Do Lenders also Respond to Import Competition? Evidence from Bank-Firm Loan Level Data[*]

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Abstract

How do lenders respond to import competition? Using a novel bank-firm loan level database matched with balance sheet data, we study this question in the context of India following China's accession to the WTO in 2001. We find strong evidence of endogenous financial constraints and heterogeneity in lender responses to higher import competition. Private banks connected to firms in high-exposure sectors drop credit supply by around 25–57% with no effect for government-owned banks'. Drop in credit supply is overwhelmingly driven only by the intensive margin. We show that our results are not driven by other general equilibrium effects such as firm, industry, and geographical characteristics. Banks with a larger share of loans to firms in high-exposure sectors suffer an increase in non-performing loans, drop in profitability ratios, and external borrowing thereby reducing their credit supply. The drop in credit supply affects real outcomes of firms with economically meaningful implications in terms of sales, use of production factors (labour, capital, and raw materials), and stock of assets. To the best of our knowledge, ours is one of the first to show that import competition can also alter lenders' responses, but heterogeneously.

Keywords: Import Competition, High-exposure, Lenders' Responses, Credit Supply, Bank-Firm Loan Level Data, Heterogeneous Effects

JEL Codes: F14, F62, G21, E51

1 Introduction

Do lenders respond to higher import competition? Understanding the effects of import competition on credit supply is crucial considering that (a) lenders' balance sheet (such as returns to capital, profitability, etc.) can be affected by debtor firms' ability to cope with import competition (import competition affecting their sales, profit margins, etc.);[1] and (b) shocks targetted to the real economy can be transmitted to the financial sector through general equilibrium channels.[2] However, research on creditors' response to import competition has been limited, partially due to the non-availability of representative micro-level loan data. The current paper exploits a novel lender-firm matched loan data from India to causally document how import competition leads to a rise in financial frictions and lending constraints for banks, resulting in a reduction in bank credit to firms with high exposure to import competition.

Our paper exploits China's entry to the WTO in 2001 to generate plausible exogenous variation in import competition. China's accession to the WTO resulted in a sharp increase in the share of Chinese manufacturing imports (as a fraction of India's total imports) from less than 5% in 1995, to almost 25% in 2007 – an increase of around 400% (Chakraborty et al., 2022).[3] We examine how this sudden, but significant increase in import competition affected credit issued by lenders, across sectors' exposure to Chinese import competition. India forms an ideal setting to study such an intervention, particularly considering the bank-dependence of the economy and limited capital markets. Additionally, the Indian banking system is sufficiently heterogeneous with government-owned public sector banks (PSBs) responsible for the lion's share of financial intermediation, followed by domestic private banks and, a limited presence of foreign banks and non-banking financial companies. This allows us to investigate heterogeneity in creditors' response to import competition, as a function of lender ownership.

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[1]This could also be due to the fact that returns from investments in sectors exposed to higher import competition can decline.

[2]For instance, higher import competition can put downward pressure on worker wages, affecting household savings and bank deposits.

[3]Similar pattern is also observed for the import penetration ratio from China, which increased from less than 1 to almost 8% over the same time period.

Akin to Autor et al. (2013), we exploit the causal identification in the growth of China's manufacturing productivity in the 1990s as a result of their internal market reforms. This allows us to study lenders' response to import competition induced solely due to changes in China's domestic productivity, and not driven by local changes in credit demand in India.[4] Along with identifying lenders' overall response to import competition, we consider heterogeneity across government and private banks.[5] The former comes with an implicit sovereign guarantee which reduces the downside faced by these banks from losses arising from poor credit allocation and the accumulation of non-performing assets.[6] Government-owned banks have also been perceived to have poor employee incentives and weak corporate governance relative to private banks. These factors can stymie the overall response of government-owned lenders to import competition, leading us to our second hypothesis: high exposure to import competition can affect credit allocation to firms, and this effect would be expected to be stronger for private banks, relative to government-owned banks.

Panels A and **B** of **Figure 1** provides some preliminary evidence in that respect. While **Panel A** shows that the average loan issued by a bank almost doubled after 2001, **Panel B** shows this trend to be absence for private banks. The share of loans issued by a private Indian bank to the average firm dropped from 38% in 1995 to 31% in 2007 – a decline of almost 20 percent. Given China's rising dominance in India's trade during this period, a natural and important question to ask is whether this relative decline in lending from Indian private banks is in response to increased import competition from China. **Panels C** and **D** examines the unconditional relationship between the change in the share of Chinese imports in India's total imports, and the share of loans issued by private and government-owned banks. While we find a significant negative relationship for private banks, there is no such correlation for the share of credit issued by government-owned banks.

The existence of this unconditional relationship motivates us to examine the causal

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[4]In other words, increase in the degree of (product market or import) competition affects firm profitability and if lenders can precisely assess the impact of import competition on firm profitability, they can in turn respond by limiting credit to firms/sectors most affected by import competition.

[5]Paravisini et al. (2017) highlight that banks are typically heterogeneous in terms of their lending patterns.

[6]In addition, government-owned banks are also subject to a high degree of political interference (Cole, 2009).

relationship between higher import competition and lender responses, based on the change in industries' exposure to Chinese imports. To address concerns that domestic technology and demand shocks in India can affect both lenders' responses and imports, we follow Chakraborty et al. (2020) and use changes in imports from China to Latin American countries to instrument for sectoral changes in Chinese import competition to India. Our source of variation in lender exposure to trade shock relies on whether the lender transacts with a firm operating in a sector with higher import competition from China. Using this empirical strategy, we estimate the differential effect of an increase in import competition on the issuance of new credit by lenders to firms across sectors facing high exposure to import competition. Our baseline reduced form results show that higher import competition forces *private* banks to reduce the supply of new credit to firms by 25–57%: equivalent to about 6–15% of an average firm's assets. There is however no corresponding effect from government-owned banks. Consistent with the stickiness in firms' lending relationships, we find the lending adjustment from private banks in response to heightened import competition to occur exclusively along the intensive margin, with little change along with extensive margin.

The baseline results are robust to a battery of checks using alternate outcome variables, alternate identification strategies (OLS or 2SLS), alternate definitions of import competition, or using aggregate changes in the share of imports before and after 2001. Importantly, we show robustness to controlling for firms' credit demand using firm-year fixed effects (Khwaja and Mian, 2008), as well as state-year fixed effects to control for sub-regional macroeconomic shocks or state government policies to aid firms facing enhanced import competition. We also show the stability of our results to the interaction of bank characteristics with firm fixed effects, controlling for unobservable firm-specific factors correlated with bank characteristics, such as relationship banking or connections between firm boards and lenders.

We next rule out that the credit decline by private banks to firms facing higher import competition from China can be explained by other firm, industry, or geographical factors correlated with industries' exposure to Chinese imports. We show that the decline in credit from private lenders also hold for exporting (which are highly productive) firms,

firms belonging to industries with low financial dependence, firms across both downstream and upstream industries, and banks with high profitability. In terms of regional dimension, we show that firms located in states with low initial exposure to Chinese imports are also subject to a reduction in the relative supply of credit from private banks. These results suggest that the mechanism of credit decline relates to the internal capital market of banks exposed to high import competition, and not from any other general equilibrium factors.

We subsequently exploit bank and firm identifiers to match the lending data with firm balance sheet information. This would allow us to understand the impact on overall credit availability to firms, and examine whether the decline in private bank credit is an upshot of substitutability across different sources of credit. For example, firms may substitute the drop in credit from private banks in the high-exposure sector with an increase in loans from creditors with low-exposure. Exploring firm balance sheets also allows us to analyze the real effects of import competition on firm outcomes.

To identify the impact on total credit availability, we compute the exposure of a firm to banks as the weighted average of the exposure to all the banks lending to the firm. If a firm has a higher (than median) share of loans from private banks we then indicate that the firm is "connected" to a private bank. We find that firms connected to private banks experienced a 12% overall decline in their lending. Moreover, we find limited evidence of credit subsitutability, and only with borrowing from foreign sources. The decline in credit supply also has sizeable real effects on firms outcomes in the form of lower sales, exports, compensation, raw materials, capital employed, and fixed assets.[7]

We use detailed data from banks' balance sheets to examine potential mechanisms driving our results. We find well-capitalized banks, connected to firms in the high-exposure sector, experience a 2% increase in their non-performing assets, and a 45–62% drop in their profitability, and a 9% drop in borrowing from other sources. As a result, these banks reduced their volume of new lending to the firms of those sectors. Our results are consistent

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[7]The effect on exports is significantly larger than both total sales and domestic sales which indicates that the demand for liquidity of exporters is highest. The linkages between financial sector and firms' export activities have attracted significant attention in the recent years (Chor and Manova (2012); Amiti and Weinstein (2011); Minetti and Zhu (2011); Bricongne et al. (2012); Paravisini et al. (2014); Bronzini and D'Ignazio (2017)).

with the theoretical predictions of Holmstrom and Tirole (1997), Froot and Stein (1998), Deyoung et al. (2015).

Our study contributes to several strands of literature. First, how an economy adjusts to trade shocks. An overwhelming amount of literature focuses on several firm level outcomes, such as employment (Autor et al. (2013); Chakraborty et al. (2020)), prices (Bugamelli et al. (2015); Amiti et al. (2020)), markups (Edmond et al. (2015); Caselli and Schiavo (2020)), product portfolio (Liu (2010); Chakraborty and Henry (2019)), innovation (Autor et al., 2020b), outsourcing (Chakraborty et al., 2022), quality upgrading (Amiti and Khandelwal, 2013), productivity (Bloom et al. (2016); Chen and Steinwender (2021)); regional level outcomes such as voting (Autor et al., 2020a), mortality rates (Pierce and Schott, 2020); individual level outcomes such as physical and mental health (McManus and Schaur (2016); Adda and Fawaz (2020)), etc.

There is now a small and growing literature investigating how trade shocks can induce capital reallocation (Antras and Caballero (2009); Lanteri et al. (2022)).[8] But, both the studies focus on macro dimensions of the trade shock. In contrast, we contribute to this literature using detailed micro level bank-firm loan data and investigating how lenders' allocate credit in response to trade shocks. This is our primary contribution.

Our study complements Federico et al. (2020) which uses Italian bank-firm loan data and adds to this nascent literature by showing similar effects for Indian firms. However, there are three key differences: (a) they show that trade shocks lead banks or lenders to reduce credit supply. We show that such is necessarily not the case; in other words, not all banks behave similarly. Government-owned or public-sector banks do not respond to import competition shocks, whereas private banks do; (b) our data from firm balance sheets provides information on different sources of borrowing enabling us to clearly show that our effect is not a result of endogenous substitution of bank credit from different sources; (c) our results from bank balance sheets show that it is a combination of factors (such as rise in non-performing assets, decline in profitability ratios, borrowing from other sources) which led to the drop in bank lending rather than only rise in non-performing assets.

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[8]The former focuses on the effects of capital flows across countries due to deepening of trade integration, while the latter investigates the reallocation of machines and physical capital in Peru after the China shock.

Secondly, this paper also contributes to the literature on the effects of credit constraints on trade (Manova (2008, 2013); Amiti and Weinstein (2011); Minetti and Zhu (2011); Chor and Manova (2012); Paravisini et al. (2014)). All of these studies look at how credit shocks affect firms' exports. We, in contrast investigate the effects of import competition on banks lending to the real economy. Third, our study also relates to the literature on the shocks that directly affects the financial sector (Khwaja and Mian (2008); Paravisini (2008); Schnabl (2012); Jiménez et al. (2014); Baskaya and Kalemli-Ozcan (2016); Cingano et al. (2016)). We, on the other hand exploits shock that hits the real sector and transmits to the financial sector. This allows us to learn not only about the consequences of the trade shock, but about how supply side shocks to the real sector can spread into the general economy.

The rest of the paper is structured as follows. Section 2 describes all the different sources of the data that we use. Section 3 explains our identification strategy and the problems associated. Section 4 reports the baseline results on the intensive margin of credit, the different robustness checks, effects on extensive margin, aggregate firm borrowing, the mechanisms behind our findings, and effects on real outcomes. Section 5 uses bank branch level credit registry data to different industries from India's Central Bank to show further robustness of our benchmark finding. Section 6 concludes.

2 Data

Our paper combines data from two different sources: (a) matched lender-firm loan level data from the Ministry of Corporate Affairs (MCA), Government of India, and (b) firm level data from the PROWESS financial database, hosted by the Centre for Monitoring the Indian Economy.

2.1 Bank-Firm Loan Level Data

Since 1990, the MCA tracks all the secured loans issued to registered firms from both bank and non-bank financial institutions. Each secured loan has a lender identity, an unique

charge number, firm name to which the credit has been issued, a unique company identification number (CIN) corresponding to the firm and the bank, loan value, issuance date, and issuing entity. A second unique CIN identifier is also available for financial institutions. The firm CIN also provides information on firm location (registered headquarters), listing status, year of incorporation, and industry of operation. Firms are mandated (i) to file with the MCA using the unique charge number within 20 days of the loan being issued, and (ii) to notify the MCA once the loan is fully repaid and the account closed, and also the first date of modification of the loan (if any). The MCA data thereby captures any new lending undertaken by firms from financial institutions (banks and non-banks) and any modifications of the terms of the loan covenant.

We use data for 1995–2007, covering over 87,000+ new loans issued to firms belonging to the manufacturing sector. From this universe of loans, we focus on a sub-sample of 45,000 new loan issuances as these firms can be matched to the firm level PROWESS dataset. Summary statistics along the intensive and extensive margin of loans issued to Indian manufacturing firms is shown in **Table 1**.

The median (average) loan issued by a bank is INR 38 (332) million. This points to a large right-tailed distribution driven by a handful of large loans. Median loan size of a foreign bank is largest at INR 70 million, while the same is comparable across government and private banks at INR 43 and 45 million, respectively. As for a non-banking financial corporations (NBFCs, hereafter), the median loan is lowest (among different types of lending institutions) at 15.6 INR million. On the other hand, the average loan size of a government-owned bank is largest at INR 430 million, followed by foreign, and private bank. Along the extensive margin, the median and average number of loans is 2 and 4, respectively. Unlike the intensive margin, this is similar across various lending institutions.

On average (over the years and bank-types), these loans account for approximately 10–30% percent of the total outstanding credit from the commercial banks. 60% of these loans were issued by government-owned or public-sector banks, 14% by domestic private, 6% by foreign, and 20% by NBFCs. **Panel A** of **Table C1 (Appendix C)** presents additional summary statistics of financial institutions in terms of total assets, non-performing loans,

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deposits, capital, and profitability. The median financial institution in our sample has assets worth INR 430 billion, INR 15 billion of non-performing loans, INR 320 billion of deposits, INR 4 billion of capital, and 2.2% operating profits as a ratio of working funds.

We use this detailed information on loans at the bank-firm level to identify how exposure to Chinese imports affect (i) firms' demand for secured credit, and (ii) whether such credit extensions to firms vary across bank groups.

2.2 Firm Level Data

We complement our bank-firm matched loan data with firm level data from the PROWESS database – a large financial database maintained by the Centre for Monitoring the Indian Economy (CMIE). PROWESS compiles data from balance-sheets and provides information on sales, assets, exports and imports, production factors employed, profits, aggregate borrowings from different sources, compensation, etc. for firms. The data covers both listed and unlisted firms and has been widely used in studies focusing on firm outcomes in India (see for instance, Goldberg et al. (2010); Topalova and Khandelwal (2011); Ahsan and Mitra (2014); Chakraborty and Raveh (2018)). The dataset spans 105 disaggregated manufacturing industries (4-digit). The majority of the firms in the dataset are either private Indian firms or affiliated to private business groups, whereas a small percentage of firms are either government or foreign-owned.[9]

We focus on the firms which have obtained at least 1 secured loan during the period 1995–2007. **Panel B** of **Table C1 (Appendix C)** bestows median values for a few important firm characteristics. Median lending to the average manufacturing firm equals 38 INR million and this is spread over 2 banking relationships. These firms have annual median sales of INR 1.2 billion, total assets of INR 1.2 billion, INR 852 million capital employed, and INR 522 million value added. The firms on average are 21 years old. Almost 85% of firms had some outstanding loan from banks, and bank loans averaged about 25%

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[9]The dataset accounts for more than 70% of economic activity in the organized industrial sector, and 75% (95%) of corporate (excise duty) taxes collected by the Indian Government. Around 20% of firms in the dataset operate in the chemicals industry, followed by food products and beverages (12.81%), textiles (10.81%) and basic metals (10.46%).

of a firm's total assets, with the annual interest expense being 10.4%. Bank dependence of firms can be gleaned from the fact that only 41% of the firms in the sample are listed on either of the two major stock exchanges.

