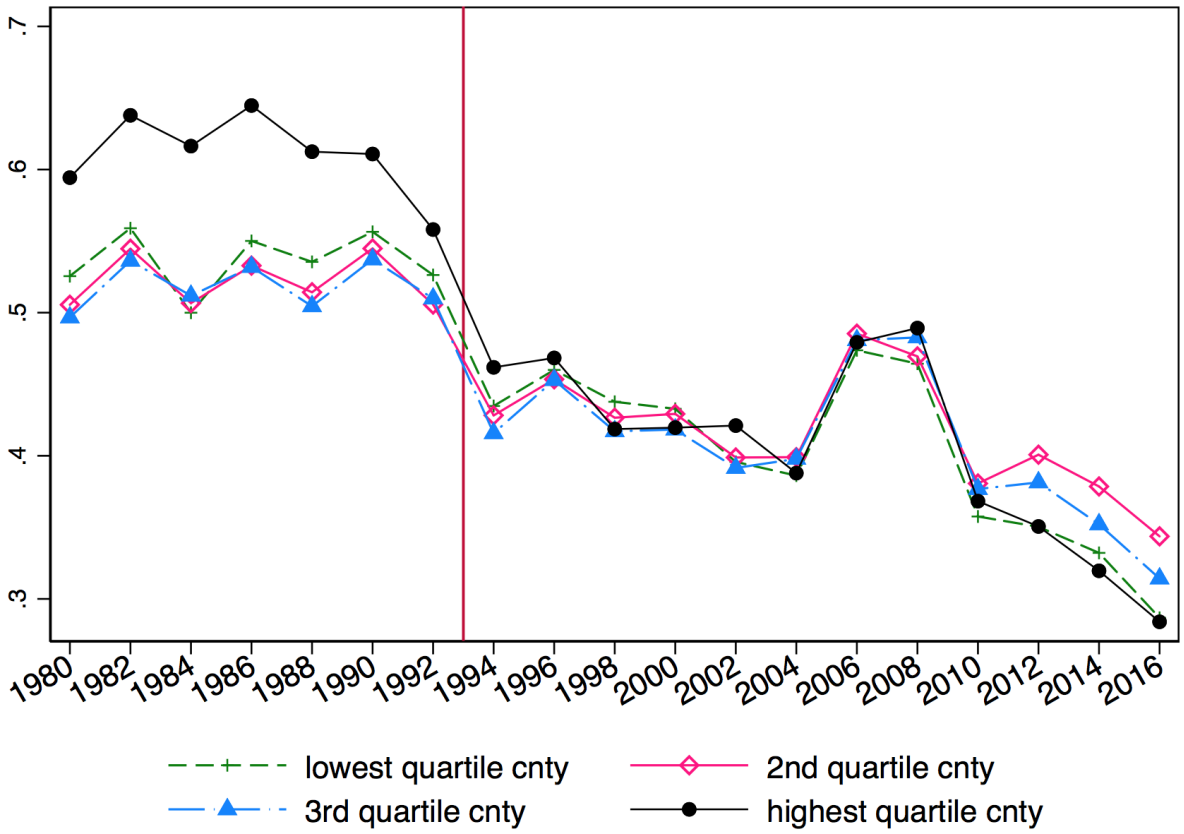
Note : The figure shows the event-study coefficient estimates from different specifications of equation (3), where the unit of geography is Commuting Zones (CZ) and log of total employment is the dependent variable. All specifications are weighted by 1990 county population. The first series shows the coefficient estimates from a specification where we control for only CZ and year fixed effects. The specification for the second series includes CZ and year fixed effects and state-year fixed effects. The third specification includes CZ and year fixed effects, state-year fixed effects, and CZ-level measure of Chinese import exposure from Autor, Dorn and Hanson (2013) interacted with year fixed effects. The fourth specification includes everything from the third specification, with CZ share of college graduates in 1990 interacted with year fixed effects.

Figure 7: Event-study population graph



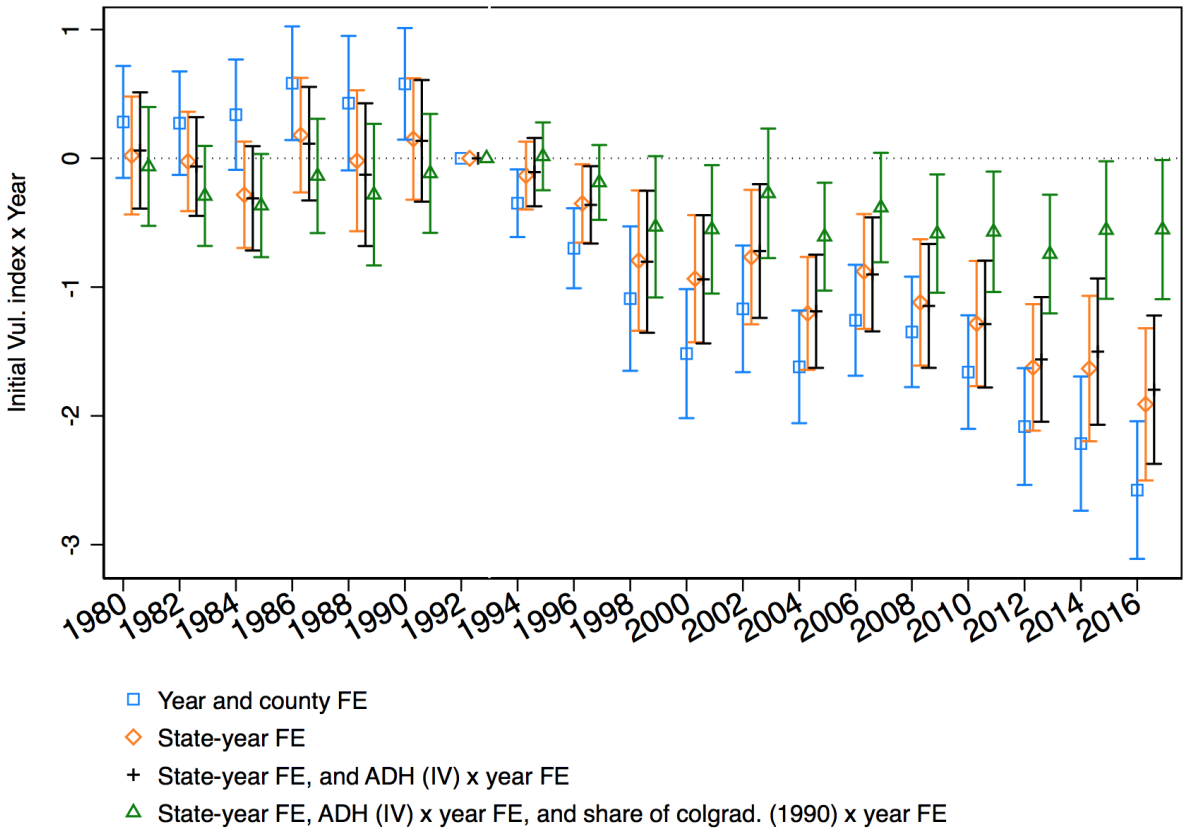
Note : The figure shows the event-study coefficient estimates from different specifications of equation (3), where log of county population is the dependent variable. All specifications are weighted by 1990 county population. The first series shows the coefficient estimates from a specification where we control for only county and year fixed effects. The specification for the second series includes county and year fixed effects and state-year fixed effects. The third specification includes county and year fixed effects, state-year fixed effects, and CZ-level measure of Chinese import exposure from Autor, Dorn and Hanson (2013) interacted with year fixed effects. The fourth specification includes everything from the third specification, with share of college graduates in 1990 interacted with year fixed effects.

