# How to Grow an Invoicing Currency: Micro Evidence from Argentina*

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**Abstract**

We study the internationalization of the Chinese renminbi (RMB) leveraging a unique policy experiment. In 2023, amid a dollar shortage, Argentina expanded a currency swap line with China. The share of imports from China invoiced in RMB surged rapidly, displacing the dollar, which had previously accounted for virtually all invoicing. Following the presidential election of late 2023, as the dollar shortage eased, invoicing in RMB declined. We explore the mechanisms behind this pattern, using firm-level data on imports, bank-firm loan relationships, and bank balance sheets. We find that banks played a key role. Firms with pre-existing relationships to banks with limited US dollar loans were more likely to switch to RMB. In addition, firms borrowing from a Chinese state-owned bank were more likely to use RMB. We also document firm-level spillovers, with RMB use for imports from China increasing RMB use for imports from other countries. Finally, firms switching to RMB saw increased total imports.

**JEL Classification**: E58, F14, F31, F33, G21
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# 1 Introduction

Will the Chinese renminbi (RMB) become a global currency and eventually challenge the US dollar's dominant currency status? What are the avenues through which this could happen? Eichengreen et al. (2024) argue that while the British pound and later the US dollar became global currencies after being traded in deep and liquid financial markets, the future expansion path for the RMB might be different. The beachhead for the internationalization of the RMB, they suggest, might be its use as an invoicing currency for trade with China. For this purpose, swap lines between central banks can provide easy access to the RMB, replacing deep financial markets as the traditional gateway to foreign currency. While this is an important and timely debate, there is a paucity of empirical evidence to ground it, especially regarding the mechanisms through which global currencies might emerge.

In this paper, we explore a unique policy experiment in Argentina that sheds light on this debate. In early 2023, amid a foreign currency shortage and dwindling international reserves, Argentina signed an agreement involving a large expansion of an RMB currency swap line extended by the People's Bank of China (PBOC). During the following months, the RMB rapidly gained ground as an invoicing currency in Argentina for a large share of imports from China. While previously nearly all imports from China were invoiced in dollars, the RMB share reached about 50% by mid-2023. Hundreds of Argentine companies had switched from US dollars to RMB as a payment currency for foreign imports. This included makers of electronics, auto parts and textiles as well as oil and mining firms.[1] RMB use also spread, to some extent, to imports from other countries. Later that year, after the presidential election of October/November 2023 that unexpectedly brought Javier Milei to power and ushered in economic policy changes, the de-dollarization trend reversed and the US dollar regained prominence as an invoicing currency, with RMB invoicing declining to less than 10% of imports from China. Our goal in this paper is to unveil the mechanisms behind this large and swift change in invoicing currencies.

For this purpose, we construct a rich and novel dataset of Argentine firms' international trade transactions, bank-to-firm loans, and bank balance sheets. The trade data consists of the universe of import and export transactions from January 2022 to June 2024. The data identify the Argentine firm involved, the product and value of the transaction, and the invoicing currency used. The second dataset, on bank-to-firm loans, is provided by the Argentine central bank and reports the outstanding loans of each firm with each bank at a monthly frequency over the same period. Finally, we use balance sheet data for each Argentine bank. As a key feature, they report total loans broken down by currency.

[1] Many firms used RMB to pay for key production inputs sourced from abroad. According to a June 2023 news report by Bloomberg, as the president of Whirlpool Latin America put it, "We've had to stop the factory at some points and that's not good for business, productivity nor quality. We're working to see how we can leverage this new avenue of flows to be able to continue importing materials."

With these data, we explore the mechanisms driving invoicing currency choices. Our evidence indicates that banks played a key role. First, we find evidence of a foreign currency shortage mechanism, in line with the macroeconomic narrative. Firms having relationships (prior to the swap expansion) with banks that had higher US dollar loan shares were less likely to switch to RMB invoicing later on. Further, this effect was stronger during the period when the dollar shortage in Argentina was most critical. The timing of this effect matches the aggregate dynamics of the dollar shortage, which peaked in the last two quarters of 2023 and eased following the presidential election.

Second, we find that a Chinese state-owned bank with a large presence in Argentina (the Industrial and Commercial Bank of China, ICBC) played a separate and important role in spurring importing firms to adopt RMB invoicing. We find that firms which borrowed from ICBC prior to the swap expansion were substantially more likely to invoice in RMB afterwards.[2]

Finally, we also find that large firms were more likely to adopt RMB invoicing. The most straightforward interpretation is that operating in RMB entails a fixed cost that larger firms are more willing to pay.[3]

Having documented invoicing patterns for imports from China, we then examine firms' RMB use for imports from the rest of the world. As a reference point, before the expansion of the swap agreement, the US dollar also dominated imports from the rest of the world, with the euro holding a modest share in imports from Europe. Our first finding is that after the swap expansion, with the same timing as seen for imports from China, there is a sudden increase in RMB invoicing for imports from other countries, followed by a matching decline after the presidential election. This pattern appears across many products and source countries.

At the firm level, we see that firms invoicing imports from China in RMB are also substantially more likely to use RMB for imports from the rest of the world. This finding suggests spillover effects in invoicing practices across countries. Firms with relationships to ICBC and banks with lower US dollar loan shares are also more likely to switch to RMB invoicing for non-China imports. Overall, this evidence implies that if China can promote RMB use for its own exports, spillovers may eventually spread RMB use to trade between other countries as well.

As a robustness check to corroborate our findings, we draw on equivalent transactions data for importers from neighboring Chile. Chile also has a swap line with China (signed in 2015) but did not experience a currency crisis during the period under study. We compare import transactions from China by Chilean importers to those by Argentine importers. We find it was only the Argentine importers who experienced a sharp increase in RMB invoicing for imports from China,

[2]ICBC was the sixth largest lender in Argentina before the swap expansion was implemented, and it has more than 100 branches spread across the country. While the swap agreement established ICBC as a clearinghouse, all banks in Argentina were eligible to provide RMB for imports, and indeed many of them immediately started offering that service.

[3]This pattern is consistent with RMB adoption by French exporters (Chowdhry, 2024).

followed by a swift decline. This result suggests that the temporary substitution of RMB for US dollars in trade invoicing by Argentina was brought about by the unique combination of the RMB swap line availability with the dollar shortage.

In the last part of the empirical analysis, we document that RMB use also had an impact on trade volumes. Firms invoicing in RMB following the swap agreement expansion saw a substantial increase in imports from China. The timing of this volume effect coincided with the spike of RMB use. It was also temporary, declining towards the end of 2023 and during 2024. We do not find evidence that increased imports from China reduced imports from the rest of the world. If anything, we also see an increase in imports from other countries. This implies that total imports increased during the period of increased RMB invoicing. Overall, these findings are consistent with the narrative that Argentine imports were restricted by the dollar shortage, which was eased in turn by access to RMB.

Our work departs from the existing literature by analyzing invoicing currency choices in an emerging economy context where government policies play an important role, against the backdrop of a foreign currency shortage and a currency crisis. Until this point, the literature has made most progress in documenting the market-driven determinants of invoicing currency choices in stable economies. In the context of the dollar vs. RMB debate, our setting is relevant because it is precisely through loans to emerging economies in crisis situations that China's government could promote the internationalization of the RMB. In fact, many of China's swap lines are signed with emerging economies facing currency crises and that are in need of external financing.[4]

During the period we study, Argentina had a crawling peg exchange rate regime against the US dollar and there were tight foreign exchange controls. The existence of alternative market-based exchange rates with a higher value of the US dollar in terms of Argentine pesos – the black market exchange rate and the exchange rate implied by financial asset prices – imply a shadow exchange rate above the official rate. This means that importers benefit from an implicit subsidy (Schmitt-Grohé and Uribe, 2023). At the same time, there were significant restrictions on import operations through import licenses and delays, implying that this is a subsidy with rationing.[5] The magnitude of this implicit subsidy was not a function of the invoicing currency choice, as transactions in dollars and RMB were both based on the official exchange rate. However, anecdotal evidence suggests that at least in 2023 RMB import transactions might have been approved faster, so the rationing dimension might have been looser for firms switching to RMB invoicing.

A natural question is what motivated China to expand its swap line with Argentina during this period. On the one hand, it is possible that China took a forward-looking perspective and

[4]Countries with Chinese swap lines have had currency crisis episodes in 17% of the years since 1990 (Behavioral Finance & Financial Stability Project, 2025).

[5]In fact, Schmitt-Grohé and Uribe (2023) argue that under foreign exchange controls the government might find it optimal to restrict the amount of foreign currency available for importing, and that this rationalizes the idea of a "dollar shortage".

perceived the crisis in Argentina as an opportunity to maintain foreign currency liquidity and jumpstart RMB use, giving it potentially valuable experience for internationalizing the RMB in Latin America. On the other hand, China's motivation might have been more present-focused in indirectly extending credit to Argentine importers. That is, the swap line extension might have helped to prevent default on payments to Chinese exporters and prevent a reduction in subsequent orders. In that sense, the swap line extension might have been a bailout in disguise for Chinese exporters. But given the lack of transparency around the swap line arrangements, it is not possible to fully substantiate the above interpretations. We discuss the macroeconomic and political background in more detail in Section 2.

