# How Do U.S. Firms Withstand Foreign Industrial Policies?[☆]

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**Abstract**

China's industrial policies ("Five-Year Plans") displace U.S. production/employment and heighten plant closures in the same industries as those targeted by the policies in China. The impact was not anticipated by the stock market, but U.S. companies in the "treated industries" suffer a valuation loss afterwards. Firms shift production to upstream or downstream industries benefiting from the boost, or offshore to government-endorsed industries in China. Such within-firm adjustments offset the direct impact. U.S. firms are better able to withstand foreign government interventions provided that they enjoy flexibility, including preexisting business toeholds in the "beneficiary" industries, financial access, and labor fluidity.

*Keywords*: Within-firm adjustment, foreign industrial policies, firm flexibility.

## 1. Introduction

U.S. corporations have navigated through an unbroken series of worldwide economic disruptions in the 21st century, starting with the Tech Bubble Burst, followed by the global Financial Crisis, and then the COVID-19 Pandemic. Throughout the two decades since the turn of the millennium, a consistent theme has been the escalating rivalry, both in manufacturing and in technology, from China. As China surpassed the U.S. to become the foremost nation in manufacturing (in 2010), trade (in 2013), and patents (in 2019), firms in the U.S. have been subject to a series of disruptions originated from its archcompetitor,[1] often helped by Chinese government's interventions including its industrial policies.

In many respects, U.S. firms have demonstrated remarkable resilience: the U.S. GDP has more than doubled over this period, the stock market's value has surged by over two and a half times, and companies have demonstrated unprecedented levels of innovation. Such resilience has piqued our curiosity about the sources of strength that enable many U.S. firms to survive and thrive despite disruptions in the global economic landscape. Specifically, this study delves into the mechanisms through which firms can withstand competition using mostly market-based tools, while their foreign rivals benefit from government-sponsored industrial policies. This area has been relatively under-studied.

A significant body of literature has explored how firms react to financial or product market disruptions. These responses may occur at both the intensive margin, which involves changes in the weights of investment and production across different segments or business establishments, and the extensive margin, which involves setting up operations in new sectors or regions or closing down existing ones. An increasing number of papers use census-based data to investigate economic activities at the business establishment level (e.g., Maksimovic and Phillips, 2002; Tate and Yang, 2015; Giroud and Mueller, 2015, 2019). Although this developing literature has largely examined the general efficiency of internal capital and labor markets, it does not connect the internal reallocation of resources and production with the survival instincts in response to global disruptions or how firms' agility in making internal

[1] See, e.g., Autor et al. (2013) for trade shocks from China, and Han et al. (2020) for technology competition between the two nations.

adjustments results in differential outcomes for firms and their shareholders and employees.

In this paper, we use census-based data to provide the first micro-level evidence on how U.S. firms reallocate resources across business units, sectors, and geographic locations in response to the industrial policies of a major foreign economy, China. Our study uncovers how these responses affect the outcomes of firms, and their shareholders and workers in the focal and related industries. The foreign industrial policies we study are China's Five-Year Plans, which are the highest level of the central government's industrial policies and identify the key sectors the government encourages and supports. Specifically, the study examines the impact of the Tenth to the Thirteenth Five-Year Plans, which were announced from 2001 to 2016 at five-year intervals. Our study connects establishment-level data from both the U.S. (U.S. Census LBD data) and China (China Industrial Enterprises Database). The study first validates the material impact of the staggered Plans on U.S. firms by demonstrating that the implementation of a Five-Year Plan was followed by a significant production expansion, such as an increase in the number of establishments and level of employment, in the encouraged sectors in China. This expansion crowds out production in the same sectors in the U.S., leading to significant drops in both employment and investments and a notable increase in plant closures.

Although China's Five-Year Plans could be motivated by the conditions and prospects of industries within China, empirical evidence suggests that Chinese government support does not bear any significant or even notable relation to the conditions and performance of the same industries in the U.S.. In other words, U.S. markets and businesses did not appear to anticipate the imminent shocks: The U.S. stock market only revalued firms in industries directly targeted by a Five-Year Plan ("treated firms") by the end of the year in which the Plan was published but not before, and the treated firms did not show any slowdown in job postings up to the year of a Plan. Both stock market valuation and desire-to-hire are widely considered forward-looking economic indicators: change in these indicators precedes upcoming regime changes if anticipated. This lack of pre-response supports the premise that the specificity of industrial policies from China was largely unnoticed by U.S. firms until the materialization of the shocks. A slew of dynamic analyses that incorporate the parallel pretrend tests further supports this hypothesis. Among treated firms and compared

to control firms, evidence shows that employment, investment, and output (on the intensive margin) begin to drop significantly one year after the release of the Plans, and plant closures (on the extensive margin) follow another year later. This combined evidence validates the Five-Year Plans as external industry-level disruptions to U.S. firms, allowing us to explore responses and consequences from within the treated firms or at the plant level.

Firms, as business entities, inherently possess survival instincts: they enact adaptations subsequent to absorbing disruptions and actively seek new opportunities to pivot toward. Our analysis shows that U.S. firms that are in the upstream (or downstream) of the Plan-encouraged industries become perhaps unintended beneficiaries of industrial policies in China.[2] Treated firms with preexisting segments in these "beneficiary industries," despite the negative direct shock, are in a more favorable position due to the positive spillover effects. Indeed, multisegment treated firms increase investment and employment in the beneficiary industries and experience fewer plant closures. Similarly, firms in "offshorable" industries (Firpo et al., 2011; David and Dorn, 2013) are able to set up operations in China in the encouraged industries so that they could even become direct beneficiaries of China's industrial policies.[3]

Because of the significance of adjustment costs (Pindyck, 1982), a firm's "flexibility" (Barry et al. (2022)),[4] due to its own business models or the environment in which it operates, becomes an instrumental factor for making adaptive changes. We show that such flexibility could be afforded by an existing "toehold" in related sectors which enables a company to circumvent initial setup costs and swiftly scale up, thereby gaining an early-mover advantage in competitive landscapes, or a presence in a geographic area that makes timely offshoring feasible. External factors also matter. We find that the adjustments discussed above are primarily made by firms with low financial constraints (based on publicly traded status and measure developed in Hoberg and Maksimovic (2015) and Whited and Wu (2006)),

[2]In a similar vein, Cai et al. (2019) show that credit provided at favorable terms by the China Development Bank benefits U.S. firms in downstream industries that import cheaper intermediate goods from China.

[3]Foreign-owned firms and joint ventures in China not only enjoy public goods as a result of government policies promoting the specific industries, but are often eligible for the preferential governmental policies (e.g., tax rebates, research grants, and talent recruiting) extended to all firms residing in China.

[4]Barry et al. (2022) links business flexibility (e.g., ease of working from home) to firms' ability to counter the COVID disruption based on CFO survey data.

highlighting the imperative role financial markets play in helping firms adapt to a fast-changing world.[5] On the other hand, the role of labor market friction, measured by right-to-work law and unionization rates at the state-year level, is nuanced. Strong unions can resist firms' profitable moves to "beneficiary industries," which may leave the current employees behind.[6] Conversely, facing tough labor bargaining makes it more likely that firms will send production overseas. Such contrasting tension has not been documented before.

It is perhaps not surprising that firm adjustments align with shareholder interests. Although treated firms (i.e., U.S. firms with Chinese peers supported by the Five-Year Plans) as a whole experience a decrease in valuation (measured by Tobin's $q$ and stock returns), a subset of them that are better able to adjust, due to preexisting conditions, can largely offset the negative valuation impact. These firms accomplish this by reallocating production either to upstream/downstream industries that benefit from the boost of production in China in the focal sector or offshoring to the focal sector in China. In other words, well-financed firms with nimble sectoral and territorial layouts can adapt to potential production displacement due to strengthened competition from China so that their shareholders emerge unscathed. For the same reason, suppliers and customers experience varying outcomes as they could experience positive or negative impacts as the original disruptions ripple through the supply chain. In the end, well-adjusted firms do not suffer in terms of valuation, investment, and employment despite the initial negative shock. We thus present micro-evidence of U.S. firms' global resilience.

Our study connects two strands of the economic and finance literature: the literature on resource reallocation within the company (e.g., Stein, 1997; Shin and Stulz, 1998; Rajan et al., 2000; Campello, 2002; Ozbas and Scharfstein, 2009; Giroud and Mueller, 2015; Tate and Yang, 2015) and the literature on global economic shocks (e.g., Eaton and Grossman, 1986; Pierce and Schott, 2016; Bloom et al., 2016; Handley and Limão, 2017; Antras et al., 2017; Bena and Simintzi, 2019; Autor et al., 2020). Economic shocks from China have been

[5]Relatedly, multiple recent papers (e.g., Fahlenbrach et al., 2021; Barry et al., 2022) demonstrate the importance of financial flexibility in coping firms with the Covid crisis in 2020.

[6]Potentially different skill requirements aside, about 90.2% of the plants in the beneficiary industries owned by the same firm are in a different county from the focal plant in our sample, making a high hurdle for labor mobility.

studied in the literature that focuses mainly on documenting winners and losers based on U.S. firm responses at the firm, region, or industry level (e.g., Autor et al., 2013; Acemoglu et al., 2016). Complementing the literature, our study documents the within-firm resource reallocation in response to a set of foreign industrial policies using establishment-level data. We uncover from the very basic business units evidence of firm adaptions in mostly a market economy to a disruption that is not completely market-based.

There is an ongoing policy debate on potential measures to help domestic firms and the broader economy withstand global shocks especially those originated from China, including a reintroduction of industrial policies and trade policies in the U.S., a prominent example being the CHIPS Act of 2022.[7] The recent statement from Secretary of the Treasury expressing concerns over China's "excess industrial capacity" brings the issue of production displacement to the forefront again in policy making.[8] We hope to provide crucial input to this discussion by calibrating how firms have been able to respond to the industrial policies of a major foreign competitor in the absence of help from their own government. Moreover, we demonstrate that firm strategies (such as cultivating operational flexibility), market-based approaches (e.g., financial access), and regulatory environment facilitating financing access and labor fluidity go a long way.

The rest of the paper is organized as follows. Section 2 introduces the data sources and provides a sample overview. Section 3 establishes the premise that China's Five-Year Plans constitute significant external economic disruptions to U.S. firms. Section 4 analyzes the strategies of firms to reallocate production within firms and the role played by financial markets and labor frictions. Section 5 shows how the initial disruptions and adjustments made by the firms in response affect firms' operating outcomes and shareholder value. Finally, Section 6 concludes.

[7]The Act, named "the Creating Helpful Incentives to Produce Semiconductors and Science Act of 2022," pledges $52.7 billion in government-led investment in domestic semiconductor manufacturing and exemplifies policy endeavors to boost U.S. competitiveness, innovation, and national security.

[8]See Statement from Secretary of the Treasury Janet L. Yellen on Announcement of New U.S.-China Initiatives Following Meeting with Vice Premier He Lifeng of the People's Republic of China, dated April 6, 2024.

## 2. Data and Sample Overview

### *2.1. Business establishment level data in the U.S. and China*

This study builds on various establishment-level databases from both the U.S. and China that could be integrated at the industry-year or county-year level. The construction of our main sample requires a merger of U.S. and China nationwide data at the industrial-establishment level, a sample construction tactic that has not been attempted in the literature. We merge the China Industrial Enterprises Database (CIED) with the U.S. Census Longitudinal Business Database (LBD) using the International Standard Industrial Classification (ISIC) codes as a bridge; the sample period runs from 1998 through 2013.

The LBD at the U.S. Census Bureau is an administrative business dataset in the U.S.. It covers 23 million business establishments affiliated with public and private companies in all industries and all states from 1975–2016. The LBD tracks longitudinal changes in economic activities such as births/deaths of the establishment, payroll, and employment at the establishment level. It also captures establishment characteristics such as industry classification and location. To trace the production and the investment activities of U.S. business establishments, we merge the Annual Survey of Manufactures (ASM) and the Census of Manufactures (CMF) with the LBD using the establishment-level linking table provided by the Census. Key information we use from the ASM and CMF includes capital expenditure, production output, etc.

Similarly, CIED tracks the longitudinal evolution of operating and financial variables for a large sample of business entities affiliated with private and public companies for the period 1998 through 2013. The database is based on annual surveys of manufacturing firms with revenues more than RMB 20 million (before 2009, above RMB 5 million)[9] conducted by the National Bureau of Statistics of China. The key variables from the database include employment, sales, exports, government subsidies, total assets, and total liabilities, among others. Subsidy income, provided by central or local government, takes various forms, including tax rebates, financial subsidies, and incentives for new products and technological

[9]During our sample period the official exchange rate is about RMB 7.6 per U.S. dollar.

innovation, including R&D grants.[10] Previous studies built on the database include Hsieh and Klenow (2009) and Song et al. (2011).[11] We transform the 6-digit CIC (China Industry Classification) codes in the database into 4- to 6-digit International Standard Industrial Classification (ISIC) codes based on an industry matching table compiled by the National Bureau of Statistics of China, and then translate the ISIC codes into 4-digit NAICS industry classifications using concordances provided by the U.S. Census Bureau.

It is worth noting that both databases build on mandatory and comprehensive government surveys and both are longitudinal; also, they cover business entities affiliated with both public and private corporations. The unit of an "establishment" on the U.S. side is slightly more disaggregated than a "firm" on the China side, but the two are close in tracking activities at the business unit level. While an establishment is a production site that is equivalent to a factory, a "firm" in CIED is equivalent to a branch of a corporation sorted by region or product line. Furthermore, "firms" in the China database include those that are foreign-owned or joint ventures. For example, Huawei Technology Co. has 20 firm-level entries in our database, and there are seven "firms" affiliated with P&G Great China.

### *2.2. Source of economic disruptions: The Five-Year Plan of China*

The global economic disruption on U.S. firms studied in this paper originated from China's Five-Year Plans, which are the highest level of the central government's industrial policies starting in 1953. A key element is that each Plan identifies the key sectors the government encourages and supports. The Plans of particular interest to us are the 10th, 11th, 12th, and 13th Five-Year Plans that came into effect in 2001, 2006, 2011, and 2016, respectively.[12] We hand-collect data on the Five-Year Plans from official documents provided by the State Council of China, following Chen et al. (2017) in defining government-supported industries, which we term "encouraged industries." To further tighten the classification of industries that are treated by government support, we require such industries to be

[10] In China, one-quarter of firms' R&D expenditures come from government subsidies, according to Fang et al. (2018).

[11] Nie et al. (2012) raised various criticisms regarding the quality of CIED data. Internet Appendix A describes how we mitigate the major issues they raised that are relevant to our study.

[12] The 13th Five-Year Plan will be used to conduct an analysis of job postings based on Burning Glass data.

both encouraged in a Plan and receiving increased government post-Plan subsidies. More specifically, the treatment requires that the magnitude of subsidy increases from pre-Plan benchmark levels during the five years after the release of the Plan is above the median across all industries. The control group comprises establishments operating in industries that have not been explicitly encouraged in a given Plan.