Figure 8: Average two-party Democrat vote share trends for four vulnerability quartiles



Note : The figure shows average two-party Democrat House vote share trends from 1990 to 2016 by 1990 county vulnerability quartiles. The two-party Democrat vote share is computed using ICPSR general voting data and Dave Leip's Atlas of U.S. Presidential Election data.

Figure 9: Event-study two-party Democrat vote share graph



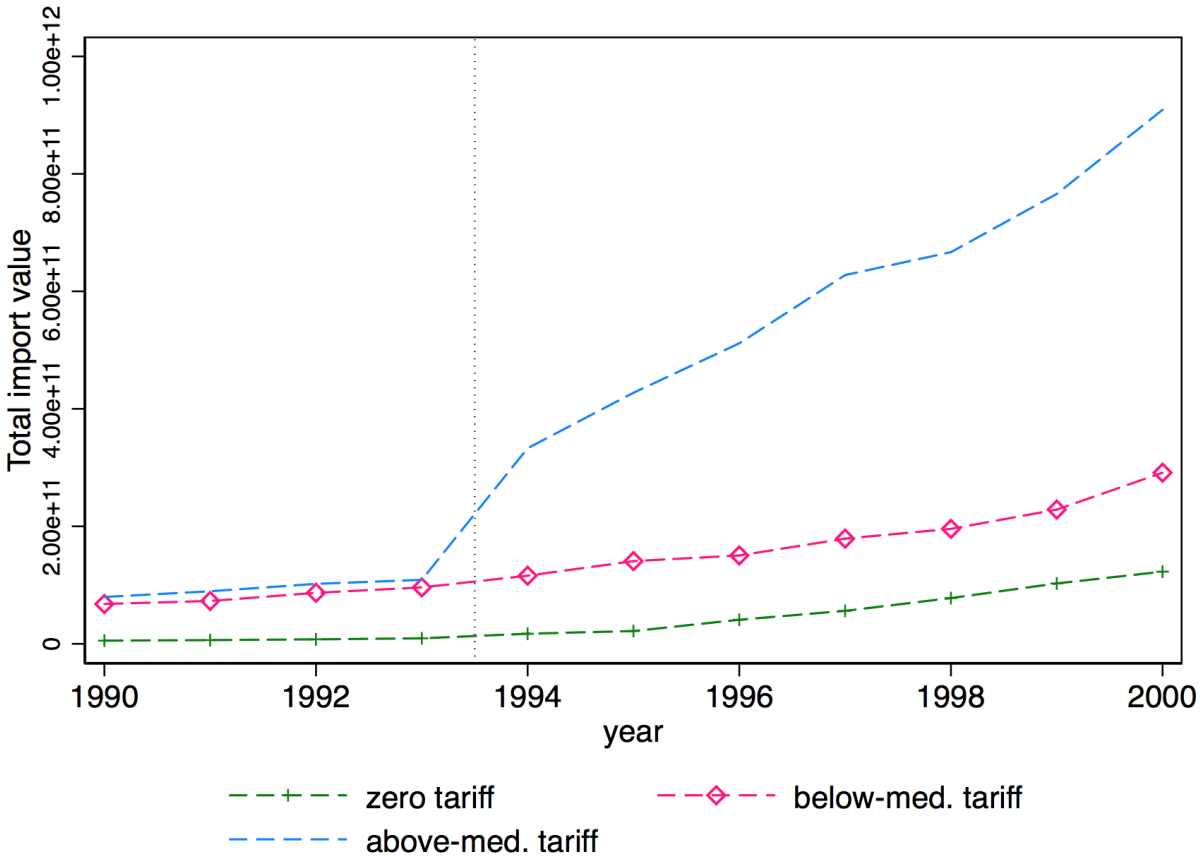
Note : The figure shows the event-study coefficient estimates from different specifications of equation (3), where the two-party Democrat vote share in House elections is the dependent variable. All specifications are weighted by 1990 county population. The first series shows the coefficient estimates from a specification where we control for only county and year fixed effects. The specification for the second series includes county and year fixed effects and state-year fixed effects. The third specification includes county and year fixed effects, state-year fixed effects, and CZ-level measure of Chinese import exposure from Autor, Dorn and Hanson (2013) interacted with year fixed effects. The fourth specification includes everything from the third specification, with share of college graduates in 1990 interacted with year fixed effects.