**Literature review** The literature has shown how trade invoicing currencies can impact international prices, expenditure switching, optimal exchange rate policy, and the international transmission of monetary policy (Obstfeld and Rogoff, 2000; Engel, 2002; Boz et al., 2017; Corsetti et al., 2007; Devereux and Engel, 2003; Egorov and Mukhin, 2023). Earlier macroeconomic models took the invoicing currency as given, initially assuming producer currency pricing (Mundell, 1963; Fleming, 1962; Dornbusch, 1976; Obstfeld and Rogoff, 1995), later assuming local currency pricing (Bacchetta and Van Wincoop, 2000; Betts and Devereux, 2000) and more recently dominant currency (i.e., US dollar) pricing (Gopinath et al., 2020).

As Mukhin (2022) describes, the theoretical literature on invoicing currency choice and the emergence of dominant international currencies can be divided into three strands. The first strand emphasizes currencies as a medium of exchange (not necessarily on invoicing currencies) and currency choice is driven by transaction costs (Krugman, 1980; Matsuyama et al., 1993; Rey, 2001; Devereux and Shi, 2013). The key insight is that using a common currency lowers transaction costs creating complementarities in currency choice across firms. Thus, widespread use of a currency is self-reinforcing and gives rise to a dominant currency. Recent work by Chahrour and Valchev (2022) extends this logic to trade finance, showing how complementarities between firms' collateral choices and households' portfolio decisions generate currency dominance.

The second strand is based on financial frictions (Bahaj and Reis, 2024; Gopinath and Stein, 2021). Bahaj and Reis (2024) is closer to our work, as they develop a model to study the effect of swap lines with China on trade invoicing currencies. In their model, the choice of an invoicing currency for trade interacts with the borrowing currency to reduce exchange rate risk.[6] A swap line with China promotes borrowing in RMB, and thus also incentivizes invoicing in RMB.

In the third strand of this literature the key friction is price stickiness and firms choose a currency that minimizes the volatility of desired prices in the period of non-adjustment. This depends on the currency used by competitors, giving rise to strategic complementarities (Gopinath

[6]This is a within-firm complementarity. In addition there is a complementarity across firms, because if more firms borrow in RMB, the financial market deepens, which makes it safer or cheaper for everyone else too.

et al., 2010; Amiti et al., 2022; Mukhin, 2022).

Our findings and context speak more closely to the branch of the literature featuring financial frictions. However, the mechanism behind our findings is of a different nature as it relates to policy-driven liquidity provision. The model by Bahaj and Reis (2024) predicts increased borrowing in RMB. While we do see RMB invoicing, RMB loans from banks to firms remain near zero. A key point is that the swap line RMB funds are allocated by the authorities. The fact that RMB funds are used to settle import payments but not loans from banks might simply reflect a government decision to not allocate the funds to bank lending. Thus, we don't see our results as going against the mechanisms in Bahaj and Reis (2024), but rather as evidence of a complementary mechanism.

Most models in the literature feature complementarities that predict the dominance of a single currency and lock-in effects.[7] At first sight, theories featuring complementarities across firms might be seen as predicting persistent RMB invoicing even after the dollar shortage eases. However, there are several reasons why our findings do not necessarily go against these theories. First, in theories based on complementarities there are multiple equilibria and RMB invoicing might not have crossed the threshold of becoming a new equilibrium. Second, our context features strong non-market forces under which the assumptions of market-based theories might not hold. It is also possible that complementarities are present but the liquidity mechanism dominates.

Our findings also speak to sunk or fixed costs of adopting and using invoicing currencies, which feature in some of these theories. The fact that larger firms are more likely to switch invoicing currencies can be interpreted as a sign of a fixed cost. The fast switches to RMB and back to USD suggest reversibility. Combined, then, these facts point to an operating fixed cost rather than a large sunk cost. In addition, the fact that firms invoicing their imports from China in RMB are more likely to invoice their imports from the rest of the world in RMB suggests this fixed cost has a per firm-currency component and is not entirely per firm. This gives rise to a complementarity of invoicing currency choices operating within the firm. The type of fixed cost our findings imply is consistent with the way in which Amiti et al. (2022) extend their baseline model by incorporating a fixed cost.

Summing up, we see our findings as providing a new, policy-driven mechanism for invoicing currency choice related to liquidity provision amid a currency crisis. Due to the different context with non-market forces, we do not interpret our findings as evidence against existing theories.

Our work also adds new perspectives to the empirical literature on invoicing currencies in in-

[7] Note that the scope of these complementarities differs across models. In models of transaction costs the complementarities in invoicing currency choice are global, between firms across countries and industries. In models of sticky prices the strategic complementarities happen between all firms in a market, regardless of their location. In Bahaj and Reis (2024) there is a within-firm complementarity between the currency of borrowing and the invoicing currency. In addition, there is a complementarity across firms in the same country operating through the financial market. In Chahrour and Valchev (2022), the complementarity concerns the currency of denomination of the asset used as collateral for trade, and operates between firms in different countries. Within a country, however, firms compete for limited funding in local credit markets, so their currency choices are strategic substitutes rather than complements.

ternational trade (Goldberg and Tille, 2008, 2016; Gopinath et al., 2020; Amiti et al., 2022; Boz et al., 2022; Chen et al., 2022; Corsetti et al., 2022). First, while the literature has shed light on market mechanisms such as strategic complementarities, we complement this by showing that government policies and the macroeconomic environment can have an important impact on invoicing currency choices. Second, while the literature often assumes the importer is passive and the exporter sets the invoicing currency, our findings show that variation across importing firms explains a large share of invoicing currency patterns. Third, our findings challenge the view that invoicing currency use is essentially static over time. With few exceptions, evidence from various countries thus far available in the literature shows that aggregate invoicing currency shares tend to be stable and persistent, with only small and gradual changes over time. Our findings stand in sharp contrast to this notion. We find that in the context of a currency crisis and with significant government intervention, invoicing currency use can shift substantially and extremely quickly.[8] Fourth, we show how invoicing currency choices are linked across countries, given that firms which adopt RMB for imports from China are also more likely to adopt it when importing from other countries.

Our paper also belongs to a literature analyzing the link between banks and trade flows (Amiti and Weinstein, 2011; Paravisini et al., 2015; Niepmann and Schmidt-Eisenlohr, 2017; Correa et al., 2023; Federico et al., 2025). We build on the prevalent idea that banks can shape the impact of external shocks on firms' activities. Our work is the first to focus on the role of banks in shaping firms' invoicing currency choices. In addition, our findings emphasize the role of state-owned banks, and we show that this mechanism is quantitatively important.

We also provide some of the first firm-level evidence on the emergence of the RMB as an invoicing currency and its rivalry with the US dollar. There is little evidence on this topic because it is a new and developing phenomenon. Georgiadis et al. (2021) find that countries with a PBOC swap line increase the RMB invoicing share of their trade compared to countries without a swap line. Similarly, Bahaj and Reis (2024) argue that swap lines created by the PBOC have been instrumental in increasing the international use of RMB as a payment currency. Using firm-level data, Chupilkin et al. (2025) show that Russian import transactions were increasingly invoiced in RMB in the wake of the Ukraine war and associated economic sanctions, confirming that RMB use was related to RMB swap lines of third countries. In the case of Argentine imports, however, we find no systematic link between RMB use and RMB swap lines of third countries.

Our focus on the rivalry between the US dollar and the RMB also speaks to the flourishing

[8] Episodes where a country switches invoicing currencies so abruptly are relatively rare in the literature. For example, Crowley et al. (2024) find a swift decline in sterling invoicing for British exports in the years after the Brexit referendum. Boz et al. (2022) show that invoicing currency shares can also change under other circumstances, in particular for countries such as Croatia and Poland when joining the European Union and for countries in the euro area's immediate neighborhood such as Norway (see their Figure 10). Similarly, Benguria and Wagner (2024) show that Chilean exporters to euro zone countries start adopting the euro after its introduction. But in all those cases, the switch towards euro invoicing is gradual and takes place over several years.

literature on geoeconomics and the rise of China. From a theoretical perspective, Chahrour and Valchev (2024) develop a quantitative model to assess whether the dominant role of the US dollar could be challenged by the RMB in an environment of escalating geoeconomic conflict and rising protectionism. Eichengreen et al. (2019) study the currency of international reserves, finding that they are a function of not only economic factors but also geopolitical concerns. Eichengreen et al. (2024) provide useful context for our study. They map the internationalization of the RMB so far and discuss policies by China that might further expand its role. Beyond these papers, the evidence on the global role of the RMB is still limited.

**Organization** The rest of the paper is organized as follows. In Section 2 we motivate our empirical setting by providing institutional and historical context for the role of foreign currency use in Argentine international trade. In Section 3 we describe our dataset. Section 4 presents our empirical results. Section 5 concludes.

## 2 Motivation and background

We briefly describe trade relations between Argentina and China and the history of their bilateral currency swaps. We also provide some context for the macroeconomic and political background, in particular regarding Argentina's foreign currency shortage and China's efforts to internationalize the RMB.