The dataset also provides crucial information from the balance sheets of banks such as profitability ratios (operating profit as a ratio of working funds, deposits and advances per employee, return on assets, etc.) non-performing assets, deposits, capital, borrowing from different sources, etc. which we exploit while investigating the direct impact of import competition on bank balance sheets.[10]

3 Empirical Strategy

Our main empirical strategy takes the form of a difference-in-difference design where we compare loan outcomes for firms across their exposure to import competition from China, before and after China's accession to the WTO. We gauge a firm's exposure to import competition based on the exposure of the industry in which the firm operates to import competition. The "naive" reduced-form fixed effects estimating equation can be expressed as follows:

$$Log(Loan)_{bit} = \beta(HExp_k \times Post_t) + \mathbf{X}_{it} + \phi_i + \theta_{kt} + \eta_{bt} + \epsilon_{ibt} \tag{1}$$

Our unit of observation is a loan issued to firm i, by bank (financial institution) b in year t. $HExp_k$ is a dummy equalling 1 if firm i operates in industry k which has "high" exposure to Chinese imports, following China's accession to the WTO in 2001. $Post_t$ is a dummy equaling 1 for years succeeding China's accession to WTO, i.e., post–2001. This provides us with 7 years of pre-treatment and 6 years of post-treatment observations for the period 1995–2007.

Our primary specification in Equation (1) includes firm, industry-year, and bank-year fixed effects. Firm fixed effects (ϕ) control for time-invariant firm characteristics, such as networks, managerial capabilities, etc. which may be correlated with the amount of credit

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[10]For details on the important variables used in our analysis, please see **Appendix A**.

a firm can get, while industry-year fixed effects (θ) controls for industry level time-varying shocks (say aggregate demand shocks or industry-specific regulations) which can uniformly affect credit demand for all firms operating in a given industry in a year. Bank-year fixed effects (η) control for bank-specific time-varying policies affecting lending such as directed lending policies or bank capital. $\mathbf{X}$ is a vector of time-varying firm level covariates, such as age, age squared, firm size (real assets), and technology adoption. [11].

Our coefficient of interest is β, which captures the change in the new loan issuances in the post–2001 period, across firms operating in "high" and "low" exposure industries. We define $HExp$ as

$$HExp_k = \begin{cases} 1 & \text{if } \Delta ShChinaImp_k^{India} > Median \\ 0 & \text{otherwise} \end{cases} \tag{2}$$

where

$$\Delta ShChinaImp_k = \mu_{k,2002-2007}^{China} - \mu_{k,1995-2001}^{China} \tag{3}$$

μ is the average share of imports from China by an Indian industry k (as a fraction of world imports). The first term computes the average share of imports between 2002–2007, i.e., the post-treatment period, while the second term does the same for the pre-treatment period. Industries which exhibit a greater than median increase in the change in the share of Chinese imports subsequent to China's accession to the WTO, are classified as "high" exposure industries, and "low" otherwise.

Estimating Equation (1) using OLS is likely to yield biased estimates of β for the following reasons: (i) changes in domestic demand for industry k's products can simultaneously be correlated with both imports from China and domestic demand for credit, leading to an upward bias in β; (ii) on the other hand, enhanced competition from China can hurt domestic producers, thereby leading to a reduction in credit demand causing β to be biased downwards; (iii) industry level demand shocks that drive Chinese imports could also simultaneously influence domestic credit flows.

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[11]This is measured as the sum of R&D expenditure and technology transfers, as a share gross value-added

We counter this endogeneity concern by extending the empirical strategy of Autor et al. (2014), and exploiting changes in Chinese imports in the post-WTO period in other emerging markets – namely, a set of 10 Latin American countries (Chakraborty et al., 2020).[12] We choose Latin American countries as our instrument for Chinese imports to India since during the period of study, India had limited trade relations and no trade agreements with these economies, reducing concerns pertaining to common unobserved technological and demand shocks across these economies (Chakraborty et al., 2020). Our goal here is to isolate the variation in Chinese imports which is driven by supply side shocks in China – primarily internal reforms, domestic technological innovations, improved access to intermediate capital goods, and skilled-worker migrations (Autor et al., 2013).

We would expect Chinese imports to Latin American economies and India to be highly correlated if the basket of goods exported by China are similar across both these economies. This is confirmed in the bottom row of **Figure 2**,[13] where we plot the unconditional correlation between $\Delta ShChinaImp_j^{India}$ and $\Delta ShChinaImp_j^{LA}$. The figure points to a strong positive correlation ($\beta = 1.07$, $se(\beta) = 0.096$), confirming commonality across industry level variations in Chinese imports to Latin American countries and India after China's accession to the WTO. This supports our contention that the industry-specific increases in Chinese imports is driven by enhancements in China's domestic productivity, as opposed to any changes in local demand or preferences in India/Latin America.[14]

The top row of **Figure 2** compares the distribution of the average share of Chinese imports to India and Latin American economies (at the 4-digit industry level) before and after China's entry to the WTO. Across both panels, we see a sharp rightward shift of the kernel density plots corresponding to the post–2001 period. This indicates similar increases in the average share of Chinese imports across industries in the post–2001 period for both

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[12]These are Argentina, Brazil, Costa Rica, Chile, Colombia, Mexico, Paraguay, Peru, Uruguay, and Venezuela.

[13]**Figure B1 (Appendix B)** shows that the evolution of Chinese import share from 2002 to 2007 for India and Latin American countries are very similar.

[14]This is further corroborated by **Figure B2 (Appendix B)**. **Figure B2** plots the unconditional correlation between Indian and Latin American share of Chinese imports in the initial period of our analysis, which is 1995. The plots show no correlation between the Chinese share of imports between India and Latin America before China became the member of the WTO. And, this got reversed after 2001 as shown by **Figure 2**.

the economies. Based on the evidence presented in **Figure 2**, we estimate the following
reduced form specification to causally identify how an increase in import competition affect
lenders' responses:

$$Log(Loan)_{ibt} = \beta(HExp_k^{LA} \times Post_t) + \gamma \mathbf{X}_{it} + \phi_i + \theta_{kt} + \eta_{bt} + \epsilon_{ibt} \qquad (4)$$

A causal interpretation of β estimated from specification (4) can be under three key
assumptions. First, $\Delta ShChinaImp_k^{LA}$ is positively correlated with $\Delta ShChinaImp_k^{India}$,
which is equivalent to the "first-stage" of the IV strategy corresponding to the reduced-
form specification in (4). Second, $\Delta ShChinaImp_k^{LA}$ should only capture changes in Chinese
manufacturing activity induced by local productivity shocks in China, and be orthogonal
to industry k's domestic credit demand in India. Third, loan disbursement to firms in
industries with high and low exposure to Chinese imports should have evolved comparably
in the absence of China's accession to the WTO.

As discussed earlier, **Figure 2** provides strong evidence with regard to the first assump-
tion. We use **Figure 3** to showcase that the remaining two assumptions are also likely to
be satisfied. First, in **Panel A**, we show that there is no correlation between new loan
issuances to Indian manufacturing firms and exposure to Chinese imports in the years prior
China's entry to the WTO. Next, we use the pre-2001 bank-firm loan level data to rule
out differential trends in loan disbursement to firms belonging to high and low exposure
industries prior to China's entry to the WTO. Thus, **Panel B** compares median loans to
firms belonging to high and low exposure industries as defined in Equation (2) and finds no
difference in the median loan amount across industries with high and low exposure prior
to 2001, which changes substantially since then.[15]

3.1 Differential Trends?

A couple of concerns still remains with respect to our identification strategy: (a) first, are
systematic differences in firms belonging to the high and low exposure sectors? Second,

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[15]The difference in terms of a median loan to a firm in the high-exposure sector vs. low-exposure sector
ranges from 20–60% which was 4–10% in the pre-2001 period.

were firms across high- and low-exposure sectors on different trends in terms of new loan issuances prior to 2001, and, did exposure to import competition aggravate pre-existing trends? In such instances, we would be wrongly assigning the differential effect on lender responses post-2001 to import competition.

We follow Imbens and Wooldridge (2008) to address the first concern and perform balancing tests to compare key bank and firm characteristics across high- and low-exposure sectors in **Table 2**. If the absolute value of normalized difference for any characteristic across two different sectors exceeds 0.25, it would suggest an imbalance across groups. **Panel A** does for bank level characteristics, while **Panel B** does the same for firms. Only one out of 14 different characteristics across firms and banks have an absolute value of the normalized difference exceeding the threshold of 0.25. This suggests that bank and firm outcomes did not systematically vary in the period prior to China's accession to the WTO.

Next, we show in **Table 3** that new loan issuances for firms across high- and low-exposure sectors did not follow differential trends prior to 2001. The outcome of interest in columns (1) – (3) is volume of new loans issued; in columns (4) – (6), the number of loans issued to each firm. All specifications condition on industry-year and bank-year fixed effects, in addition to firm level covariates.

Columns (1) and (4) interact the $HExp_k$ dummy with a constant linear time-trend. Columns (2) and (5), replaces the linear time trend with individual year dummies, interacted with $HExp_k$. Finally, columns (3) and (6) collapses the data to the firm level and regresss average loan outcomes on $HExp_i$. Collectively, these estimates offer little evidence of any systematic difference across industries with high- and low-exposure to Chinese imports in the period prior to China's entry to the WTO.[16] Based on these results, we contend that our instrument satisfies the exclusion restriction, with firms and banks being observationally equivalent across industries' exposure to Chinese import competition, in the period

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[16]We run a similar exercise by looking at the correlation between Chinese imports in the pre-2001 period and various other firm characteristics (such as sales, investments in plant and machinery, compensation, raw materials, assets, leverage ratio, etc.) in **Figure B3 (Appendix B)**. Our unconditional correlation plots across different firm characteristics did not show any evidence correlation between industries' exposure to Chinese imports prior to China's accession to the WTO and any firm level outcomes. This rules out any negative selection of firms operating in industries which subsequently faced high import competition from China.

preceding China's entry to the WTO.

4   Results

This section presents our key empirical findings. We begin by documenting the change in credit issued by lenders across firms' exposure to import competition, and explore heterogeneity by lender ownership. We then rule out a number of alternate explanations for our baseline results. Next, we examine mechanism(s) by directly investigating the effect of import competition on bank balance sheets. We finish by documenting the aggregate impact of import competition on firm outcomes.

4.1   Import Competition and Bank Lending

4.1.1   Intensive Margin

Panel A of **Table 4** presents our baseline results by estimating the reduced form specification outlined in Equation (4). The outcome of interest is the intensive margin of credit issued to firms – the (logged) amount of new loan issued. Column (1) estimates the average effect of import competition on the volume of new credit controlling for firm, industry-year and creditor-year fixed effects, along with firm characteristics. The presence of industry-year fixed effects imply that we are restricting our comparison of loan outcomes to firms within the same broad industry category and year, with the identifying variation arising from whether a firm is operating in an industry with relatively high- or low-exposure to Chinese imports. Creditor-year fixed effects control for time-varying lending policies specific to each lender and time-period, while firm fixed effects absorb time-invariant level differences in firms' credit demand, and ability to obtain credit. Our coefficient of interest is positive, albeit small and not statistically significant, indicating no change in new loan volumes across industries' exposure to Chinese imports.

As noted earlier, lenders' response to increased competition could vary by lender type. Thus, if private banks' incentives are more aligned with market forces, leading to a quicker response to changes in market conditions, we may expect heterogeneity in the impact of

import competition on new credit issuances across private and government-owned banks. We explore this hypothesis to identify the differential impact of import competition on lending across private and government-owned banks using the following specification:[17]

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\begin{aligned}
Log(Loan)_{ibt} \;=\; & \beta_1 \; (HExp_k \times Post_t) \;+\; \beta_2 \; (HExp_k \times Post_t \times PvtBank_b) \\
& +\; \gamma \mathbf{X}_{it} + \phi_i + \theta_{kt} + \eta_{bt} + \epsilon_{ibt}
\end{aligned}
\tag{5}
$$

$PvtBank_b$ is a dummy variable equaling 1 if the lending entity is a private bank. In the simplest instance where only private and government-owned banks operate, β_1 estimates the change in lending outcomes from government-owned banks for firms in industries with high exposure to Chinese imports, relative to those with low-exposure. β_2, on the other hand, identifies the differential effect on new loan issuances for firms with high exposure to Chinese imports across private banks. The sum of $\beta_1 + \beta_2$ estimates the net impact of import competition on new credit issued by private banks.

Our estimates from column (2) show evidence of significant heterogeneity by lender-type. While β_1 continues to be positive (but imprecisely estimated), the triple interaction term identifying heterogeneity across domestic private banks is negative and statistically significant at the 5% level. β_2 implies that relative to other lenders, loans issued by private banks declined by more than 25% percent for firms operating in industries with high-exposure to Chinese imports (relative to low-exposure).

Columns (3) and (4) includes two additional triple interaction terms to check for further heterogeneity by government-owned banks, and NBFCs.[18] Our key result remains unchanged by this additional level of disaggregation: if anything, the triple-interaction coefficient corresponding to the differential effect of private banks increases in magnitude, suggesting a 40% differential decline in new credit issued from these banks. The coefficients corresponding to NBFCs and government-owned banks are both negative and statistically insignificant, relative to the credit issued by foreign banks. Summing across the coefficients

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[17]All our regressions contain the other double interaction terms.

[18]The omitted category against which the triple interaction coefficients are benchmarked in this specification are foreign private banks.

indicate that average credit from private banks to firms in industries facing high-exposure to import competition declined by over 20% post China's entry to the WTO. A simple back of the envelope calculation reflects that this decline in credit is equivalent to INR 67 million, or 6% of firm assets.[19]

This decline in credit by private banks to firms in industries exposed to higher import competition can, however, emanate either (a) from a reduction in lenders' willingness to issue new loans to such firms, or (b) an endogenous reduction in firms' credit demand, owing to an overall downsizing of operations in the face of heightened foreign competition. To isolate the credit supply channel, we adopt an approach similar to Khwaja and Mian (2008) and Jiménez et al. (2012) and focus on the subset of firms which obtain multiple loans in a year. Restricting our sample to such firms permits the use of firm-year fixed effects, leading us to compare loan volumes across private banks and other financial institutions for the same firm in a year. Results using this restrictive specification are shown in column (5).

Reassuringly, our benchmark finding holds – we identify a negative and statistically significant coefficient corresponding to the triple interaction term for private banks. Thus, even after conditioning on firms' credit demand, we continue to find a large reduction in new loan volumes from private banks to firms exposed to higher import competition. This assuages concerns that the coefficients identified in columns (2) – (4) are driven by an endogenous reduction in firms' demand for credit: if so, we would have found no difference in new loan sizes across private banks and other financial institutions, after conditioning on firms' credit demand in a year.

A potential concern with our baseline results is that increased foreign competition could have pushed firms with low productivity to exit the market, leading to a mechanical reduction in the volume of loans issued. Column (6) controls for this by restricting the sample to firms which received loans from both government-owned and private banks, and were also present throughout the sample. The triple interaction term remains negative, statistically significant, and comparable in magnitude to those obtained in columns (2) – (4).

Lastly, we use growth rates of loans issued by a bank to a firm as the dependent variable

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[19]The mean pre-2001 assets for firms in industries with high-exposure to Chinese imports was INR 1,124 million.

to check whether the drop in new loans issued to firms in the high-exposure sectors is a short or medium-term phenomenon. Our estimates show that the increase in Chinese competition also had a negative effect on the growth rates of loans issued by banks thereby hinting towards a possible long-run effect. Our findings across columns (2) – (7) indicates that private banks indeed responded to increased import competition by disproportionately reducing credit to firms operating in high-exposure sectors.[20]

A causal interpretation of our reduced form coefficients is subject to the assumption that firm credit would have evolved comparably across industries facing high and low import competition in the absence of China's accession to the WTO. While the counterfactual cannot be directly tested, we exploit data prior to China's entry to the WTO to estimate an event-study specification as described in Equation (5). In particular, we modify the event-study specification to match the triple-interaction specification of column (4) of **Table 4** and show the coefficients corresponding to both government-owned and private banks.

Figure 4 plots the coefficients benchmarked to 2001. The solid line shows the point estimates, while the dashed lines reflect 95% confidence intervals. The left-hand panel shows the annual treatment effect for new credit issued from government-owned banks (the omitted category). We do not find any discernible trend either in the pre- or post-2001 period.