Table 2: Patterns of support for NAFTA from 1992 and 1993 survey data

	(1)	(2)	(3)	(4)	(5)
Democrat		-0.0580***		-0.0292	-0.00353
		[0.0120]		[0.0181]	[0.0209]
South or Midwest			-0.0405***	-0.0229	0.00449
			[0.0115]	[0.0141]	[0.0160]
South or Midwest x Democrat				-0.0517**	-0.0569**
				[0.0241]	[0.0277]
Has BA	0.154***				0.150***
	[0.0148]				[0.0148]
Female	-0.110***				-0.108***
	[0.0135]				[0.0135]
HH inc above 75K	0.0857***				0.0814***
	[0.0206]				[0.0206]
Blue collar occup.	-0.0438**				-0.0443***
	[0.0170]				[0.0170]
Union household	-0.0644***				-0.0637***
	[0.0171]				[0.0172]
white	0.0204				0.0116
	[0.0167]				[0.0171]
Mean, dept. var.	0.259	0.276	0.276	0.276	0.259
Observations	4274	6086	6086	6086	4274

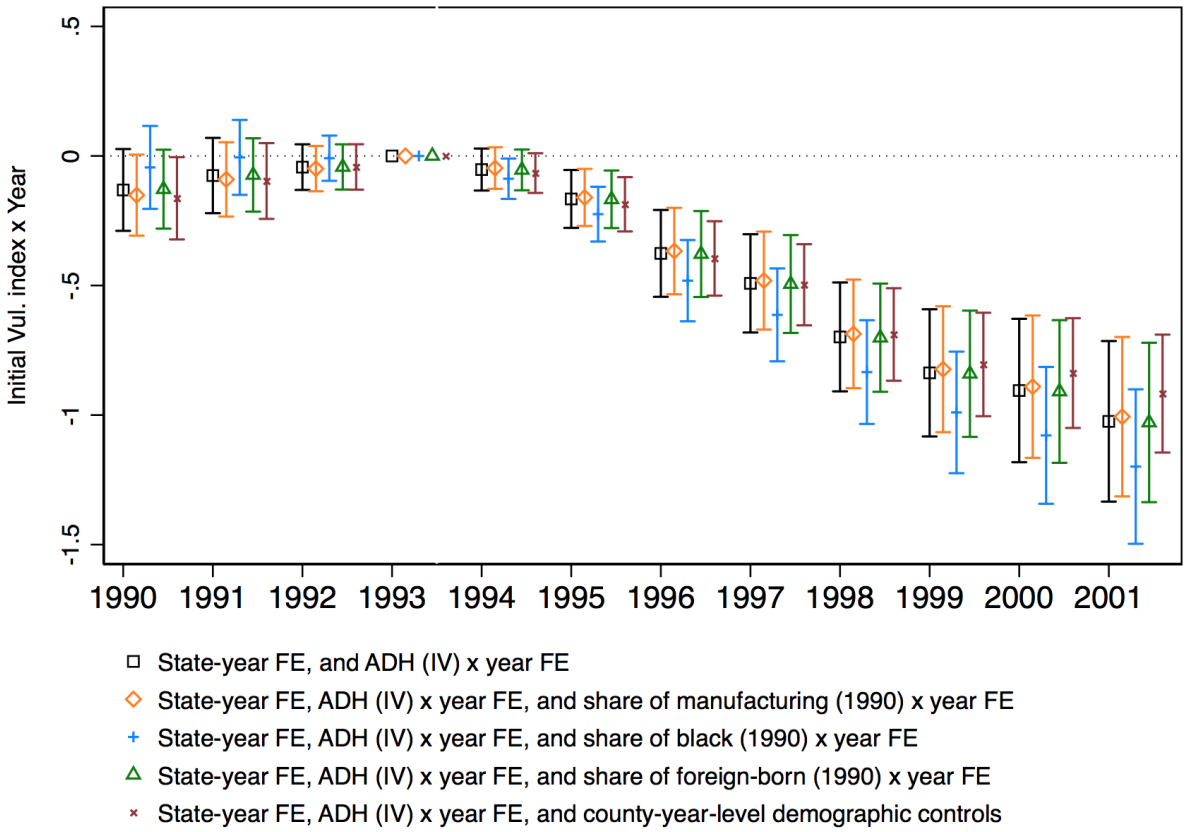
Notes: All regressions include survey-date fixed effects. Data come from all WSJ/NBC surveys that ask respondents whether they oppose or support NAFTA and we code "support" as 1 and all other answers as zero. In this version of the regressions, we do not drop those who answer "not sure" or "don't know." See Appendix Table A1 for these results. There are fewer observations in the first and last column because one survey did not ask about household income.
$^{*}p < 0.1,^{**}p < 0.05,^{***}p < 0.01$