### 2.1 Trade relations between Argentina and China

In 2023 China was Argentina's second largest trading partner after Brazil, followed by the US in third position, and Argentina ran its biggest bilateral trade deficit with China.[9] Argentine imports from China mainly comprise manufacturing products such as machinery and equipment, office and computing machinery and chemical products. Panel A of Appendix Figure A.1 shows the China share of Argentine imports. It rose rapidly from below 5% in the late 1990s to around 20% by 2015. In the opposite direction, Argentine exports to China are concentrated in the primary sector, mainly consisting of agricultural products, mining, food products, beverages, and basic metals. Panel B of Appendix Figure A.1 plots the China share of Argentine exports. It also rose since the 1990s but stabilized at just below 10% since the early 2000s.

### 2.2 The history of currency swaps between Argentina and China

The PBOC does not publish details on its currency swap arrangements with foreign partners. We therefore outline the history of Argentina-China currency swaps based on newspaper reports and

[9] In 2023 Argentina received about 20% of its total imports from China, worth over USD $14bn. Argentina exported over USD $5bn to China, corresponding to about 8% of its total exports. By comparison, Argentine GDP (in current USD) was $641bn.

selected references. In Appendix Section A.1 we provide a more detailed timeline with key dates on the history of China-Argentina currency swaps.

In 2009 China started setting up a global network of bilateral swap arrangements which eventually sprawled to dozens of partner countries. In the same year, China entered its first bilateral swap agreement with Argentina, worth USD $11bn. Initiated after Argentina's 2008/09 economic crisis, the swap was supposed to strengthen Argentina's foreign currency reserves and act as a buffer against potential international illiquidity problems. But the swap remained dormant before expiring after three years without ever having been tapped into (Horn et al., 2023).

In July 2014 in the immediate aftermath of Argentina's sovereign debt default, a new swap agreement was signed totalling USD $11bn. This time, it was fully used by October 2015, representing about 40% of Argentina's foreign currency reserves. In 2018, Argentina and China agreed to increase the swap line to USD $19bn, and by December 2018 Argentina's total outstanding swap debt was close to that limit. By December 2021, the swap line was further increased to USD $20.5bn, representing 51.6% of foreign currency reserves held by the Banco Central de la República Argentina (BCRA).[10]

Our period of study starts in January 2023 by which time the PBOC had increased the swap line by another USD $5bn. Throughout the paper we will refer to the period from January 2023 as the time when the swap agreement was 'expanded,' or the 'expansion' period. In June 2023, the swap was renewed and its flexibility increased in that a larger portion of the swap was freely usable for "any type of financial operation" against a backdrop of falling Argentine foreign currency reserves (Arnold, 2023a). In June 2024, the BCRA announced it had renewed a portion of its currency swap with China worth around USD $5bn for another two years until July 2026.

### 2.2.1 How does a swap work at the macro level?

Formally, the PBOC and the BCRA have a reciprocal swap agreement. That means the PBOC makes RMB available to Argentina, and the BCRA makes pesos available to China. Each central bank can draw on the currency provided by the other partner and has to pay it back at the end of the drawing period (plus interest). But in practice, China has no need for pesos other than as collateral, and the agreement is unidirectional in its execution as Argentina is the only partner drawing swap funds.[11]

In effect, the swap agreement with China is a contingent credit agreement. This means that the swap line can be drawn down repeatedly by Argentina but only under certain conditions and in consultation with the PBOC. For example, the PBOC might condone the use of RMB from the swap agreement for short-term liquidity support in the face of dwindling foreign currency reserves, for

[10] See Arnold (2023b) for details covering the period from 2014 to 2022.

[11] A currency swap can be seen as a repurchase agreement between central banks, functioning as a collateralized international loan. For a survey of the history and functioning of central bank currency swap arrangements, see Wiggins et al. (2023).

repayment of external debt, or for international trade transactions such as paying for Chinese imports in RMB (Arnold, 2023a).

### 2.2.2 How can firms pay for imports and access swap funds?

If an Argentine firm wants to pay for imports in foreign currency, it needs to obtain authorization from two parties. The government, through the import licensing system (Sistema de Importaciones de la República Argentina, or SIRA) approves the import operation and the BCRA approves the payment.[12] Import payments are processed through the centralized foreign exchange market (Mercado Único Libre de Cambios, or MULC). This holds regardless of whether the payment is in dollars or RMB. Up to late 2022, importers were forced to request foreign currency (only dollars were used at that time) at the official exchange rate. Starting in October 2022, importers were allowed to use their own dollars to pay for imports. In this case, the same authorizations were required. Firms importing with their own dollars would have primarily obtained them at a higher rate than the official exchange rate through financial operations.[13]

For RMB payments, the swap agreement established the Industrial and Commercial Bank of China (ICBC) as a clearinghouse.[14] However, importers were not required to have an account with ICBC. All banks in Argentina were eligible to provide RMB for imports, and indeed many of them, including the largest banks, immediately started offering that service. Newspaper reports present anecdotal evidence that import authorization might be faster to obtain for RMB payments than dollar payments, even though formally this process is not supposed to depend on the invoicing currency. To the extent it happens in practice, fast-tracking RMB payments could be seen as a non-monetary subsidy of import transactions, especially of those coming from China.

In December 2023 the new Argentine government introduced two simplifications. The SIRA requirement was abolished and replaced with a less burdensome system (Sistema Estadístico de Importaciones, or SEDI). At the same time, the BCRA started issuing a bond (Bonos para la Reconstrucción de una Argentina Libre, or BOPREAL) to help importers pay debts to international suppliers.

[12] Atkin et al. (2024) study the highly restrictive discretionary system of 'advanced sworn import declarations' ('Declaraciones Juradas Anticipadas de Importaciones') that was in operation from 2012-2015. From late 2015 the incoming Macri government returned to a system of automatic import licenses for most products, combined with non-automatic licenses for a subset of products.

[13] The exchange rates implied by these operations are known as 'dólar MEP' (Mercado Electrónico de Pagos) (if bonds are bought in pesos and sold in dollars within Argentina) or 'dólar CCL' (Contado con Liquidación) (if bonds or stocks are bought in pesos within Argentina and sold in dollars abroad).

[14] At this time, ICBC had more than 100 branches spread all throughout Argentina.

## 2.3 Macroeconomic and political background

### 2.3.1 Argentina background

Our period of study coincides with a severe national foreign currency shortage. Figure 1 illustrates the overall declining trend in foreign currency reserves held by the Argentine central bank since 2018. This stretch includes a halving of reserves from over USD $40bn at the beginning of 2023 to about USD $20bn by the end of that year. In fact, by May 2023 Argentina's foreign currency reserves consisted to a larger extent of RMB reserves than traditional US dollar reserves.[15]

Appendix Figure A.2 further illustrates the increasing pressure on currency reserves. It shows monthly imports since 2022 compared to import payments. Payments consistently fall behind, with the gap becoming particularly large from the second half of 2023 into early 2024.

Figure 2 shows the evolution of the official and the black market exchange rates between the Argentine peso and the dollar.[16] During the period under study, the official exchange rate followed a crawling peg regime against the US dollar. Panel A shows a gradual devaluation of the official rate from the start of 2021 until the presidential election of 2023. At the start of 2021 the ratio of the black market and the official rate stood at about 1.5 (i.e., the black market rate was 50% higher). It increased to about 2 by the time of the election. This was an indication of the heavy foreign exchange controls imposed by Argentine authorities in combination with a growing shortage of dollars. Following the election, there was a sharp devaluation of the official rate, and the gap between the official and the black market exchange rates narrowed significantly.

Appendix Figure A.3 sheds light on the increasing importance of RMB. Panel A shows the foreign exchange market volume for USD transactions, which average around USD $2bn per month. Panel B shows the corresponding volume for other currencies, and separately for the RMB from June 2023. At its peak the RMB volume exceeded USD $2bn per month before reverting dramatically to a modest level.

At the same time, macroeconomic conditions deteriorated over our period of study. Argentine GDP growth was negative for six out of the eight quarters between 2022Q3 and 2024Q2. Appendix Figure A.4 shows sharply rising inflation over that period, with 12-month inflation quadrupling from 71% in July 2022 to 289% in April 2024.

[15] Bloomberg reports that in May 2023, swap lines with China made up the equivalent of USD $18.8bn of reserves compared to USD $11.5bn of Argentines' dollar bank deposits and smaller amounts of credit from the Bank for International Settlements, gold reserves, and International Monetary Fund SDRs. In a similar vein, Figure 2 in McDowell (2019) shows the currency composition of BCRA foreign exchange reserves, with the non-SDR share starting to rise in 2014 after the activation of RMB swap lines.

[16] In Argentina, the black market exchange rate is commonly referred to as the "dólar blue" and its value is quoted alongside the official rate by all newspapers and widely discussed in the media.