On the other hand, the right-hand panel identifies the treatment effect from private banks. It shows a sharp drop in new credit issued from private banks subsequent to China's entry to the WTO. The drop is evident to the year of China's entry to the WTO which is 2001. While the triple interaction term is not statistically significant in the first year of China's entry to the WTO, it is statistically significant at 5% level in the second and third years, confirming relatively quick reduction in credit issued by private banks for firms facing higher import competition.[21] In contrast, none of the triple interaction coefficients

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[20]**Table C2** of **Appendix C** uses an alternate IV strategy and control group. For these estimations, we use the share of other developing countries such as Brazil, Indonesia, Malaysia, and Mexico as the instrument for Indian imports (Chinese). And, we use the govt-owned banks as the omitted category. Our results continue to show very similar effects – private banks connected to firms in the high-exposure sector drop the supply of new loans by 30–34%.

[21]The remaining triple interaction coefficients are not precisely estimated (*p*-values between 0.12 and 0.14) but continue to remain negative and comparable in magnitude to those obtained for the years 2003 and 2004.

are statistically significant prior to China's entry to the WTO, although they are negative in sign. Consequently, **Figure 4** confirms the results obtained in **Table 4** – namely that firms in industries facing high import competition from China saw a reduction in credit from private banks.[22]

4.1.2 Extensive Margin

Having established that our results on the intensive margin of lending (or volume of loans) for banks is negatively affected due to higher import competition, we now investigate whether there is also any similar impact along the extensive margin of credit allocation. Specifically, we examine whether the margin of adjustment for credit is only along the intensive margin, or whether lenders opted to remove firms facing higher import competition entirely from their lending portfolio. We use the following specification:

$$y_{it} = \beta(HExp_k \times Post_t) + \gamma\mathbf{X}_{it} + \phi_i + \theta_{kt} + \epsilon_{it} \tag{6}$$

The results are shown in **Panel B** of **Table 4**. We estimate this equation at the firm level using three different indicators for y_{it}: (a) total number of loans issued by a bank to each firm in an individual year (columns (1) and (2)); (b) probability of a new loan issued by a bank to a firm after 2001 (columns (3) and (4));[23] and (c) change in the number of loans before and after 2001 (columns (5) and (6)). For the estimations on extensive margin, we focus only on the differential effect of the private banks.

The unit of observation in Equation (6) is the firm, and we continue to use firm, creditor-year (or creditor-period), and industry-year (or industry-period) fixed effects. Overall, we find very limited effect on the number of loans issued by a lender to a firm in the post-2001

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[22]We also check our results using overall import competition index in order to negate the fact that our findings are due to rise in Chinese share of imports in India and not overall increase in imports. **Table C3** in **Appendix C** presents our results using aggregate changes (1995–2001 and 2002-2007) in overall imports (columns (1) – (2)) and overall imports minus Chinese imports (columns (3) – (4)). As these estimates demonstrate, we do not find any significant responses from the private lenders to firms belonging to high-exposure sectors of the overall increase in imports.

[23]This is a dummy variable equalling 1 if a firm i has initiated a lending relationship with any financial institution in any year after 2001. Therefore, β would estimate whether firms in industries with relatively high-exposure to Chinese imports were more likely to start a new lending relationship in the post-treatment period, relative to firms operating in industries facing low import competition from China.

period. While the triple-difference terms corresponding to private banks are all negative, they are either imprecisely estimated, or significant only at 10% level.[24] The limited impact of import competition on extensive margin lending implies that while private banks reduced lending to firms facing high import competition, there was no overall disruption in lending relationships. This is also consistent with existing empirical evidence pointing to the stickiness in lender-firm relationships.

4.2   Alternate Specifications and Robustness Checks

This section shows that our baseline results are stable to alternate specification choices. Results using different methods and measures are reported in **Table 5**.

We start by using two different methods – IV and OLS in **Panel A**. Columns (1) – (4) show that we obtain similar results employing an instrumental variable strategy instead of the reduced form specification described in Equation (4). Here, we directly instrument $HExp_k^{IN}$ as defined in Equation (2) by $HExp_k^{LA}$. Column (1) of **Table 5** yields a negative and statistically significant coefficient on the triple interaction term, confirming the results obtained using the reduced form specification.[25] On the other hand, the double difference term is positive, albeit not precisely estimated. Our IV results concur with our prior findings: private banks reduced credit to firms facing higher competition from Chinese imports, but we do not find any evidence of such decline from other lenders. This is confirmed in column (2) of **Table 5** where further disaggregate lenders by government-owned banks and NBFCs, with the reference category being foreign banks. The results continue to be very similar. The IV coefficients are economically significant and larger than the reduced form coefficients in magnitude.

Column (1) shows that firms operating in industries with relatively high-exposure to Chinese imports saw an additional 55% reduction in new credit volume from private banks. Summing across the coefficients, the net reduction in new loan volumes for these firms from

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[24]We have also collapsed the annual firm level observations into two observations per firm: namely one prior to China's entry into WTO (pre-2001), and one after (post-2001) and estimated a first difference specification. The results again are very similar to those using annual firm data.

[25]The F-stats and J-stats of the first stage regressions are well above the critical values of identifying weak instruments.

private banks is 46%. Column (3) combines the IV strategy with firm-year fixed effects to control for firms' annual credit demand: even with this restrictive specification, we continue to identify a negative differential impact on private bank credit to firms operating in industries with high-exposure to Chinese imports, although the coefficient is only significant at the 10% level. Column (4) replaces bank-year fixed effects with interaction of a few bank level characteristics such as return to assets, capital adequacy ratio, net worth, and so on, with the WTO_t dummy. This explicitly controls for the possibility that China's accession to WTO may have directly affected bank operations in India. Our coefficient of interest remains unchanged.

Columns (5) – (6) presents OLS estimates using our standard specification (firm, industry-year, and creditor-year fixed effects) and controlling for firms' demand for credit channel (firm-year fixed effects). The triple interaction terms turn out to be negative and statistically significant, but smaller in magnitude than the IV coefficients, akin to Autor et al. (2014). This points to the presence of factors positively correlated with both the demand for Chinese imports, and domestic credit. One plausible explanation for this is that the industries facing higher import competition were dominated by firms with better networks with private banks. If these firms responded to increased import competition by increasing their demand for credit, it would dampen the "true" negative impact of import competition on new lending.

Next, we substitute our main measure of Chinese competition with three other different measures in **Panel B**. We start by following Federico et al. (2020) in columns (7) and (8). In particular, we define our variable of interest at the bank level rather than at firm-industry level. Thus, we define each bank's exposure to the China shock as the volume of loans issued to firms operating in sectors with a high-exposure to Chinese imports, as a fraction of the bank's total manufacturing loans. To limit endogenous portfolio adjustments by banks in anticipation of China's entrance into the WTO, we use data between 1995 and 2001 to construct this alternate definition of banks' exposure to the import competition

shock.[26] Specifically, the following ratio is constructed:

$$Expsoure_b = \frac{\sum_i C_{ib}^{HExp} HExp_k}{\sum_i C_{ib}} \qquad (7)$$

where C_{ib} is the total loans disbursed by a bank b to all manufacturing firms. $HExp_{ik}$ is defined using Chinese imports to Latin American economies. Interacting lenders' pre-2001 sectoral loan exposures with $HExp_{ik}$ makes $Expsoure_b$ exogenous to local economic conditions in India affecting credit supply. Thus, while variations in sectoral access to bank credit prior to 2001 can affect sectors' demand for imports, it is unlikely that domestic bank credit across sectors would be correlated with changes in import competition in Latin American economies. Resultantly, we interact $Expsoure_b$ with the WTO_t dummy and control for firm-year fixed effects in these regressions. Our estimates, which only represent credit supply effects continue to be qualitatively similar to our reduced form, IV, and OLS estimates. Using this alternate measure of exposure to import competition, we find new loan issuances from private banks to have dropped by around 50% in the aftermath of China's access to the WTO.

In columns (9) and (10), we substitute $HExp_{ik}$ using the actual volume of imports from China. Specifically, we use total Chinese imports by Latin American economies in industry k (4-digit industry classification) as a share of total imports. We use the data between 1995 and 2000 to limit any spurious correlation between Chinese imports and domestic industry output.[27] Based on the strong correlation between sectoral Chinese imports before and after China's entry to the WTO, we use the average imports for each industry in the years 1995–2001 as a proxy for the period succeeding 2001. In effect, each industry has a time-invariant share of imports, but based on the average before China's accession to the WTO.

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[26]We measure our average of bank exposure over multiple years rather than taking a single year (e.g., 1998), so that we can avoid some bias that may arise from a year specific shock at the beginning of the period.

[27]For instance, it is possible that an industry uses intermediate inputs for its production, which becomes cheaper due to Chinese imports, leading to an increase in the industry's output in the aftermath of China's entry to the WTO. Moreover, this was a period of increase tariff liberalization, which too could have affected industry performance. As the Indian economy operated under near-autarky conditions prior to 1991, using industry output from 1994 provides us with a measure of the domestic potential of each industry, unaffected by trade.

We then interact this time-invariant industry level measure with the WTO_t and $PvtBank_b$ dummies in columns (9) and (10), respectively. Our estimates indicate that a 10 percentage point increase in Chinese share of imports reduces about 19% credit disbursed by banks.

Lastly, we use the difference in the average share of imports before and after China's accession to the WTO as our independent variable of interest. We define it the following way:

$$China_k^{LA} = IMP_{k,1995-2001}^{China} - IMP_{k,2002-2007}^{China} = \Delta IMP_k^{China} \qquad (8)$$

We then interact this difference in the share of imports with the private bank dummy, $PvtBank_b$. Results continue to be similar – higher share of Chinese imports had a negative impact on lenders' response, and this was driven by private banks.

A battery of additional robustness checks are presented in **Table 6** using the reduced form specification. We start by shortening the time period in column (1), motivated by two factors. First, creditors' response may be affected due to other simultaneous events, such as a drop in the credit rating of the firms, and not as a direct result of higher import competition from China. Second, a longer time period may undermine the true effects of the response. To subvert the claim that these reasons might contaminate our benchmark results, we restrict our time period from 1995 to 2004 and re-estimate our benchmark regressions. The magnitude of the coefficients increase significantly showing that the response from the lenders was immediate and it got subdued partially in the medium-long term. These coefficients are also consistent with the event-study plots presented before.[28]

Column (2) controls for firms' linkages with private banks by creating a dummy equaling 1 if a firm is connected to a private bank in the period prior to 2001. This accounts for any private knowledge firms might have had on private banks adjusting their lending portfolios in response to import competition, which in turn could have allowed firms to respond optimally by substituting private bank credit with credit from other sources. The decline in loan volumes from private banks would then be an upshot of a mechanical decline in firms' credit demand, as opposed to the causal impact of Chinese imports on lenders' credit

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[28]Our results also hold if we further restrict our time period till 2003. It is only the magnitude of the significance that reduces.

supply.

Column (3) adds state-year fixed effects to control for time-varying state-specific policies which might affect the outcome of interest. Column (4) interacts the state-year dummies with the high-exposure dummy. Columns (5) and (6) interacts bank level characteristics, such as return to assets, capital adequacy ratio, networth with WTO_t dummy and firm fixed effects, respectively. Our main results remain unchanged and comparable to our initial estimates across all these specifications: private banks significantly reduce new credit issuances to firms in industries with a relatively high-exposure to Chinese imports.

Column (7) explores non-linearities in industries' exposure to Chinese imports, across terciles of their exposure to import competition. We find the reduction in credit volumes to be concentrated in private banks for firms operating in industries falling in the second tercile of exposure to Chinese imports. While the triple interaction coefficient corresponding to the top tercile is negative, the large standard error disallows us from rejecting the null of no differential effect.

Our results might be influenced by the choice of our control or reference group. Most of our specifications use foreign banks as the omitted category. We engage in this choice for two reasons: (a) foreign banks in India still have a very limited presence in terms of their total market capitalization which is less then 5%; and (b) we are interested in understanding how the domestic lending institutions behaved in response to heightened competition from China in India's domestic market. We confirm across columns (7)-(10) that our results are not sensitive to this choice. Thus, column (7) uses government-owned banks as the reference category while columns (8) and (9) drop foreign banks from the sample, thereby focusing entirely on domestic lending institutions. Lastly, column (10) drops NBFCs, in addition to foreign banks. The coefficient estimates in columns (7)-(10) show that changing the control group has limited effects on our benchmark results – credit issuances from domestic private banks continue to decline for firms in sectors facing high-exposure to Chinese imports.

Finally, **Figure 5** shows that our findings are not driven by any individual state or industry characteristics. Here, we re-estimate our triple difference specification, dropping one state and industry (at 3-digit level) at a time and plotting the coefficients. The top row

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shows the coefficients corresponding to dropping each state; the bottom row does the same for each industry. The vertical lines correspond to the 95% confidence intervals. In both instances, we find the triple interaction coefficient corresponding to private banks to be negative and statistically significant, while that corresponding to government-owned banks is attenuated towards 0 and not precisely estimated. These coefficient plots rule out that industry level import competition is confounded either by state or industry-specific policies contemporaneous with China's entry to the WTO.

4.3   What Happened to Bank Balance Sheets?

In this section, we investigate the mechanism that links the trade shock faced by firms from China in the high-exposure sector with the patterns of credit allocation. For this purpose, we exploit detailed information on banks' balance sheets from the PROWESS dataset. In order to formally test the link between bank exposure and the lending capacity of exposed bank, we run the following specification:

$$Y_{bt} = \beta(HExp_b \times Post_t) + \alpha_b + \delta_t + \gamma \mathbf{X}_{b,<2001} \times Post_t + \epsilon_{bt} \tag{9}$$

The dependent variable Y_{bt} corresponds to a bank b, observed in year t. Our outcomes of interest from a bank's balance sheet are: non-performing assets, ratio of operating profit to working funds, bank borrowing, and bank deposits. We also control for a vector of bank pre-2001 characteristics ($X_{b,<2001}$) interacted with a post-2002 dummy. α and δ denotes bank and time fixed effects, respectively. And, we cluster the standard errors at the bank level.

For this purpose, we define the high-exposure dummy ($HExp$) at the bank level. Now, it could be possible that a bank may be connected to two firms – one at the high- and the other at the low-exposure sector. In order to circumvent this problem, we use the share of loans to identify whether a bank is a connected high- or a low-exposure sector. In particular, if a bank's average share of loans to the high-exposure sector pre-2001 is greater than low-exposure sector, then $HExp_b$ takes a value 1 and 0 otherwise. Our coefficient of

interest is β, now estimates how banks with high-exposure to import competition in the aftermath of China's entry to the WTO are affected in terms of their key outcomes.

We further divide our banks based on their capital, specifically Tier-1 capital. Tier-1 capital refers to the core capital held in a bank's reserves and is used to fund business activities for the bank's clients, and also used to account for unanticipated losses from lending activities. In other words, it is used to measure a bank's capital adequacy and compares a bank's equity capital with its total risk-weight assets (RWAs).[29] Now, banks which already have a higher than mean of its equity capital invested in business activities may behave differently than others while encountering a large trade shock, like the Chinese competition. Results are shown in **Table 7**.

We start by looking at the impact of import competition on non-performing assets of banks in columns (1) – (2) in **Panel A**. Column (1) focuses on all the banks, whereas column (2) does the same for firms which are above the median value of Tier-1 capital ratio. If heightened import competition from China negatively affects firms' repayment ability in high-exposure industries, it can subsequently increase non-performing loans for banks with higher exposure to such industries. More so for banks which have a higher equity capital invested in business activities of firms in such industries.

Our triple interaction term is positive (albeit not statistically significant) for this subset of banks in column (1), suggesting that private banks with high-exposure to Chinese imports saw a significant rise in delinquent loans. In particular, a 10 percentage point higher exposure to the trade shock is associated with a 0.2 percentage point increase in the non-performing assets for an average private bank.

Next, in columns (3) and (4) we use a profitability ratio – operating profits to working funds. It is possible that the reduction in private bank loans is driven by banks whose profits are impacted due to China's entry to the WTO. Consistent with the results on non-performing loans, the reduction in bank profitability is concentrated amongst lenders with relatively high Tier-I capital.

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[29]Regulators require banks to hold certain levels of Tier-1 capital as reserves, in order to ensure that they can absorb large losses without threatening the stability of the institution. Under the Basel III accord, the minimum Tier1 capital ratio was set at 6% of a bank's risk-weighted assets.