Figure A1: Import values from Mexico by tariff level



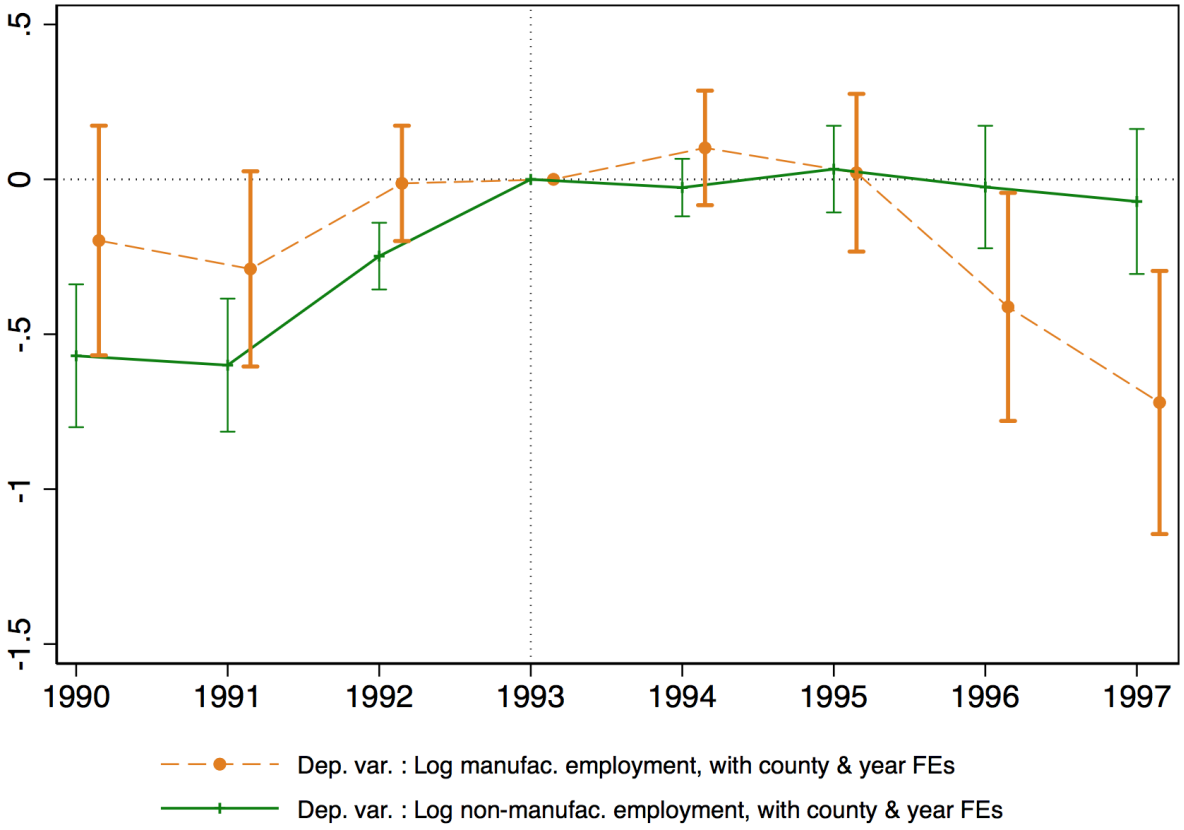
Note : The figure shows the time series of average import values from Mexico by industries with zero tariff, industries with below-median tariff, and industries with above-median tariff based on 1990 industry-level tariff. The Mexican import values are from the replication directory of Hakobyan and McLaren (2016) whose source is the USITC.

Figure A2: Event-study employment graphs, robustness check



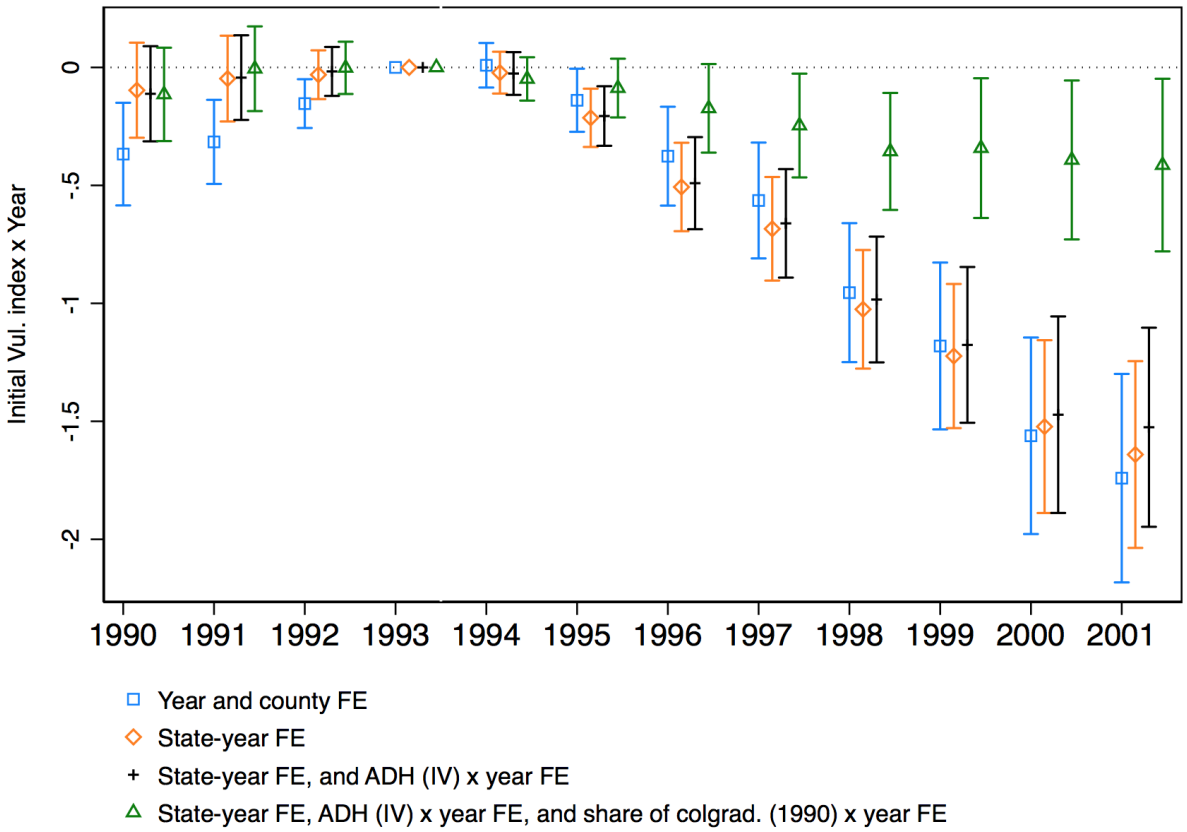
Note : The figure shows the event-study coefficient estimates from different specifications of equation (3), where log of total county employment is the dependent variable. All specifications are weighted by 1990 county population. The first series shows the coefficient estimates from a specification where we control for county and year fixed effects, state-year fixed effects, ADH China shock measure interacted with year fixed effects. The specification for the second series includes county and year fixed effects, state-year fixed effects, CZ-level measure of Chinese import exposure from Autor, Dorn and Hanson (2013) interacted with year fixed effects, and share of manufacturing in 1990 interacted with year fixed effects. The third specification includes county and year fixed effects, state-year fixed effects, the ADH measure interacted with year fixed effects, and share of black population in 1990 interacted with year FE. The fourth specification includes county and year fixed effects, state-year fixed effects, the ADH measure interacted with year fixed effects, and share of foreign-born population in 1990 interacted with year FE. The fifth specification includes county and year fixed effects, state-year fixed effects, the ADH measure interacted with year fixed effects, and share of college graduates in 1990 interacted with year fixed effects.