### *2.3. Sample overview and summary statistics*

The merger of LBD and CIED data yields 2,100 observations at the industry-year (4-digit NAICS) level from 1998 through 2013, covering approximately 1,643,000 unique business establishments on the U.S. side and 1,100,000 unique firms on the Chinese side, all in manufacturing sectors.[13] Due to disclosure restrictions imposed by the U.S. Census Bureau, we are limited to reporting a maximum of four significant figures for any given statistic or coefficient based on restricted-use data provided by the U.S. Census Bureau. The merging between LBD and ASM/CMF data yields 1,245,000 unique establishment-year observations on the U.S. side. To construct variables concerning U.S. firms' and industries' economic activities, we also aggregate the establishment-level data for a given firm-year and industry-year. On the China side, the CIED restricts its coverage to firms that reported at least RMB 20 million (about $2.9 million) in revenue as of 2011,[14] so the industry aggregation is a sum that captures all Chinese firms with revenues above the threshold. Moreover, the filter implicitly requires that each industry-year observation includes at least one Chinese firm with revenue over the RMB 20 million threshold, but this requirement is binding in only a handful of industries in the early years of the sample period in China.

The summary statistics are reported in Table 1,[15] following Table A1, in which we define all our variables. On average, each industry represented in our sample includes 586 U.S. establishments (based on the ASM/CMF-LBD merged sample) and 1,503 Chinese firms.

[13] The number of unique firms on the Chinese side is estimated based on the number of unique firm names in the dataset.

[14] The calculation builds on the average exchange rate between the U.S. dollar and the Chinese yuan from 1998 through 2013, which is about 7.58 RMB/USD.

[15] In light of the clearance requirements of the U.S. Census Bureau, we report pseudo-percentiles for each variable (i.e., the 25th, 50th (median), and 75th percentiles) to estimate the corresponding percentiles. For example, the 25th pseudo-percentile is defined as the mean value for the subsample between the 24th and 26th percentiles.

The average number of employees is 158.2 (437.3) in the United States (China). It is not surprising that Chinese firms are generally more labor intensive. Summary statistics for U.S. establishments are comparable to those reported in earlier studies (e.g., Giroud and Rauh (2019), Kim and Ouimet (2014)). For instance, the number of employees in a U.S. establishment is around 158 in our sample and is between 49 and 311 for Giroud and Rauh (2019).

The average leverage, measured by the fraction of long-term liability in the total assets of Chinese establishments, is 12%, which is slightly lower than the leverage in Chinese public firms alone (Gul et al., 2010). Regarding export intensity, defined as the proportion of export-bound outputs, the average for Chinese industries (19.37%) is higher than the average for the corresponding U.S. industries (8.85%). Given the bilateral trade surplus favoring China, such a gap is not surprising. Finally, the direct help firms receive from the Chinese government is visible. On average, 12.7% of firms operating in Chinese industries receive some type of subsidy, and average industry-level subsidies in a given year amount to RMB 629 million ($83.1 million) or about 0.2% of annual sales in a given industry. Government subsidies are not unique to China; in fact, they are common in most major economies.[16] However, subsidies on the U.S. side are not recorded in the Census database and are not the focus of our study.

Building our study on comprehensive and mandatory national surveys of business establishments in both countries is crucial to overcome the data limitation associated with conventional data sources that cover only publicly traded firms. In 1998 (2015), publicly listed U.S. firms accounted for about 15.6% (11.2%) of the establishments in the U.S. manufacturing sector and 34.3% (28.8%) of employment. On the Chinese side, public companies account for a much smaller share of business activities. According to CEIC and China's National Bureau of Statistics, employment in all domestic public companies in 2015 represented 2.4% of total employment in China, while the corresponding shares in earlier years were even more negligible.

[16] See a 2021 report (https://www.cfr.org/backgrounder/industrial-policy-making-comeback) by the Council of Foreign Relations.

## 3. China's Five-Year Plans as Economic Disruptions to U.S. Firms

### *3.1. Five-Year Plans boost production in encouraged industries in China*

Before we examine the effects of China's Five-Year Plans (FYPs) on U.S. firms, we first establish that the Plans have the intended impact of boosting the production of the encouraged industries in China. To do that, we estimate the following regression based on stacked panel data at the industry($k$)-year($t$)-Plan($p$) level, which consists of treated and control industries in China over the ten years around each Plan (i.e., five years before and after a Plan):

$$y_{kt} = \theta \; Treated_{ktp} + \alpha_{kp} + \alpha_{tp} + \varepsilon_{ktp}. \tag{1}$$

In the above equation, $y_{kt}$ is the logarithm of the number of firms (employment) in a Chinese industry $k$ in year $t$. The key variable, $Treated_{ktp}$, is an indicator variable that takes the value of one if industry $k$ is included in Five-Year Plan $p$ as an encouraged industry and Plan $p$ started in any year during the five-year window $[t-4, t]$. $\alpha_{kp}$ are industry-Plan fixed effects, and $\alpha_{tp}$ are year-Plan fixed effects. Our empirical strategy is similar to that used by Cengiz et al. (2019), among others. We run a stacked regression where each treated unit is compared to not-yet-treated controls, and we also incorporate separate fixed effects for each set of treated units and its control. Results are reported in Panel A of Table 2. We find that after the release of a Plan, the treated industries in China expand to a greater extent than the non-treated industries do in terms of the number of firms. Specifically, the targeted industries in China experience a surge in the number of firms (employment) after the release of a Five-Year Plan that is 14.5% (12.5%) greater than the corresponding increases in the non-treated industries.

Our overall results suggest that the Plans have the desired effects on the encouraged industries in China. Such increased capacity may exert a substitutive effect on U.S. production, which we analyze next.

### *3.2. Production and employment outcomes for U.S. establishments*

Next, we study the effects of China's Five-Year Plans on establishments in the U.S. We estimate the following regression at the establishment($i$)-year($t$)-Plan($p$) level based on

stacked panel data consisting of all relevant establishments in the U.S. over the ten years around each Plan:

$$y_{it} = \theta \; Treated_{i(k)tp} + \alpha_{ip} + \alpha_{tp} + \varepsilon_{itp}. \tag{2}$$

In the above equation, $y_{it}$ is an outcome of establishment $i$ in year $t$ in terms of employment (logarithm), investment (logarithm), plant closure (an indicator variable), and output (in logarithm). The key variable, $Treated_{i(k)tp}$, is an indicator variable that takes the value of one if establishment $i$ belongs to an industry $k$ that is included in a Five-Year Plan as an encouraged industry in any year during the five-year period $[t-4, t]$. $\alpha_{ip}$ are establishment-Plan fixed effects, and $\alpha_{tp}$ are year-Plan fixed effects.

The results shown in Panel B of Table 2 indicate that there are significant negative effects on U.S. establishments after the same industries become encouraged by one of China's Five-Year Plans. The employment and total capital expenditure of an average U.S. establishment in a treated industry decrease by approximately 5.1% and 6.1%, respectively. We also find changes in the extensive margin: the likelihood of establishment closure increases by one percentage point after an industry is included in a Five-Year Plan (relative to the unconditional closure probability of 8%). Production of U.S. establishments decreases by about 3.6%.[17] Overall, the evidence indicates a significant displacement of U.S. establishments' economic activity by Chinese firms' boosts in production after their shared industry is targeted by a Five-Year Plan.

Note that the analyses are performed at the business-establishment level as opposed to at the firm level (using standard databases such as Compustat). The latter could have led to materially different inferences. In fact, we discover that the number of Compustat

[17]The impact on U.S. manufacturers in the baseline analyses is overall comparable in magnitude to the effects of other economic shocks in the literature. For example, Autor et al. (2013) reveal that Chinese import penetration results in an 8.5% reduction in U.S. manufacturing employment. Pierce and Schott (2016) show the normalization of trade with China implies a relative decline in manufacturing employment of about 15% (or 0.15 logarithmic points); Bernard et al. (2006) find that import penetration from low-income countries is associated with a 2.2 percentage point increase in the probability of plant closure. Trefler (2004) shows Canada-U.S. Free Trade Agreement leads to a 5% employment loss for the manufacturing sector. Adelino et al. (2017) show that a one-standard-deviation change in local income growth due to exogenous investment opportunity shocks leads to employment creation equivalent to 1.6% of the total employment in non-tradable sectors of a commuting zone.

firms does not exhibit a significant drop after the release of a Plan.[18] In other words, our key finding that China production boost predicts reductions in the number of U.S. factories could not have been revealed using standard firm-level data.

Furthermore, the scope of these effects may extend beyond increased imports from China to the United States, as documented in the China shock literature. According to the Internet Appendix Table A4, China's Five Year Plans have a significant impact on U.S. establishments after the same industries in China become encouraged in a Plan, and this effect holds, albeit with a smaller magnitude, even for establishments in industries with relatively low China import intensity (below the median). This observation suggests that the effect is not solely attributable to production competition targeting the U.S. market, but could also be linked to competition between manufacturers in both countries on a global scale.

### *3.3. Affirming the impact of Five-Year Plans*

#### *3.3.1. Pre-trends of key variables*

We reiterate that estimates derived from regression (2) can be interpreted as causal only if the industries in the treated and control groups would have seen their economic activities evolve similarly in the absence of Five-Year Plans. While this parallel-trend assumption is inherently non-testable, we shed light on the premise by examining preexisting trends in greater detail. More specifically, we examine how various outcome variables evolve around the release of the Five-Year Plans for the treated and control groups by estimating the following regression at the establishment(i)-year(t)-Plan(p) level:

$$y_{it} = \sum_{\tau=-3}^{4} \theta_\tau Treated^{\tau}_{i(k)tp} + \alpha_{ip} + \alpha_{tp} + \varepsilon_{itp}. \tag{3}$$

We estimate the regression based on the same stacked panel data that we used with Equation (2). $Treated^{\tau}_{i(k)tp}$ is a dummy variable that equals one if an establishment ($i$) belongs to an industry ($k$) included in a Five-Year Plan ($p$) $\tau^{th}$ ($-\tau^{th}$) year before (after) year $t$ and is zero otherwise. The definitions of other variables are consistent with those

[18] For detailed results, see Internet Appendix Table A3.

included in Equation (2). The coefficient $\theta_\tau$ measures the gap between the treated and control industries in economic activities during year $\tau^{th}$ ($-\tau^{th}$) after (before) the release of a Plan. The results are reported in Table 3 and plotted in Figure A1.

The outcome variables associated with columns (1) and (2) are the logarithms of employment and investment for the establishments. In column (3) we report the dynamics of the number of establishments in U.S. industries. In column (4), the outcome variable is the indicator of establishment closure. In column (5), the outcome variable is the output for the establishments. The insignificant coefficients on $Treated^\tau$ and the lack of a visible trend for the pre-Plan periods suggest that, before the Plans, the establishments in the treated and control groups shared a similar trend in economic activities, satisfying a parallel pretrend. On the contrary, the coefficients in $Treated^\tau$ in post-Plan periods are all significant no later than $\tau = 2$, indicating that this kind of industrial policy casts a negative shadow on establishments in the U.S. in terms of employment, investment, the number of active and surviving establishments, and output. Evidence that employment, investment, and production shrink (in year $t + 1$) before closing establishments (in year $t + 2$) is also a plausible sequence if changes on the intensive margin precede those on the extensive margin.

*3.3.2. Pre-trends of leading (forward-looking) economic variables*

It could still be argued that the absence of preexisting trends is not sufficient for a full parallel trend conclusion: The Chinese government could have chosen to implement supportive policies in industries that were on the verge of an inflection point such that China would have overtaken the U.S. in those industries at the same time in the absence of the Plans. In other words, we still need to affirm that the Chinese government does not formulate its industrial policies in the Five-Year Plans in anticipation of the decline of the same industries in the U.S.[19] For this reason, we highlight two economic measures that are "leading indicators" or forward-looking, that is, measures such that their current levels already incorporate economic agents' anticipation of future prospects. We consider two common measures: stock-market valuation and firms' desire to hire. The results are

[19]If the Chinese government actually targets industries in which the U.S. enjoys a *growing* advantage based on their natural growth cycles, our argument is stronger because it would be more difficult to obtain our current results.

reported in columns (6) to (8) of Table 3.

The first set of leading indicators, stock returns and Tobin's $Q$ values, exhibit parallel pre-trend between treated and control firms. Due to the required information from the stock market, the analysis is conducted at the firm-year-Plan level based on a stacked panel of publicly traded firms in a structure similar to that of equation (3). Tobin's $Q$ is the ratio of the sum of the market value of equity and the book value of debt to the book values of equity and debt. To the extent that stock markets are reasonably efficient, information about the future of the U.S. economy (which is available to the Chinese government) should also have been priced. In other words, if certain industries in the U.S. were expected to be out-competed by their peers in China even in the absence of the Plans, the stock-market valuation should already reflect that negative prospect prior to Plan implementation. The fact that both forward-looking measures (recorded at year-ends) take a significant dip in the year of an announcement and the following year suggests that the stock market is, in a timely way, processing new information gleaned from policy announcements.

The second forward-looking economic indicator, firms' desire to hire, comes from Burning Glass, a leading data vendor for job postings in the U.S.. The postings are scraped from more than 40,000 digital and nondigital sources, including websites, newsletters, and agency reports, and cover the year 2007, and 2010–2020 (through September 2020). The data contains more than 100 million online job postings and is believed to capture the near-universe of jobs posted online during the sample period.[20] For column (8) of Table 3 the outcome variable is $Job\ Postings_{US}$, defined as the total number of job postings for all firms in an industry in a given month. Job postings capture only the demand side, instead of the equilibrium level, of employment and therefore reflect firms' expectations of future growth. The results indicate that job postings for treated and control groups do not diverge before the release of a Plan, but treated firms drop postings significantly relative to control firms after a Plan is implemented. Such a difference-in-difference suggests that U.S. firms did not anticipate the relative weakening of the industries that would be targeted by one of China's Five-Year Plans, but quickly modified their expectation afterwards.

[20] A growing body of research utilizes Burning Glass data (e.g., Acemoglu et al., 2022; Hershbein and Kahn, 2018).

We note that it is generally considered implausible by the vast economics literature to assume that a government can process information to predict and anticipate the evolution of economic activities in a way that outperforms the aggregate wisdom of the securities market and firms. In fact, the ability to aggregate information to guide resource allocation is considered the fundamental strength of markets over government-driven alternatives. Therefore, the most likely explanation for the findings reported in Panel B of Table 2 is the real impact of foreign industrial policies on U.S. firms.

In Internet Appendix Table A5, we perform a set of analyses similar to those in Table 3, but with the additional requirement that the control establishments belong to a two-digit NAICS sector that includes at least one treated industry. With this more stringent definition of the control group, the timing of the effects is entirely aligned with that of Table 3, suggesting that the documented effects in Table 3 are not explained by divergent trends in the NAICS two-digit sectors encompassing the treated and control groups.

While our study primarily focuses on the impacts on U.S. firms, we also investigate pre-trends among Chinese firms as information regarding the Plans may disseminate faster in the local market. However, we are able to confirm the same parallel pre-trend in the stock valuation of Chinese firms between treated and control groups at the annual frequency, see Panels (a) and (b) of Figure A2. When we zoom in on a monthly frequency, we find that the valuation of firms in the treated group starts to respond positively about one month before the plan's announcement, as illustrated in Panel (c) of Figure A2. Though there could be some information leakage or market anticipation, the short window (about one month) cannot meaningfully impact U.S. firm adjustment ahead of the Plans.

## 4. Within-Firm Adjustment by U.S. Firms in Response to China Industrial Policies

The previous section shows that China's Five-Year Plans constitute an external disruption for U.S. firms whose same-industry peers in China are expanding. However, these firms are not passive players; instead, they should strive to overcome disruptions through operational and financial adjustments. The establishment-level data at our disposal allow us to examine such adaptations made within the firm.

