

> The China Manufacturing Shock, Politics, and U.S. Productivity

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The force driving higher productivity by firms—else they perish in a competitive world—has implications for the incomes of citizens and therefore their political preference for trade policy. The China productivity shock during 2000-2010 led to 2.5 mn. job losses in manufacturing and realigned political preferences of affected households. Dislocated workers in manufacturing were no match for human capitalintensive jobs being created in the growing export sector. Jobs shifted from (secure) manufacturing to (less secure) construction that paid less. There is an important role for government.

I. INTRODUCTION: THE CHINA SHOCK

Accession to the WTO in 2000 gave China access to advanced country manufacturing markets. While countries like India also had gained access, China grasped this opportunity to penetrate and capture market share, first in labor intensive industries like textiles, apparel and furniture (also taking share from countries like Mexico), and then in capital intensive industries like metal manufacturing, electrical goods, and computer hardware. U.S. manufacturing employment fell from over 17 million in 2000 to just over 11 million in 2010. Some of this loss of 6 million jobs may not be attributable to the China shock—employment in manufacturing sectors had been in decline— but Autor et al. estimate that 2.5 million of these jobs losses were attributable to the shock. I begin with a set of figures depicting the effect of the China productivity shock on U.S. labor markets.

- Scenario at the time of China’s entry: Figure 1 (from Leamer 2004).
 - Two prescient messages: (1) Jobs that are contestable will feel the pain of the large labor force entering the world economy. During 1980-2000 there was no “flattening” of the U.S. wage; but would that also be the case during 2000–2015?

(2) Non-contestable jobs and productivity through innovations in non-contestable sectors kept the average U.S. wage high.

- Question: *If innovation is the source of productivity, will future innovations decline if we lose a U.S. manufacturing base? Are we innovating only financial derivatives?*
- The China Shock: Figure 2a and 2b (from Nager 2017).
 - Job losses in the 2000s were ten times higher than in the 1990s. Computer hardware jobs were especially hurt. The sector had produced high paying jobs in 1990s. American firms continue to show spectacular sales growth in this sector, these sales to U.S. markets were largely produced offshore and imported to the U.S. within the firm.
 - *Offshoring increases profits because it is a labor-saving technology.*
- Regional impact in the U.S. Figure 3a and 3b (from Caliendo et al 2015).
 - The largest job losses were felt in the largest states: CA, NY and TX. But after accounting for their scale, the greatest local impact was felt by KY, NC, SC, OH, PA, WI, MI and AL.
 - Question: *Were unemployed workers absorbed in sectors that were growing? Export sectors?*
 - *How mobile are U.S. workers anyway?*
 - Question: *Political repercussions? What? Where?*

II. A THEORETICAL LENS

1. Politics

I take a positive approach to the question of trade policy in the wake of the China shock. Political institutions pose natural constraints. A school of thought holds that institutions deliver policies. What policies might U.S. political institutions deliver? A positive approach

reframes this question as: What policy platforms are politically optimal for political parties to adopt? Austen-Smith (1987), Baron (1994) and Grossman and Helpman (1996, henceforth GH) have addressed policy platforms in models of electoral competition. Consider the GH model adapted to a congressional district. Two parties, A and B, contest an election in the district, whose polity comprises a fraction α of informed and a fraction $1-\alpha$ of uninformed voters. Uninformed voters are easily swayed by a campaign (TV, media) and have no strong allegiance to either party. Informed voters are not swayed, and are knowledgeable about the impact of both policies. A special-interest lobby seeks to move the policy platform of the two parties closer to its own ideal, and makes monetary contributions to (possibly both) parties to influence them to shift their platform. The parties welcome the contributions because they need to fund a campaign to sway uninformed voters. We suppose the lobby only wished to influence policy (not win the election).

Suppose the platform is denoted t (for example t may denote a binary choice between free trade and a 20% import tariff, or t may be a continuous choice variable). GH (p. 274) show that the policy platforms $\{t^A, t^B\}$ chosen by the two parties, respectively, each solves a bargaining game between the lobby and the party separately. Let $W^L(t)$ denote the lobby's welfare (net of its campaign contributions), and $W(t)$ denote the aggregate welfare of informed voters. Then t^A is the t that maximizes the weighted joint surplus:²

Figure 1

$$\phi^A W^L(t) + \frac{1-\alpha}{\alpha} \frac{f}{h} W(t).$$

² Three important notes:

- i. A similar calculation applies for platform t^B for party B.
- ii. The “median voter” model is a simple version of this with (i) no lobbies, (ii) policy platforms a specific policy? Hotelling’s lemma solves the problem as both parties become indistinguishable, and policy converges to the preference of the median voter. are given and known by voters, (iii) voters are the same on all dimensions except their preferences (single peaked) with respect to the policy: Can rank order all voters in terms of their “distance” from a specific policy? Hotelling’s lemma solves the problem as both parties become indistinguishable,

There are four parameters to consider.