Figure A3: Event-study employment graphs by manufacturing and non-manufacturing industries



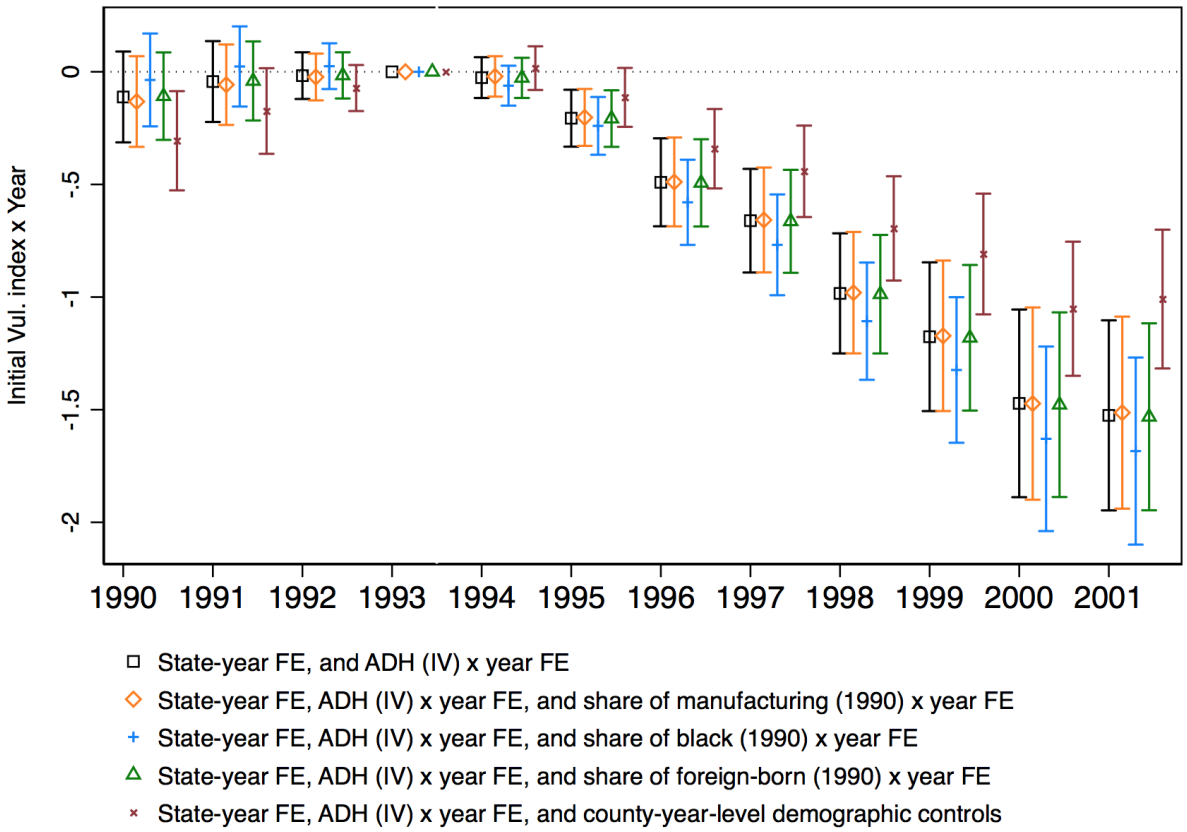
Note : The figure shows the event-study coefficient estimates from specifications of equation (3), where log of total manufacturing employment and log of total non-manufacturing employment are the dependent variable for the first and second series, respectively. Both specifications are weighted by 1990 county population, and they include county and year fixed effects.