Panel B focuses on two other potential channels, bank borrowing (columns (1) and (2)) and deposits (columns (3) and (4)). Banks's exposure to the trade shock could also be associated with a reduction in borrowing, deposits, etc. As NPAs rise, banks may resort to other similar other banks and/or central bank to borrow and if such borrowing drops, then they have be forced to reduce lending. We find that private banks with exposure to higher import competition saw a differential decline in their borrowing. Lastly, import competition could have negatively affected workers' wages, which in turn could have reduced their savings and affected banks' lending activities through a reduction in bank deposits. Columns (3) and (4) however find no evidence supporting this explanation.

Overall, our results on bank balance sheets suggest that non-performing loans increased and profitability decreased in sectors high-exposure to Chinese imports. Banks with a larger share of loans portfolio in those affected sectors could not offset these losses with external funding as borrowing also declined for those banks. It is thereby plausible that these banks cutback on their respective lending portfolios to maintain their overall capital ratios, which remained unaffected.

4.4 Other Possible Explanations

Our results from the previous sections document that the volume of new loan issuances decline to firms facing higher import competition, and this decline is driven entirely by private banks. This section rules out that this result can be explained by spurious correlations between sectoral exposure to import competition and other firm, industry, lender or spatial characteristics.

4.4.1 Firm Characteristics

We start by considering firm characteristics, such as size and exporting status in **Panel A** of **Table** 8. Thus, it is possible that firms operating in industries facing higher import competition have a higher likelihood of being financially constrained, and lenders opt to reduce credit to financially constrained firms in the period succeeding China's accession to the WTO. We split our sample using the median firm size – measured as average firm

assets prior to 2001 – and re-estimate our baseline specification for small and large firms. We consider exporting status as both a signal of firm size and quality as exporters are likely to be more productive and large firms. If industries facing higher import competition are dominated by non-exporters, that can serve as a potential explanation for the reduction in bank credit.

Our results from size and exporting status of a firm show contrasting effects. We identify a negative coefficient on the triple interaction term for small firms and exporters, although the coefficient is not precisely estimated. If exporting is a signal for innovation and enhanced firm performance, our findings rule out that the decline in private bank credit was driven by inferior quality firms, which also happened to be concentrated in industries with high exposure to import competition.

4.4.2 Industry Characteristics

Panel B of **Table 8** focuses on industry characteristics. We split the sample based on Rajan and Zingales (1998) industry level index of external financial dependence. We use the median industry score to assign firms to industries with high and low dependence on external finance. The intuition here is that financial constraints are more likely to bind in industries with higher dependence on external sources of finance. Thus, if industries with high import competition were also more dependent on external financing and private banks reduced credit to financially constrained firms, we would be misattributing the effect of financial constraints on lending to import competition

Our estimates show however that the reduction in private bank lending is concentrated among firms operating in industries with relatively low dependence on external finance. This rules out the fact that the decline in private bank credit to firms facing higher import competition from China can be explained by the fact that these firms were also financially constrained. If so, we would have observed the negative effect to be concentrated amongst firms operating in industries with a relative high dependence on external finance.

Next, we divide industries based on their production process – upstream or downstream. Anecdotal evidences suggest that India registered a significant growth in the imports of in-

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termediate inputs from China. Therefore, it is possible that firms belonging to the upstream industries are driving the effect as those also comprise the high-exposure sectors.

We investigate this by disaggregating our sample based on how upstream an index is, following Antràs et al. (2012).[30] We split the sample based on whether a firm operates in an industry whose score on the upstreamness index exceeds the median upstreamness score across all manufacturing industries. Our results show that firms belonging to both types of industries are affected, albeit with higher effects for firms in upstream industries.

4.4.3 Spatial Characteristics

In **Panel C**, we further explore heterogeneity in our results using regional characteristics. We start by following Topalova (2010), Autor et al. (2013) and construct regional exposure to Chinese imports. Thus, it is possible that banks might have endogenously located in areas with high initial exposure to Chinese imports and China's accession to the WTO in 2001 compounded this effect. We the address of firms' headquarters to match them to states and construct the following regional exposure index:

$$Expsoure_{ks} = (\frac{Chinese\ Imports_{k,1995}}{World\ Imports_{k,1995}})Employment\ Share_{ks,1995} \quad (10)$$

$Employment\ Share_{ks,1995}$ is the employment share of an industry k in state s in total employment. We classify a state to have high ex-ante exposure to Chinese imports if $Exposure_{ks}$ exceeds the median value across all manufacturing industries. Our estimates portray that it is the initial low- and not high-exposure sectors that are driving the results although the estimate is a bit noisy.

Lastly, it is possible that the reduction in private bank loans is driven by regions where there was agglomeration of low-skilled workers. Banks which have incurred losses immediately prior to China's entry to the WTO, or have depleted levels of capital drop loans to firms in these regions where returns from human capital is low.

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[30]Upstreamness is a standard statistic that is widely used in the firm networks literature, and is computed by assigning discrete weights based on the distance from final use of an industry's output. For our purposes, industries' upstreamness is computed using the 1993–94 input-output table for the Indian economy. For details on the estimation method, please see Kisat and Phan (2020).

In order to explore whether such is the case, we re-estimate the reduced form triple difference specification after disaggregating the sample by skill intensity. Skill intensity is measured as the share of non-production workers in a region. The point estimates show that private bank credit declined for regions with both high and low share of skilled workers. This reassures us that the reduction in private bank credit to firms facing higher import competition is not due to any spurious correlation between industries facing higher import competition and other firm, industry or regional characteristics. Overall, these results show that the reduction in private bank credit to firms in industries facing higher import competition cannot be systematically explained by any other general equilibrium factors.

4.5 Firm Level Effects

4.5.1 Aggregate Firm Credit

We now examine what happened at firm level. We start by looking at the overall firm credit using data at firm level. Our primary objective here is twofold: (a) to check whether our benchmark results do hold at a different level of aggregation, and (b) to rule out that the decline in private bank credit to firms facing higher import competition is due to the endogenous substitution of private bank credit by firms with credit from other sources, such as trade credit.

We use firm level data from the PROWESS database for this exercise. The key advantage of the PROWESS is that it provides detailed data on firm borrowings across multiple institutional and non-institutional sources, and also contains information on trade credit. We exploit this data and use the following specification to identify the impact of higher import competition on aggregate firm level credit:

$$y_{it} = \beta_1(HExp_k \times Post_t) + \beta_2(HExp_k \times Post_t \times PvtBank_b) + \gamma \mathbf{X}_{it} + \phi_i + \theta_{kt} + \epsilon_{it} \quad (11)$$

Our unit of observation here is firm i, operating in industry k at year t. Since, our data is at firm-year level, we only use firm (ϕ) and 3-digit industry-year (θ) fixed effects. β_1 estimates the impact of import competition on firm credit for firms which do not have

any relationship with private banks. On the other, β_2 estimates the differential impact for firms with a relationship with a private bank. A firm is deemed to have a relationship with a private bank if it had transacted with a private bank in at least 1 year prior to 2001.

Consistent with the evidence documented till now, column (1) in **Panel A** of **Table 9** shows a reduction in overall secured bank borrowing (this is the sum of total borrowing by a firm from domestic public-sector and private banks) for firms operating in industries with high exposure to Chinese imports, *and* having a relationship with a private bank. On the contrary, as seen from the double interaction term, firms un-associated with private banks exhibit little change in overall bank borrowings. These results thereby validate the reduced form findings using the loan-level data.

Columns (2) – (5) rules out the possibility that the reduction in private bank credit can be explained by an endogenous firm level substitution of private bank credit with credit from other sources, such as NBFCs, foreign lending, and trade credit. In fact, our estimates show a large and statistically significant reduction in borrowing from NBFCs. While, column (4) shows a weak positive impact on foreign borrowing for firms exposed to higher import competition, it is relatively small in magnitude to offset the decline in overall bank borrowing.[31]

Figure B4 (Appendix B) plots the evolution of aggregate firm borrowing connected to a private bank both at intensive (total amount of borrowing done by a firm from banks) and extensive margin (a dummy equaling 1 if a firm has any outstanding loan from any bank). Our coefficient plots clearly shows a strong negative for firms connected to private banks.

4.5.2 Real Effects

As private banks proactively reduced credit supply to firms in industries with high-exposure to Chinese competition, we now explore what happened to those firms in terms of their performance using a reduced form specification similar to Equation (4). Specifically, we

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[31]In this case, our double interaction term, $HExp_k \times PvtBank_b$ is strong and negatively. This shows that firms were not borrowing from foreign sources prior to the China's entry to the WTO, but it got reversed after 2001.

estimate:

$$Y_{ijt} = \beta(HExp_k \times Post_t) + \alpha_i + \delta_{kt} + \epsilon_{ikt} \qquad (12)$$

The unit of observation in Equation (12) is firm i, operating in industry k observed in year t. We use firm and 3-digit industry-year fixed effects α and δ, respectively. The industry-year fixed effects restrict our comparison to firm outcomes within the same broad industry category and year. The identifying variation comes from changes in firms' exposure to Chinese imports at a granular (4-digit) level. The independent variable of interest – $HExp$ – is as defined in Equation (4). However, our sample is only restricted to a subset of firms which have balance sheet information in the PROWESS, and can also be linked to the MCA database. Standard errors continue to be clustered at 4-digit industry level.

Results reported in **Panels B** and **C** of **Table 9** supports the explanation that increased import competition negatively affected operations for firms which had any prior relationship with at least 1 private bank. Columns (6) – (10) in **Panel B** reports lower aggregate sales, exports, domestic sales, and overall manufacturing activity for firms facing high import competition from China, and associated with a private bank. Intriguingly, the double-difference term effectively reports a null effect, signifying that sales of firms facing higher import competition, but not linked to private banks, remained unaffected. Columns (11) – (15) of **Panel B** also documents a lower capital stock, employee compensation, raw materials, and fixed assets for firms facing higher import competition.

Figure 6 shows the event-study plots corresponding to four key outcomes of **Table ??** – sales, labour compensation, working capital, and stock of assets. First, for none of the four outcomes we find a strong differential trend for firms in industries facing high import competition prior to China's accession to the WTO in 2001. Consistent with **Figure 4** which showed an immediate decline in private bank lending, we find a significant reduction in working capital and stock of assets within a year of China's entry to the WTO. This is consistent with the observations of Banerjee and Duflo (2014) that bank loans predominantly finance firms' working capital. As for sales and labour compensation, we also find

negative effects, but with a few years lag.

5 Further Robustness: Using Industry Level Data

5.1 Dataset

To further check the robustness of our results, we now use proprietary administrative data from the Basic Statistical Returns (BSR) to gauge the impact of banks' credit allocation to industries facing higher import competition. The data is based on annual returns filed by every branch on outstanding credit on March 31 of each year and we aggregate the branch level data to the level of banks. The BSR disaggregates credit across multiple sub-sectors within the agriculture, manufacturing, trade, transport and services sectors. As these sectors do not directly match with the NIC classifications, we use the descriptions in the NIC and BSR documentation files to manually create a concordance mapping of the sectors across these two databases to create a uniform set of 24 sectors. This provides us with annual bank level credit allocation to each of these 24 sectors.

5.2 Results

We use the following reduced form specification:

$$Y_{bkt} = \beta(HExp_k \times Post_t) + \alpha_b + \phi_k + \delta_t + \gamma \mathbf{X}_{bkt} + \epsilon_{bkt} \tag{13}$$

The outcome of interest in Equation (13) is the natural log of outstanding credit issued by bank b to industry j in year t. α, ϕ and δ, respectively denotes bank, industry and year fixed effects, absorbing time-invariant bank and industry level factors determining credit allocation, along with secular time trends in bank credit to industries. $HExp$ continues to be defined similarly as before.[32] Time-varying bank and industry level factors affecting credit allocation are included in X. All our specifications also control for the interactions

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[32] A binary indicator equaling 1 for industries which see greater than median increase in Chinese imports after China's entry to the WTO post-2002 compared to the entire manufacturing sector. This is measured through the share of Chinese imports across 10 Latin American economies.

between a linear time trend with the share of sectoral credit, output, capital, employment, and industry size in the pre-2001 period.

Panel A of **Table ??** uses total amount of outstanding credit from commercial banks or the intensive margin of credit as the outcome variable. Column (1) reports the average diff-in-diff estimate across all the bank groups. We identify a negative coefficient, but significant only at 10% level. The coefficient indicates that compared to industries with relatively low increase in imports, industries with relatively high-exposure to Chinese imports saw a 13% decline in average annual credit from banks in the post-treatment period. Relative to the pre-treatment control group mean, the estimated coefficient reflects a decline in annual bank credit by around INR 30 million for the industries in the treated (or high-exposure) group.

Column (2) explores for non-linearities in the impact of exposure to Chinese imports by identifying the treatment effect in each tercile of industries' exposure to Chinese imports. While we cannot reject the equality of the coefficients across the middle and the top tercile, exposure to Chinese imports significantly affected bank credit to industries operating in the middle tercile – the coefficient is now significant at the 5% level and reflects a 24% decline in credit in the post-treatment period (relative to industries in lowest tercile of exposure).

Column (3) explores heterogeneity by bank ownership using the triple difference specification. In effect, like our firm-bank level regressions we interact our $PvtBank_b$ dummy with our variable of interest, $HExp_k \times Post_t$. Column (3) shows that the decline in bank credit to industries with high-exposure to Chinese imports is driven by private banks which see an additional 36% decline in outstanding credit relative to the government banks. No such effect however is seen for government-owned banks – the coefficient is attenuated towards 0 and not precisely estimated. Column (4) replicates the above exercise but using terciles instead of a single indicator based on the change in the share of Chinese imports for the median industry. The results show that the drop in bank credit is dominated by private banks reducing credit to industries with the highest exposure to Chinese imports (top tercile).

Panel B estimates the impact of the import competition on the number of loan accounts

in banks. While the triple difference coefficients corresponding to private banks is negative, suggesting that the number of credit accounts in industries facing higher import competition declined in such banks, but none of them are significant to draw any conclusions. Our results from the extensive margin further confirms that credit reductions in response to higher import competition principally occurred along the intensive margin.[33]

6   Concluding Remarks

Do import competition affect lenders' or creditors decision(s)? Does the responses vary hetereogeneously with bank ownership? This study answers these questions by exploiting a novel dataset on Indian bank-firm level loan information. Focusing on China's membership to the WTO as an exogenous shock for the Indian domestic economy, we find that banks with portfolio of loans concentrated in sectors exposed to competition from China decrease their lending relative to less exposed banks. And, this is particularly true for private banks with no such responses from government-owned banks. Our results are robust to any alternate explanatory mechanisms, such as firm, industry, bank, and regional characteristics. The drop in credit supply or such adjustments happened primarily along the volume of loans or the intensive margin of credit. We find limited evidence of such adjustments along the extensive margin.

Examining the mechanisms, we find that higher import competition from China leads to significant increase in non-performing assets and decline in profitability ratios of banks which belong to the high Tier-1 capital. This leads to lead to an erosion of their core capital consequently reducing their credit supply. We find that firms are unable to substitute their drop in credit with alternative sources of credit, such as credit from NBFCs, trade credit, etc. Therefore, the aggregate credit of firms linked to exposed banks decreases relative

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[33]**Table C4** of **Appendix C** shows robustness of our industry level findings using a continuous measure of trade exposure as the independent variable of interest. Thus, instead of interacting a binary measure with the post-treatment indicator, we now interact $\Delta IMP^{China}_{k,95-07}$ with the $Post_{2002}$ indicator. The findings are directionally equivalent, and if anything, stronger. Column (1) shows that a one percentage point increase in industries' exposure to Chinese imports reduces credit allocation by 10%. Similar to **Table ??**, the negative effects are driven by private banks (column (2)). However, in this case we find some effects of negative impact along the extensive margin as well.

to other firms. This translates into real negative effects on sales, exports, employment, production-related factors, and fixed assets.

Overall, our results have two important implications: (a) trade shocks may result in endogenous credit constraint of banks, but hetereogeneously; and (b) decrease in banks' supply of credit in the aftermath of a trade shock may be an important channel behind the welfare costs associated with trade liberalization episodes.

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Figure 1: Import Competition and Credit Allocation by Private Banks, Indian Manufacturing Firms, 1995–2007

Notes: Panel A plots the median loan received by an average Indian manufacturing firm. It is expressed in INR Million. Panel B plots the median share of loan received by a firm from a private bank. It is calculated as the share of loans received by a firm from a private bank to total loans received. Panel C plots the unconditional correlation between share of loan received by a firm from a private bank and Chinese import share for India (Chinese Imports/Total Imports). Panel D plots the unconditional correlation between share of loan received by a firm from a public-sector bank and Chinese import share for India (Chinese Imports/Total Imports). The data are divided into 20 bins of each variable.