- α is the fraction of voters who are uninformed.
 - Buying the support of uninformed voters makes special interests groups important to political candidates, and α determines the magnitude of the importance of special interest contributions. If $\alpha = 1$, then trade policy maximizes the welfare of the informed voter (which may or may not be free trade!).
- $f > 0$ quantifies how important the divergence between the two parties on their fundamental ideological characteristics (not their t platforms) is to voters. f near zero implies this divergence is very important, and the larger is f the less important it becomes.
 - The more important voters perceive the divergences between parties, the more committed they are to a particular party and the less likely they are to be swayed by policy platform t . A polity with voters that consider divergences between the parties to be less important are more likely they are to be swayed by trade policy.
- $h > 0$ quantifies the ability of campaign spending to move the position of an uninformed voter.
 - A large value of h means the productivity of a dollar of campaign spending in influencing the uninformed voter is high. The source of this money—the lobby—becomes more important to the parties to finance their campaigns.
- ϕ^A is the probability that, once elections are over, the legislature actually adopts party A’s policy platform (e.g. a tariff promised by party A before the election).
 - With two parties, $\phi^A + \phi^B = 1$.

2. Firms and Productivity

I boil the large and fast-growing literature spawned by the heterogeneous-firms model of trade to its essential dimension: heterogeneity in firm productivity. The heterogeneous-firms model of trade, pioneered by Melitz (2003), have the firm as the decision-making unit. The

- and policy converges to the preference of the median voter.
- iii. The model may usefully represent the politics of a number of policy platforms that parties adopt (one at a time). Some examples are: International: (i) Trade policy: Amount of protection, (ii) Immigration policy: # H1B visas; #Immigrants; #Country quotas, (iii) Environment and Trade : Carbon tax, (iv) decision to go to war. *Domestic*:: Tax policy: Income tax schedule, (ii) Healthcare: Subsidies; Keep Medicaid; Keep Medicare

most productive firms select into exporting, earn larger profits, and have the largest market shares. The single minded pursuit of productivity is responsible for firms doing “good” things: Innovating, becoming more productive, winning large market shares, earning more profit, and growing bigger. Not innovating means becoming less productive, endangering the firm’s survival—it stays domestic and gets beaten down by China’s productivity shock. In the electoral competition model above, we believe the making of trade policy platforms, at least in the recent decades, is strongly influenced by the lobby comprising the most productive firms in the U.S. economy. The single important fact for us is that the most productive firms are exporters, and therefore strongly favor free trade (Figure 4 from Plouffe). In all models of trade theory, old and new, winners from trade (exporters) absorb those who lose jobs in the shrinking import sector. But this has not happened over the decade of the China shock. Job matches for dislocated manufacturing workers discount their prior experience. Job matches for those workers have been in construction and retailing as contract jobs: short-term, arm’s length and with no benefits. From the perspective of the American worker, by being parts of a global supply chain (even if they are coordinating and designing them where they can (iPhone)), these most productive firms are doing some “not good” things: Outsourcing jobs, moving production to foreign destination, and adopting labor-saving technology in domestic manufacturing where possible. All of these are again centered around productivity. How has this affected trade politics?

III. PUTTING IT TOGETHER: TRADE POLICY PLATFORMS SINCE 2000

Table 1: Trade Policy Platforms and its Determinants. t^K denotes Trade policy platforms of Party $K, K = \{A, B\}$

$t^K = \text{Openness}$	$t^K = \text{Isolation}$
High α , High h	Low α , Low h
Low f High ϕ^K	High f Low ϕ^K

Table 1 indicates how the size of the parameters determine policy platforms of the parties. A thought experiment across presidential election cycles starting in 2000 is as follows: Can trade policy platforms be

rationalized on the basis of temporal changes in the four parameters $\{\alpha, h, f, \phi^K\}$.