*4.1. Adjustment to upstream and downstream industries*

*4.1.1. Upstream and downstream industries after the release of a Plan*

Similarly to most economic disruptions, the Five-Year Plans could also create winners among some U.S. firms, with two types of industries emerging as prime candidates. Table 2, Panel A shows that booms follow Plans in industries in China that are encouraged by the Plans. Based on the input-output relations, we expect industries that are upstream or downstream of the focal industries to benefit as either their outputs are in higher demand or their inputs become more abundant, especially if they export significant volumes of outputs to China or source significant volumes of inputs from China.

We thus evaluate the following regression based on establishment-year-Plan level stacked panel data that only includes nontreated industries:

$$y_{it} = \theta_1 \, BeneficiaryUpstr_{-1,i(k)p} + \theta_2 \, BeneficiaryDownstr_{-1,i(k)p} + \alpha_{ip} + \alpha_{tp} + \varepsilon_{itp}. \quad (4)$$

$BeneficiaryUpstr_{-1,i(k)p}$ is a dummy variable equal to one for the five years after the release of a Five Year Plan if industry $k$ (where establishment $i$ belongs) is upstream to a treated industry encouraged by plan $p$, and have a relatively high export intensity to China (above median) prior to the release of a Plan. $BeneficiaryDownstr_{-1,i(k)p}$ is a dummy variable equal to one for the five years after the release of a Five Year Plan if industry $k$ is downstream of a treated industry encouraged by Plan $p$ and has a relatively high (above median) import intensity from China prior to the release of a Plan. An upstream industry (A downstream industry) to a treated industry is a nontreated industry of which the percentage of output supplied to (input sourced from) a treated industry in "year $-1$" falls in the top tercile among all nontreated industries that supply to (source from) a treated industry. The input-output relationship is based on Industry Economic Accounts (IEA) released by the Bureau of Economic Analysis. Import-export measures are constructed based on the United Nations Industrial Development Organization (UNIDO) database. Importantly, we include establishment-Plan fixed effects to control for invariant heterogeneity across establishments and also include year-Plan fixed effects to control for the macroeconomic trend. The results are reported in Panel A of Table 4.

As expected, Panel A of Table 4 shows that U.S. establishments in upstream exporting industries experience a 1.8% growth in employment and a 2.2% growth in investment post Five-Year Plans relative to establishments in industries unrelated to the Plans; both increases are significant at the 1% level. Furthermore, we find that U.S. establishments in upstream exporting industries experience a −0.4% incremental likelihood of establishment closure. For establishments in the U.S. downstream import industries, the effects are similar at 2.0%, 2.1%, and −0.4%; all are significant at the 1% level.[21]

To verify whether the expansi on in these upstream and downstream industries is indeed linked to their trade with China, we cross-check with changes in their import and export activities with China following the release of a Plan. We utilize transaction-level administrative data on U.S. businesses' import and export activities from the Longitudinal Firm Trade Transactions Database (LFTTD), along with Foreign Trade Data-Export and Import (EXP and IMP), provided by the U.S. Census Bureau. Since the business identifier in the LFTTD is at the employer (EIN) level, we impute an establishment's export value to China and import value from China using the corresponding measures of the employer (EIN) to which an establishment belongs. Table 4, Panel B shows that after a Plan, U.S. establishments in upstream exporting industries experience a significant increase in their exports to China, while those in downstream importing industries see a significant increase in their imports from China. Based on the combined evidence from Panels A and B of Table 4, we now term these two groups of industries as $Beneficiary$ industries.

The fact that the same disruption can create winners and losers corroborates findings from recent studies along novel dimensions. For example, Bena and Simintzi (2019) show that the 1999 U.S.-China bilateral agreement toward freer trade led to outsourcing of labor across borders, which in turn discouraged innovative processes aiming at reducing production costs. Cai et al. (2019) find that government-subsidized credit in China at the top of supply chains leads to lower prices and higher exports for firms in downstream industries, which crowds out U.S. firms in the same industry, but crowds in downstream firms with respect

[21]Based on the dynamic effect analyses, the upstream exporting (or downstream importing) industries and the control industries do not exhibit divergent trends before the release of a Plan; the observed effects emerge only after the release of a Plan.

to business performance and employment. Li et al. (2020) show that a favorable change in U.S. trade policy leads to increased entry rates and export participation among upstream suppliers in China. Such a finding per se is not the focus of our study, but serves as a premise to analyze within-firm adjustments in response to the newly emerged bright spots.

*4.1.2. Within-firm reallocation of production to beneficiary industries*

Our next focus is on uncovering within-firm reallocation of resources. First, we partition all establishments into three groups. The first group, $Treated$, includes establishments of U.S. firms whose peers in the same industry in China are supported by the Five-Year Plans. The results in the previous section show that these establishments experience significant reductions in employment, investment, and output. The second group consists of establishments that are not in the $Treated$ group but belong to firms that have at least one establishment in the treated group. These establishments are called *SameFirmAsTreated*. The third group is the residual category of establishments that are not "sibling plants" to the treated ones.

We then further partition the *SameFirmAsTreated* group into three more refined groups based on their expected exposure to China's industrial policies. $SameFirmAsTreated * BeneficiaryUpstr_{-1}$ is a group of establishments that belong to *SameFirmAsTreated*, are in an industry upstream of a treated industry, and have a relatively high export intensity to China. Establishments in this group are expected to benefit from China's industrial policies because they are suppliers to firms in industries that are encouraged by these policies. Similarly, $SameFirmAsTreated * BeneficiaryDownstr_{-1}$ is a group of establishments that belong to *SameFirmAsTreated*, are in an industry that is downstream of a treated industry, and have a relatively high intensity of imports from China. This group benefits from being customers of abundant supply from China. Finally, $SameFirmAsTreated * NonBeneficiary_{-1}$ contains all other establishments that belong to the $SameFirmAsTreated$ group. Establishments in this group are not expected to directly benefit from China's industrial policies. All beneficiary status variables carry the time subscript "$-1$" to denote that such status is ex ante, recorded during the year prior to the beginning of a Five-Year Plan.

We estimate the following regression on a stacked panel at the establishment($i$)-year($t$)-Plan($p$) level:

$$\begin{aligned} y_{it} &= \theta \text{ Treated}_{itp} + \delta_1 SameFirmAsTreated_{itp} * BeneficiaryUpstr_{-1,ip} \\ &+ \delta_2 SameFirmAsTreated_{itp} * BeneficiaryDownstr_{-1,ip} \\ &+ \delta_3 SameFirmAsTreated_{itp} * NonBeneficiary_{-1,ip} + \alpha_{ip} + \alpha_{tp} + \varepsilon_{itp}. \end{aligned} \tag{5}$$

The results are reported in Table 5. The coefficients of $Treated$ in columns (1) through (3) merely confirm the evidence reported in the previous section. U.S. establishments whose same-industry peers in China are supported by the Five-Year Plans experience significant reductions in employment and investment (both in intensive and extensive margins).

Key to our interest is the subset of multi-segment firms with at least one treated plant (i.e., an establishment in the industry displaced by expanded production in China) and at least one plant in a beneficiary industry. These firms face disruption and at the same time also hold branches in the winning industries, which allows them to pivot toward the bright spots more quickly or at a lower cost than their disrupted peers without such toeholds. If such firms leverage their toeholds by moving resources and production from the distressed to the booming sectors, we should observe that the "sibling plants" in the beneficiary industries expand significantly, relative to plants without an association with treatment.

This relation is confirmed by Panel A of Table 5, where a comparison is made between the plants of interest and all plants not affiliated with a treated firm. Establishments that are expected to benefit from China's industrial policies indeed experience significant increases in employment (3.2%-5.1%) and investment (5.2%-6.8%). Furthermore, the probability of closure of an establishment 1.3%-1.5% lower relative to establishments that belong to firms without treated establishment. Because regression (5) includes establishment-Plan fixed effects, the variables are already demeaned from the average levels of the same establishment over a 10-year period. The regression also incorporates year-Plan fixed effects, taking out the unconditional effects on all establishments from the cycles of the Five-Year Plans. In the end, the results in Panel A of Table 5 indicate that firms with disrupted establishments as well as establishments in beneficiary industries experience a decrease (increase) in production in the

former (latter). In particular, the increase in production within the beneficiary industries is more pronounced among firms with disrupted establishments than among an average firm (Panel A of Table 4). Their other establishments maintain a neutral level of changes relative to the establishments not affiliated with a treated establishment.

Because they are full-sample regressions, Panel A of Table 5 set the reference category to consist of establishments that are themselves not in the treated industry and that are without sibling plants in the treated industries. What we can do one step further is to demonstrate within-firm relocation of production and resources. That is, we would like to abstract from the direct effect on the treated establishment and focus on within-firm production reallocation among all establishments in nontreated industries. Columns (1) through (3) of Table 5, Panel B estimate regression (6) for the subsample of establishments that excludes establishments in the treated industries:

$$\begin{aligned} y_{it} &= \delta_1 SameFirmAsTreated_{itp} * BeneficiaryUpstr_{-1,ip} \\ &+ \delta_2 SameFirmAsTreated_{itp} * BeneficiaryDownstr_{-1,ip} + \alpha_{ip} + \alpha_{jtp} + \varepsilon_{itp}. \end{aligned} \tag{6}$$

In this specification, we also replace year-Plan fixed effects, $\alpha_{tp}$, with firm-year-Plan fixed effects, $\alpha_{jtp}$, for the purpose of extracting within-firm variation in outcome variables. In the full sample analysis presented in Panel A, in contrast, not including the firm-year-Plan fixed effects allows us to show how each group of establishments in the treated firms are affected and ensure that the reallocation indeed reflects a growth in the beneficiary sectors rather than merely a better position relative to the decline of other groups. In the latter analysis, incorporating firm-year-Plan fixed effects helps control all potential confounders at the firm-year level and, therefore, helps rule out the possibility that the effect can be explained by concurrent patterns. For example, this rules out the possibility that the treated firms with operations in beneficiary industries experienced overall growth in non-treated industries and firms without such an operation experienced overall shrinkage around the release of a Plan. The results, shown in columns (1) through (3) of Panel B, indicate that firms indeed reallocate resources (employment and investment) to establishments that are expected to benefit from China's industrial policies. These establishments also enjoy

significantly greater longevity.

Reallocation of resources within firms into upstream and downstream beneficiary industries may also be responding to industry-level trends in the U.S. We thus incorporate industry-year-Plan fixed effects into our analysis in order to subsume such potential comfounding factors. The results of this approach are presented in columns (4) to (6) of Panel B in Table 5. The economic and statistical significance of the key coefficients persists with the additional fixed effects, suggesting that the effects are mostly likely attributable to firm decisions in capital budgeting and resource allocation in response to the global disruption.

The comparison between Panels A and B of Table 5 further indicates that the inclusion of treated establishments in the sample does not drive the magnitude or significance of the results, suggesting real spillover effects. Positive spillover provides firms with opportunities to overcome an economic disruption, for which their preexisting sectoral distribution of business establishments plays a significant role.

To verify whether such reallocation is a response to Five-Year Plans or is conducted in anticipation of a Plan's release, we further examine the dynamic effects on within-firm reallocation around the release of a Five-Year Plan. Specifically, we estimate the following regression specification at the establishment-year-Plan level:

$$y_{it} = \sum_{\tau=-3}^{4} \theta_{\tau} SameFirmAsTreated_{itp}^{\tau} * BeneficiaryUpDown_{-1,ip} + \alpha_{ip} + \alpha_{jtp} + \varepsilon_{itp}. \quad (7)$$

Similar to Panel B of Table 5, we focus on the establishments in nontreated industries to ensure that the reallocation is not mechanically driven by changes in treated industries. The variable $BeneficiaryUpDown$ equals one if either of these two variables is positive: $BeneficiaryUpstr$ and $BeneficiaryDownstr$. $SameFirmAsTreated_{itp}^{\tau}$ is a dummy variable that equals one if establishment $i$ is in a nontreated industry but belongs to the same firm as a treated establishment in a Five-Year Plan ($p$) $\tau^{th}$ ($-\tau^{th}$) year before (after) year $t$ and is zero otherwise. All other variables are as in equation (6).

As reported in Table 6, the results show that there is no significant reallocation into beneficiary industries before the release of a Plan. The reallocation only occurs after a Plan,

suggesting the reallocation is in response to the industrial policies in China rather than a firm decision in anticipation of these policies. This result also suggests that the Five-Year Plans are not designed to chase the potential upward pre-trends in the upstream and downstream industries to the focal sectors and are likely exogenous to those connecting industries along the supply chains.

### *4.2. Offshoring*

In addition to pivoting to beneficial industries, treated firms can also choose to reallocate production geographically, that is, offshore, especially to China, where the focal sector enjoys government support.[22] To test this hypothesis, we quantify the intensity of offshoring at the firm-year level with two measures. The first and main measure is constructed by counting sentences that mention a manufacturing site or an operation facility in China in a firm's 10-K for a given year. Using a method similar to Hoberg and Moon (2017) and Hoberg and Moon (2019), we extract all sentences in a 10-K that include "China" and at least one keyword for production activity. Sales and distribution centers do not count as offshoring in our test.[23] We then manually process the information to code the variable at the firm-year level.

Based on our textual analysis, 36% of U.S. public firms mention China operations in a year, and such a firm on average mentions its China manufacturing sites 8 times in a 10-K. Column (1) of Table 7 shows that firms in industries disrupted by the Plans are indeed significantly more likely to dial up the intensity of China outsourcing from their pre-Plan periods relative to other firms. On average, disrupted firms' discussions of China operations increase by about 5% in response to a Plan relative to the firms in control industries.

The second measure for offshoring intensity by U.S. firms to China is at the industry-firm level, counting the percentage of firms that are foreign owned but excluding ownership

[22]Government support from the Plans is usually extended to all enterprises in China including foreign-owned or joint ventures. Foreign Direct Investments often enjoy additional preferential policies if they are export-oriented or involve technology transfer (e.g. Long, 2005). Some studies show that foreign-owned firms that operate in China have a higher likelihood of receiving positive subsidies from the Chinese government than non-SEO Chinese firms (e.g., Aghion et al., 2015).

[23]The list of keywords is as follows: facility, facilities, manufacture, manufacturing, manufactured, manufactures, operation, operations, operate, operating, factory, factories, production, producing, produce, produces, produced, plant, plants, site, sites, subsidiary, subsidiaries, establishment, establishments.

that could be traced to the Greater China region (including Hong Kong, Macau, and Taiwan). A large share of such foreign-owned firms originate from the U.S.,[24] hence the measure serves as a proxy for the offshoring intensity by U.S. firms. Column (2) of Table 7 again shows that the treated industries witness significant growth of foreign-owned enterprises in China. Because the dependent variable is in percentage and because the regression incorporates industry-Plan and year-Plan fixed effects, the significant positive effect suggests that "net birth" of foreign firms outpaces domestic ones in the treated industries in China post-Plans.

### *4.3. Role of financial access and human capital frictions*

The previous two sections show that U.S. firms, as a group, are adaptive to facing global disruptions. They pivot into sectors that enjoy positive spillovers from the initial disruptions or relocate production in sectors embracing the industrial policies in China. Both reallocation of resources and relocation of production (especially to overseas) can be a costly procedure, requiring nontrivial capital expenditure, logistic planning, and employee severance or retraining. We thus conjecture that the lack of financial and human capital flexibility can limit firms' adaptation to economic disruptions.