Figure A4: Event-study payroll graphs



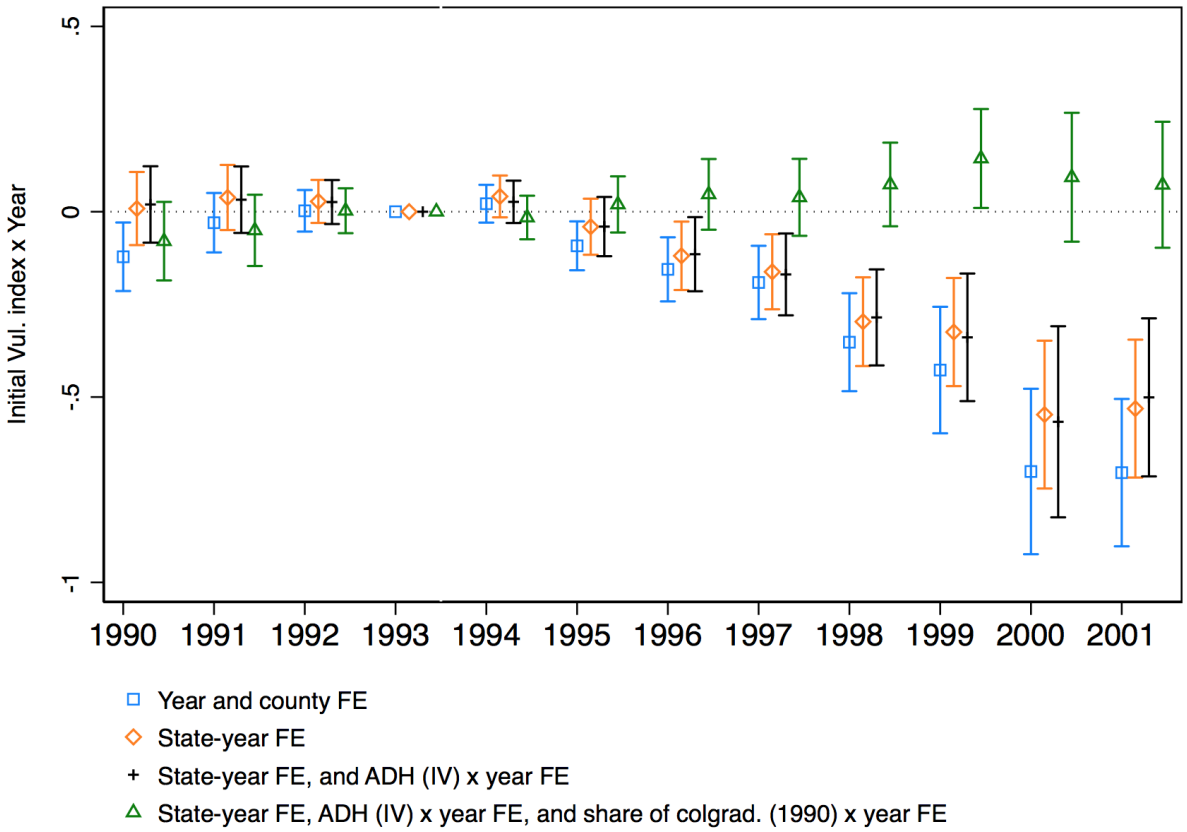
Note : The figure shows the event-study coefficient estimates from different specifications of equation (3), where log of total annual payroll is the dependent variable. All specifications are weighted by 1990 county population. The first series shows the coefficient estimates from a specification where we control for only county and year fixed effects. The specification for the second series includes county and year fixed effects and state-year fixed effects. The third specification includes county and year fixed effects, state-year fixed effects, and a CZ-level measure of Chinese import exposure, from Autor, Dorn and Hanson (2013), interacted with year fixed effects. The fourth specification includes everything from the third specification, with share of college graduates in 1990 interacted with year fixed effects.

Figure A5: Event-study payroll graphs, robustness check



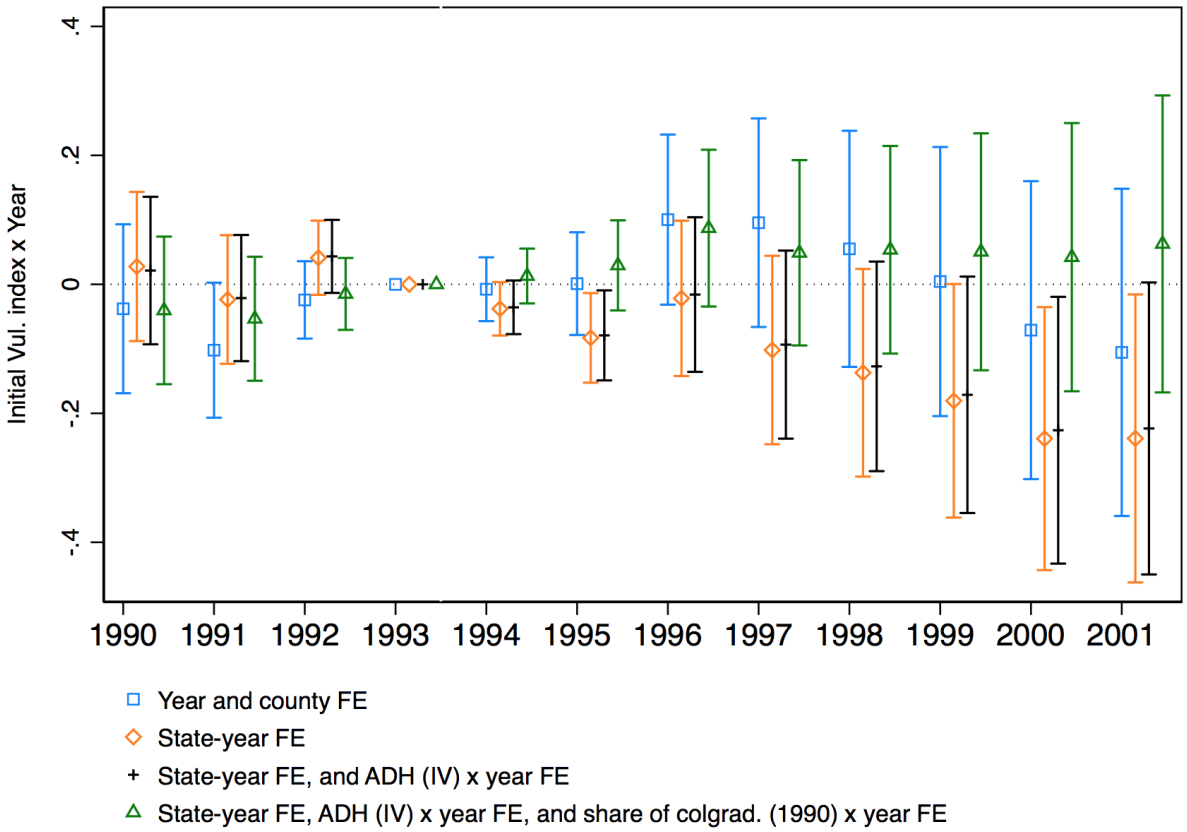
Note : The figure shows the event-study coefficient estimates from different specifications of equation (3), where log of total annual payroll is the dependent variable. All specifications are weighted by 1990 county population. The first series shows the coefficient estimates from a specification where we control for county and year fixed effects, state-year fixed effects, ADH China shock measure interacted with year fixed effects. The specification for the second series includes county and year fixed effects, state-year fixed effects, the ADH measure interacted with year fixed effects, and share of manufacturing in 1990 interacted with year fixed effects. The third specification includes county and year fixed effects, state-year fixed effects, the ADH measure interacted with year fixed effects, and share of black population in 1990 interacted with year FE. The fourth specification includes county and year fixed effects, state-year fixed effects, the ADH measure interacted with year fixed effects, and share of foreign-born population in 1990 interacted with year FE. The fifth specification includes county and year fixed effects, state-year fixed effects, the ADH measure interacted with year fixed effects, and share of college graduates in 1990 interacted with year fixed effects.