### 2.3.2 China background

Appendix Table A.1 lists the countries with which China has a bilateral swap agreement. China's bilateral swap agreements are special in that most partner countries do not have funding needs in RMB (unlike, for instance, when the Federal Reserve agrees a swap with foreign countries that have actual US dollar needs). It is therefore plausible that China's swap agreements pursue objectives that go beyond simple foreign currency liquidity needs. McDowell (2019) suggests that PBOC swap lines are a manifestation of Chinese "financial statecraft" to achieve foreign policy goals. One such goal is the reduction of China's exposure to dollar dominance in international finance, especially after the 2008/09 global financial crisis when international US dollar credit markets froze and global trade financing collapsed. This goal includes the internationalization of the RMB as a payment currency, which is hoped to bring a range of economic benefits to China, "including the reduction of exchange rate risk faced by Chinese firms, increased competitiveness of Chinese banks, and the promotion of global trade with China." McDowell (2019) states there is "very little evidence to suggest that [bilateral swap agreements] have been instrumental in promoting the use of the RMB as a currency for cross-border commercial deals." The experience of Argentina in 2023/24 is arguably novel and a departure from previous experience – albeit, as we show, a short-lived one.

It is also noteworthy that China tends to agree swap lines with countries that, compared to the average, are much more likely to experience financial and foreign exchange crises. Countries with Chinese swap lines have had currency crisis episodes in 17% of the years since 1990. Similarly, China is more likely to lend to countries that are relatively poor and that form part of the Belt and Road Initiative. As documented by Horn et al. (2021), China is now the world's largest creditor, surpassing the World Bank and the International Monetary Fund, with a strong emphasis of "south-to-south" lending to emerging economies.

Specifically in the context of Argentina, we are left with two main hypotheses for the motivation behind China's decision to extend its swap line. The first hypothesis is based on forward-looking behavior in that China spotted an opportunity and used the economic crisis in Argentina as a platform to jumpstart RMB invoicing. This opportunity presented itself as Argentina was running out of foreign currency reserves, and no other international lender stood ready to fund the gap. Therefore, by extending more credit and liquidity to Argentina, China induced RMB invoicing by imposing that the RMB credit swap not be converted into US dollars but instead be used as liquidity to pay for imports from China. This afforded China with potentially valuable experience for internationalizing the RMB in Latin America, in addition to other parts of the world where RMB has also been used for trade invoicing (e.g., see Chowdhry (2024) for RMB invoicing by French exporters and Chupilkin et al. (2025) for imports into Russia). The second hypothesis is based on present-focused behavior in that China extended the swap line as a bailout in disguise for

its exporters. If Argentine foreign currency reserves had further deteriorated, Argentine importers might have defaulted on payments for existing orders from China, and they might have reduced subsequent orders.

The first hypothesis would arguably be consistent with further RMB swap line extensions, especially if China had wanted to maintain RMB invoicing over the long run. The second hypothesis might be consistent with a more short-term engagement until the point where Argentine reserves started to recover, a process which began towards the end of 2023 with the election of Javier Milei as president.

Overall, we stress the opacity and lack of relevant information in the public domain regarding the motivation behind China's international lending activities (Horn et al., 2021; Gelpern et al., 2025). We therefore urge caution as it is not clear which of the two rationales dominated in practice.

## 3 Data sources

To assess the determinants of invoicing currency choices of Argentine firms, we assemble a novel dataset. It is based on three main data sources: import and export transactions, bank-to-firm loans, and bank balance sheets.

**Import and export transactions** We use data on the universe of import transactions by Argentine firms over the period from January 2022 to June 2024. Each transaction reports the name of the importing firm, the value and quantity imported, the origin country, the HS 8-digit product code, and the exact date. Additionally and key for this paper, each transaction reports the invoicing currency used. These data are obtained from Argentina's customs agency. While we mainly focus on import transactions, in some specifications we also use data on the universe of export transactions of Argentine firms, including the identity of the exporting firms, the HS 8-digit product codes, the destination countries, the values and quantities exported, and the invoicing currencies used. As far as we are aware, our paper is the first to study the invoicing currencies of all Argentine trade with micro data at the transaction level.[17]

**Bank-to-firm loans** We also use bank-to-firm loan data. These data report all the outstanding loans that firms have with banks in Argentina in each month. We collect the data from the BCRA.[18] On its website, we have to look up and download a report for each borrowing firm individually. Given this constraint, we focus on the largest 4,000 importing firms measured in terms of total

[17] We use each transaction separately, but we set the time period at monthly frequency. For example, if an Argentine importing firm has multiple transactions on separate days in a given month, each transaction is a separate observation in our dataset but with the same month as the time period.

[18] The BCRA assembles this data from mandatory reports submitted by each agent of the financial system.

imports from the world in 2022. These 4,000 firms account for 73.2% of Argentine import transactions and 81.1% of import value from China in 2022. They account for 86.8% of import transactions and 73.1% of import value from the rest of the world. The data is reported on an ongoing basis for the last 24 months from the time it is collected. We primarily use data for the period from January to December 2022. In some cases, we also use data for 2023. Loans are reported in Argentine pesos, and there is no breakdown by the currency in which loans are made. Consequently, we will note in our analysis below when the results are based on all importing firms, and when they are restricted to the largest 4,000 importers (i.e., when the bank-to-firm data is used).

**Bank balance sheet data** We obtain balance sheet data for each bank in Argentina from the BCRA. The data report loans in total as well as split by currency. The data distinguish between loans in Argentine pesos, US dollars, euros, Brazilian reais, and a category grouping all other currencies. We use data for 2022Q4 and 2023Q4.

Appendix Table A.2 reports the list of the largest banks in our sample, measured in terms of outstanding loans in 2022. The largest lenders are the Banco de Galicia y Buenos Aires (accounting for 14.93% of outstanding loans in 2022Q4), the Banco Santander Argentina (13.31%) and the Banco BBVA Argentina (11.69%). The Industrial and Commercial Bank of China (ICBC) also stands out as an important lender, ranking sixth with a 5.98% market share.

Table 1 illustrates the variation in loans denominated in different currencies across banks. Bank lending is dominated by peso loans. The mean across banks of the share of peso loans is 92.25% in 2022Q4, ranging from 83.94% at the 10th percentile to 99.69% at the 90th percentile. The mean share of US dollar loans is 7.71%, with 0.31% and 15.89% at the 10th and 90th percentiles. The table indicates that euros and Brazilian reais account for a much smaller, almost negligible share of loans. Finally, the "other" currency category is also very small with a mean of 0.01%.

**Additional datasets** We use a number of supplementary datasets. The national registry of companies (Registro Nacional de Sociedades) lists all firms including their "official names" and their tax IDs. This is used to merge the customs data with the bank-to-firm loans data. The customs data also report firms' "official names," which exactly match those reported in the registry of companies. Using the registry we assign tax IDs to each firm in the customs data, and we use tax IDs to merge all datasets.

We also use data on the locations of all bank branches in Argentina. These data are obtained from the BCRA.[19] In addition, we collect the locations of all firms from the national registry of companies. Thus, we can observe whether firms have access to branches of any given bank in their city or not.

[19] The data for one out of Argentina's 24 provinces (Mendoza) are not reported in this database.

In addition to Argentine trade transactions, we use equivalent data on Chile's import transactions during the same period. Like the Argentine data, the variables include the importing firm, the HS 8-digit product code, the source country, the value imported, and the invoicing currency. As a neighboring country to Argentina that was not experiencing a currency crisis, Chile is used as a point of comparison.

Finally, beyond the firm-level and bank-level datasets, we obtain various macroeconomic series from the BCRA.

# 4 Empirical analysis of Argentine trade, RMB invoicing, and bank loans

## 4.1 Aggregate patterns for Argentine imports from China

We start by describing the aggregate patterns in the invoicing currencies used in Argentina's imports from China. Figure 3 plots the share of transactions invoiced in RMB, the share of imported value in RMB, the share of firms using the RMB (i.e., with at least one transaction in RMB), and the share of products for which RMB has been used. We observe a very large and fast transformation in the invoicing currency shares for imports from China during the months after the swap agreement with China was expanded (panel A). Between January and September 2023, the RMB share of transactions increased from 1% to 38%. Similarly, the RMB share of value grew from 0.4% to 48%. This pattern occurred across the board and was driven not solely by a few firms or a few products. By September 2023, 32% of firms and 62% of HS 8-digit products had at least some transactions invoiced in RMB.

The steep rise in RMB adoption lasted until the presidential election of 2023 (carried out in two rounds, in October and November). The election ushered in important changes in exchange rate policy and US dollar availability. The subsequent decline in RMB invoicing was similarly steep and slowed down by March 2024, at which point the RMB accounted for 9% of transactions and 13% of import value. At the same time, there was a decline in the number of firms and products associated with RMB invoicing. Our findings thus stand in sharp contrast to the notion that aggregate invoicing currency shares tend to be persistent and stable. We find here that in the context of a currency crisis and with significant government intervention, invoicing currency use can shift extremely quickly and substantially.

For further context, Table 2 reports the share of each invoicing currency for imports from China. In 2022 before the expansion of the swap agreement, the US dollar accounted for 95.8% of transactions, followed by the euro (2.6%) and the Argentine peso (0.8%), and with the RMB accounting for only 0.2%. Shares in terms of values were similar, and even more tilted towards the dollar.