To evaluate the role of financial frictions, we estimate the following regression specification separately for subsamples of firms with high and low constraints:

$$y_{it} = \delta SameFirmAsTreated_{itp} * BeneficiaryUpDown_{-1,ip} + \alpha_{ip} + \alpha_{jtp} + \varepsilon_{itp}. \quad (8)$$

The variable $BeneficiaryUpDown$ equals one if either of these two variables is positive: $BeneficiaryUpstr$ and $BeneficiaryDownstr$. All other variables are as in equation (6). We start by presenting four sets of results based on four financial constraint measures: the HM (Hoberg and Maksimovic, 2015) index, the WW (Whited and Wu, 2006) index, leverage, and being a private firm (as opposed to a public firm).[25] A firm-year is considered financially

[24] According to Huran Foreign and Hong Kong/Taiwan/Macau Companies in China 2021 report, U.S. accounts for 34 of the top 100 foreign firms in China (ranked by China sales).

[25] Based on Hoberg and Maksimovic (2015), the HW measure is based on the 10-K text scoring, which captures the delayed investment constraint of firms. Buehlmaier and Whited (2018) construct a financial constraint measure using textual analysis based on the HM measure. Based on Whited and Wu (2006), the WW index is defined as a linear combination of cash flow to total assets ratio, dividend dummy, long-term debt to total assets ratio, logarithm of total assets, three-digit SIC industry sales growth, and firm sales

constrained if it falls into the top quintile of the financial constraint indices or is a private firm.

The results are reported in Panel A of Table 8. Across all four measures, we find that firms with less binding financial constraints (and therefore higher financial flexibility) reallocate resources more aggressively to establishments that are likely to benefit from China's industrial policies. For all four measures, the coefficients on $SameFirmAsTreated*BeneficiaryUpDown_{-1}$ of the high- and low-constraint groups are significantly different at the 10% or 5% level. In fact, changes in employment and investment for constrained firms are insignificant when we use the HM index, the WW index, and leverage. In contrast, changes in employment and investment for financially flexible firms are significant across all four measures. Arguably, a small subset of private firms that are PE-financed or able to issue public debt enjoy higher financial flexibility (Bernstein et al., 2019). Therefore, we compare private firms along these two types of sorting in the last two rows of Panel A. Again, PE-backed and public debt-issuing private firms respond significantly more strongly to opportunities. The last two columns of the table further show that establishments in the beneficiary industries are significantly more likely to survive if they are affiliated with less financially constrained firms.

Both capital and labor are essential inputs to any production function. Therefore, human capital should play a similar role. There are two sets of measures we consider, measuring labor market frictions and adaptability of firm executives. For the former, we consider both the coverage of the right-to-work law and the average unionization rates (Calmfors and Driffill, 1988; Falato and Liang, 2016; Tuzel and Zhang, 2017; Almeida et al., 2022). Both measures are at the state-year level. Table 8, Panel B shows that although firms in right-to-work states or in lower (below median value) unionization states (both are "low labor friction" states) reallocate to beneficial sectors more actively than firms in states in the other categories, both subsamples exhibit significantly positive adjustments. The differences

growth. Following Giroud and Mueller (2019), we define leverage as a ratio of the sum of debt in current liabilities and long-term debt to total assets. Internet Appendix Table A6 shows that we obtain similar results when using the Size-Age-based measure (Hadlock and Pierce, 2010) of financial constraints and the KZ (Kaplan and Zingales, 1997) index.

between the two subsamples are statistically significant at the 10% level.[26]

At the firm leadership level, we proxy a firm's ability to adapt promptly to disruptions and evolving situations with the average tenure of the boards and tenure of CEOs. Brochet et al. (2021) show that long-tenured CEOs are less adaptable to changes. Bebchuk and Cohen (2005) show the detrimental effects of entrenched boards of directors. We sort firms into high- and low-CEO tenure, as well as into high- and low-average director tenure, and hypothesize that firms with low-tenured leadership are more responsive to economic disruptions. The results in the last two rows of Table 8 confirm this hypothesis: firms with low-tenured leadership are more responsive to external challenges arising from foreign government policies.

A similar pattern with respect to financial flexibility and leadership adaptivity prevails for firm adjustment in the form of offshoring. The result in column (1) of Table 9 suggests that the increase in China-offshoring activities is mainly driven by the group of treated firms with low financial constraints defined by the HM index. Furthermore, column (3) suggests that low-tenured boards are associated with significantly more responsive off-shoring actions. Perhaps surprisingly, column (2) of the table suggests that Plan-disrupted firms with higher exposure to right-to-work law are *less* likely to offshore. This finding is robust to including state-year-Plan fixed effects (Panel B of Internet Appendix Table A7). Using unionization rates as a proxy for labor friction yields similar results, that is, firms in low unionization states are significantly less likely to move production to China (Internet Appendix Table A8). Resorting to foreign firms (excluding Greater China) presence in China as an alternative proxy for offshoring intensity produces consistent results in all specifications (columns (4)–(6) of Table 9).

Recall that firms in states without a right-to-work law or with high unionization rates face more social resistance and legal challenges in reducing employment *if* they stay (see Table 8). Unions, however, apparently do not deter firms from uprooting and moving offshore, which results in a larger scale of employment termination. Our results thus indicate that firms facing increased competitive pressure and wage demands, usually from strong labor

[26]The analyses in Panel A of Internet Appendix Table A7 suggests that the effect of labor market frictions on firms' reallocation along supply chains are robust to including state-year-plan fixed effects.

unions, resort to offshoring, which creates a threat point for labor bargaining. Previous research (e.g., Antràs et al., 2006) models offshoring as a plausibly credible threat point in labor bargaining, but such a relation has not been empirically tested. The contradiction we demonstrate empirically—that labor unions deter firms from pivoting to a different sector but fail to stop firms from moving to a different country, or even make them more likely to do so—is intriguing and contributes novel empirical evidence to the literature.

## 5. Can Firms Withstand Foreign Government Policies: Firm Outcomes and Shareholder Returns

The previous section shows that U.S. firms do not passively embrace the disruption arising from China's industrial policies. Instead, firms re-optimize in sectoral and regional allocation of production and investments, in ways that can be uncovered only using within firm data. For example, Table 5 documents how firms reallocate within the enterprise to weather an economic storm or benefit from a new investment opportunity. An important next question is to what extent such adjustments allow firms to overcome the disruption. This section addresses this question using firm-level metrics that track both operating outcomes and shareholder returns.

### *5.1. Real outcomes of adaptive firms*

The previous section shows that firms' ability to make adaptive changes is facilitated by their preexisting advantageous positions, including internal conditions and external conditions. In this section, we analyze the foreign industrial policies' impact on the treated firms, interacting with these preexisting conditions. Specifically, we run the following regression at the firm($j$)-year($t$)-Plan(p) level for all firms in our sample including both public and private firms, based on the same stacked panel data we used for columns (6) and (7) in Table 3:

$$y_{jtp} = \theta_1 \text{Treated}_{jtp} + \theta_1 \text{Treated}_{jtp} \cdot \text{Adjustable}_{jp,-1} + \alpha_{jp} + \alpha_{tp} + \varepsilon_{jtp}. \tag{9}$$

In the equation above, the coefficient associated with the independent variable $Treated_{jtp}$ captures the unconditional impact of China's Five-Year Plans on treated firms.

The key variable of interest is, however, the interaction term $Treated_{jt} \cdot Adjustable_{j,-1}$, where the interactive variable $Adjustable_{j,-1}$ is a dummy variable equal to one if firm $j$ is prepositioned to respond to the disruption based on its condition in year $-1$, or one year before the announcement of a Five-Year Plan. The regression incorporates firm-Plan fixed effects as well as year-Plan fixed effects. Because the regression sample is a stacked panel, the specification ensures that each calendar year has its Plan-specific fixed effects.

The results are reported in Table 10. Panel A is focused on internal conditions. Panel B is focused on financial and labor frictions. The first row in each panel echoes Table 3: the Five-Year Plans exert an unconditional negative impact on the treated firms in their operating performance. The interaction terms in Panel A reveal that internal conditions have a profound effect on how these policies affect U.S. firms.

The first variable in Panel A, $ChinaPresence_{-1}$, is an indicator variable of whether a company has a production or operating presence in China, based on textual information in the 10-K filings of the firm. The procedure identifies 15.6% of U.S. public firms as having a significant production/operational presence in China in 1998, with the percentage increasing to 51.3% at the end of 2013. Columns (1) to (3) show that a business presence in China exacerbates the effect and leads to greater cuts in employment and investments. More specifically, a treated U.S. firm with a production presence in China experiences a decline in employment, investment, and the number of establishments that is 66%–82% larger than treated firms without such a China presence.

The second variable capturing a firm's ex ante ability to adjust is its preexisting exposure to the beneficiary industries (as defined in Section 4.1.2). The indicator variable $BeneficiaryIndExposure_{-1}$ is coded as one if the firm, in the year prior to a Plan announcement, owns at least one plant in an industry that is upstream (or downstream) of the treated industries and exports to (or imports from) China at a high level. Columns (4) to (6) show that the exposure to beneficiary industries mitigates the negative effect on employment and investments of U.S. firms. Approximately 15% of the treated firms have an establishment in a beneficiary industry. The coefficients on $Treated * BeneficiaryIndExposure_{-1}$ suggest that having toeholds in beneficiary industries ex-ante reduces the negative impact on firms' operating outcomes by 78%–89%.

The third interactive variable, $LowBoardTenure_{-1}$, which proxies the adaptability of leadership, is also associated with more favorable impacts. Columns (7) to (9) show that the firms with leadership adaptability above the sample median experience a negative effect on employment, investments, and the number of establishments that is 27%–39% smaller than other treated firms.

Panel B shows that financial and labor frictions also have a profound effect on how the disruption affects U.S. firms. First, $LowConstraint_{-1}$ is an indicator variable equal to one if a firm is in the bottom four quintiles of the HM index (Hoberg and Maksimovic, 2015). Columns (1) to (3) indicate that financial flexibility reduces the negative effects of China's Five-Year Plans on employment and investments. Notably, the magnitude of the mitigating effect is substantial—a decrease of financial constraints from 90 percentile to 40 percentile helps lower the negative effect by more than three quarters.

The next two interaction variables capture labor frictions. $LowUnionization_{-1}$ is an indicator variable showing that the average unionization rate of the states that host a firm's establishments is below-median during the year before the release of a Plan. $HighRTW_{-1}$, is an indicator variable that shows that the average exposure to right-to-work laws in the hosting states of a firm's establishments is above the median. The results in columns (4) to (9) show that firms experience *smaller* cuts in investments and employment when labor frictions are weak. This result implies that weaker labor frictions can be beneficial for a firm's labor force because they allow firms to adjust in response to disruptions arising from foreign industrial policies, which partly helps firms preserve their ability to provide jobs. In other words, when firms face non-market-based disruptions, lowering labor frictions can potentially facilitate firms to grow the pie for all stakeholders, including their labor force.

Our findings reveal that firms prepositioned to adapt effectively withstand the disruptions stemming from foreign industrial policies, showing resilience in outputs, investment, and employment. This complements the recent study by Barry et al. (2022), which uses CFO survey data to show the role of business flexibility (especially prepositioning in the ease of work-from-home) in promoting employment and investment during the COVID crisis. Also, our findings complement the recent study by Fahlenbrach et al. (2021), which highlights the importance of a firm's financial flexibility in funding a revenue shortfall and mitigating a

stock price drop caused by the COVID-19 shock.

*5.2. Valuation of firms adapting to the disruptions*

For publicly traded firms, we are able to investigate whether firms' adaptive changes neutralize the unconditional negative financial effect of Five-Year Plans on shareholders in targeted industries. We resort to the same regression as in (9) except that the dependent variables ($y_{jtp}$) are shareholder return (cumulative stock returns over the period starting five years before the release of a Five-Year Plan to the end of a given year) and firm valuation (Tobin's $Q$, or a firm's market-to-book value ratio). Both are direct metrics for investor/shareholder welfare. The set of independent variables includes variables used in the previous section, as well as a variable controlling for firm business diversification. This is because reallocating production to spillover sectors invariably changes segment diversification within a firm, which, on its own, has valuation implications (e.g., Rajan et al., 2000; Campa and Kedia, 2002; Villalonga, 2004).[27]

Table 11 reports the results. The coefficient associated with $Treated_{jtp}$ confirms the unconditional negative impact of China's Five-Year Plans on treated firms. Next, we turn our attention to interaction variables, capturing the role of economic conditions that make firms *a priori* adaptive. Columns (1) and (2) show that firms with a preexisting presence in China are able to offset between one-half and two-thirds of the negative impact suffered by treated firms that do not have a presence in China, presumably because existing establishments in China allow firms to offshore promptly following the release of a Plan. Thus, while the presence in China enhances the negative effects of the disruption on employment and investments in U.S. establishments, it mitigates the negative effect on shareholders. Columns (3) and (4) show that firms with preexisting exposure to the beneficiary industries at the time of the Plan release are able to eliminate around two-thirds of the negative impact on treated firms without this advantage. Approximately 30% of the treated public firms have an establishment in a beneficiary industry. Finally, columns (5) and (6) show that firms with more short-tenured boards are able to compensate 25% to 36% of the valuation loss relative to peers with long-tenured boards.

[27]We obtain similar results when we do not control for segment diversification within a firm.

Panel B repeats the analysis with financial and labor conditions. The first two columns of Panel B show that firms with weaker financial constraints recover over 80% of the negative valuation effect incurred by the more constrained treated firms. The next four columns show that low union presence is associated with significantly less valuation loss based on the $Q$ measure but no significant difference with respect to stock returns. High exposure to right-to-work laws, $HighRTW_{-1}$, exhibits qualitatively similar results as the low presence of unionization.[28]

In general, the six adaptability proxies are associated with less value loss. In particular, pre-exiting toeholds in China and in beneficiary industries, as well as adequate access to financing, are particularly powerful enablers for firm adaptation, such that firms in favorable conditions based on these three measures do not experience significant value loss. That is, the sum of the two coefficients in each of columns (1) to (4) of Panel A and columns (1) and (2) in Panel B is not statistically different from zero.

In summary, Table 11 shows that firm adjustments are aligned with shareholder interests. Though treated firms (i.e., U.S. firms whose same-industry peers in China are supported by Five-Year Plans) as a whole incur valuation discount and shareholder return loss, the subset of them that are able to reallocate production, either to upstream/downstream industries that benefit from the boost of production in China in the focal sector, or to the focal sector in China, are able to largely offset the negative valuation impact. In other words, when facing a disruption of production displacement (by the strengthening of competitors in China), shareholders of well-financed firms with nimble sectoral and territorial layouts come out nearly unscathed.