Figure 2: Chinese Imports to Latin America and India: Pre- and Post-2001
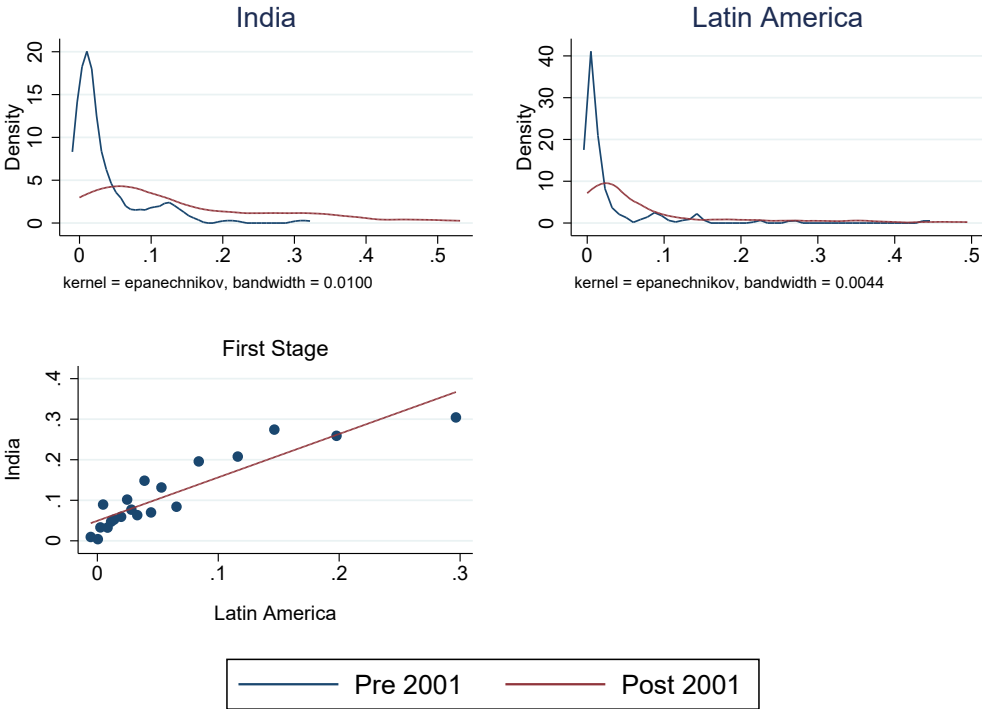
Notes: This figure shows the distribution of Chinese imports to India and Latin American countries, before and after China's entry to the WTO in 2001. The top row shows kernel density plots of the fraction of Chinese imports in 4-digit manufacturing industries, before and after China's entry to the WTO. The left-panel shows the distribution for India; whereas the right panel for Latin American economies. The bottom figure shows the correlation in the change in the industry-specific share of Chinese imports between India and Latin American economies.

Figure 3: Identifying Assumptions – Empirical Strategy
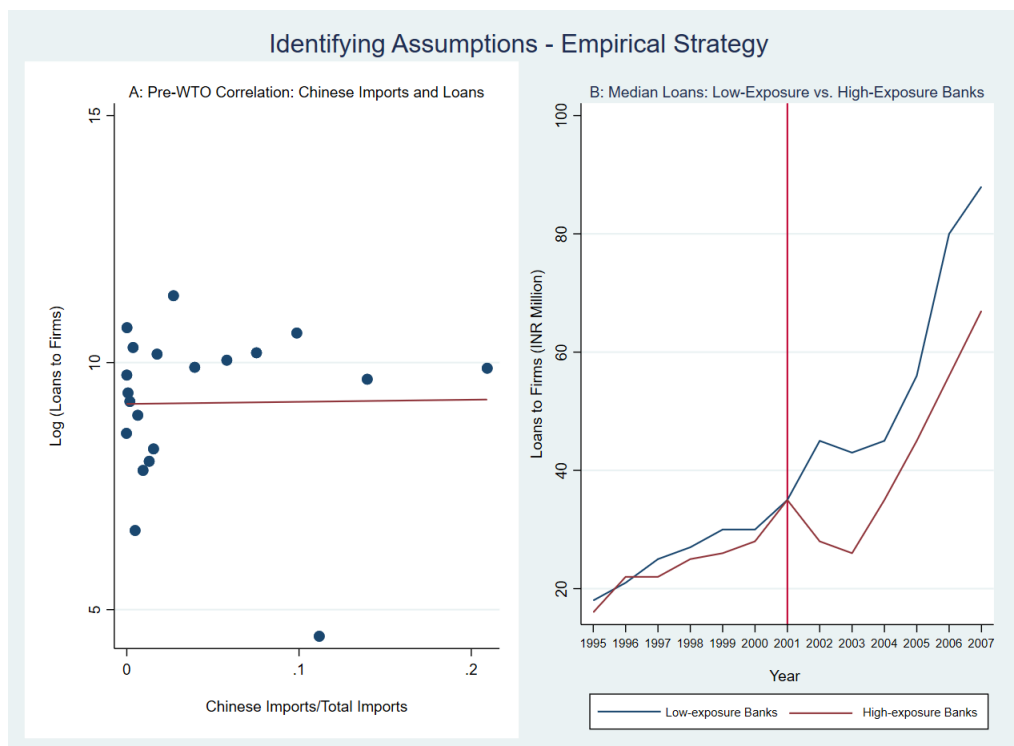
Notes: Panel A plots the unconditional correlation between volume of loans and Chinese imports in the pre-2001 period. Panel B presents the median loan given by a bank to a firm belonging to high- and low-exposure sectors with respect to Chinese competition for the years 1995–2007.

Figure 4: Exposure to Chinese Imports and Loans: Event Study Framework
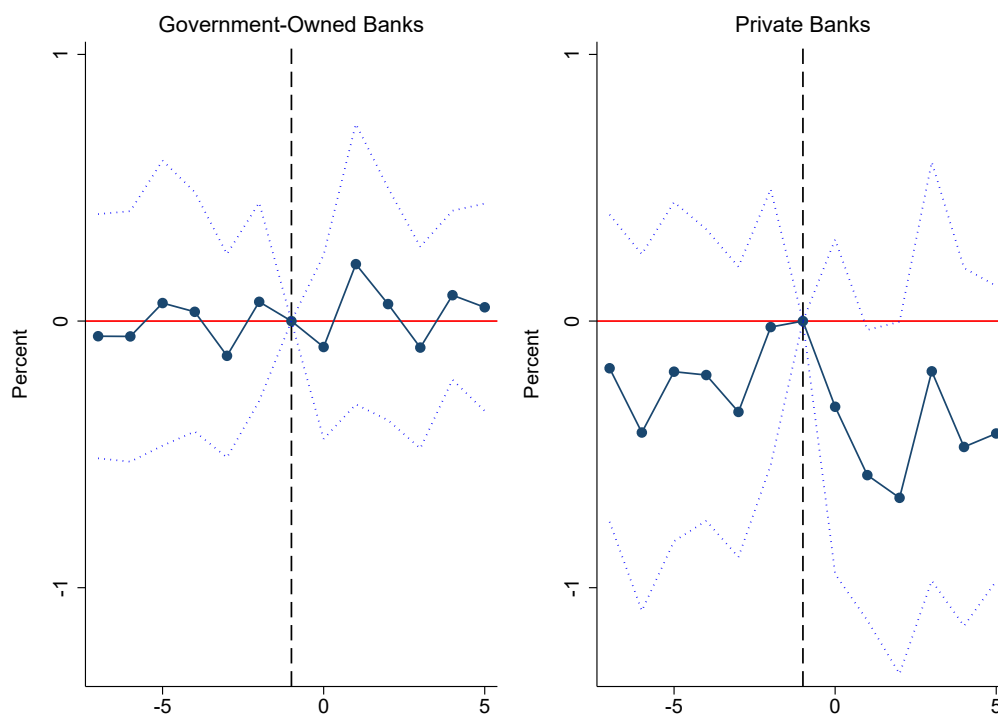
Notes: These figures shows event-study plots identifying how credit varies over time in industries with high exposure to Chinese imports, relative to low exposure. The unit of observation is loans. The outcome variable is logged loan amount (in millions). The vertical line corresponds to the year 2001 – the year of China's entry to the WTO – and serves as the reference period. The dotted lines show the 95% confidence intervals. The left panel shows the impact for government owned banks; the right panel shows the differential effect for government-owned banks. All specifications included firm, 3-digit industry-year, and firm age fixed effects. Standard errors are clustered by 4-digit industries.

Figure 5: Exposure to Chinese Imports and Loans: Robustness to Dropping Individual States and Industries
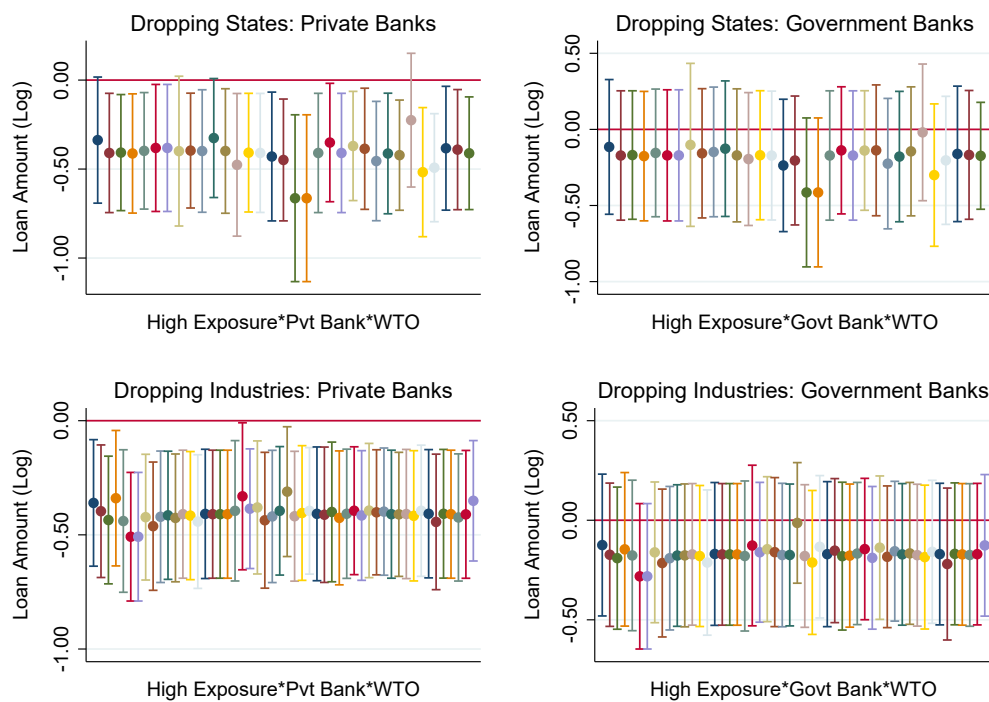
Notes: This set of coefficient plots shows the robustness of the results to dropping individual states and industries. The top row shows robustness to dropping individual states; the bottom row, individual industries. The right panel estimates the differential effect for private banks; the left panel, for government owned banks. The unit of observation is loans to firms (logged). All specifications include firm, bank-year, 3-digit industry year and age fixed effects. Standard errors are clustered by bank and 4-digit industry. The vertical lines plot the 90% confidence intervals.

Figure 6: Exposure to Chinese Imports and Firm Outcomes: Event-Study Plots
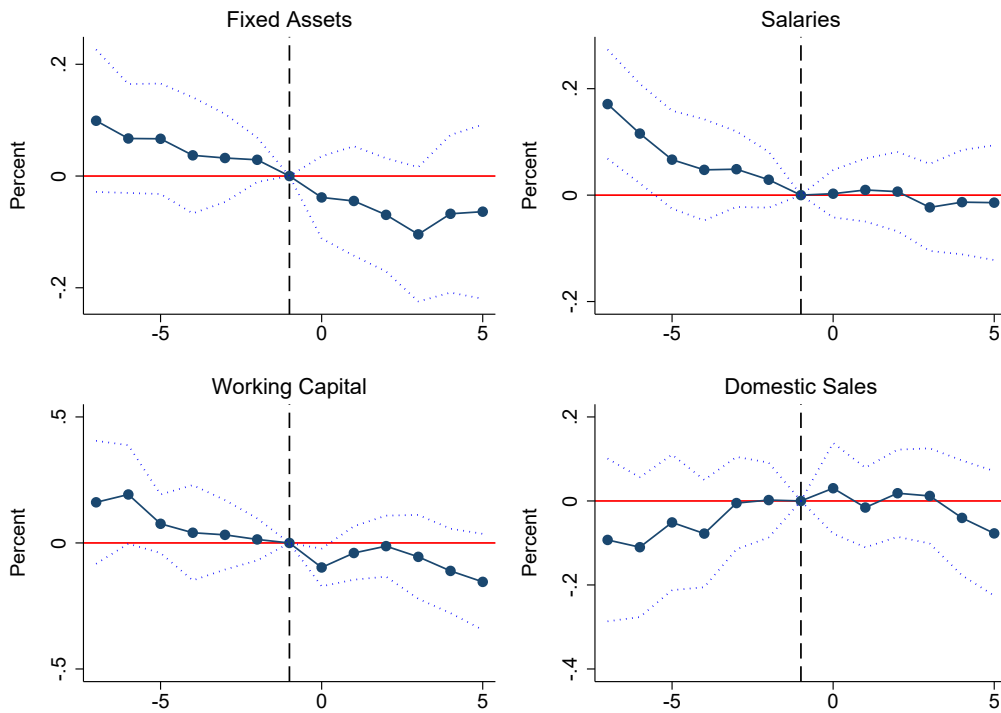
Notes: These figures shows the event-study plots for selected firm outcomes. The unit of observation here is a firm. The vertical line corresponds to the year 2001 – the year of China's entry to the WTO. Dashed lines show the 95% confidence intervals. All specifications included firm, 3-digit industry-year, and firm age fixed effects. Standard errors are clustered at 4-digit industry level.

Table 1: Summary Statistics: Loans

	Mean	Median	25th Percentile	75th Percentile
	(1)	(2)	(3)	(4)
Panel A: Intensive Margin				
All Banks	332.77	38	7.3	145
Govt.-owned Bank	429.74	42.5	9	164
Private (Domestic) Bank	198.90	45	7.5	150
Foreign Bank	334.80	70	20	200
Non-Banking Institutions	121.44	15.6	4	67.5
Panel B: Extensive Margin				
All Banks	3.78	2	1	4
Govt.-owned Bank	3.62	2	1	4
Private (Domestic) Bank	4.34	3	1	5
Foreign Bank	3.71	2	1	5
Non-Banking Institutions	3.92	2	1	4

Notes: Table reports values for 1995–2007. Values are expressed in INR Millions in Panel A and numbers in Panel B.

Table 2: Balancing Tests

| | High-Exposure | | Low-Exposure | | Normalized Difference |
| | Median | Std. Dev | Median | Std. Dev | |
	(1)	(2)	(3)	(4)	(5)
Panel A: Bank Characteristics					
Total Assets	257,532.1	643,331	263,993.7	690,753.5	-0.07
Non-Performing Loans	16,313.9	53,206.22	18,812	56,288.21	-0.07
Bank Deposits	170,245.6	501,778.2	182,915.2	542,176.2	-0.06
Bank Capital	4,472.56	4,216.73	4,541.42	4,485.23	-0.01
Bank Borrowing	1,788.4	35,276.09	1,922.3	37,541.62	-0.04
Return on Assets	2.09	4.19	2.16	4.27	-0.02
Operating Profit/Working Funds	1.85	0.87	1.88	0.92	-0.05
Tier 1 Capital	11.14	659.37	11.37	633.19	0.001
Panel B: Firm Characteristics					
Bank Credit	23	765.64	25	333.69	-0.04
Sales	631.5	2,937.08	1,057	5,971.19	-0.26
Total Assets	722.6	4,306.42	1165	30,258.27	-0.13
Capital Employed	564.3	3,551.36	893.6	23,211.51	-0.23
Value-added	287.4	1,890.77	496.1	17,516.82	-0.24
Number of Banking Relations	2	2.54	2	3.76	-0.15

Notes: Table reports median values for 1995–2001. Values are expressed in INR Millions, except return on assets, operating profit/working funds, tier-1 capital. All these are in ratios. Column (5) shows the normalized difference between the two groups. Following Imbens and Wooldridge (2008), an absolute value above 0.25 would suggests an imbalance between the two groups.