Appendix Figure A.5 complements the previous figure by plotting the number of transactions and the total value of imports by currency. It shows that the share of imports invoiced in RMB is

the result of both a slow and gradual decline in imports invoiced in dollars as well as a fast and sudden rise in imports in RMB following the expanded swap agreement.

Next, we show that this pattern is unlikely a result of changes in the composition of products or importers over time. To this end, in panel B of Figure 3 we plot the probability of invoicing in RMB over time after removing firm × HS8 product fixed effects. We find the same pattern as discussed earlier.

Further, Appendix Figure A.6 shows that this overall trend is common across all sectors of the economy. In turn, Appendix Table A.3 tabulates the HS 2-digit chapters with the highest and lowest shares of transactions invoiced in RMB at their peak in September 2023. In addition, Appendix Figure A.7 reveals that this pattern holds similarly both for differentiated and nondifferentiated products.

We also ask to what extent this pattern was driven by new or existing importers. Appendix Table A.4 shows that almost all imports in September 2023 (at the peak of RMB use) are accounted for by existing firms (defined as firms that were already importing in 2022). Among transactions in RMB, 93.4% of value and 98.1% of transactions in imports from China correspond to existing firms. Among transactions in other currencies (US dollars), 95.3% of value and 95.6% of transactions in imports from China correspond to existing firms. Further, Appendix Figure A.8 shows that the growth and later decline in RMB invoicing holds for both existing and new firms. Among existing firms (panel A), RMB invoicing reaches peaks of 38.7% of transactions and 47.0% of value. Among new firms (panel B), RMB invoicing reaches peaks of 28.3% of transactions and 56.1% of value.

Next, we examine further the heterogeneity across firms in the intensity and timing of RMB adoption. Appendix Table A.5 reflects the differences in intensity across RMB users. Focusing on imports from China, we compute for each importing firm the share of value imported invoiced in RMB. We do this separately for every month. We restrict the sample to firms with at least some RMB use in the corresponding month, and we plot percentiles of the distribution across firms. This indicates that in September 2023, firms at the 50th percentile of RMB use and beyond were invoicing all their imports from China in RMB, while at the 10th percentile the RMB share was only 35%. Interestingly, by March 2024, when aggregate RMB use was lower, firms at the 50th percentile and beyond still had a 100% RMB share.

There is also heterogeneity in the timing of RMB adoption. First, Appendix Figure A.9 plots the number of firms switching from USD to RMB for invoicing imports from China. This is normalized by the total number of importers from China. We count a firm as switching in a given month when it uses RMB for the first time after previously having invoiced in USD. While the number of switchers peaks in August 2023, it is notable that it declines gradually, and even months later there are some firms using RMB for the first time.

Looking further into this heterogeneity, panel A in Appendix Figure A.10 plots the mean across

importing firms of their RMB share separating them into groups according to the timing of their switching to RMB. Specifically, we distinguish between those firms that switch early (June 2023, black solid line), in the middle (September 2023, blue dashed line) or late (December 2023, red dot dashed line). We see that at the time of switching, RMB use reaches 80% or more for early and late switchers. We also find that the decline is to a large extent simultaneous for all groups, which means that early adopters stay with RMB for some months, while late adopters switch back quickly. This suggests heterogeneity in how fast firms adopt RMB, but policy changes likely drove all firms back to USD more or less simultaneously. Panel B in Appendix Figure A.10 focuses on firms that switch in September 2023 (i.e., when most firms switch) and plots percentiles of the distribution of the RMB share across firms. It shows further heterogeneity, such that while the RMB share at the 50th percentile (blue dashed line) falls quickly, the 75th percentile (red dot dashed line) reaches and remains at a 100% RMB share for a longer period.

It is interesting to compare these switching patterns to those found for British exporters during the Brexit episode studied by Corsetti et al. (2022). They document that British trade is dominated by firms invoicing in multiple currencies even within a given product and destination, and that there is within-firm switching of invoicing currencies around Brexit. Similarly, we find substantial switching for Argentine imports from China, and a large degree of heterogeneity across firms. Different from the case of British exporters, it seems most Argentine importers switch to RMB entirely. The most likely explanation for this difference is that Argentine firms choose invoicing currencies in a context of policy-driven constraints, while the British context is one without government intervention.

### 4.2 Firms, banks, and RMB invoicing for import transactions from China

Next, we establish that importing firms' relationships with banks are key to understanding their decisions to adopt RMB as an invoicing currency.

We have two key findings. First, firms which had a bank lending relationship with the Industrial and Commercial Bank of China (ICBC) prior to the expansion of the swap agreement (i.e., in 2022) were substantially more likely to invoice in RMB subsequently. Second, firms were less likely to engage in RMB invoicing if prior to the swap expansion, they had a lending relationship with banks that had a higher dollar share in their loan portfolio. Quantitatively, we find that these two elements explain a meaningful share of the variation in invoicing currency use across firms. We first present some descriptive evidence and then proceed sequentially to discuss each of these findings.

To start, Figure 4 presents descriptive evidence on the variation of invoicing patterns across firms. Panels A and B distinguish between small and large importers (where we use their total imports as a proxy for their size). The sample is split based on firms' total (worldwide) imports in 2022 (i.e., before the swap agreement was expanded) such that half of the import transactions

fall into each subsample.[20] Panel A plots raw data, and panel B removes firm × HS8 product fixed effects. In both cases, there is a large difference in RMB adoption in favor of large importers. By September 2023, the share of transactions invoiced in RMB is 50.3% for large importers and 24.4% for small ones, based on panel A. By the end of our sample, large importers are still more likely to invoice in RMB (14.1% vs. 2.0%). A straightforward interpretation of this result is that there is a fixed cost associated with adopting RMB as an invoicing currency, and large firms are more likely to afford this cost. Amiti et al. (2022) discuss the extension of their baseline invoicing model with this type of fixed cost. It could be associated with using RMB specifically (perhaps due to macroeconomic and political risk or a historical preference against RMB). This fixed cost could also be associated with adding any new currency: firms could benefit from using the same currency across markets.

Panel C and D in the same figure split firms into those with and without a banking relationship with ICBC in the period before the expansion of the swap agreement (i.e., in 2022). Again, panel C plots the raw share of transactions in RMB and panel D removes fixed effects. Both figures indicate that firms with ICBC loans before the agreement were substantially more likely to switch to RMB after the expansion was signed. By September 2023, the share of transactions invoiced in RMB stood at 56.0% for firms with an ICBC banking relationship compared to less than half (23.3%) for the rest. Recall from the discussion in Section 2 that all banks in Argentina – not just ICBC – were eligible to provide firms with RMB after the swap agreement was expanded, without any extra cost. This finding, which we establish more formally below, speaks to the persistence of banking relationships. It may also suggest that ICBC had more detailed information on the practicalities of RMB invoicing or an incentive, political or otherwise, to encourage their clients to adopt the new invoicing currency.

Next, we more formally assess the ICBC role in shaping firms' invoicing choices after the swap expansion. We estimate the following probability model:

$$RMB_{mfpct} = \beta_1 \ln FirmSize_f + \beta_2 ICBC_f + \delta_p + \delta_t + \epsilon_{mfpct}, \tag{1}$$

where the dependent variable $RMB_{mfpct}$ is equal to one if import transaction $m$ by firm $f$ in product $p$ from country $c$ at time $t$ is invoiced in RMB, and zero otherwise.[21] The time period is a month, with the sample running from January 2022 to June 2024. At this point, we restrict the sample to import transactions from China such that $c$=*China* for all observations. The variable $\ln FirmSize_f$ captures the size of the importing firm measured by its total worldwide imports in 2022 (in logs). The term $ICBC_f$ is a dummy variable equal to one for a firm with a loan from ICBC in 2022 (i.e., before the agreement was expanded). The regression also includes product fixed ef-

[20] Similar results are obtained when we split the sample such that half of the firms are in each subsample. See Appendix Figure A.11.

[21] Recall that all transactions not invoiced in RMB are almost always invoiced in US dollars.

fects $\delta_p$ at the HS 8-digit level and time (year-month) fixed effects $\delta_t$. Standard errors are clustered by firm and HS8 product using multiway clustering. Given the various fixed effects, we estimate this regression as a linear probability model with OLS.