## 6. Conclusion

Connecting establishment-level data from the U.S. and China, we trace out the consequences of China's Five-Year Plans on U.S. firms via production displacement. We find that U.S. firms whose same-industry peers in China are supported by the Plans lose production, employment, and output, but a subset of firms do not experience a valuation

[28] We obtain similar results when we include state-year-plan fixed effects in the analyses (Panel C of Internet Appendix Table A7).

discount or lower shareholder returns because they are able to make adaptive adjustments, including offshoring to China or moving production to upstream or downstream industries that can benefit from booming focal industries in China. Adjustments by these firms are facilitated by the financial markets. Our study provides fresh micro-evidence of U.S. firms' resilience to foreign industrial policies, and novel perspectives on the cost and benefit of firm diversification. We hope that this study will inform the current debate, ignited by the statement by the U.S. Secretary of State in April 2024, on the policy making in addressing global shocks (especially from China) that risk displacing U.S. production and employment.

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Table 1: **Summary statistics.** In this table we report summary statistics at the industry and firm/establishment levels for the main sample. All variables are defined in Table A1. All potentially unbounded variables are pre-winsorized at the 0.5% and 99.5% extremes. In columns (1) and (2) we report the mean and standard deviation of each variable. In columns (3)–(5) we report their values at the 25th, 50th, and 75th percentiles.

| | Mean (1) | Std Dev (2) | 25% (3) | Median (50%) (4) | 75% (5) |
|---|---|---|---|---|---|
| **A. Statistics at the industry level** | | | | | |
| $Establishments_{US}$ | 585.5 | 614.8 | 195.9 | 395.6 | 739.9 |
| $Output_{US}^{Ind}$ | 57.2 | 100.2 | 9.3 | 28.9 | 71.0 |
| $Export_{US}$ | 8.85% | 5.56% | 5.11% | 8.21% | 11.76% |
| $Firms_{CN}$ | 1,503 | 1,579 | 536.4 | 1,173 | 2,466 |
| $Employment_{CN}$ | 657,300 | 693,100 | 241,500 | 443,400 | 805,400 |
| $Export_{CN}$ | 19.37% | 12.01% | 9.79% | 18.40% | 22.55% |
| *Subsidy (nominal)* | 629.1 | 801.6 | 93.9 | 315.3 | 633.7 |
| *Subsidy (# of firms)* | 191.8 | 166.5 | 68.1 | 144.4 | 265.6 |
| **B. Statistics at the firm/establishment level** | | | | | |
| $Employment_{US}$ | 158.2 | 389.7 | 23.5 | 66.5 | 164.3 |
| $Investment_{US}$ | 2,030 | 19,740 | 29.4 | 213.7 | 936.8 |
| $Closure_{US}$ | 0.08 | 0.27 | 0.00 | 0.00 | 0.00 |
| $AccumReturn_{US}$ | 0.59 | 1.62 | 0.02 | 0.18 | 0.85 |
| $Q_{US}$ | 1.66 | 0.93 | 1.10 | 1.40 | 1.89 |
| *Revenue (CN)* | 220,713 | 1,749,833 | 32,754 | 58,575 | 130,093 |
| *Wage Expense (CN)* | 10,918 | 96,860 | 1,450 | 3,118 | 7,106 |
| *Book Leverage (CN)* | 12.13% | 25.96% | 0.00% | 0.00% | 4.01% |

Table 2: **The impact of industrial policies in Chinese Five-Year Plans.** This table reports the impact of the industrial policies in Chinese Five-Year Plans on China's targeted industries and U.S. establishments in the same industries. We incorporate industry-Plan fixed effects and year-Plan fixed effects in Panel A and establishment-Plan fixed effects and year-Plan fixed effects in Panel B. All variables are defined in Table A1. The $t$-statistics are based on standard errors clustered at the industry level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: The production of China's treated industries post-Plan

| Dependent variable: | $\log(\text{Firms}_{CN})$ (1) | $\log(\text{Employment}_{CN})$ (2) |
|---|---|---|
| Treated | 0.145*** | 0.125*** |
| | (2.83) | (3.02) |
| Observations | 1,900 | 1,900 |
| Industry-Plan FE | Yes | Yes |
| Year-Plan FE | Yes | Yes |
| Observation level | Industry | Industry |

Panel B: Outcomes of U.S. treated establishments post-Plan

| Dependent variable: | $\log(\text{Employment}_{US})$ (1) | $\log(\text{Investment}_{US})$ (2) | $\text{Closure}_{US}$ (3) | $\log(\text{Output}_{US})$ (4) |
|---|---|---|---|---|
| Treated | -0.051*** | -0.061*** | 0.010*** | -0.036*** |
| | (-6.17) | (-5.67) | (7.14) | (-4.35) |
| Observations | 1,245,000 | 1,245,000 | 1,245,000 | 1,245,000 |
| Establishment-Plan FE | Yes | Yes | Yes | Yes |
| Year-Plan FE | Yes | Yes | Yes | Yes |
| Observation level | Establishment | Establishment | Establishment | Establishment |

Table 3: **Outcome dynamics: Encouraged versus nonencouraged industries.** The results reported in this table indicate how economic activity in U.S. establishments/firms evolves around the release of Chinese Five-Year Plans for the treated and control groups, corresponding to equation (3). We incorporate year-Plan fixed effects for all columns. We also incorporate establishment-Plan fixed effects in columns (1), (2), (4), and (5), firm fixed effects for columns (6) and (7), and industry-Plan fixed effects for columns (3) and (8). All variables are defined in Table A1. The *t*-statistics are based on standard errors clustered at the industry level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

| | $\log(\text{Employment}_{US})$ (1) | $\log(\text{Investment}_{US})$ (2) | $\log(\text{Establishments}_{US})$ (3) | $\text{Closure}_{US}$ (4) | $\log(\text{Output}_{US})$ (5) | $\text{AccumReturn}_{US}$ (6) | $\text{Q}_{US}$ (7) | $\log(\text{Job Postings}_{US})$ (8) |
|---|---|---|---|---|---|---|---|---|
| $\text{Treated}^{-3}$ | -0.009 | -0.004 | -0.001 | -0.001 | 0.000 | -0.027 | -0.013 | -0.015 |
| | (-0.88) | (-0.37) | (-0.08) | (-0.41) | (0.04) | (-1.00) | (-0.80) | (-0.65) |
| $\text{Treated}^{-2}$ | -0.003 | 0.002 | 0.003 | 0.002 | -0.008 | -0.022 | -0.011 | -0.014 |
| | (-0.49) | (0.23) | (0.27) | (0.95) | (-0.73) | (-0.83) | (-0.67) | (-0.63) |
| $\text{Treated}^{0}$ | -0.003 | -0.011 | -0.010 | 0.002 | -0.008 | -0.083** | -0.044** | -0.004 |
| | (-0.56) | (-1.12) | (-0.97) | (0.82) | (-0.91) | (-2.53) | (-2.34) | (-0.17) |
| $\text{Treated}^{1}$ | -0.013** | -0.034*** | -0.014 | 0.003 | -0.015* | -0.140*** | -0.077*** | -0.046** |
| | (-1.99) | (-2.88) | (-1.19) | (1.57) | (-1.76) | (-4.90) | (-4.52) | (-2.01) |
| $\text{Treated}^{2}$ | -0.048*** | -0.069*** | -0.042*** | 0.008*** | -0.033** | -0.100*** | -0.065*** | -0.097*** |
| | (-3.83) | (-4.34) | (-3.29) | (4.14) | (-2.41) | (-3.01) | (-3.35) | (-4.24) |
| $\text{Treated}^{3}$ | -0.081*** | -0.091*** | -0.058*** | 0.016*** | -0.060*** | -0.105*** | -0.070*** | -0.180*** |
| | (-4.93) | (-4.75) | (-4.10) | (7.35) | (-4.70) | (-3.26) | (-3.53) | (-7.87) |
| $\text{Treated}^{4}$ | -0.100*** | -0.082*** | -0.066*** | 0.019*** | -0.077*** | -0.127*** | -0.079*** | -0.178*** |
| | (-6.45) | (-4.32) | (-4.21) | (8.29) | (-5.58) | (-3.72) | (-3.94) | (-7.38) |
| Observations | 1,058,000 | 1,058,000 | 1,900 | 1,058,000 | 1,058,000 | 49,000 | 49,000 | 16,357 |
| Establishment-Plan FE | Yes | Yes | | Yes | Yes | | | |
| Firm-Plan FE | | | | | | Yes | Yes | |
| Industry-Plan FE | | | Yes | | | | | Yes |
| Year-Plan FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observation level | Establishment | Establishment | Industry | Establishment | Establishment | Firm | Firm | Industry |

Table 4: **U.S. upstream and downstream industries.** In this table we report results pertaining to the impact of industrial policies in China's Five-year Plans on the economic activities of U.S. establishments from the upstream or downstream perspective. In Panel A, Columns (1)–(3) present results pertaining to the effects on economic activities in the industries that supply products to a focal industry in a Plan and have a high export intensity to China (the upstream perspective), and columns (4)–(6) report the impact on economic activities in the industries that source inputs from a focal industry in a Plan and have a high import intensity from China (the downstream perspective). In Panel B, Column (1) presents results pertaining to the effects on export value to China by U.S. establishments in the upstream exporting industries (the upstream perspective), and Column (2) reports the impact on import value from China by U.S. establishments in the downstream importing industries (the downstream perspective). All variables are defined in Table A1. The $t$-statistics are based on standard errors clustered at the industry level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Economic activities of U.S. upstream and downstream industries

| Dependent Variable: | $\log(\text{Employment}_{US})$ | $\log(\text{Investment}_{US})$ | $\text{Closure}_{US}$ | $\log(\text{Employment}_{US})$ | $\log(\text{Investment}_{US})$ | $\text{Closure}_{US}$ |
|---|---|---|---|---|---|---|
| Industry Type: | Upstream | Upstream | Upstream | Downstream | Downstream | Downstream |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| $\text{BeneficiaryUpstr}_{-1}$ | 0.018*** | 0.022*** | -0.004*** | | | |
| | (5.89) | (6.19) | (-4.05) | | | |
| $\text{BeneficiaryDownstr}_{-1}$ | | | | 0.020*** | 0.021*** | -0.004*** |
| | | | | (6.09) | (5.93) | (-5.27) |
| Observations | 1,051,000 | 1,051,000 | 1,051,000 | 1,051,000 | 1,051,000 | 1,051,000 |
| Establishment-Plan FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Year-Plan FE | Yes | Yes | Yes | Yes | Yes | Yes |

Panel B: Trade with China by U.S. upstream and downstream industries

| Dependent Variable: | $\log(\text{ExportValue}_{US})$ | $\log(\text{ImportValue}_{US})$ |
|---|---|---|
| Industry Type: | Upstream | Downstream |
| | (1) | (2) |
| $\text{BeneficiaryUpstr}_{-1}$ | 0.097*** | |
| | (13.79) | |
| $\text{BeneficiaryDownstr}_{-1}$ | | 0.146*** |
| | | (19.40) |
| Observations | 868,000 | 868,000 |
| Establishment-Plan FE | Yes | Yes |
| Year-Plan FE | Yes | Yes |

Table 5: **Within-firm reallocation in response to Five-Year Plans: Upstream/downstream industries.** In this table we report results on how U.S. firms that operate in the industries treated by a Plan reallocate their production activities from the upstream or downstream perspective. Panel A presents how affected firms adjust their economic activities in the industries targeted by a Plan, the targeted industries' upstream and downstream sectors, which presumably benefit from the disruption, and other industries. We incorporate establishment-Plan fixed effects and year-Plan fixed effects. Panel B reports within-firm reallocation among different types of industries; we incorporate establishment-Plan and firm-year-Plan fixed effects in all columns. Also, industry-year-Plan fixed effects are included in columns (4)–(6). All variables are defined in Table A1. The $t$-statistics are based on standard errors clustered at the industry level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Affected firms' adjustment in focal, upstream and downstream, and other sectors

| Dependent variable: | $\log(\text{Employment}_{US})$ (1) | $\log(\text{Investment}_{US})$ (2) | $\text{Closure}_{US}$ (3) |
|---|---|---|---|
| Treated | -0.047*** | -0.058*** | 0.009*** |
| | (-5.97) | (5.41) | (6.93) |
| SameFirmAsTreated*BeneficiaryUpstr$_{-1}$ | 0.032** | 0.052*** | -0.013*** |
| | (2.24) | (3.06) | (-5.87) |
| SameFirmAsTreated*BeneficiaryDownstr$_{-1}$ | 0.051*** | 0.068*** | -0.015*** |
| | (3.12) | (4.34) | (-7.06) |
| SameFirmAsTreated*NonBeneficiary$_{-1}$ | -0.013 | -0.006 | 0.003 |
| | (-0.80) | (-0.35) | (0.24) |
| Sample | | All industries | |
| Observations | 1,245,000 | 1,245,000 | 1,245,000 |
| Establishment-Plan FE | Yes | Yes | Yes |
| Year-Plan FE | Yes | Yes | Yes |
| Observation level | | Establishment | |

Panel B: Within-firm reallocation among types of industries

| Dependent variable: | $\log(\text{Employment}_{US})$ | $\log(\text{Investment}_{US})$ | $\text{Closure}_{US}$ | $\log(\text{Employment}_{US})$ | $\log(\text{Investment}_{US})$ | $\text{Closure}_{US}$ |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| SameFirmAsTreated*BeneficiaryUpstr$_{-1}$ | 0.044** | 0.053** | -0.016** | 0.024* | 0.034* | -0.009* |
| | (2.15) | (2.03) | (-2.32) | (1.89) | (1.87) | (-1.81) |
| SameFirmAsTreated*BeneficiaryDownstr$_{-1}$ | 0.063*** | 0.069*** | -0.018*** | 0.025** | 0.048** | -0.010** |
| | (2.86) | (3.11) | (-2.89) | (2.10) | (2.42) | (-2.01) |
| Sample | Non-treated industries | | | Non-treated industries | | |
| Observations | 1,051,000 | 1,051,000 | 1,051,000 | 1,051,000 | 1,051,000 | 1,051,000 |
| Establishment-Plan FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Firm-Year-Plan FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry-Year-Plan FE | No | No | No | Yes | Yes | Yes |
| Observation level | Establishment | | | Establishment | | |

Table 6: **Adjustment dynamics: With-firm reallocation along supply chains.** This table reports how with-firm reallocation along supply chains evolves around the release of Chinese Five-Year Plans for the affected firms. We incorporate establishment-Plan fixed effects and firm-year-Plan fixed effects for all columns. All variables are defined in Table A1. The $t$-statistics are based on standard errors clustered at the industry level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

| | $\log(\text{Employment}_{US})$ (1) | $\log(\text{Investment}_{US})$ (2) | $\text{Closure}_{US}$ (3) |
|---|---|---|---|
| $\text{BeneficiaryUpDown}_{-1} * SameFirmAsTreated^{-3}$ | -0.006 | -0.012 | 0.001 |
| | (-0.34) | (-0.39) | (0.21) |
| $\text{BeneficiaryUpDown}_{-1} * SameFirmAsTreated^{-2}$ | -0.019 | 0.001 | -0.002 |
| | (-0.99) | (0.02) | (-0.25) |
| $\text{BeneficiaryUpDown}_{-1} * SameFirmAsTreated^{0}$ | 0.002 | -0.004 | 0.001 |
| | (0.10) | (-0.12) | (0.10) |
| $\text{BeneficiaryUpDown}_{-1} * SameFirmAsTreated^{1}$ | 0.018 | 0.026 | -0.007 |
| | (0.79) | (0.86) | (-0.85) |
| $\text{BeneficiaryUpDown}_{-1} * SameFirmAsTreated^{2}$ | 0.053* | 0.069* | -0.023** |
| | (1.86) | (1.77) | (-2.51) |
| $\text{BeneficiaryUpDown}_{-1} * SameFirmAsTreated^{3}$ | 0.059** | 0.087* | -0.026** |
| | (2.02) | (1.86) | (-2.52) |
| $\text{BeneficiaryUpDown}_{-1} * SameFirmAsTreated^{4}$ | 0.068** | 0.090** | -0.030*** |
| | (2.40) | (2.06) | (-3.21) |
| Observations | 893,000 | 893,000 | 893,000 |
| Establishment-Plan FE | Yes | Yes | Yes |
| Firm-Year-Plan FE | Yes | Yes | Yes |
| Observation level | Establishment | Establishment | Establishment |