Figure A6: Event-study payroll per worker graphs



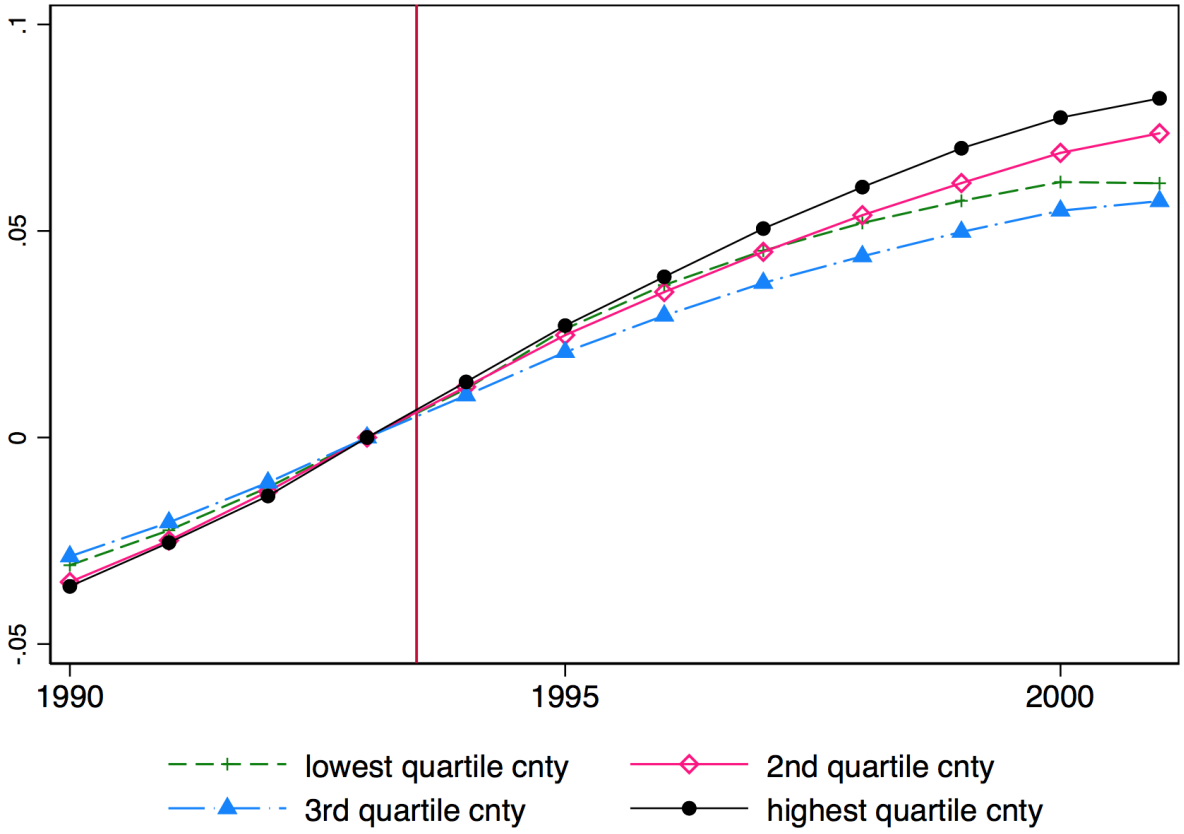
Note : The figure shows the event-study coefficient estimates from different specifications of equation (3), where log of payroll per worker is the dependent variable. All specifications are weighted by 1990 county population. The first series shows the coefficient estimates from a specification where we control for only county and year fixed effects. The specification for the second series includes county and year fixed effects and state-year fixed effects. The third specification includes county and year fixed effects, state-year fixed effects, and CZ-level measure of Chinese import exposure from Autor, Dorn and Hanson (2013) interacted with year fixed effects. The fourth specification includes everything from the third specification, with share of college graduates in 1990 interacted with year fixed effects.