The results are shown in Table 3. In columns 1 through 3, the estimation is based on the period from January 2023 to June 2024. Column 1 only includes firm size, column 2 only includes the $ICBC_f$ dummy variable, and column 3 includes both. First, the results indicate that larger importers are more likely to invoice in RMB. Based on column 3, the difference between the 10th and 90th percentiles of firm size is associated with a 23.9 percentage point higher probability of invoicing imports in RMB.[22] Second, firms with an ICBC relationship before the swap expansion are substantially (8.8 percentage points) more likely to invoice in RMB. This is equivalent to more than 40% of the unconditional probability of invoicing in RMB during the sample period, which is 0.2. In column 4 we repeat the estimation focusing on the shorter period from January 2023 to September 2023, which is the period witnessing a surge in RMB use. We find essentially the same pattern.[23]

As a robustness check, we use spatial data on the location of all firms and ICBC branches. Instead of using a dummy variable as above capturing whether a banking relationship with ICBC existed, we construct a dummy variable equal to one for firms in the same city as an ICBC branch, and zero otherwise. It is worth noting that ICBC branches are widespread across Argentina with over 100 branches in total. We then estimate a specification equivalent to (1) but replace the ICBC dummy with this new dummy variable. For tighter identification, we include province fixed effects to compare firms across cities within provinces. The results are shown in Appendix Table A.7 and indicate that the coefficient for having an ICBC branch is positive and statistically significant, with a similar magnitude to the coefficient for having a banking relationship with ICBC. This robustness check provides further evidence of the association between firms' having a banking relationship with ICBC in 2022 and using RMB for invoicing in 2023.

Next, we show how importing firms' invoicing currency choices are also shaped by the availability of dollars, or lack thereof. Specifically, we establish that firms were less likely to use RMB as an invoicing currency when they had a pre-swap expansion relationship with banks with a higher US dollar share in their loan portfolio. Recall from the discussion in Section 2.3 that during 2023, and especially in the second half of the year, the currency crisis and the dollar shortage worsened as evidenced by the increasing gap between the official and black market exchange rates. To this end, we use the bank balance sheet data corresponding to the last quarter of 2022. For each bank in the sample, we define the US dollar share of loans as the ratio of dollar loans over total loans. We then compute, for each importing firm, a weighted average of these bank-level shares across

[22] The 10th and 90th percentiles of (log) firm size are 13.8 and 18.8.

[23] In Appendix Table A.6 we estimate a version of specification (1) with product-time fixed effects $\delta_{pt}$. The results are very similar.

the banks the firm has relationships with. If we define weights $\omega_{bf}$ as the ratio of the loans of firm $f$ with bank $b$ over the total loans of firm $f$ with all banks, both measured in 2022, then we obtain:

$$USD\ loan\ share_f = \sum_{b \in f} \omega_{bf} USD\ loan\ share_b, \tag{2}$$

where $b \in f$ indicates summing over the set of banks $b$ which have an outstanding loan to firm $f$. Note that because we do not observe the currencies of individual loan agreements between banks and firms, the implicit assumption in this measure is that the bank-level dollar loan share is applied proportionally across firms.

We then extend the earlier specification (1) to include this new variable:

$$RMB_{mfpct} = \beta_1 \ln FirmSize_f + \beta_2 ICBC_f + \beta_3 USD\ loan\ share_f + \delta_p + \delta_t + \epsilon_{mfpct}. \tag{3}$$

The results are reported in Table 4. In column 1 the sample goes from January 2023 to June 2024. The coefficients on $\ln FirmSize_f$ and the $ICBC_f$ dummy variable are similar to those in the previous table. The negative coefficient on $USD\ loan\ share_f$ indicates that firms are less likely to use RMB if they have pre-swap expansion relationships with banks with high dollar loan shares. The interpretation is that during this period of currency crisis and dollar shortage, relationships with banks that lend more in dollars allow firms easier access to dollars for importing, reducing the need for RMB. The magnitude of the coefficient is such that moving from the 10th to the 90th percentile of the $USD\ loan\ share_f$ measure is associated with a decline of 6.1 percentage points in the probability of invoicing in RMB.[24] In column 2 we replace the $USD\ loan\ share_f$ measure by another version using the combined share of US dollars, euros and Brazilian reais.[25] The coefficients are very close to those in column 1. Columns 3 and 4 are equivalent, but with the difference that the sample goes from January 2023 to September 2023 (i.e., the period during which RMB use grows rapidly). The coefficient on $USD\ loan\ share_f$ is in the same ballpark as the one based on the longer sample, albeit somewhat smaller.[26]

Since there was variation over time in the shortage of dollars (as implied by the gap between the official and black market exchange rates), we examine how the above coefficients vary over time. Recall that the currency crisis worsened in the second half of 2023 and eased to some extent in 2024. We revisit the estimation of equation (3) by interacting each of the three terms with dummy variables for each quarter between 2023Q1 and 2024Q2.

[24] The 10th and 90th percentiles of the $USD\ loan\ share_f$ measure are 0.051 and 0.139.

[25] We denote this variable as $USD{+}EUR{+}BRL\ loan\ share_f$. Apart from US dollars, euros and Brazilian reais are traditionally the only quantitatively relevant foreign currencies for invoicing. But recall from the summary statistics in Table 1 that euros, and Brazilian reais account for a very small fraction of loans in our sample.

[26] In Appendix Table A.6 we estimate a version of specification (3) with product-time fixed effects $\delta_{pt}$. The results are very similar.

The results are shown in Appendix Table A.8. The effect of the *USD loan share*$_f$ variable is most negative and statistically significant in the last two quarters of 2023 when the currency crisis was at its most profound. This effect is U-shaped, with a negative but smaller effect before and after those two quarters. This is consistent with the timing of the crisis and provides further evidence of a link between the dollar shortage and the invoicing decisions of firms. For the last quarter of 2023, the magnitude of the coefficient is roughly twice as large as that found in Table 4 for the average of the entire period. We find a very similar pattern in column 2 where the measure of dollar shortage is constructed with the combined loan share of dollars, euros and Brazilian reais.

We also see in this table that the dummy capturing pre-swap expansion relationships with ICBC is close to zero in the first quarter of 2023 and becomes larger and statistically significant starting in the third quarter of that year, remaining relatively constant afterwards. This is consistent with the timing of the implementation of the RMB invoicing system following the swap agreement expansion.

In summary, we interpret our findings as evidence of a foreign currency shortage mechanism. That is, at the beginning of our data period in early 2023, Argentina was facing a severe dollar shortage, rationing access of Argentine businesses to foreign currency. The RMB swap expansion was used to alleviate this foreign currency shortage. But unlike during previous swap agreements, this time around the Argentine authorities did not convert RMB into dollars but rather kept RMB on the balance sheet. As long as the country was facing a dollar shortage, RMB was used as a foreign currency substitute. But once the dollar shortage was alleviated in the wake of Milei's reforms, the importance of RMB waned and businesses reverted to using dollars. Reasons for RMB aversion relative to the dollar are likely to include the lack of existing RMB adoption across industries, the lack of deep and liquid global financial markets including payment infrastructure, the lack of free RMB convertibility, and Chinese capital controls.[27]

Finally, it is worth pointing out that the changes in RMB invoicing do not seem to go hand in hand with changes in the currency of loans from banks to firms. Table 1 reports statistics for the distribution of loan shares by currency across banks. It compares 2022Q4 (panel A) to 2023Q4 (panel B). We see little change over time. For example, the mean across banks of the loan share in pesos is 92.25% in 2022Q4 and 90.25% in 2023Q4. Loans in RMB are part of the "other" category,

[27] However, Eichengreen et al. (2024) argue that even in the absence of full financial liberalization, the RMB could still play a more important role as an international currency. But this would require policy support, in particular convertibility of RMB into dollars on offshore markets. In contrast, Prasad (2017) highlights the long-term limits that undermine the RMB's rise towards establishing itself as a global payment and reserve currency. China would have to embark on reforms fostering a more open and transparent system of government with a reliable institutional framework including stronger rule of law and tighter property rights. One short-term argument in favor of using RMB as a payment currency might be the weakness of domestic currency against the dollar. For example, in 2023 Bangladesh agreed to make a large payment to Russia in RMB and "opted against using the US dollar because its currency has fallen sharply against it" while also noting that Russia had been largely frozen out of US dollar payment systems after its 2022 invasion of Ukraine (Source: China Southern Morning Post, 21 April 2023). Another reason against the dollar could be the potential exposure to US monetary policy cycles, in particular aggressive US tightening in the wake of Covid-19 and the associated rise in US dollar borrowing costs (Source: China Southern Morning Post, 27 April 2023).

and the mean across banks in this category goes from 0.01% to 0.03%. While this might imply a change in RMB loans, it would have been very small and hardly a relevant driver of the switch in invoicing currencies.

### 4.3 RMB invoicing for import transactions from the rest of the world

We now examine the use of RMB in imports from the rest of the world. We find that at the same time that RMB use increases for imports from China, the RMB starts being used in imports from the rest of the world but to a lesser extent.

Figure 5 reports the transaction share and value share invoiced in RMB for imports from all countries except China. Concurrently with the increase in RMB use for imports from China, we observe an increase in its adoption for imports from the rest of the world. The RMB transaction and value shares go up from 0% in January 2023 to 1.7% and 2.9%, respectively, by September 2023.[28] Like for imports from China, there is a decline in RMB use after the presidential election in the final months of 2023 and in 2024. To provide more context, Appendix Table A.9 tabulates the frequency of each invoicing currency in imports from the rest of the world. In 2022, before the swap agreement expansion, the US dollar accounts for 84.4% of transactions, followed by the euro (9.4%), the Argentine peso (3.5%), and the Brazilian real (1.2%). Appendix Table A.10 lists the countries that reach the highest transaction and value shares invoiced in RMB at their peak in September 2023. Most countries in the list are in Africa and Asia. For example, 23% of transactions and 15% of value imported from South Korea are invoiced in RMB at this point.