Table 7: **Within-firm reallocation in response to Five-Year Plans: Offshoring activity.** The table reports the effect on U.S. public firms' intensity of offshoring production to China. Column (1) focuses on a firm-level text-based measure constructed from 10-Ks, and column (2) focuses on foreign firms' (excluding Greater China) presence in China based on the CIED data. We incorporate firm-Plan and year-Plan fixed effects for column (1), and industry-Plan and year-Plan fixed effects in column (2). All variables are defined in Table A1. The $t$-statistics are based on standard errors clustered at the industry level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

| Dependent variable: | $\log(\text{OffshoreIntensity}_{US})$ (1) | $\text{ForeignFirmPercent}_{CN}$ (2) |
|---|---|---|
| Treated | 0.051*** | 0.064** |
| | (5.65) | (2.15) |
| Observations | 57,500 | 1,900 |
| Firm-Plan FE | Yes | |
| Industry-Plan FE | | Yes |
| Year-Plan FE | Yes | Yes |
| Observation level | Firm | Industry |

Table 8: **Within-firm reallocation along supply chains: High versus low adjustment frictions.** This table reports within-firm reallocation across industries in response to Five-Year Plans for affected firms with high or low adjustment friction. Columns (1), (3), and (5) focus on firms with high adjustment friction, while columns (2), (4), and (6) focus on firms with low adjustment friction. In the first part, we present six sets of results based on five financial constraint measures: the HM index, the WW index, leverage, being a private firm (as opposed to a public firm), being a PE-backed private firm (as opposed to other private firms), being a private firm with public debts (as opposed to other private firms). In the second part, we present a set of results based on the level of human capital friction. We measure labor friction by the exposure to right-to-work laws and unions for the states that host a firm's establishments. We measure board/executive human capital frictions using the average tenure of a firm's board and the tenure of a firm's CEO. We incorporate establishment-Plan fixed effects and firm-year-Plan fixed effects in all analyses. All variables are defined in Table A1. The $t$-statistics are based on standard errors clustered at the industry level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

| Dependent variable: | $\log(\text{Employment}_{US})$ | | $\log(\text{Investment}_{US})$ | | $\text{Closure}_{US}$ | |
|---|---|---|---|---|---|---|
| Friction level: | High | Low | High | Low | High | Low |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| **A. Financial Frictions:** | | | | | | |
| *HM index:* | | | | | | |
| SameFirmAsTreated*BeneficiaryUpDown$_{-1}$ | -0.006 | 0.142*** | -0.019 | 0.150*** | -0.012 | -0.042** |
| | (-0.08) | (2.84) | (-0.11) | (2.99) | (-0.10) | (-2.05) |
| *WW index:* | | | | | | |
| SameFirmAsTreated*BeneficiaryUpDown$_{-1}$ | 0.017 | 0.139*** | 0.015 | 0.140*** | -0.009 | -0.043** |
| | (0.39) | (2.75) | (0.35) | (2.77) | (-0.90) | (-2.10) |
| *Leverage:* | | | | | | |
| SameFirmAsTreated*BeneficiaryUpDown$_{-1}$ | -0.028 | 0.150*** | 0.014 | 0.144*** | -0.002 | -0.044** |
| | (-0.41) | (2.78) | (0.31) | (2.68) | (-0.23) | (-2.07) |
| *Private versus Public firms:* | | | | | | |
| SameFirmAsTreated*BeneficiaryUpDown$_{-1}$ | 0.022*** | 0.113*** | 0.033*** | 0.116*** | -0.013** | -0.035** |
| | (2.88) | (2.98) | (2.85) | (3.25) | (-2.78) | (-2.30) |
| *Non-PE backed versus PE backed private firms:* | | | | | | |
| SameFirmAsTreated*BeneficiaryUpDown$_{-1}$ | 0.020*** | 0.098*** | 0.030*** | 0.111*** | -0.012** | -0.035** |
| | (2.74) | (2.88) | (2.69) | (2.22) | (-2.29) | (-2.44) |
| *Private firms without versus with public debt:* | | | | | | |
| SameFirmAsTreated*BeneficiaryUpDown$_{-1}$ | 0.021*** | 0.089*** | 0.031*** | 0.126*** | -0.011** | -0.057** |
| | (2.88) | (2.64) | (2.89) | (2.71) | (-2.14) | (-2.18) |
| **B. Human Capital Frictions:** | | | | | | |
| *Low versus high exposure to right-to-work law:* | | | | | | |
| SameFirmAsTreated*BeneficiaryUpDown$_{-1}$ | 0.027** | 0.080*** | 0.034** | 0.088*** | -0.006 | -0.028*** |
| | (2.45) | (3.44) | (2.44) | (2.94) | (-1.18) | (-2.36) |
| *High versus low unionization:* | | | | | | |
| SameFirmAsTreated*BeneficiaryUpDown$_{-1}$ | 0.031*** | 0.054*** | 0.044*** | 0.071*** | -0.003 | -0.031*** |
| | (3.78) | (6.30) | (4.56) | (7.42) | (-0.24) | (-2.87) |
| *High versus low board tenure:* | | | | | | |
| SameFirmAsTreated*BeneficiaryUpDown$_{-1}$ | 0.048** | 0.178*** | 0.068** | 0.164*** | -0.011* | -0.060** |
| | (2.40) | (3.76) | (2.10) | (3.34) | (-1.68) | (-2.27) |
| *High versus low CEO tenure:* | | | | | | |
| SameFirmAsTreated*BeneficiaryUpDown$_{-1}$ | 0.066*** | 0.157*** | 0.065** | 0.172*** | -0.014* | -0.057** |
| | (2.62) | (3.44) | (2.30) | (3.10) | (-1.81) | (-2.15) |
| Establishment-Plan FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Firm-Year-Plan FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Observation level | Establishment | Establishment | Establishment | Establishment | Establishment | Establishment |

Table 9: **With-firm adjustment in the form of offshoring: High versus low adjustment frictions.** The table examines within-firm adjustment through offshoring to China in response to Five-Year Plans for affected firms with varying levels of adjustment frictions. Columns (1)–(3) focus on a firm-level textual measure based on 10-Ks, and columns (4)–(6) focus on foreign firms' (excluding Greater China) presence in China based on the CIED data. Columns (1) and (4) show the heterogeneous effects across levels of financial constraints based on the HM textual measure; columns (2) and (5) show heterogeneous effects across the levels of exposure to right-to-work laws in the hosting states of a firm's establishments; columns (3) and (6) show the heterogeneous effects across average board tenures. We incorporate firm-Plan (industry-Plan) fixed effects and year-Plan fixed effects for columns (1)–(3) (columns (4)–(6)). All variables are defined in Table A1. The $t$-statistics are based on standard errors clustered at the industry level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

| Dependent variable: | $\log(\text{OffshoreIntensity}_{US})$ | | | $\text{ForeignFirmPercent}_{CN}$ | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Treated | -0.015 | 0.065*** | 0.044*** | 0.020 | 0.105*** | 0.045* |
| | (-1.49) | (6.52) | (5.90) | (0.88) | (3.37) | (1.75) |
| Treated*LowConstraint$_{-1}$ | 0.082*** | | | 0.054*** | | |
| | (4.16) | | | (2.69) | | |
| Treated*HighRTW$_{-1}$ | | -0.030*** | | | -0.074*** | |
| | | (-3.47) | | | (-2.91) | |
| Treated*LowBoardTenure$_{-1}$ | | | 0.018** | | | 0.044* |
| | | | (2.41) | | | (1.76) |
| Observations | 57,500 | 57,500 | 57,500 | 1,900 | 1,900 | 1,900 |
| Firm-Plan FE | Yes | Yes | Yes | | | |
| Industry-Plan FE | | | | Yes | Yes | Yes |
| Year-Plan FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Observation level | Firm | Firm | Firm | Industry | Industry | Industry |

Table 10: **Effects on firms' real outcomes.** The table reports how the effects of Five-Year Plans on the real outcomes of U.S. firms (in their U.S. operation) vary across different types of firms. Panel A focuses on a set of internal conditions of U.S. firms. Columns (1)–(3) show the differential effects on U.S. public firms with versus without a business presence in China before a Plan. Columns (4)–(6) report how the effect varies with a firm's exposure to the beneficiary industries. Columns (7)–(9) report how the effect varies with the average tenure of a firm's board. Panel B focuses on a set of financial and labor market frictions faced by U.S. firms. Columns (1)–(3) report the heterogeneous effects across firms with different levels of financial constraint, measured by the HM index. Columns (4)–(6) ((7)–(9)) report how the effect varies with the unionization levels (exposure to right-to-work laws) in the hosting states of a firm's establishments. We incorporate firm-Plan fixed effects and year-Plan fixed effects for all columns. All variables are defined in Table A1. The $t$-statistics are based on standard errors clustered at the industry level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Firms' Sectoral, Geographic, and Board-Wise Conditions

| Dependent variable: | $\log(\text{Employment}_{US})$ (1) | $\log(\text{Investment}_{US})$ (2) | $\log(\text{Establishments}_{US})$ (3) | $\log(\text{Employment}_{US})$ (4) | $\log(\text{Investment}_{US})$ (5) | $\log(\text{Establishments}_{US})$ (6) | $\log(\text{Employment}_{US})$ (7) | $\log(\text{Investment}_{US})$ (8) | $\log(\text{Establishments}_{US})$ (9) |
|---|---|---|---|---|---|---|---|---|---|
| Treated | -0.029** | -0.035*** | -0.011*** | -0.067*** | -0.081*** | -0.023*** | -0.041*** | -0.051*** | -0.015*** |
| | (-2.50) | (-2.57) | (-2.65) | (-7.94) | (-9.53) | (-9.85) | (-4.72) | (-4.28) | (-6.07) |
| Treated*ChinaPresence$_{-1}$ | -0.020* | -0.023*** | -0.009*** | | | | | | |
| | (-1.94) | (-3.21) | (-3.01) | | | | | | |
| Treated*BeneficiaryIndExposure$_{-1}$ | | | | 0.056*** | 0.072*** | 0.018*** | | | |
| | | | | (4.66) | (7.32) | (9.82) | | | |
| Treated*LowBoardTenure$_{-1}$ | | | | | | | 0.016** | 0.018** | 0.004* |
| | | | | | | | (2.52) | (2.04) | (1.79) |
| Observations | 57,500 | 57,500 | 57,500 | 665,000 | 665,000 | 665,000 | 57,500 | 57,500 | 57,500 |
| Firm-Plan FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year-Plan FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observation level | Firm | Firm | Firm | Firm | Firm | Firm | Firm | Firm | Firm |

Panel B. Financial and Labor Market Frictions

| Dependent variable: | $\log(\text{Employment}_{US})$ (1) | $\log(\text{Investment}_{US})$ (2) | $\log(\text{Establishments}_{US})$ (3) | $\log(\text{Employment}_{US})$ (4) | $\log(\text{Investment}_{US})$ (5) | $\log(\text{Establishments}_{US})$ (6) | $\log(\text{Employment}_{US})$ (7) | $\log(\text{Investment}_{US})$ (8) | $\log(\text{Establishments}_{US})$ (9) |
|---|---|---|---|---|---|---|---|---|---|
| Treated | -0.081*** | -0.132*** | -0.042*** | -0.088*** | -0.080*** | -0.031*** | -0.086*** | -0.101*** | -0.029*** |
| | (-5.21) | (-6.46) | (-10.48) | (-5.23) | (-5.56) | (-8.27) | (-4.55) | (-7.39) | (-7.22) |
| Treated*LowConstraint$_{-1}$ | 0.060*** | 0.113*** | 0.036*** | | | | | | |
| | (4.27) | (5.36) | (9.23) | | | | | | |
| Treated*LowUnionization$_{-1}$ | | | | 0.061*** | 0.014** | 0.020*** | | | |
| | | | | (3.30) | (2.04) | (6.02) | | | |
| Treated*HighRTW$_{-1}$ | | | | | | | 0.053** | 0.056*** | 0.017*** |
| | | | | | | | (2.11) | (3.35) | (3.35) |
| Observations | 57,500 | 57,500 | 57,500 | 665,000 | 665,000 | 665,000 | 665,000 | 665,000 | 665,000 |
| Firm-Plan FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year-Plan FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observation level | Firm | Firm | Firm | Firm | Firm | Firm | Firm | Firm | Firm |

Table 11: **Effects on stock market valuation.** The table reports how the effects of Five-Year Plans on the stock market valuation of U.S. public firms vary across different types of firms. Panel A focuses on a set of internal conditions of U.S. firms. Columns (1)–(3) show the differential effects on U.S. public firms with versus without a business presence in China before a Plan. Columns (4)–(6) report how the effect varies with a firm's exposure to the beneficiary industries. Columns (7)–(9) report how the effect varies with the average tenure of a firm's board. Panel B focuses on a set of financial and labor market frictions faced by U.S. firms. Columns (1)–(3) report the heterogeneous effects across firms with different levels of financial constraint, measured by the HM index. Columns (4)–(6) ((7)–(9)) report how the effect varies with the unionization levels (exposure to right-to-work laws) in the hosting states of a firm's establishments. We incorporate firm-Plan fixed effects and year-Plan fixed effects for all columns. All variables are defined in Table A1. The $t$-statistics are based on standard errors clustered at the industry level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Firms' Sectoral, Geographic, and Board-Wise Conditions

| Dependent variable: | $Q_{US}$ (1) | $AccumReturn_{US}$ (2) | $Q_{US}$ (3) | $AccumReturn_{US}$ (4) | $Q_{US}$ (5) | $AccumReturn_{US}$ (6) |
|---|---|---|---|---|---|---|
| Treated | -0.064*** | -0.095*** | -0.069*** | -0.106*** | -0.064*** | -0.094*** |
| | (-4.03) | (-3.49) | (-3.83) | (-4.07) | (-3.75) | (-4.10) |
| Treated*$ChinaPresence_{-1}$ | 0.048*** | 0.044* | | | | |
| | (3.28) | (1.86) | | | | |
| Treated*$BeneficiaryIndExposure_{-1}$ | | | 0.058*** | 0.087** | | |
| | | | (4.73) | (2.45) | | |
| Treated*$LowBoardTenure_{-1}$ | | | | | 0.023** | 0.024* |
| | | | | | (2.17) | (1.70) |
| Observations | 57,500 | 57,500 | 57,500 | 57,500 | 57,500 | 57,500 |
| Firm-Plan FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Year-Plan FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Observation level | Firm | Firm | Firm | Firm | Firm | Firm |

Panel B. Financial and Labor Market Frictions

| Dependent variable: | $Q_{US}$ (1) | $AccumReturn_{US}$ (2) | $Q_{US}$ (3) | $AccumReturn_{US}$ (4) | $Q_{US}$ (5) | $AccumReturn_{US}$ (6) |
|---|---|---|---|---|---|---|
| Treated | -0.145*** | -0.240*** | -0.068*** | -0.090*** | -0.071*** | -0.086*** |
| | (-4.58) | (-7.10) | (-3.32) | (-2.51) | (-3.87) | (-2.76) |
| Treated*$LowConstraint_{-1}$ | 0.116*** | 0.192*** | | | | |
| | (3.06) | (6.53) | | | | |
| Treated*$LowUnionization_{-1}$ | | | 0.033*** | 0.016 | | |
| | | | (2.89) | (0.90) | | |
| Treated*$HighRTW_{-1}$ | | | | | 0.039*** | 0.003 |
| | | | | | (2.62) | (0.17) |
| Observations | 57,500 | 57,500 | 57,500 | 57,500 | 57,500 | 57,500 |
| Firm-Plan FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Year-Plan FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Observation level | Firm | Firm | Firm | Firm | Firm | Firm |

**Online Appendix for the paper**

**"How Do U.S. Firms Withstand Foreign Industrial Policies?"**

## Appendix A. Addressing the Data Limitations of the China Industrial Enterprises Database (CIED)

This paper relies on CIED data to track longitudinal changes in operating and financial variables for a large sample of private and public Chinese firms from 1998 through 2013. The dataset is highly informative, although it may be subject to a number of quality issues (Nie et al., 2012). In this section, we list the major limitations of CIED data raised in Nie et al. (2012) that are relevant to our study and discuss how the limitations may affect our results and how we address these issues.