Table 3: Differences in Pre-China Shock Trends, 1995–2001: High- and Low-exposure Firms

	Log(Loan$_{bit}$)			Log(Number of Loans$_{bit}$)		
	(1)	(2)	(3)	(4)	(5)	(6)
$HExp_k$ ×Time Trend	0.003			−0.050		
	(0.096)			(0.049)		
$HExp_k$ ×Year 1995		−0.038			−0.070*	
		(0.162)			(0.038)	
$HExp_k$ ×Year 1996		−0.136			−0.170	
		(0.145)			(0.133)	
$HExp_k$ ×Year 1997		0.057			−0.121	
		(0.201)			(0.105)	
$HExp_k$ ×Year 1998		0.055			0.056	
		(0.161)			(0.072)	
$HExp_k$ ×Year 1999		−0.147			−0.017	
		(0.119)			(0.045)	
$HExp_k$ ×Year 2000		0.082			−0.125	
		(0.153)			(0.082)	
$HExp_k$ ×Year 2001		0.089			0.069	
		(0.113)			(0.070)	
$HExp_i$			−0.077			−0.276
			(0.090)			(0.204)
R-Square	0.56	0.56	0.12	0.71	0.71	0.07
N	41,994	41,994	4,472	41,994	41,994	4,507
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	No	Yes	Yes	No
Industry FE (3-digit)*Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE*Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: All the regressions are run for the years 1995–2007. Columns (1) – (3) use total loans and columns (4) – (6) use the number of loans advanced by a bank b to a firm i in year t as the dependent variable, respectively. $HExp_k$ is a measure of the exposure index of Chinese imports. In other words, we define $HExp_k$ as a measure of Chinese competition that an Indian industry (k) faces in its domestic market. It takes a value 1 if the average share of imports by any industry (k) for the period 1995-–2001 is greater than the median share of Chinese imports for all of manufacturing industries (for the period 1995–2001). For our estimations, we use the share of Chinese imports by Latin American countries (Brazil, Colombia, Venezuela, Ecuador, Peru, Bolivia, Chile, Paraguay, Argentina and Uruguay) as the instrument for Indian imports (Chinese). '$TimeTrend$' is a linear time trend pre-2002. '$Year1995$', '$Year1996$', '$Year1997$', '$Year1998$', '$Year1999$', '$Year2000$', '$Year2001$' are year dummies. These dummies equal to 1 for the respective years. Firm Controls include total real assets and GVA (gross value-added) share of technology adoption of a firm. Standard errors corrected by clustering at both industry (4-digit) and bank level are in the parenthesis. Intercepts included but not reported. * denotes 10% level of significance.

Table 4: Import Competition and Credit Allocation: Benchmark Results

Panel A: Intensive Margin	Log(Total Loan$_{bit}$)				Firm X Year FE	Balanced Panel	Loan Growth
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$HExp_k \times Post_{2002}$	0.021	0.051	0.101	0.201	–0.237	0.504	0.139
	(0.081)	(0.082)	(0.161)	(0.203)	(0.372)	(0.384)	(0.367)
$HExp_k \times Post_{2002} \times PvtBank_b$		–0.256**	–0.305**	–0.409**	–0.568**	–0.360**	–0.720*
		(0.104)	(0.151)	(0.170)	(0.285)	(0.072)	(0.407)
$HExp_k \times Post_{2002} \times GovtBank_b$			–0.066	–0.171	–0.693*		
			(0.146)	(0.214)	(0.428)		
$HExp_k \times Post_{2002} \times NBFC_b$				–0.134	0.122		
				(0.251)	(0.436)		
R-Square	0.56	0.56	0.56	0.56	0.64	0.60	0.43
N	41,994	41,994	41,994	41,994	30,995	6,238	17,804
Firm Controls	Yes	Yes	Yes	Yes	No	No	Yes
Firm FE	Yes	Yes	Yes	Yes	No	No	Yes
Industry FE (3-digit)*Year FE	Yes	Yes	Yes	Yes	No	No	Yes
Bank FE*Year FE	Yes	Yes	Yes	Yes	No	No	Yes
Firm FE*Year FE	No	No	No	No	Yes	Yes	No

Panel B: Extensive Margin	Log(No. of Loans)		Pr(Loan = 1 $if\,year > 2001$)		$\Delta No.of Loan_{bi,95-07}$	
	(8)	(9)	(10)	(11)	(12)	(13)
$HExp_k \times Post_{2002}$	0.058	0.066	0.008	0.008		
	(0.047)	(0.050)	(0.005)	(0.005)		
$HExp_k \times Post_{2002} \times PvtBank_b$		–0.071		–0.001		
		(0.064)		(0.007)		
$\Delta IMP^{China}_{k,95-07}$					0.039	0.592
					(0.786)	(0.750)
$\Delta IMP^{China}_{k,95-07} \times PvtBank_b$						–4.700*
						(2.837)
R-Square	0.98	0.71	0.98	0.98	0.27	0.27
N	41,994	41,994	41,994	41,994	43,937	43,937
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	No	No
Industry FE (3-digit)*Year FE	Yes	Yes	No	No	No	No
Bank FE*Year FE	Yes	Yes	No	No	No	No
Industry FE (3-digit)*Period FE	No	No	No	No	Yes	Yes
Bank FE*Period FE	No	No	No	No	Yes	Yes

Notes: All the regressions are run for the years 1995–2007. In Panel A: columns (1) – (6) use logarithm of loans advanced by a bank b to a firm i in year t and column (7) use loan growth as the dependent variable, respectively. In Panel B: columns (8) – (9) use the number of loans disbursed by a bank (b) to a firm (i) in a year (t); columns (10) – (11) use the probability of new loan issued by a bank b to a firm i after 2001; and columns (12) and (13) use the change in the number of loans disbursed by a bank (b) in year (t) between the periods 1995–2001 and 2002–2007, respectively as the dependent variable. $HExp_k$ is a measure of Chinese competition that an Indian industry (k) faces in its domestic market. It takes a value 1 if the average share of imports by any industry (k) for the period 1995-–2001 is greater than the median share of Chinese imports for all of manufacturing industries (for the period 1995–2001). For our estimations, we we use the share of Chinese imports by Latin American countries (Brazil, Colombia, Venezuela, Ecuador, Peru, Bolivia, Chile, Paraguay, Argentina and Uruguay) for Indian imports (Chinese) in a reduced form equation. The import competition index is measured at NIC 2004 4-digit level. $Post_{2002}$ is a dummy variable intended to capture the effect of China's entry to the WTO. It takes a value of 1 for the years following the signing of the WTO agreement by China. $\Delta IMP^{China}_{k,95-07}$ is the change in the Chinese share of imports by India between the periods 1995–2001 and 2002–2007. $PvtBank_b$, $GovtBank_b$, and $NBFC_b$ takes a value 1 if a firm is connected to any private (domestic), govt.-owned, and non-banking financial corporation, respectively. Firm Controls include total real assets and GVA (gross value-added) share of technology adoption of a firm. Standard errors corrected by clustering at both industry (4-digit) and bank level are in the parenthesis. *,**,*** denotes 10%, 5%, and 1% level of significance, respectively.

Table 5: Import Competition and Credit Allocation: Using Different Methods and Measures

Panel A: Different Methods

	Log(Total Loan$_{bit}$)					
	(1)	(2)	(3)	(4)	(5)	(6)
	2SLS				OLS	
$HExp_k \times Post_{2002}$	0.087	0.319	−0.587	0.160	0.023	0.575*
	(0.113)	(0.358)	(0.649)	(0.118)	(0.098)	(0.322)
$HExp_k \times Post_{2002} \times PvtBank_b$	−0.549***	−0.786**	−0.938*	−0.431**	−0.249**	−0.324**
	(0.206)	(0.334)	(0.560)	(0.186)	(0.107)	(0.165)
$HExp_k \times Post_{2002} \times GovtBank_b$		−0.275	−1.092			
		(0.382)	(0.896)			
$HExp_k \times Post_{2002} \times NBFC_b$		−0.191	0.367			
		(0.462)	(0.737)			
R-Square	0.56	0.56	0.64	0.55	0.56	0.64
N	41,994	41,994	30,995	31,464	41,994	30,995
F-Stat (1st Stage)	3168.70	1183.41	589.92	2480.73	–	–
Hansen J-Stat (1st Stage)	0.051	0.018	0.047	0.046	–	–
Firm Controls	Yes	Yes	No	Yes	Yes	No
Firm FE	Yes	Yes	No	Yes	Yes	No
Industry FE (3-digit)*Year FE	Yes	Yes	No	Yes	Yes	No
Bank FE*Year FE	Yes	Yes	No	No	Yes	No
Firm FE*Year FE	No	No	Yes	No	No	Yes
Bank Controls*WTO	No	No	No	Yes	No	No

Panel B: Different Measures

	Log(Total Loan$_{bit}$)				$\Delta Log(Loan_{bi,95-07})$	
	All	Private		Private		Private
	(7)	(8)	(9)	(10)	(11)	(12)
$BExp_k$	4.201	92.871***				
	(2.591)	(32.817)				
$BExp_k \times Post_{2002}$	−1.117*	−51.678***				
	(0.675)	(17.584)				
$ShImp_{k,95-01} \times Post_{2002}$			−1.801**	0.610		
			(0.797)	(0.571)		
$ShImp_{k,95-01} \times Post_{2002} \times PvtBank_b$				−1.905**		
				(0.816)		
$\Delta IMP^{China}_{k,95-07}$					−1.318***	−0.873**
					(0.486)	(0.438)
$\Delta IMP^{China}_{k,95-07} \times PvtBank_b$						−3.297**
						(1.672)
R-Square	0.76	0.80	0.56	0.56	0.14	0.12
N	24,044	5,913	34,741	34,741	34,869	34,869
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm-Bank FE	Yes	Yes	No	No	No	No
Firm FE	No	No	Yes	Yes	No	No
Firm FE*Year FE	Yes	Yes	No	No	No	No
Industry FE (3-digit)*Period FE	No	No	No	No	Yes	Yes
Bank FE*Period FE	No	No	No	No	Yes	Yes
Industry FE (3-digit)*Year FE	No	No	Yes	Yes	No	No
Bank FE*Year FE	No	No	Yes	Yes	No	No

Notes: All the regressions are run for the years 1995–2007. In Panel A, column (1) − (6) and in Panel B, columns (7) − (10) use the logarithm of loans advanced by a bank b to a firm i in year t as the dependent variable. Columns (11) − (12) of Panel B use the change in the amount of loans between the periods 1995–2001 and 2002–2007 as the dependent variable. $HExp_k$ is a measure of Chinese competition that an Indian industry (k) faces in its domestic market. It takes a value 1 if the average share of imports by any industry (k) for the period 1995-–2001 is greater than the median share of Chinese imports for all of manufacturing industries (for the period 1995–2001). $BExp_k$ is a measure of the exposure index of Chinese imports at the bank level. We define it the following way: for each bank b, we measure its exposure to the China shock as the share of its loans to firms belonging to the high-exposure sectors on its total loans to manufacturing firms. To attenuate endogeneity issues and possible portfolio adjustments by banks in anticipation of China's entrance into the WTO, we measure banks' exposure averaging the shares over the years 1995–2001. We then interact it with our $HExp_k$ measure. $\Delta IMP^{China}_{k,95-07}$ is the change in the Chinese share of imports by India between the periods 1995–2001 and 2002–2007. $ShImp_{k,95-01}$ is the average share of Chinese imports in total imports of India at 4-digit industry level before China joined the WTO in 2001. For our estimations, we use the share of Chinese imports by Latin American countries (Brazil, Colombia, Venezuela, Ecuador, Peru, Bolivia, Chile, Paraguay, Argentina and Uruguay) as the instrument for Indian imports (Chinese). The import competition index is measured at NIC 2004 4-digit level. $Post_{2002}$ takes a value of 1 for the years following the signing of the WTO agreement by China. $PvtBank_b$, $GovtBank_b$, $NBFC_b$, and $Foreign_b$ takes a value 1 if a firm is connected to any private (domestic), govt.-owned, non-banking financial corporation, and foreign bank, respectively. Firm Controls include total real assets and GVA (gross value-added) share of technology adoption of a firm. Standard errors corrected by clustering at both industry (4-digit) and bank level are in the parenthesis. *,**,*** denotes 10%, 5%, and 1% level of significance, respectively.

Table 6: Import Competition and Credit Allocation: Robustness Checks

	Year ≤ 2004	Pre-2001 Bank Dummy	State X Year FE	$HExp_k$ X State FE	WTO X Bank Controls	Firm FE X Bank Controls	Non-Linearities		Change of Control Group		
									Drop Foreign Banks		Drop Foreign + NBFCs
					Log(Total Loan$_{bit}$)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
$HExp_k \times Post_{2002}$	0.030	0.066	0.003	0.024	0.106	0.102		0.038	0.041	0.035	0.099
	(0.097)	(0.090)	(0.075)	(0.079)	(0.088)	(0.088)		(0.076)	(0.085)	(0.078)	(0.095)
$HExp_k \times Post_{2002} \times PvtBank_b$	-0.434***	-0.153*	-0.263**	-0.264**	-0.202*	-0.201*		-0.242**	-0.250**	-0.243**	-0.205**
	(0.146)	(0.088)	(0.131)	(0.133)	(0.120)	(0.119)		(0.108)	(0.110)	(0.106)	(0.091)
$T2HExp_k \times Post_{2002}$							0.134				
							(0.098)				
$T3HExp_k \times Post_{2002}$							-0.100				
							(0.098)				
$T2HExp_k \times Post_{2002} \times PvtBank_b$							-0.421***				
							(0.135)				
$T3HExp_k \times Post_{2002} \times PvtBank_b$							-0.042				
							(0.135)				
$HExp_k \times Post_{2002} \times NBFC_b$								0.034		0.032	
								(0.167)		(0.170)	
$HExp_k \times Post_{2002} \times Foreign_b$								0.158			
								(0.220)			
R-Square	0.58	0.56	0.56	0.56	0.55	0.55	0.56	0.56	0.56	0.56	0.55
N	27,229	41,994	35,010	35,018	31,465	31,464	41,994	41,994	39,525	39,525	31,623
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE (3-digit)*Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE*Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: All the regressions are run for the years 1995–2007. Columns (1) – (10) use logarithm of loans advanced by a bank b to a firm i in year t as the dependent variable. $HExp_k$ is a measure of Chinese competition that an Indian industry (k) faces in its domestic market. It takes a value 1 if the average share of imports by any industry (k) for the period 1995–2001 is greater than the median share of Chinese imports for all of manufacturing industries (for the period 1995–2001). $T2HExp_k$ and $T3HExp_k$ are exposure indices for 2nd and 3rd tercile of exposure to the Chinese imports. $T2HExp_k$ takes a value 1 if the average share of imports by any industry (k) for the period 1995—2001 is greater than the median share of Chinese imports, but less than 75th percentile. $T3HExp_k$ takes a value 1 if that share is greater than 75th percentile. For our estimations, we use the share of Chinese imports by Latin American countries (Brazil, Colombia, Venezuela, Ecuador, Peru, Bolivia, Chile, Paraguay, Argentina and Uruguay) for Indian imports (Chinese) in a reduced form equation. The import competition index is measured at NIC 2004 4-digit level. $Post_{2002}$ is a dummy variable intended to capture the effect of China's entry to the WTO. It takes a value of 1 for the years following the signing of the WTO agreement by China. $PvtBank_b$, $NBFC_b$, and $Foreign_b$ takes a value 1 if a firm is connected to any private (domestic), non-banking financial corporation, and foreign bank, respectively. Firm Controls include total real assets and GVA (gross value-added) share of technology adoption of a firm. Standard errors corrected by clustering at both industry (4-digit) and bank level are in the parenthesis. *, **,*** denotes 10%, 5%, and 1% level of significance, respectively.

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Table 7: Import Competition and Credit Allocation: What Happened to Bank Balance Sheet?