- 2000, 2004: Trade policy platform: Pro free trade for both parties
 - 1990s tech productivity hangover: largest producers of computers and laptops; cellular phone businesses taking off. China accession into the WTO largely ignored (unlike NAFTA debate in 1990).
 - Largely uninformed polity regarding impending China shock: α high.
 - TV is effective (and expensive) media for campaigns: h high.
 - Agnostic on f . Probably enough importance given by voters to divergence between the two parties that makes f low.
- 2004, 2008: Trade policy platform: Status quo (Pro free trade for both parties)
 - Wars. World recession. Drives down salience of trade policy (despite China’s destruction of U.S. manufacturing jobs by undervaluing the RMB, a chief mechanism behind productivity shock): α high.
 - TV effective (and expensive): h high.
 - f low: divergence of party views on wars, great recession important to voters.
- 2012, 2016: Tide turning: 2012 sees birth of new trade pacts like TPP whose rules are determined by U.S. firms. Still, high productivity exporters determining rules. Not jobs-oriented. 2016: Jobs takes precedence. Trade policy platforms diverge between parties. Republicans turns isolationist: anti-trade, anti-immigration. Win.
 - Withdrawal from wars. Recovery from recession. *Jobs crunch*. Trade policy salient: α drops and by 2016 is low.
 - Rise of social media reduces TV’s importance to campaigns: h drops. Both α and h contribute to the new dominance of voters in determining policy platforms, and the decline of the free trade lobby.
 - f low: divergence of party views on wars, great recession important to voters.

A truer test of this idea may be econometrically established using variation in the parameters across congressional districts and over time. Coding policy platforms across districts and time is the key challenge confronting this task.

IV. CONCLUSION: WHAT IS GOOD POLICY?

Turning to the normative question of what is good policy, given the (positive) politics of the policy-making process, we might consider some facts. Political retrenchment means policy change. Why else would there be political turnover? However, jobs are created not by government but by firms, and the best jobs are with the most productive firms. Isolationism hurts firms' productivity, and their ability to hire. The most productive firms are the biggest importers as well (e.g. Apple), and the idea that protecting import-competing firms can create high-quality jobs is illusory. Import-competing firms, by definition, are less productive than exporters and have lower survivability. How about subsidizing manufacturing to enhance the sector's competitiveness? This is politically attractive, since it may work in the short run, but is not good policy in the long run for two reasons. First, it dampens dynamism in labor markets, and second it misallocates resources. Both these ultimately, hurt long term U.S. productivity, across the board, big time.

A good policy is public investment devoted to diversifying economies of districts, so job losses in manufacturing need not translate into low-paying, lower-quality jobs. California, New York and Texas lost the most jobs due to the China shock, but being well-diversified were able to absorb surplus workers in growing sectors (Caliendo et al. 2015). Nondiversified districts like Ohio, Kentucky, North and South Carolina

and Alabama fared the worst. These are also districts where political retrenchment was the deepest.

Creating the basis for economic diversification is rooted in the idea of creating *state capacity*. State capacity combines extractive capacity (collecting taxes) and using these resources into the types of public *investments* that induce private investments (Barro 1990; Acemoglu 2005; Besley and Persson 2011). For example, Acemoglu (2005) models an individual's output as:

Figure 2

$$y_{it} = \frac{1}{(1-\alpha)} A_i^\alpha (e_{it})^{(1-\alpha)},$$

where, in a specific district, citizen i 's output (i.e. income) y_i , is produced with public investment A undertaken by the government of that district together with private investment e_i made by the citizen (citizens include firms). Public goods A and private investment e_i are complementary: both are needed to produce optimal output. We know about infrastructure and its complementarity with private investment. Here I am suggesting the idea of A devoted to *economic diversification* of the district.

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FIGURE 1: GLOBAL LABOR POOLS IN 1980 AND 2000

(Source: Leamer: A Review of Thomas L Friedman's The World is Flat)

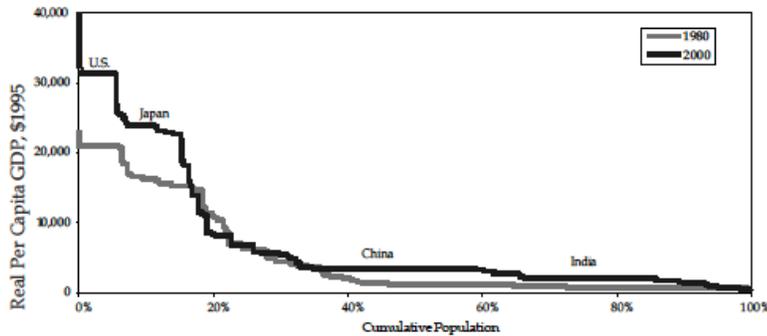


FIGURE 2A: U.S. MANUFACTURING EMPLOYMENT: 1997-2016

(Source: Nager, 2017)