**1. Missing indices**. Nie et al. (2012) mention several variables that have a missing indices problem in certain years. This issue is relevant to one variable in our tests: subsidies, which are missing for 2008 through 2010. Subsidy measures are used in Tables 2 to 11 and Table A2. To ensure that the estimates reported in Table A2 are not affected by the missing data for 2008 through 2010, we perform robustness tests using a subsample with a sample period that runs through 2007, which delivers similar results to those reported in Table A2. For the analysis based on Five-year Plans, we conduct robustness tests based only on industrial policies in the 10th Five-Year Plan as of 2000, the sample period of which does not overlap with the years with missing subsidy information. The robustness tests provide results consistent with those reported in Tables 2 and 3.

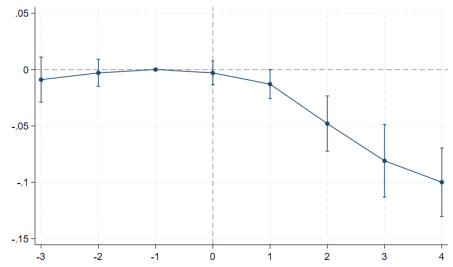
**2. Unrealistic outliers**. Nie et al. (2012) point out outliers among the variables in CEID data. This issue is potentially driven by the misreporting of variables, especially financial variables, by some firms, which is not unexpected considering that not all firms have reliable accounting systems. Because we rely mainly on basic information, such as the number of firms and total employment, the calculation of which is straightforward and does not rely on any complicated accounting procedures, we believe this issue does not have a major impact on our analysis. To further ensure that outliers do not affect the results, we repeat all analyses while trimming the potentially unbounded variables at the 0.5% extremes on both ends or the 1% extreme on one end for the variables that are unbounded on only one side. The results of these robustness tests confirm that the findings in the paper are not driven by the outliers among the variables.

**3. Measurement errors**. Nie et al. (2012) provide several examples of variables

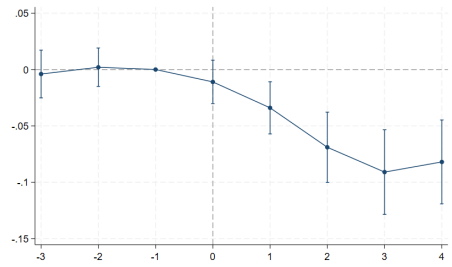
that might be subject to measurement error, which do not include the variables we used. If measurement errors exist, they may potentially affect our results. Because we aggregate the variables to the industry level, however, the data aggregation can automatically reduce measurement errors unless the errors are cross-correlated within the same industry.

**4. Sample selection**. Another concern is that some firms in our sample may not be present in the database for certain years over their lives, because in some years (especially the early years after entry), a firm's revenue may not pass the above-scale threshold. This is a major caveat when interpreting changes in the number of firms and employment in a given Chinese industry.

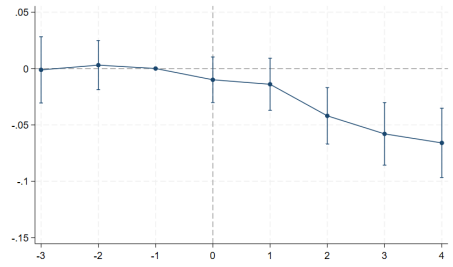
In addition, the sample matching problem raised by Nie et al. (2012) is largely irrelevant to our paper. Nie et al. (2012) point out the difficulty involved in matching the same firm across years and constructing panel data at the firm-year level. This issue arises as a result of the lack of a unique identifier at the firm level and changes in firm names over time. This issue is not expected to affect our paper because our analysis uses industry-level measures and does not rely on within-firm links. Also, the definition ambiguity issue discussed in Nie et al. (2012) does not apply to the variables used in this research.



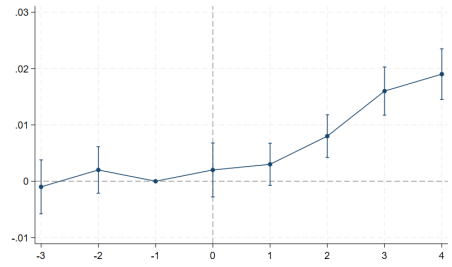
(a) The employment of U.S. establishments around a Five-Year Plan.



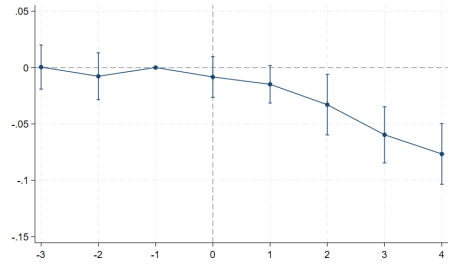
(b) The investment of U.S. establishments around a Five-Year Plan.



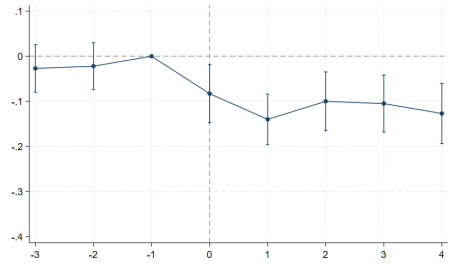
(c) U.S. establishments operating in an industry around a Five-Year Plan.



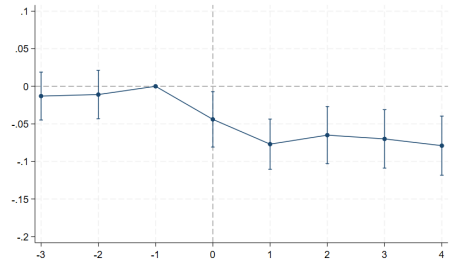
(d) The likelihood of closure of U.S. establishments around a Five-Year Plan.



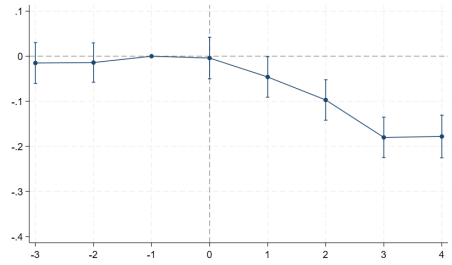
(e) The output of U.S. establishments around a Five-Year Plan.



(f) Cumulative stock returns of U.S. firms around a Five-Year Plan.

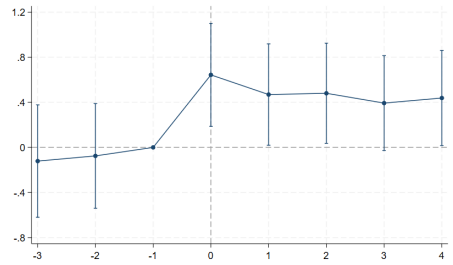


(g) Tobin's Q of U.S. firms around the release of a Five-Year Plan.

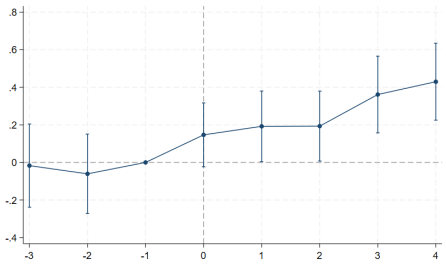


(h) Job postings in a U.S. industry around a Five-Year Plan.

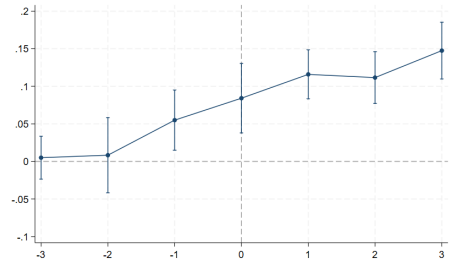
Figure A1: **Outcome dynamics around releases of China's Five-Year Plans.** In this figure we present in graphic form the outcome dynamics around the releases of Five-Year Plans based on estimates reported in Table 3. The horizontal axis represents the year relative to the release of a Five-Year Plan. The solid dot represents the difference between the treated and control groups with respect to the corresponding outcome variable. The bars represent 95% confidence intervals for the estimates.




(a) Yearly Tobin's Q of Chinese firms around a Five-Year Plan.




(b) Yearly cumulative stock returns of Chinese firms around a Plan.




(c) Monthly cumulative stock returns of Chinese firms around a Five-Year Plan.

Figure A2: **Stock valuation dynamics of Chinese firms around releases of China's Five-Year Plans.** In this figure we present in graphic form the stock valuation dynamics of Chinese firms around the releases of Five-Year Plans. In (a) and (b), the horizontal axis represents the year relative to the release of a Five-Year Plan, whereas in (c), the horizontal axis represents the month relative to the release of a Plan. The solid dot represents the difference between the treated and control groups with respect to the corresponding outcome variable. The bars represent 95% confidence intervals for the estimates.

Table A1: **Variable Definitions.**

| Variable | Definition |
|---|---|
| $Firms_{CN}$ | Number of firms in a NAICS 4-digit industry in China in a given year. |
| $Employment_{CN}$ | Total employment in a NAICS 4-digit industry in China in a given year. |
| $Establishments_{US}$ | Number of establishments in a 4-digit NAICS industry in the U.S. in a given year. |
| $Employment_{US}$ | Total employment of an establishment in the U.S. in a given year. |
| $Investment_{US}$ | Total capital expenditure of an establishment in the U.S. in a given year. |
| $Closure_{US}$ | A dummy variable equal to one if a U.S. establishment experiences closure during a given year and zero otherwise. |
| $Output_{US}$ | The total output of an establishment in the U.S. in a given year. The output measure is derived from the variables in CMF (ASM) using the following formula: tvs (total value of shipment)+ fie (inventories - finished goods at the end of a given year)- fib (inventories - finished goods at the beginning of a given year) + wie (inventories - work in process at the end of a given year) - wib (inventories - work in process at the beginning of a given year). |
| $AccumReturn_{US}$ | The cumulative stock returns of a U.S. establishment starting five years before the enactment of a Five-Year Plan until the end of a given year. |
| $Q_{US}$ | The Tobin's Q of an establishment at the end of a year in a U.S. Tobin's Q is measured by $(AT + (CSHO * PRCC\_F) - CEQ)/AT$ using variables from Compustat. |
| $Job\ Postings_{US}$ | The number of job postings for all firms in an NAICS 4-digit industry in the U.S. in a given month. |
| $Treated$ | In all establishment-level analyses, $Treated$ is a dummy variable that equals one for the five years following the release of a Five-Year Plan for U.S. establishments in an industry encouraged in the Plan and experiencing above-median subsidy growth in the post-Plan period compared to the level in the pre-Plan period, and zero for the previous five years and for those establishments in an industry not encouraged in the Plan. In Panel A of Table 2 and Table A3, $Treated$ is defined at the industry level, equal to one if an industry is encouraged in the Plan and experiencing above-median subsidy growth in the post-Plan period compared to the level in the pre-Plan period, and zero for the previous five years and for those industries not encouraged in the Plan. In Tables 7 and 11, $Treated$ is defined at the firm level, equal to one for the five years following the release of a Five-Year Plan for U.S. firms operating in a treated industry in a Plan, and zero for the previous five years and for those firms that do not operate in an industry encouraged in the Plan. |

| | |
|---|---|
| $Treated^{\tau}$ | In columns (1), (2), (4), and (5) of Table 3, $Treated^{\tau}$ is a dummy variable that equals one for the $\tau^{th}$ ($-\tau^{th}$) year after (before) the announcement of a Five-Year Plan if an establishment is in an industry encouraged in the Plan and is experiencing above-median subsidy growth in the post-Plan period compared to the level in the pre-Plan period and zero for those establishments not in an industry encouraged in the Plan. In columns (6) and (7) of Table 3, $Treated^{\tau}$ is a dummy variable equal to one for the $\tau^{th}$ ($-\tau^{th}$) year after (before) the announcement of a Five-Year Plan if a firm is in an industry encouraged in the Plan and is experiencing above-median subsidy growth in the post-Plan period compared to the level in the pre-Plan period and zero for those firms that do not operate in an industry encouraged in the Plan. In columns (3) and (8) of Table 3, $Treated^{\tau}$ is a dummy variable that equals one for the $\tau^{th}$ ($-\tau^{th}$) year after (before) the announcement of a Five-Year Plan if an industry is encouraged in the Plan and is experiencing above-median subsidy growth in the post-Plan period compared to the level in the pre-Plan period and zero for those industries not encouraged in the Plan. |
| $SameFirmAsTreated^{\tau}$ | A dummy variable that equals one for the $\tau^{th}$ ($-\tau^{th}$) year after (before) the announcement of a Five-Year Plan if an establishment is in a nontreated industry but belongs to the same firm as a treated establishment in the Five-Year Plan. It takes a value of zero otherwise. |
| $SameFirmAsTreated$ | A dummy variable that equals one for the five years following the release of a Five-Year Plan if an establishment is in a nontreated industry but belongs to the same firm as an establishment in an industry encouraged in the Plan and experiencing above-median subsidy growth in the post-Plan period compared to the level in the pre-Plan period and zero otherwise. |
| $BeneficiaryUpstr_{-1}$ | A dummy variable that indicates whether an establishment is in an industry that is upstream of a treated industry and has a relatively high export intensity to China. More specifically, it equals one if an establishment belongs to an industry that supplies intensively to a treated industry of which upstream industries have a weighted average export intensity to China above the median. To define an upstream industry, we use $Upstream\_To\_Treated$, a dummy variable equal to one if an industry supplies inputs intensively to a treated industry. More specifically, for each nontreated industry j, we define the input intensity to treated industries as the largest percentage of the inputs a treated industry sourced from industry j. Then we sort the input intensity to treated industries across all nontreated industries that supply to a treated industry and define those industries in the top tercile as upstream industries (i.e., with $Upstream\_To\_Treated$ equal to one). |
| $BeneficiaryDownstr_{-1}$ | A dummy variable that indicates whether an establishment is in an industry that is downstream of a treated industry and has a relatively high intensity of imports from China. More specifically, it equals one if an establishment belongs to an industry that sources intensively from a treated industry of which downstream industries have a weighted average input import intensity from China above the median. To define a downstream industry, we use $Downstream\_To\_Treated$, a dummy variable equal to one if an industry intensively sources inputs from a treated industry. More specifically, for each nontreated industry j, we define the input intensity from treated industries as the largest percentage of the input industry j sourced from a treated industry. Then we sort the input intensity from treated industries across all nontreated industries that source from a treated industry and define those industries in the top tercile as downstream industries(i.e., with $Downstream\_To\_Treated$ equal to one). |
| $NonBeneficiary_{-1}$ | A dummy variable that equals one if an establishment does not belong to a treated industry or a beneficiary upstream or downstream of a treated industry. The variable is otherwise equal to zero. |