We find a link at the firm level between RMB use in imports from China and the rest of the world. This can be seen in Figure 6 where we plot the RMB transaction share and the RMB value share among imports from the rest of the world. We also split the sample between firms that import any positive amount from China invoiced in RMB in the current month versus firms that do not. At its peak, the RMB transaction share reaches 5% for firms that also import any amount from China. In contrast, this share reaches less than 2% for the rest of firms. In terms of value, firms that import from China reach a 9% RMB share in imports from the rest of the world, while for firms that do not import from China this share is about 3%.

This insight can be shown more formally with the following regression:

$$RMB_{mfpct} = \beta_1 \ln FirmSize_f + \beta_2 Importer\ in\ RMB\ from\ China_{ft} + \delta_{pc} + \delta_t + \epsilon_{mfpct}. \quad (4)$$

The sample is imports from the rest of the world, and the dependent variable is a dummy equal to one for transactions invoiced in RMB. The regressor of interest, $Importer\ in\ RMB\ from\ China_{ft}$, is equal to one for firms that import any amount from China invoiced in RMB in the current month,

[28] The gap between the RMB share in terms of transactions and value suggests that larger transactions are more likely to be invoiced in RMB. For further context, Appendix Figure A.12 plots the number of transactions and the total value of imports by currency.

and zero otherwise. The regression also includes country × HS8 product fixed effects $\delta_{pc}$ and time dummies $\delta_t$. Standard errors are clustered by firm, HS8 product, and country using multiway clustering.

The results are reported in Table 5. Column 1 considers the period from January 2023 to June 2024, while column 2 restricts the sample to the period from January 2023 to September 2023. In both cases, the coefficients are very similar. Based on column 1, the probability of invoicing in RMB from the rest of the world is 4.4 percentage points higher for firms that import any positive amount from China invoicing in RMB during the same month. This difference is six times larger than the unconditional mean of the dependent variable during this period (0.007).

In the case of imports from the rest of the world, we also find a link between the probability of invoicing in RMB and firms' relationships with ICBC in 2022 (prior to the swap expansion). We also associate it with the dollar loan share of firms' banking relationships in 2022. To this end, we estimate the below regression akin to equation (3) using the rest of the world sample. The only difference is that the HS8 product fixed effects are replaced by HS8 product × country fixed effects and the standard errors are now clustered by firm, HS8 product, and country using multiway clustering:

$$RMB_{mfpct} = \beta_1 \ln FirmSize_f + \beta_2 ICBC_f + \beta_3 USD\ loan\ share_f + \delta_{pc} + \delta_t + \epsilon_{mfpct}. \tag{5}$$

The results are shown in Appendix Table A.11. Columns 1 and 2 correspond to the period from January 2023 to June 2024, while columns 3 and 4 restrict the sample to the period from January 2023 to September 2023. In the longer period, we find that a pre-swap expansion relationship with ICBC is associated with a 0.5 percentage point higher probability of invoicing in RMB. This is a large effect, comparable to the 0.007 (0.7 percentage point) unconditional probability of invoicing in RMB during the period. We also find that firms with pre-expansion relationships with banks with higher dollar loan shares are less likely to invoice in RMB. Specifically, moving from the 10th to the 90th percentile of the $USD\ loan\ share_f$ measure is associated with a decline of 0.17 percentage points in the probability of invoicing in RMB, based on column 2 or 4.[29] This is a large effect as it is roughly half the average probability of RMB invoicing in the regression sample of column 2. In columns 5 and 6, we add the dummy variable for firms that also import in RMB from China. We continue to see the higher likelihood of importing in RMB from the rest of the world for firms that import in RMB from China. We also see that banking relationships, captured by the $USD\ loan\ share_f$ variable, continue to have a statistically significant association.

Another point to consider is that China has signed similar swap agreements with many, typically developing, countries. It might seem plausible that RMB use is more frequent for imports from these countries. However, we do not find evidence in favor of this hypothesis. We split the

[29] This coefficient is statistically significant during the January 2023 - September 2023 period, and marginally not so during the longer period.

rest-of-the-world sample into countries with and without swap agreements with China.[30] Appendix Figure A.13 plots the shares of import transactions and values invoiced in RMB for each group. There is no clear difference between them.

### 4.4 The role of exports

Next, we show that RMB use does not spread to Argentine firms' exports. We find absolutely no use of RMB in Argentine firms' exports. Appendix Table A.12 describes the frequency of invoicing currencies in Argentine exports, which are largely dominated by the US dollar. This result is to be expected. Amid the dollar shortage experienced by the Argentine economy, export revenue is the main source of new dollars, so the incentive is to keep invoicing in dollars.

We also show that exporting activity has an impact on the invoicing currency used for imports from China. For this purpose, we first augment equation (3) by adding a dummy variable for firms that are exporters to China and a separate dummy for firms that export to the rest of the world. Just like with earlier variables, we measure export status in 2022 before the swap expansion.

The results are shown in Table 6. In column 3, we include firms' total imports (the measure $\ln Size_f$ used previously), a dummy variable for exporters to China, and a dummy variable for exporters to the rest of the world. We find, as before, that larger firms are more likely to use RMB.[31] The new result here is that firms that export to the rest of the world are less likely to invoice imports from China in RMB. By contrast, exporting to China is not associated with a lower probability of invoicing in RMB. Columns 1 and 2 introduce these exporting dummy variables sequentially, with similar results. Specifically, a firm that exports to the rest of the world (but not to China) has a 13 percentage point lower probability of invoicing in RMB.[32]

In column 4, we add the variables that capture firms' banking relationships, as explored earlier. We still find that the measures capturing the pre-swap agreement banking relationships with ICBC and the dollar loan shares of firms' banks are statistically significant and have similar magnitudes compared to the results reported earlier in Table 4. Thus, the export mechanism does not appear to reduce the importance of the banking mechanism.

Finally, in column 5 we restrict the sample to firms that export (anywhere) and use measures of export intensity instead of dummy variables for exporting activity. Specifically, we include (log) total exports and the share of exports to China. The results point in a similar direction. The coefficient on (log) total exports is negative, while the coefficient on the share of exports to China is positive.

Overall, we can think of two interpretations for the fact that exports (to the rest of the world, at least) are associated with lower RMB use in imports. First, there is a fixed cost associated with

[30] A list of countries with swap agreements with China is provided in Appendix Table A.1.

[31] The magnitude of this coefficient is similar to that found earlier in Table 4.

[32] A firm that exports to both the rest of the world and China has an 11 percentage point lower probability of invoicing imports from China in RMB.

adding a new currency different from the one the firm already uses. Second, firms prefer to align export and import currencies as a natural hedge.

### 4.5 Evidence from Chilean firms

To further strengthen the evidence of a link between macroeconomic conditions in Argentina and firms' invoicing currency choices, we additionally consider firm-level data from neighboring Chile. That is, we compare the invoicing patterns by Chilean firms for imports from China to those of Argentine firms. While Chile signed a swap agreement with China in 2015, Chile did not face a currency crisis during the 2023-2024 period under study.[33] We show below that while both Chile and Argentina traditionally invoice imports from China almost exclusively in US dollars, we observe the temporary switch to RMB described earlier only among Argentine importers.

To this end, we assemble equivalent data on import transactions of Chilean firms. We then pool the data on import transactions from China for all importing firms in both countries. First, as context, Appendix Figure A.14 plots the share of Chilean import transactions from China. The share of transactions invoiced in RMB hovers around 1% or less and does not increase over time. This is a first indication that the patterns described earlier are unique to Argentina.

We also provide more formal econometric evidence by estimating the following regression using the pooled sample for both countries:

$$RMB_{mfpst} = \beta \cdot ARGENTINA_s + \delta_{fps} + \delta_t + \epsilon_{mfpst}\,, \tag{6}$$

where $s$ refers to the importing country (either Argentina or Chile). The term $ARGENTINA_s$ is a dummy variable equal to one for imports from Argentina and zero for imports from Chile. We include fixed effects $\delta_{fps}$ by firm $f$ × product $p$ × importing country $s$ as well as time dummies $\delta_t$. Only for this comparison with Chile, products are now defined at the HS6 level since this is the most disaggregated level comparable across countries. Standard errors are clustered by importing country and by HS6 product using multiway clustering.

Appendix Table A.13 reports the results. The coefficient in column 1 indicates that on average over the whole period, Argentine firms are 13.3 percentage points more likely than Chilean firms to invoice imports from China in RMB. In column 2, we extend this regression by introducing interaction terms between the dummy variable $ARGENTINA_s$ and dummies for each quarter. The coefficients in column 2 indicate that the differential adoption of RMB invoicing by Argentine relative to Chilean importers follows the same pattern of growth and decline that we documented earlier. That is, RMB adoption peaks in the last quarter of 2023 and drops afterwards.

These results further corroborate the hypothesis that the temporary invoicing currency shift in

[33] The swap agreement between the Central Bank of Chile and the PBOC was originally established in 2015 and renewed in 2020.