	(1)	(2)	(3)	(4)
Panel A:				
	NPAs		Operating Profit/ Working Funds	
	All	High-Tier1	All	High-Tier1
$HExp_k \times Post_{2002}$	−0.009**	−0.009*	0.142***	0.110
	(0.004)	(0.005)	(0.047)	(0.100)
$HExp_k \times Post_{2002} \times PvtBank_b$	0.008	0.021**	−0.276*	−0.450**
	(0.008)	(0.010)	(0.145)	(0.186)
R-Square	0.74	0.72	0.75	0.76
N	1,641	832	1,641	832
Panel B:				
	Bank Borrowing		Bank Deposits	
	All	High-Tier1	All	High-Tier1
$HExp_k \times Post_{2002}$	−0.002	−0.002	0.005	0.007
	(0.004)	(0.026)	(0.011)	(0.037)
$HExp_k \times Post_{2002} \times PvtBank_b$	−0.052	−0.089*	0.052	0.074
	(0.038)	(0.052)	(0.053)	(0.085)
R-Square	0.46	0.53	0.69	0.72
N	1,641	832	1,641	832
Bank Controls (Pre-2001) $\times Post_{2002}$	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Notes: All the regressions are for the years 1995–2007. NPAs, Bank Deposits, and Bank Borrowing are expressed as a share of total liabilities of a bank. Operating Profits/Working Funds is expressed in logarithm terms. 'Bank Borrowing' is a sum of banks' borrowing from India's Central Bank (popularly known as Reserve Bank of India), inter-bank borrowing, and borrowing from others. $HExp_k$ is a measure of Chinese competition that an Indian industry (k) faces in its domestic market. It takes a value 1 if the average share of imports by any industry (k) for the period 1995-–2001 is greater than the median share of Chinese imports for all of manufacturing industries (for the period 1995–2001). For our estimations, we we use the share of Chinese imports by Latin American countries (Brazil, Colombia, Venezuela, Ecuador, Peru, Bolivia, Chile, Paraguay, Argentina and Uruguay) for Indian imports (Chinese) in a reduced form equation. The import competition index is measured at NIC 2004 4-digit level. $Post_{2002}$ is a dummy variable intended to capture the effect of China's entry to the WTO. It takes a value of 1 for the years following the signing of the WTO agreement by China. $PvtBank_b$ takes a value 1 for any domestic private bank. 'High-Tier1' is a dummy variable equal to if the ratio of bank-b's core capital on its risk-weighted assets (1995–2001) is above the median of the distribution. Bank Controls are a vector of variables: networth of a bank, bank assets, and return on assets. Standard errors corrected by clustering at bank level are in the parenthesis. *,**,*** denotes 10%, 5%, and 1% level of significance, respectively.

Table 8: Import Competition and Credit Allocation: Heterogeneity

	Log(Total Loan$_{bit}$)			
	(1)	(2)	(3)	(4)
Panel A: Firm Characteristics				
	Size		Exporting Status	
	Big	Small	Exporter	Non-Exporter
$HExp_k \times Post_{2002}$	−0.060	0.261*	0.001	0.113
	(0.132)	(0.142)	(0.133)	(0.134)
$HExp_k \times Post_{2002} \times PvtBank_b$	−0.192	−0.366*	−0.331*	−0.125
	(0.178)	(0.189)	(0.179)	(0.162)
R-Square	0.48	0.60	0.51	0.61
N	21,393	20,077	17,574	23,938
Panel B: Industry Characteristics				
	External		Production	
	Financial Dep		Process	
	High	Low	Upstream	Downstream
$HExp_k \times Post_{2002}$	−0.055	0.180	0.118	0.054
	(0.091)	(0.126)	(0.088)	(0.109)
$HExp_k \times Post_{2002} \times PvtBank_b$	−0.079	−0.460***	−0.490***	−0.385**
	(0.149)	(0.131)	(0.134)	(0.183)
R-Square	0.59	0.58	0.61	0.58
N	19,143	22,230	17,787	17,951
Panel C: Spatial Characteristics				
	Initial		Skill	
	Exposure		Intensity	
	High	Low	High	Low
$HExp_k \times Post_{2002}$	−0.093	0.121	0.625	0.029
	(0.093)	(0.171)	(1.054)	(0.078)
$HExp_k \times Post_{2002} \times PvtBank_b$	−0.178	−0.268*	−0.531**	−0.228**
	(0.169)	(0.162)	(0.224)	(0.118)
R-Square	0.57	0.60	0.67	0.57
N	21,586	19,612	5,403	35,726
Firm Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Industry FE (3-digit)*Year FE	Yes	Yes	Yes	Yes
Bank FE*Year FE	Yes	Yes	Yes	Yes

Notes: All the regressions are for the years 1995–2007. $HExp_j^{IN}$ is a measure of Chinese competition that an Indian industry (k) faces in its domestic market. It takes a value 1 if the average share of imports by any industry (k) for the period 1995-–2001 is greater than the median share of Chinese imports for all of manufacturing industries (for the period 1995–2001). For our estimations, we we use the share of Chinese imports by Latin American countries (Brazil, Colombia, Venezuela, Ecuador, Peru, Bolivia, Chile, Paraguay, Argentina and Uruguay) for Indian imports (Chinese) in a reduced form equation. The import competition index is measured at NIC 2004 4-digit level. $Post_{2002}$ is a dummy variable intended to capture the effect of China's entry to the WTO. It takes a value of 1 for the years following the signing of the WTO agreement by China. $PvtBank_b$ takes a value 1 if a firm is connected to any private (domestic) bank. We use total assets of a firm as the size indicator. In terms of external financial dependence, we follow the definition by Rajan and Zingales (1998). For division into upstream and downstream industries, we calculate an upstreamness index based on Antras et al. (2012), and industries which fall below the median of the index are categorised as downstream and the rest upstream. For profitability of banks, we use deposits plus advances per employee as the indicator. Firm Controls include total real assets and GVA (gross value-added) share of technology adoption of a firm. Standard errors corrected by clustering at both industry (4-digit) and bank level are in the parenthesis. *,**,*** denotes 10%, 5%, and 1% level of significance, respectively.

Table 9: Import Competition and Credit Allocation: Firm Level Effects

Panel A	Secured Bank Borrowing (1)	NBFC Borrowing (2)	Foreign Borrowing (3)	All Other Borrowing (4)	Trade Credit (5)
$HExp_k \times Post_{2002}$	0.017	−0.299	−0.688	−0.231	0.107
	(0.135)	(0.209)	(0.452)	(0.233)	(0.124)
$HExp_k \times Post_{2002} \times PvtBank_b$	−0.118**	−0.341***	0.161*	−0.028	−0.047
	(0.052)	(0.085)	(0.090)	(0.081)	(0.050)
R-Square	0.93	0.86	0.93	0.88	0.92
N	25,253	13,981	13,893	22,964	24,791
Panel B	Total Sales (6)	Exports (7)	Domestic Sales (8)	Sales from Manufacturing (9)	Total Imports (10)
$HExp_k \times Post_{2002}$	0.032	−0.135	−0.003	0.015	−0.008
	(0.117)	(0.088)	(0.145)	(0.074)	(0.216)
$HExp_k \times Post_{2002} \times PvtBank_b$	−0.072*	−0.225*	−0.120***	−0.093**	−0.037
	(0.045)	(0.129)	(0.041)	(0.046)	(0.066)
R-Square	0.91	0.88	0.96	0.90	0.87
N	24,620	17,330	17,259	25,144	19,912
Panel C	Capital Employed (11)	Total Compensation (12)	Raw Materials (13)	Technology Adoption (14)	Fixed Assets (15)
$HExp_k \times Post_{2002}$	−0.057	0.122	0.020	0.308*	−0.020
	(0.129)	(0.083)	(0.099)	(0.162)	(0.105)
$HExp_k \times Post_{2002} \times PvtBank_b$	−0.076**	−0.049*	−0.128**	−0.175	−0.073**
	(0.034)	(0.028)	(0.049)	(0.120)	(0.034)
R-Square	0.96	0.94	0.91	0.87	0.96
N	25,235	25,710	24,277	10,356	25,287
Firm FE	Yes	Yes	Yes	Yes	Yes
Industry FE (3-digit)*Year FE	Yes	Yes	Yes	Yes	Yes

Notes: All the regressions are run for the years 1995–2007. We use natural logarithm of our outcomes of interest. 'Secured Bank Borrowing' is the sum of total borrowing by a firm from domestic private and public-sector banks. 'NBFC Borrowing' is the sum of borrowing across all domestic Non-Banking Financial Corporations. 'Foreign Borrowing' is the sum of borrowing across all foreign sources, such as foreign banks, foreign NBFCs, etc. 'All Other Borrowing' is a sum of borrowing for the following categories: inter-corporate loans, loans from promoters, directors, and shareholders, borrowings from Govt., fixed deposits, hire purchase loans, commercial papers, debentures and bonds, and deferred credit. 'Trade Credit' is defined as the ratio of account receivables to sales of a firm. 'Total Sales', 'Exports', Domestic Sales', 'Sales from Manufacturing', and 'Total Imports' is the total sales, exports, domestic sales (total sales – exports), sales from manufacturing goods, and total imports (capital goods + finished goods + raw materials + stores and spares) of a firm. 'Capital Employed' is the amount of capital employed by a firm in its production process. 'Total Compensation' is the total labour compensation of a firm. 'Raw Materials' is the amount of raw materials used by a firm in its production process. 'Technology Adoption' is the sum of R&D expenditure and foreign technology transfer of a firm. 'Fixed Assets' is the amount of gross fixed assets of a firm. $HExp_k$ is a measure of Chinese competition that an Indian industry (k) faces in its domestic market. It takes a value 1 if the average share of imports by any industry (k) for the period 1995–2001 is greater than the median share of Chinese imports for all of manufacturing industries (for the period 1995–2001). For our estimations, we we use the share of Chinese imports by Latin American countries (Brazil, Colombia, Venezuela, Ecuador, Peru, Bolivia, Chile, Paraguay, Argentina and Uruguay) for Indian imports (Chinese) in a reduced form equation. The import competition index is measured at NIC 2004 4-digit level. $Post_{2002}$ is a dummy variable intended to capture the effect of China's entry to the WTO. It takes a value of 1 for the years following the signing of the WTO agreement by China. $PvtBank_b$ takes a value 1 if a firm is connected to any private (domestic) bank. Standard errors in parentheses are clustered at the industry level (4-digit). Intercepts are not reported. *,**,*** denotes 10%, 5%, and 1% level of significance, respectively.

Table 10: Import Competition and Credit Allocation: Utilizing BSR dataset (Bank-Industry level)

Panel A	Log (Volume of Credit)			
	(1)	(2)	(3)	(4)
$HExp_k \times Post_{2002}$	–0.131*		0.016	
	(0.079)		(0.086)	
$T2HExp_k \times Post_{2002}$		–0.239**		–0.148
		(0.111)		(0.122)
$T3HExp_k \times Post_{2002}$		–0.141		0.092
		(0.118)		(0.110)
$HExp_k \times Post_{2002} \times PvtBank_b$			–0.360**	
			(0.174)	
$T2HExp_k \times Post_{2002} \times PvtBank_b$				–0.184
				(0.163)
$T3HExp_k \times Post_{2002} \times PvtBank_b$				–0.577***
				(0.169)
R-Square	0.82	0.82	0.82	0.82
N	23,860	23,860	23,860	23,860

Panel B	Log (Number of Credit Accounts)			
	(1)	(2)	(3)	(4)
$HExp_k \times Post_{2002}$	0.040		0.081	
	(0.032)		(0.057)	
$T2HExp_k \times Post_{2002}$		–0.066		–0.089
		(0.062)		(0.087)
$T3HExp_k \times Post_{2002}$		0.018		0.085
		(0.049)		(0.082)
$HExp_k \times Post_{2002} \times PvtBank_b$			–0.100	
			(0.113)	
$T2HExp_k \times Post_{2002} \times PvtBank_b$				0.068
				(0.107)
$T3HExp_k \times Post_{2002} \times PvtBank_b$				–0.158
				(0.154)
R-Square	0.79	0.79	0.79	0.79
N	23,860	23,860	23,860	23,860
Bank-Industry Controls	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Notes: All the regressions are run for the years 1995–2007. Columns (1) – (4) use total volume of credit in Panel A; average credit in Panel B; and number of credit accounts in Panel C as the dependent variables, respectively. $HExp_k$ is a dummy which equals 1 if a sector has a relatively high exposure to Chinese imports. $Post_{2002}$ is year dummy – it takes a value 1 for years $\geq$ 2002. PvtBank$_b$ is a dummy which takes value 1 if a bank is privately-owned (domestic). All our specifications also control for the interactions between a linear time trend with the share of sectoral credit, output, capital, employment, and industry size in the pre-2001 period. Standard errors are clustered by sector (3-digit). *,**,*** denotes 10%, 5%, and 1% level of significance, respectively.

Appendix

(FOR ONLINE PUBLICATION)

A   Dataset

We use an annual panel of Indian manufacturing firms that covers 7200+ firms, across 105 industries, over the period of 1995-2007. The firm level data is used from the PROWESS database of the Centre for Monitoring Indian Economy (CMIE). All monetary-based variables measured in Millions of Indian Rupees (INR), deflated by 2005 industry-specific Wholesale Price Index (WPI). We use 2004 National Industrial Classification (NIC). This firm level data is matched with bank-firm loan level proprietary data for 600+ banks from Ministry of Corporate Affairs (MoCA) based on unique firm identifiers for our analysis. As for the import penetration ratios, we source data from the WITS and UN-COMTRADE database and match it with our firm level data based on 4-digit industry classification.

Variable Definitions

Loan: This is the amount of credit supply by a bank to an individual firm in a single year.

Chinese Competition at Domestic Market: This is the Chinese import penetration ratio in the domestic market of India. It is calculated as the share of Chinese imports in industry j at time t by India divided by total domestic production plus imports minus exports for industry j in 1995 for India. Data obtained from WITS and UN-COMTRADE database.

External Financial Dependence: This measure is based on Rajan and Zingales (1998) industry level index of external financial dependence.

Production Process – Upstream or Downstream: We follow Antràs et al. (2012) and compute an upstreamness index at the 4-digit industry level for the manufacturing firms. Upstreamness is a standard statistic that is widely used in the firm networks literature. It is computed by assigning discrete weights based on the distance from final use of an

industry's output. For this purpose we use the 1993–94 I-O table. For details on the estimation method, please see Kisat and Phan (2020).

Initial Trade Exposure: We follow Topalova (2010) to compute our regional level initial exposure to Chinese import competition. We multiply the share of Chinese imports (in total imports) at the 4-digit industry level with the employment share (in total employment) of each industry in each state for the year 1995.

Skill Intensity: This is defined as the ratio of non-production workers to total employees for each industry at each state. For our analysis, we use the average of this ratio for each industry for the years before China became the member of the WTO, i.e., 1995-2001.

Total Bank Borrowing: This is the sum of borrowing across all possible sources (domestic + foreign) by a firm.

Secured Bank Borrowing: This is the sum of secured borrowing across all domestic banks (public + private) by a firm.

NBFC Borrowing: This is the sum of borrowing from all domestic Non-Banking Financial Corporations (NBFCs) by a firm.

Foreign Borrowing: This is the sum of borrowing from all foreign sources (banks + NBFCs) by a firm.

All Other Borrowing: This is the sum of borrowing from all other possible sources – inter-corporate loans, loans from promoters, directors, and shareholders, borrowings from Govt., fixed deposits, hire purchase loans, commercial papers, debentures and bonds, and deferred credit – by a firm.

Trade Credit: This is defined as the ratio of accounts receivables to sales of a firm. A higher ratio implies that a significant amount of cash is tied up. In other words, an increase in accounts receivable to sales ratio from one year to the next indicates that investment in the accounts receivable is growing more rapidly than sales.

NPAs – Non-Performing Assets: This is defined as the amount of non-performing loans of a bank.

Operating Profit/Working Funds: This is defined as the ratio of a bank's operating profits to its average working funds. Working funds refers to the total resources of a bank. It can be construed as either total liabilities or total assets. Total resources would essentially include capital, reserves surplus, deposits accepted from customers, borrowings, other liabilities and provisions. It could also be looked at as total assets excluding accumulated losses, if any.

Bank Borrowing: This is defined as the total amount of borrowing done by a bank from all the different sources such as borrowing from other similar banks, central bank, etc.

Bank Deposits: This is defined as the total amount of deposits received by a bank.

Total Sales: Total Sales of a firm.

Exports: Total exports of a firm.

Domestic Sales: Total Sales minus Exports of a firm.

Sales from Manufacturing: This is defined as the amount of sales from the manufacturing goods.

Total Imports: This is defined as the sum of imports done by a firm on account of (a) capital goods, (b) raw materials, (c) stores and spares, and (d) finished goods.

Capital Employed: This defined as the amount of capital employed in the production process by a firm.

Total Compensation: This is defined as the sum of wages and incentives paid by a firm towards its all employees.

Raw Materials: This is defined as the expenditure on raw materials used by a firm.