| | |
|---|---|
| $log(OffshoreIntensity_{US})$ | The logarithm of offshore intensity based on the number of sentences mentioning a manufacturing site or operation facility in China in a firm's 10-K report for a given year. |
| $ForeignFirmPercent_{CN}$ | The percentage of foreign-owned firms within a Chinese industry, excluding ownership originating in the Greater China region (including Hong Kong, Macau, and Taiwan). |
| $BeneficiaryUpDown_{-1}$ | A dummy variable indicating whether an establishment belongs to a beneficiary upstream or downstream of a treated industry. In other words, the variable equals one if $BeneficiaryDownstr_{-1}$ or $BeneficiaryDownstr_{-1}$ equals one and is zero otherwise. |
| $ChinaPresence_{-1}$ | A dummy variable indicating whether a U.S. public firm has a business presence in China the year before the release of a Five-Year Plan. We set the China presence dummy to one if the 10-K of a firm-year includes discussions of a manufacturing facility in China or mentions an operation site/facility in China and to zero if there are no such discussions or mentions. |
| $BeneficiaryIndExposure_{-1}$ | A dummy variable that equals one if a firm operates in beneficiary upstream/downstream industries the year before a Plan's release and zero otherwise. |
| $LowConstraint_{-1}$ | A dummy variable that equals one if a firm's HM measure falls in the bottom four quintiles the year before the release of a Five-Year Plan and zero otherwise. |
| $HighRTW_{-1}$ | A dummy variable equal to one if the average exposure to right-to-work laws in the hosting states of a firm's establishments is above-median the year before the release of a Five-Year Plan, and zero otherwise. |
| $LowBoardTenure_{-1}$ | A dummy variable that equals one if the average tenure of a firm's directors is below-median the year before the release of a Five-Year Plan and zero otherwise. |
| $LowUnionization_{-1}$ | A dummy variable that equals one if the average unionization rate of the states that host a firm's establishments is below-median during the year before the release of a Plan and zero otherwise. |
| *Subsidy (nominal)* | The sum of the subsidies an industry received in a given year (in millions of RMB). |
| *Subsidy (# of firms)* | The total number of subsidized firms in an industry in a given year. |
| $Output_{US}^{Ind}$ | The total output of all firms for an industry in the U.S. in a given year (in billions of USD), which is derived from the variables in CMF (ASM) using the following formula: tvs (total value of shipment) + fie (inventories - finished goods at the end of a given year) - fib (inventories - finished goods at the beginning of a given year) + wie (inventories - work in process at the end of a given year) - wib (inventories - work in process at the beginning of a given year). |

Table A2: **The aggregate output of subsidized industries.** In this table we report results indicating the extent to which the logarithm of the aggregate output of the U.S. industry corresponding to an encouraged Chinese industry predicts the size of the subsidy provided by the Chinese government. All variables are defined in Table A1. We incorporate industry fixed effects and year fixed effects for all columns. The $t$-statistics are based on standard errors clustered at the industry level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

| Dependent variable: | *Log Subsidy (nominal)* | | | *Log Subsidy (# of firms)* | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| $log(Output^{Ind}_{US,t-1})$ | -0.002 | 0.073 | | 0.045 | 0.039 | |
| | (-0.03) | (0.57) | | (0.82) | (0.57) | |
| $log(Output^{Ind}_{US,t-2})$ | 0.083 | | 0.064 | 0.006 | | 0.044 |
| | (0.70) | | (0.54) | (0.13) | | (0.81) |
| Industry FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes | Yes | Yes |

Table A3: **The impact of China's Five-Year Plans on the number of U.S. public firms.** In this table we report results indicating the impact of industrial policies in Chinese Five-Year Plans on the number of U.S. public firms in the target industries, corresponding to equation (1). We incorporate industry-Plan fixed effects and year-Plan fixed effects. All variables are defined in Table A1. The $t$-statistics are based on standard errors clustered at the industry level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

| Dependent variable: | $log(PublicFirms_{US})$ |
|---|---|
| | (1) |
| Treated | -0.032 |
| | (-0.66) |
| Year-Plan FE | Yes |
| Industry-Plan FE | Yes |

Table A4: **The impact of industrial policies in Chinese Five-Year Plans: Industries with low China import intensity.** This table reports the impact of the industrial policies in Chinese Five-Year Plans on U.S. establishments in the targeted industries. For this set of tests, we focus on the U.S. industries with a China import intensity below the median. We incorporate establishment-Plan fixed effects and year-Plan fixed effects in all columns. All variables are defined in Table A1. The $t$-statistics are based on standard errors clustered at the industry level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

| Dependent variable: | $\log(\text{Employment}_{US})$ (1) | $\log(\text{Investment}_{US})$ (2) | $\text{Closure}_{US}$ (3) | $\log(\text{Output}_{US})$ (4) |
|---|---|---|---|---|
| Treated | -0.033*** | -0.041*** | 0.005* | -0.020*** |
| | (-3.92) | (-3.41) | (1.72) | (-2.73) |
| Establishment-Plan FE | Yes | Yes | Yes | Yes |
| Year-Plan FE | Yes | Yes | Yes | Yes |
| Observation level | Establishment | Establishment | Establishment | Establishment |

Table A5: **Outcome dynamics: Encouraged versus nonencouraged industries within the same NAICS two-digit sectors.** The results reported in this table indicate how economic activity in U.S. establishments/firms evolves around the release of Chinese Five-Year Plans for the treated and control groups, corresponding to equation (3). This table reports a subsample analysis where control industries belong to the same NAICS two-digit industry as a treated industry. We incorporate year-Plan fixed effects for all columns. We also incorporate establishment-Plan fixed effects in columns (1), (2), (4), and (5), firm fixed effects for columns (6) and (7), and industry-Plan fixed effects for columns (3) and (8). All variables are defined in Table A1. The *t*-statistics are based on standard errors clustered at the industry level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

| | $\log(\text{Employment}_{US})$ (1) | $\log(\text{Investment}_{US})$ (2) | $\log(\text{Establishments}_{US})$ (3) | $\text{Closure}_{US}$ (4) | $\log(\text{Output}_{US})$ (5) | $\text{AccumReturn}_{US}$ (6) | $\text{Q}_{US}$ (7) | $\log(\text{Job Postings}_{US})$ (8) |
|---|---|---|---|---|---|---|---|---|
| $\text{Treated}^{-3}$ | -0.001 | -0.003 | -0.001 | -0.001 | 0.001 | -0.022 | -0.014 | -0.017 |
| | (-0.23) | (-0.40) | (-0.05) | (-0.69) | (0.27) | (-1.11) | (-0.84) | (-0.73) |
| $\text{Treated}^{-2}$ | -0.001 | 0.001 | 0.002 | 0.002 | -0.002 | -0.017 | -0.013 | -0.022 |
| | (-0.26) | (0.21) | (0.23) | (0.80) | (0.41) | (-0.83) | (-0.74) | (-0.93) |
| $\text{Treated}^{0}$ | -0.003 | -0.010 | -0.008 | 0.002 | -0.012 | -0.070** | -0.040** | -0.016 |
| | (-0.46) | (-1.08) | (-0.87) | (1.10) | (-1.10) | (-2.48) | (-2.47) | (-0.71) |
| $\text{Treated}^{1}$ | -0.012** | -0.037*** | -0.002 | 0.004 | -0.016* | -0.122*** | -0.077*** | -0.058** |
| | (-2.02) | (2.78) | (1.22) | (1.53) | (-1.81) | (-4.35) | (-2.98) | (-2.49) |
| $\text{Treated}^{2}$ | -0.045*** | -0.071*** | -0.038*** | 0.014*** | -0.030** | -0.097*** | -0.074*** | -0.110*** |
| | (-3.23) | (-4.09) | (-2.88) | (3.74) | (-2.47) | (-3.20) | (-2.88) | (-4.75) |
| $\text{Treated}^{3}$ | -0.082*** | -0.096*** | -0.045*** | 0.018*** | -0.060*** | -0.107*** | -0.082*** | -0.190*** |
| | (-4.23) | (-5.08) | (-3.47) | (7.74) | (-4.73) | (-3.42) | (-3.05) | (-8.23) |
| $\text{Treated}^{4}$ | -0.111*** | -0.083*** | -0.057*** | 0.021*** | -0.089*** | -0.116*** | -0.094*** | -0.190*** |
| | (-7.07) | (-4.71) | (-3.78) | (9.20) | (-6.55) | (-3.69) | (-3.60) | (-7.81) |
| Establishment-Plan FE | Yes | Yes | | Yes | Yes | | | |
| Firm-Plan FE | | | | | | Yes | Yes | |
| Industry-Plan FE | | | Yes | | | | | Yes |
| Year-Plan FE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observation level | Establishment | Establishment | Industry | Establishment | Establishment | Firm | Firm | Industry |

Table A6: **Within-firm reallocation along supply chains: High versus low financial frictions.** This table reports within-firm reallocation across industries in response to Five-Year Plans for affected firms with high or low financial frictions. Columns (1), (3), and (5) focus on firms with high financial friction, while columns (2), (4), and (6) focus on firms with low adjustment friction. Complementing Table 8, we present additional results based on two financial constraint measures of U.S. public firms: the SA (i.e., size-age) measure and the KZ index. We incorporate establishment-Plan fixed effects and firm-year-Plan fixed effects in all analyses. All variables are defined in Table A1 and section 4.3. The $t$-statistics are based on standard errors clustered at the industry level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

| Dependent variable: | $\log(\text{Employment}_{US})$ | | $\log(\text{Investment}_{US})$ | | $\text{Closure}_{US}$ | |
|---|---|---|---|---|---|---|
| | High Friction | Low Friction | High Friction | Low Friction | High Friction | Low Friction |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| *SA index:* | | | | | | |
| SameFirmAsTreated*BeneficiaryUpDown$_{-1}$ | -0.019 | 0.143*** | -0.016 | 0.148*** | 0.007 | -0.046** |
| | (-0.14) | (2.63) | (-0.21) | (2.97) | (0.25) | (-2.13) |
| *KZ index:* | | | | | | |
| SameFirmAsTreated*BeneficiaryUpDown$_{-1}$ | -0.021 | 0.152*** | 0.019 | 0.138*** | -0.002 | -0.044** |
| | (-0.63) | (2.59) | (0.42) | (2.74) | (-0.13) | (-2.15) |
| Establishment-Plan FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Firm-Year-Plan FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Observation level | Establishment | Establishment | Establishment | Establishment | Establishment | Establishment |

Table A7: **Labor friction and firm adjustments and outcomes: Controlling for state-level trends.** This table reports the results of a set of robustness tests that examine how firms' adjustments in response to Five-Year Plans and the Plans' effects on firms' real outcomes and valuation vary with labor market frictions after controlling for state-level trends. All panels incorporate state-year-Plan fixed effects. Panel A reports within-firm reallocation across industries in response to Five-Year Plans for affected firms with high or low exposure to right-to-work laws. Columns (1), (3), and (5) focus on firms with high labor friction, while columns (2), (4), and (6) focus on firms with low labor friction. Panel B examines within-firm adjustment through offshoring to China in response to Five-Year Plans for affected firms with varying levels of exposure to right-to-work laws. Panel C reports the effects of Five-Year Plans on real outcomes and stock market valuation for firms with varying levels of exposure to right-to-work laws. All variables are defined in Table A1 and sections 4 and 5. The $t$-statistics are based on standard errors clustered at the industry level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Within-firm reallocation along supply chains

| Dependent variable: | log(Employment$_{US}$) | | log(Investment$_{US}$) | | Closure$_{US}$ | |
|---|---|---|---|---|---|---|
| | High Friction | Low Friction | High Friction | Low Friction | High Friction | Low Friction |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| *Low versus high exposure to right-to-work law:* | | | | | | |
| SameFirmAsTreated | 0.022** | 0.074*** | 0.027** | 0.085*** | -0.007 | -0.029*** |
| BeneficiaryUpDown$_{-1}$ | (2.26) | (3.06) | (2.08) | (2.87) | (-1.19) | (-2.37) |
| Establishment-Plan FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Firm-Year-Plan FE | Yes | Yes | Yes | Yes | Yes | Yes |
| State-Year-Plan FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Observation level | Establishment | Establishment | Establishment | Establishment | Establishment | Establishment |

Panel B: Offshoring activities

| Dependent variable: | $\log(\text{OffshoreIntensity}_{US})$ |
|---|---|
| | (1) |
| Treated | 0.059*** |
| | (5.57) |
| Treated*HighRTW$_{-1}$ | -0.028*** |
| | (-2.98) |
| Firm-Plan FE | Yes |
| Year-Plan FE | Yes |
| State-Year-Plan FE | Yes |
| Observation level | Firm |

Panel C: The effects on firm valuation and real outcomes

| Dependent variable: | $Q_{US}$ | $\text{AccumReturn}_{US}$ | $\log(\text{Employment}_{US})$ | $\log(\text{Investment}_{US})$ | $\log(\text{Establishments}_{US})$ |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| Treated | -0.063*** | -0.084*** | -0.081*** | -0.106*** | -0.026*** |
| | (-3.24) | (-2.65) | (-4.44) | (-7.18) | (-7.14) |
| Treated*HighRTW$_{-1}$ | 0.029** | 0.005 | 0.043*** | 0.057*** | 0.014*** |
| | (2.34) | (0.33) | (2.82) | (3.52) | (3.28) |
| Firm-Plan FE | Yes | Yes | Yes | Yes | Yes |
| Year-Plan FE | Yes | Yes | Yes | Yes | Yes |
| State-Year-Plan FE | Yes | Yes | Yes | Yes | Yes |
| Observation level | Firm | Firm | Firm | Firm | Firm |

Table A8: **With-firm adjustment in the form of offshoring: High versus low labor frictions.** The table examines within-firm adjustment through offshoring to China in response to Five-Year Plans for affected firms with varying levels of labor friction. Column (1) shows the heterogeneous effects across unionization rates of the states that host a firm's establishments. We incorporate firm-Plan fixed effects and year-Plan fixed effects for the analysis. All variables are defined in Table A1. The $t$-statistics are based on standard errors clustered at the industry level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

| Dependent variable: | $\log(\text{OffshoreIntensity}_{US})$ |
|---|---|
| | (1) |
| Treated | 0.092*** |
| | (9.28) |
| Treated*LowUnionization$_{-1}$ | -0.077*** |
| | (-7.31) |
| Firm-Plan FE | Yes |
| Year-Plan FE | Yes |
| Observation level | Firm |