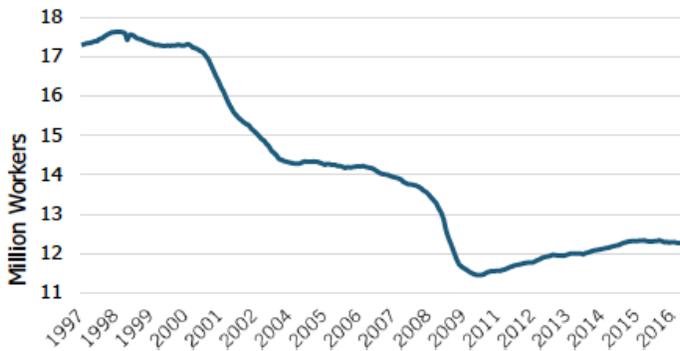


FIGURE 2B: MANUFACTURING EMPLOYMENT AND PRODUCTIVITY GROWTH: 1990-2016

Job losses in the 2000s were 10 times higher than in 1990s. (Source: Nager, 2017)

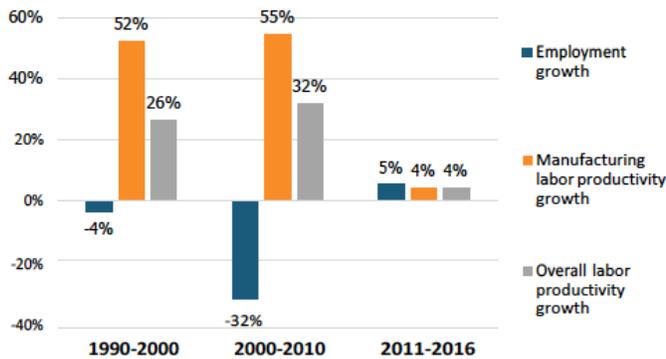


FIGURE 3A: MANUFACTURING JOB LOSS DUE TO CHINA SHOCK

(Source: Caliendo, Dvorkin, Parro, 2015)

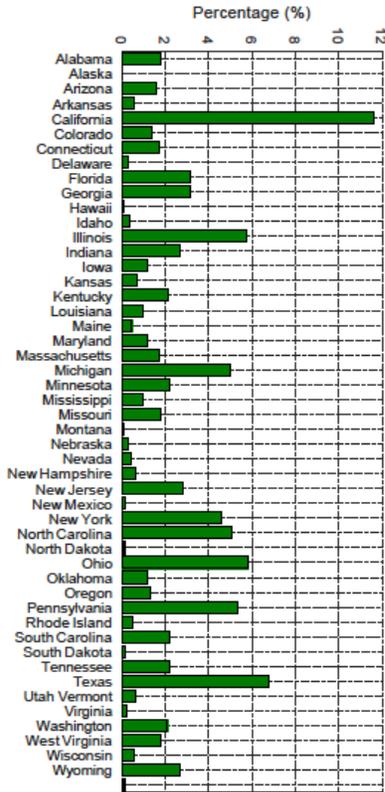


FIGURE 3B: MANUFACTURING JOB LOSS (NORMALIZED BY EMPLOYMENT SHARE)

(Source: Caliendo, Dvorkin, Parro, 2015)

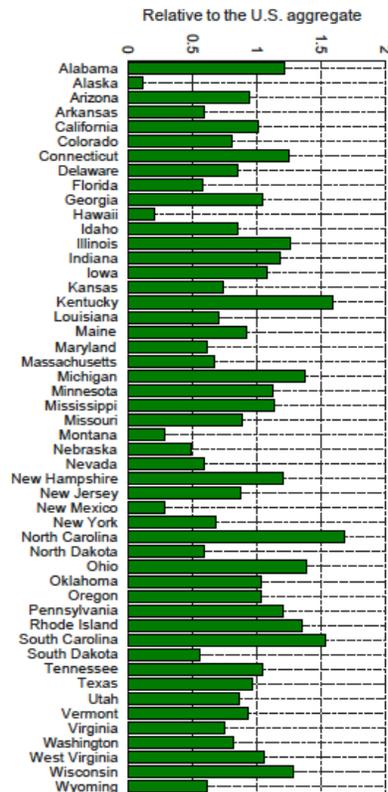


FIGURE 2B: MANUFACTURING EMPLOYMENT AND PRODUCTIVITY GROWTH: 1990-2016

(Source: Plouffe, 2013 *The New Political Economy of Trade: Heterogeneous Firms and Trade Policy*)
 All items are in millions of USD, except for employees (in thousands) and productivity.