Figure A7: Event-study establishments graphs



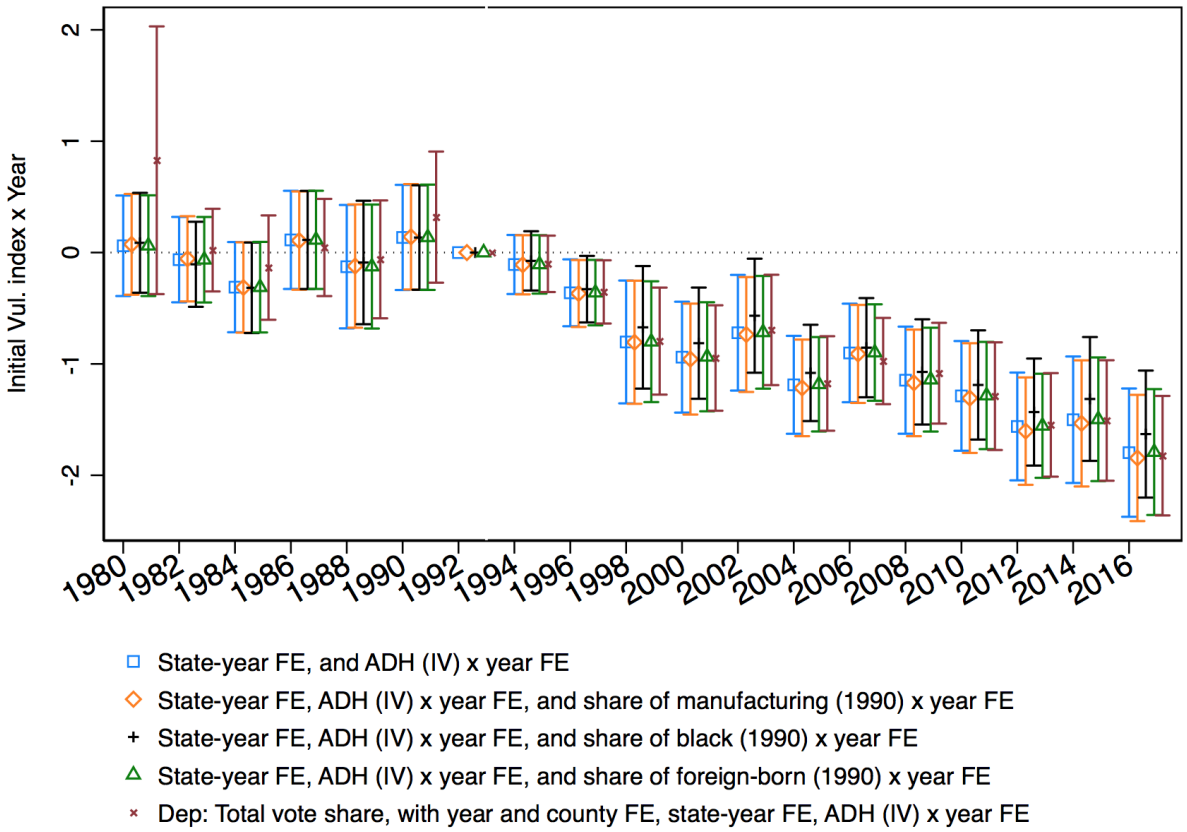
Note : The figure shows the event-study coefficient estimates from different specifications of equation (3), where log of number of establishments is the dependent variable. All specifications are weighted by 1990 county population. The first series shows the coefficient estimates from a specification where we control for only county and year fixed effects. The specification for the second series includes county and year fixed effects and state-year fixed effects. The third specification includes county and year fixed effects, state-year fixed effects, and CZ-level measure of Chinese import exposure from Autor, Dorn and Hanson (2013) interacted with year fixed effects. The fourth specification includes everything from the third specification, with share of college graduates in 1990 interacted with year fixed effects.

Figure A8: Average log county population trend graphs for four vulnerability quartiles (normalized)



Note : The figure shows average log county population trends from 1990 to 2001 by 1990 county vulnerability quartiles. Log county population is computed using the intercensal county population estimates.

Figure A9: Event-study Democrat vote share graphs, robustness check



Note : The figure shows the event-study coefficient estimates from different specifications of equation (3), where the two-party Democrat House vote share is the dependent variable for the first to fourth series, and the Democrat House vote share among total votes is the dependent variable for the fifth series. All specifications are weighted by 1990 county population. The first series shows the coefficient estimates from a specification where we control for county and year fixed effects, state-year fixed effects, the ADH China shock measure interacted with year fixed effects. The specification for second series includes county and year fixed effects, state-year fixed effects, the ADH measure interacted with year fixed effects, and share of manufacturing in 1990 interacted with year fixed effects. The third specification includes county and year fixed effects, state-year fixed effects, the ADH measure interacted with year fixed effects, and share of black population in 1990 interacted with year FE. The fourth specification includes county and year fixed effects, state-year fixed effects, the ADH measure interacted with year fixed effects, and share of foreign-born population in 1990 interacted with year FE. The fifth specification uses includes county and year fixed effects, state-year fixed effects, and the ADH measure interacted with year fixed effects.

Table A1: Patterns of support for NAFTA from 1992 and 1993 survey data (ex. those without an opinion)

	(1)	(2)	(3)	(4)	(5)
Democrat		-0.0580***		-0.0292	-0.00353
		[0.0120]		[0.0181]	[0.0209]
South or Midwest			-0.0405***	-0.0229	0.00449
			[0.0115]	[0.0141]	[0.0160]
South or Midwest x Democrat				-0.0517**	-0.0569**
				[0.0241]	[0.0277]
Has BA	0.154***				0.150***
	[0.0148]				[0.0148]
Female	-0.110***				-0.108***
	[0.0135]				[0.0135]
HH inc above 75K	0.0857***				0.0814***
	[0.0206]				[0.0206]
Blue collar occup.	-0.0438**				-0.0443***
	[0.0170]				[0.0170]
Union household	-0.0644***				-0.0637***
	[0.0171]				[0.0172]
white	0.0204				0.0116
	[0.0167]				[0.0171]
Mean, dept. var.	0.259	0.276	0.276	0.276	0.259
Observations	4274	6086	6086	6086	4274

Notes: All regressions include survey-date fixed effects. Data come from all WSJ/NBC surveys that ask respondents whether they oppose or support NAFTA and we code "support" as 1 and "oppose" as zero and drop all other responses. There are fewer observations in the first and last column because one survey did not ask about household income. $^{*}p < 0.1,^{**}p < 0.05,^{***}p < 0.01$