Technology Adoption: This is the sum of R&D expenditure and royalty payment for foreign technical knowhow for a firm.
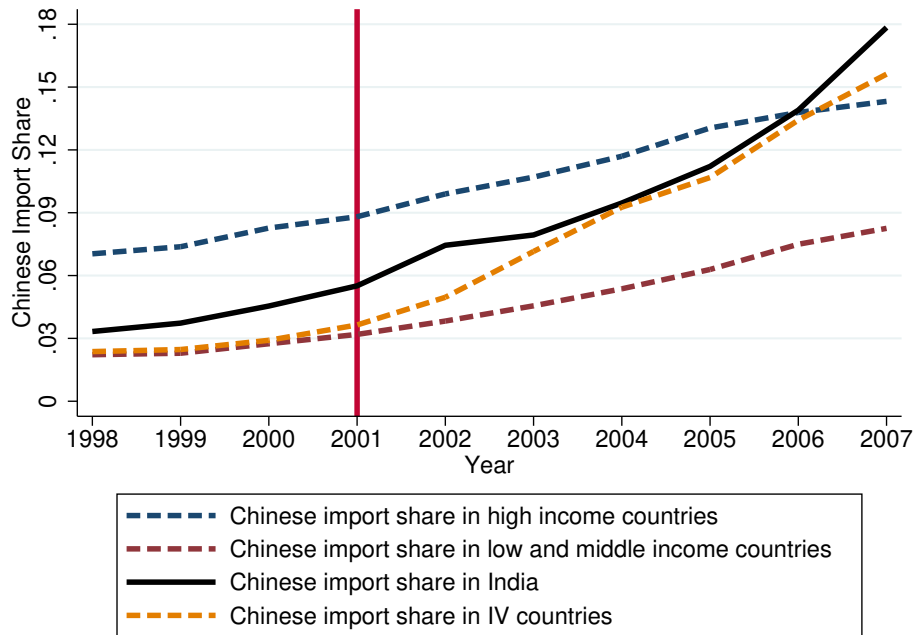
Fixed Assets: This is the fixed assets of a firm.

Volume of Credit: This is the amount of credit give by a bank to an industry.

**Number of Credit Accounts**: This is the number of industries for which credit was supplied by a bank.

B Figures

Figure B1: Chinese Import Share in India and Different Country Groups

Note: Chinese import share to a particular country is the ratio of imports from China in that country to all imports in that country. Data are sourced from the UN-COMTRADE database. Source: Chakraborty et al. (2020).

Figure B2: Initial Correlation Between Chinese Share of Indian and Latin American Imports
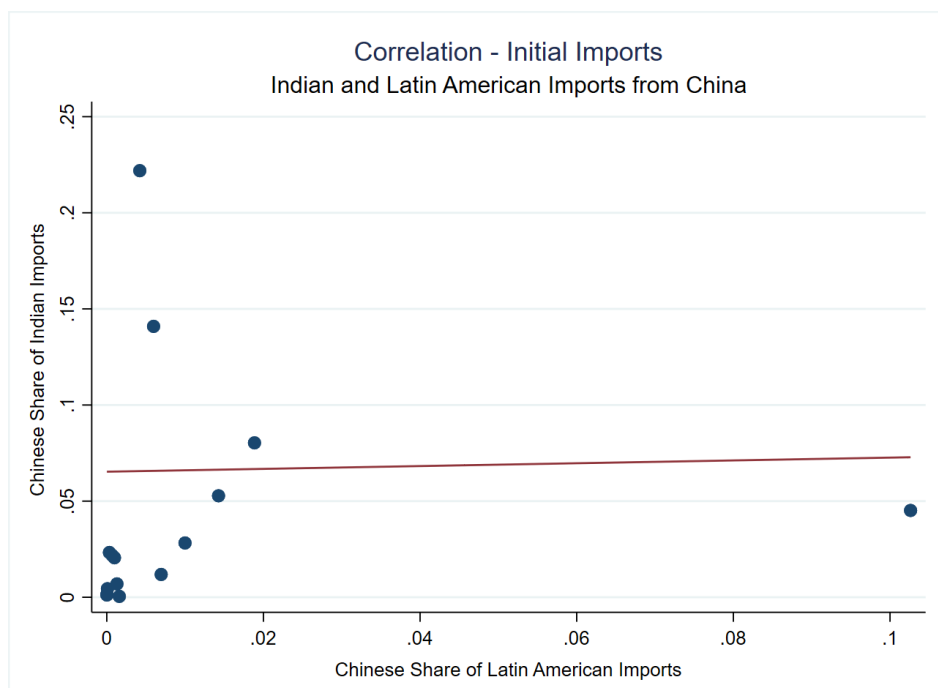
Note: This figure shows the correlation between Chinese share of Indian and Latin American imports. Data are sourced from the UN-COMTRADE database.

Figure B3: Exposure to Import Competition and Pre-WTO Firm Characteristics
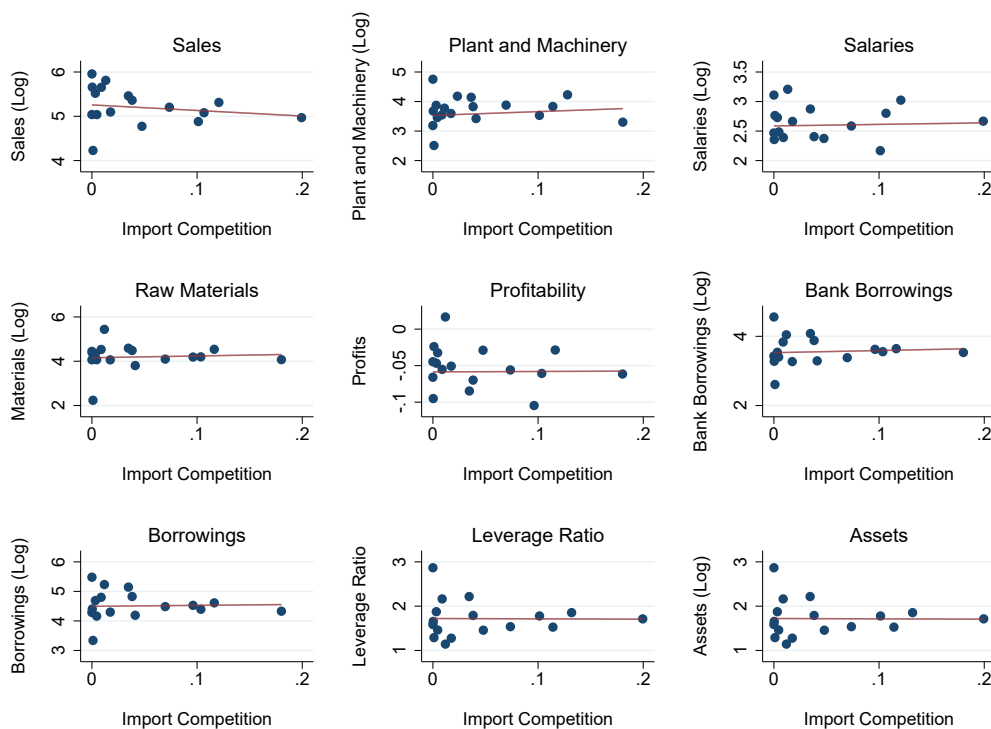
Notes: This figure shows the correlation between firm characteristics and industries' exposure to Chinese imports. The horizontal axis is the change in sectoral share of Chinese imports in Latin American countries. The vertical axis in each instance shows the firm characteristic of interest, measured prior to 2001.

Figure B4: Exposure to Chinese Imports and Firm Borrowing: Event-Study Plots
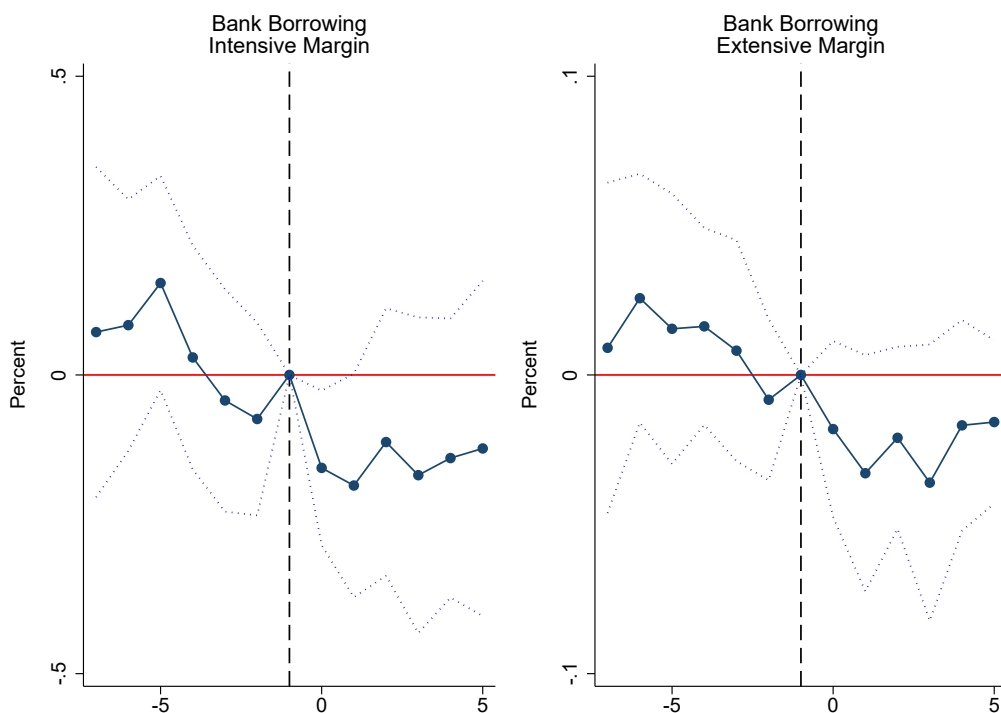
Notes: These figures shows the event-study plots for aggregate level of firm borrowing. The unit of observation here is a firm. The vertical line corresponds to the year 2001 – the year of China's entry to the WTO. Dashed lines show the 95% confidence intervals. Intensive margin bank borrowing is the total amount of bank borrowings for a firm (logged); extensive margin bank borrowing is a dummy equaling 1 if the firm has any outstanding loan from any bank. All specifications included firm, 3-digit industry-year, and firm age fixed effects. Standard errors are clustered at 4-digit industry level.

C   Tables

Table C1: Summary Statistics

	Median	Std. Dev
	(1)	(2)
Panel A: Bank Characteristics		
Total Assets	431,123.5	1,210,451
Non-Performing Loans	14,540.5	40,243.2
Bank Deposits	319,726.1	956,748.9
Bank Capital	4,100	4,488.911
Bank Borrowing	3,417	98,774.93
Return on Assets	0.98	2.31
Operating Profit/Working Funds	2.18	0.90
Tier 1 Capital	12.02	390.49
Panel B: Firm Characteristics		
Bank Credit	37.8	10,138.99
Sales	1,163.2	35,721.8
Total Assets	1,149.8	34,784.87
Capital Employed	851.8	25,716.62
Value-added	522.1	18,545.59
Number of Banking Relations	2	5.21

 Notes: Table reports median values for 1995–2007. Values are expressed in INR Millions, except return on assets, operating profit/working funds, tier-1 capital. All these are in ratios.

Table C2: Import Competition and Credit Allocation: Using a Different IV and Control Group

	Log(Total Loan$_{bit}$)				
	(1)	(2)	(3)	(4)	(5)
$HExp_k \times Post_{2002}$	0.022	0.057	−0.008	−0.005	−0.013
	(0.102)	(0.099)	(0.110)	(0.113)	(0.117)
$HExp_k \times Post_{2002} \times PvtBank_b$		−0.298***	−0.333**	−0.338**	−0.327**
		(0.100)	(0.130)	(0.141)	(0.145)
$HExp_k \times Post_{2002} \times Foreign_b$				0.028	0.038
				(0.230)	(0.225)
$HExp_k \times Post_{2002} \times NBFC_b$					0.053
					(0.198)
R-Square	0.51	0.51	0.56	0.56	0.56
N	27,430	27,430	26,865	26,865	26,865
Firm Controls	Yes	Yes	No	No	No
Firm FE	Yes	Yes	No	No	No
Industry FE (3-digit)*Year FE	Yes	Yes	Yes	Yes	Yes
Bank FE*Year FE	Yes	Yes	Yes	Yes	Yes
Firm FE*Year FE	No	No	Yes	Yes	Yes

Notes: All the regressions are run for the years 1995–2007. Columns (1) – (5) use the logarithm of loans advanced by a bank b to a firm i in year t as the dependent variable. $HExp_k$ is a measure of Chinese competition that an Indian industry (k) faces in its domestic market. It takes a value 1 if the average share of imports by any industry (k) for the period 1995-–2001 is greater than the median share of Chinese imports for all of manufacturing industries (for the period 1995–2001). For our estimations, we use the share of other developing countries (Brazil, Indonesia, Malaysia, and Mexico) as the instrument for Indian imports (Chinese). The import competition index is measured at NIC 2004 4-digit level. $Post_{2002}$ takes a value of 1 for the years following the signing of the WTO agreement by China. $PvtBank_b$, $Foreign_b$, and $NBFC_b$ takes a value 1 if a firm is connected to any private (domestic), foreign, and non-banking financial corporation, respectively. Firm Controls include total real assets and GVA (gross value-added) share of technology adoption of a firm. Standard errors corrected by clustering at both industry (4-digit) and bank level are in the parenthesis. *,**,*** denotes 10%, 5%, and 1% level of significance, respectively.

Table C3: Import Competition and Credit Allocation: Using Overall Import Competition Index

| | Log(Total Loan$_{bit}$) | | | |
| | Overall Import Competition | | Overall Import Competition minus China | |
	(1)	(2)	(3)	(4)
$HExp_k \times Post_{2002}$	0.034	0.432	−0.018	0.519
	(0.178)	(0.360)	(0.156)	(0.328)
$HExp_k \times Post_{2002} \times PvtBank_b$	−0.122	−0.380	−0.071	−0.422
	(0.156)	(0.255)	(0.159)	(0.331)
$HExp_k \times Post_{2002} \times GovtBank_b$	0.206	−0.233	0.083	−0.335
	(0.166)	(0.297)	(0.143)	(0.287)
R-Square	0.56	0.64	0.56	0.64
N	41,994	30,995	41,994	30,995
Firm Controls	Yes	No	Yes	No
Firm FE	Yes	Yes	Yes	Yes
Industry FE (3-digit)*Year FE	Yes	No	Yes	No
Bank FE*Year FE	Yes	No	Yes	No
Firm FE*Year FE	No	Yes	No	Yes

Notes: All the regressions are run for the years 1995–2007. Columns (1) – (4) use the logarithm of loans advanced by a bank b to a firm i in year t as the dependent variable. $HExp_k$ is a measure of overall import competition that an Indian industry (k) faces in its domestic market. It takes a value 1 if the average of the total imports by any industry (k) for the period 1995-–2001 is greater than the median of the total imports for all of manufacturing industries (for the period 1995–2001). The import competition index is measured at NIC 2004 4-digit level. $Post_{2002}$ takes a value of 1 for the years following the signing of the WTO agreement by China. $PvtBank_b$ and $GovtBank_b$ takes a value 1 if a firm is connected to any private (domestic) and govt-owned bank, respectively. Firm Controls include total real assets and GVA (gross value-added) share of technology adoption of a firm. Standard errors corrected by clustering at both industry (4-digit) and bank level are in the parenthesis. *,**,*** denotes 10%, 5%, and 1% level of significance, respectively.

Table C4: Import Competition and Credit Allocation: Utilizing BSR dataset (Bank-Industry level) – Robustness Checks

	Credit Volume		Accounts	
	(1)	(2)	(3)	(4)
$\Delta IMP^{China}_{k,95-07} \times Post_{2002}$	−2.140***	0.499	0.190	1.430*
	(0.725)	(1.106)	(0.310)	(0.759)
$\Delta IMP^{China}_{k,95-07} \times Post_{2002} \times PvtBank_b$		−5.788**		−2.848*
		(2.039)		(1.442)
R-Square	0.84	0.84	0.79	0.79
N	23,860	23,860	23,860	23,860
Sector FE	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Notes: Columns (1) – (2) use total volume of credit; columns (3) – (4) number of credit accounts as the dependent variables, respectively. All the regressions are run for the years 1995-2007. $\Delta IMP^{China}_{k,95-07}$ is the sectoral change in the share of Chinese imports (in total world imports) by India since China's entry to the WTO, relative to the pre-WTO period. $Post_{2002}$ is year dummy – it takes a value 1 for years $\geq$ 2002. $PvtBank_b$ is a dummy which takes value 1 if a bank is privately-owned. All the specifications control for a linear trend in the initial share of sectoral credit in the pre-2001 period, along with linear time-trends for sectoral output, capital, employment and industry size. We cluster standard errors are clustered by sector and year. *,**,*** denotes 10%, 5%, and 1% level of significance, respectively.