Argentina away from US dollars towards RMB was brought about by the BCRA's swap expansion with China in combination with the concurrent dollar shortage.

### 4.6 RMB use and trade volumes

To what extent did the switch to RMB impact the volume of imports from China? Anecdotal evidence indicates that the dollar shortage was limiting the ability of Argentine firms to import, so we would expect the availability of RMB to ease this constraint and increase trade volumes.[34]

To this end, we estimate the following regression in which the dependent variable is the log of imports from China by firm $f$ at time (year-month) $t$:

$$\ln ImportValue_{ft} = \sum_t \beta_t RMB_f + \delta_f + \delta_t + \epsilon_{ft}. \tag{7}$$

The indicator variable $RMB_f$ is equal to one for firms using RMB at any point after January 2023. The term $\sum_t \beta_t RMB_f$ corresponds to the interaction between the RMB dummy variable and time dummies. Thus, the coefficients of interest $\beta_t$ capture the differential path of Chinese imports by Argentine firms that did or did not use RMB. The regression includes firm fixed effects $\delta_f$ and time fixed effects $\delta_t$. In some specifications, we also control for the interaction between the firm's sector (measured as the main HS2 category imported) and time dummies (not shown in the equation above).

The estimated coefficients on the interaction terms are plotted in Figure 7. Panel A corresponds to the baseline specification. We see a clear increase in imports from China starting around mid-2023. As discussed earlier, this is the time when RMB invoicing becomes popular for imports from China. This increase in imports from China deviates from the trend seen in previous months. We also see that imports from China fall back to the previous trend in early 2024. It is at the start of the new administration that we see RMB invoicing decline and the dollar shortage ease. The magnitude of the coefficients indicates a roughly 20% increase in imports from China during this period. Overall, the figure suggests a clear correspondence between RMB invoicing and the import volume from China.

As a robustness check, panel B repeats the estimation incorporating additional fixed effects. In this case, we control for the interaction of sector fixed effects (corresponding to each firm's main HS2 category imported) and time dummies. This means we compare firms with and without RMB invoicing but within the same sector. The results are very similar to those in panel A. As an additional robustness check, in panel C we use a higher cutoff to classify a firm as invoicing in RMB. In this case, the RMB indicator variable is equal to one for firms that have at least 30% of their transactions invoiced in RMB after January 2023. We again see a temporary increase in

[34] For context, Appendix Figure A.15 plots time series of imports from China and the rest of the world between January 2022 and June 2024.

imports from China associated with RMB use, with similar timing and magnitude as before.

Next, we ask whether the increase in imports from China for firms invoicing in RMB is associated with a change in their imports from the rest of the world. On the one hand, there could be a redirection of imports towards China as the availability of RMB makes importing from China easier. On the other hand, these firms might also be using RMB in imports from the rest of the world as we saw earlier, making it easier to import more from everywhere. To assess this idea, we estimate equation (7) using the sample of imports from the rest of the world (and excluding imports from China). The $RMB_f$ dummy variable on the right-hand side is defined in the same way as before, i.e., it is equal to one for firms using RMB to any extent in their imports from China at any point after January 2023.

The results are shown in Appendix Figure A.16. In this case, there is less evidence of a statistically significant pattern. If anything, the panels show an increase in imports from the rest of the world during the period when RMB use is higher, in particular in the specifications of panels A and B. This implies that the rising imports from China for firms using RMB shown earlier are not the result of diversion away from the rest of the world. In summary, RMB use is associated with an increase in total imports, which is consistent with the notion that RMB provision eases the lack of foreign currency availability for invoicing purposes, and that this shortage was restricting imports.

## 5 Conclusion

A substantial fraction of transactions in international trade is invoiced in a vehicle currency. The vast majority of such transactions are invoiced in US dollars, and a few in euros. At the same time, China has announced the objective of the internationalization of the RMB, including for international trade invoicing. But how can these efforts gain traction?

We examine micro data for import and export transactions of Argentine firms over the period from 2022 to 2024. Argentine trade has traditionally been invoiced almost exclusively in US dollars. But starting in early 2023, we observe a sharp rise of RMB invoicing for import transactions from China, and to a lesser extent also from third countries such as Egypt and Vietnam, mainly driven by large Argentine importers. The rise in RMB invoicing is associated with a noticeable increase in trade volumes, with no apparent diversion of trade from other partners. We argue that such a sharp rise of a new invoicing currency is highly unusual in both speed and magnitude. However, we find no evidence of RMB invoicing adoption for export transactions from Argentina. As a comparison, we also consider invoicing choices for importers from Chile, a neighboring country with no concurrent macroeconomic crisis. We find no evidence of RMB adoption in their invoicing choices.

We use bank-firm lending data to link the rise of RMB invoicing to a swap expansion by the

Chinese central bank with the Argentine central bank. We find that RMB invoicing is associated with borrowing from a major Chinese state-owned commercial bank active in Argentina. Our results support the notion that the RMB swap expansion alleviated the rationing of foreign currency in the context of dwindling US dollar reserves held by the Argentine central bank. Once Javier Milei was elected as the new president of Argentina in the fall of 2023, exchange rate controls were loosened, and RMB invoicing quickly receded.

Our results shed new light on firms' invoicing currency choices. We show that in contrast to the prevailing view, invoicing currency patterns can shift rapidly. But they are contingent on the macroeconomic context in general and foreign currency shortages in particular. Chinese efforts to internationalize the RMB were partly successful in Argentina but they did not persist. Nevertheless, our results support the view that RMB internationalization may be possible if backed by appropriate institutional arrangements, especially central bank liquidity and commercial bank lending.

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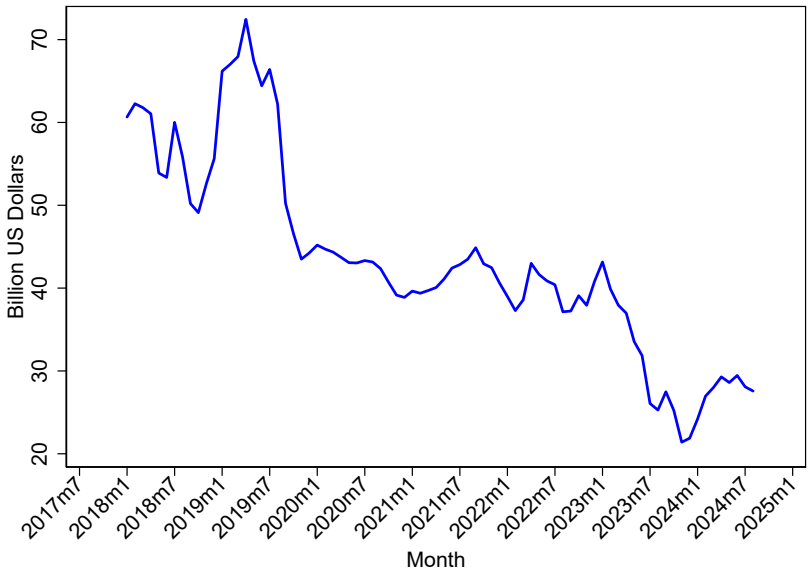
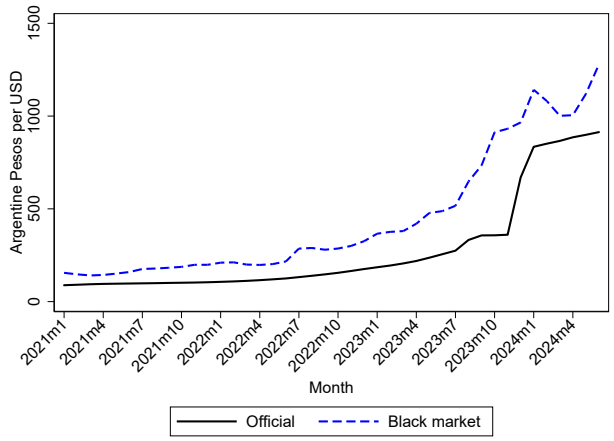
**Figure 1:** Argentina's international reserves



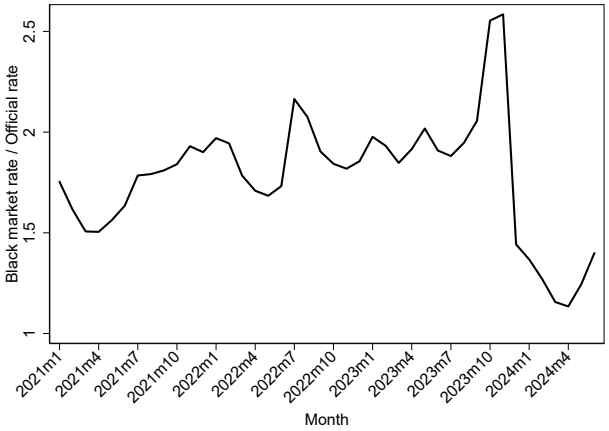

**Notes**: These are (gross) international reserves at the BCRA, as reported by BCRA.

**Figure 2:** Official and black market exchange rates against the US dollar

A) Official and black market exchange rates

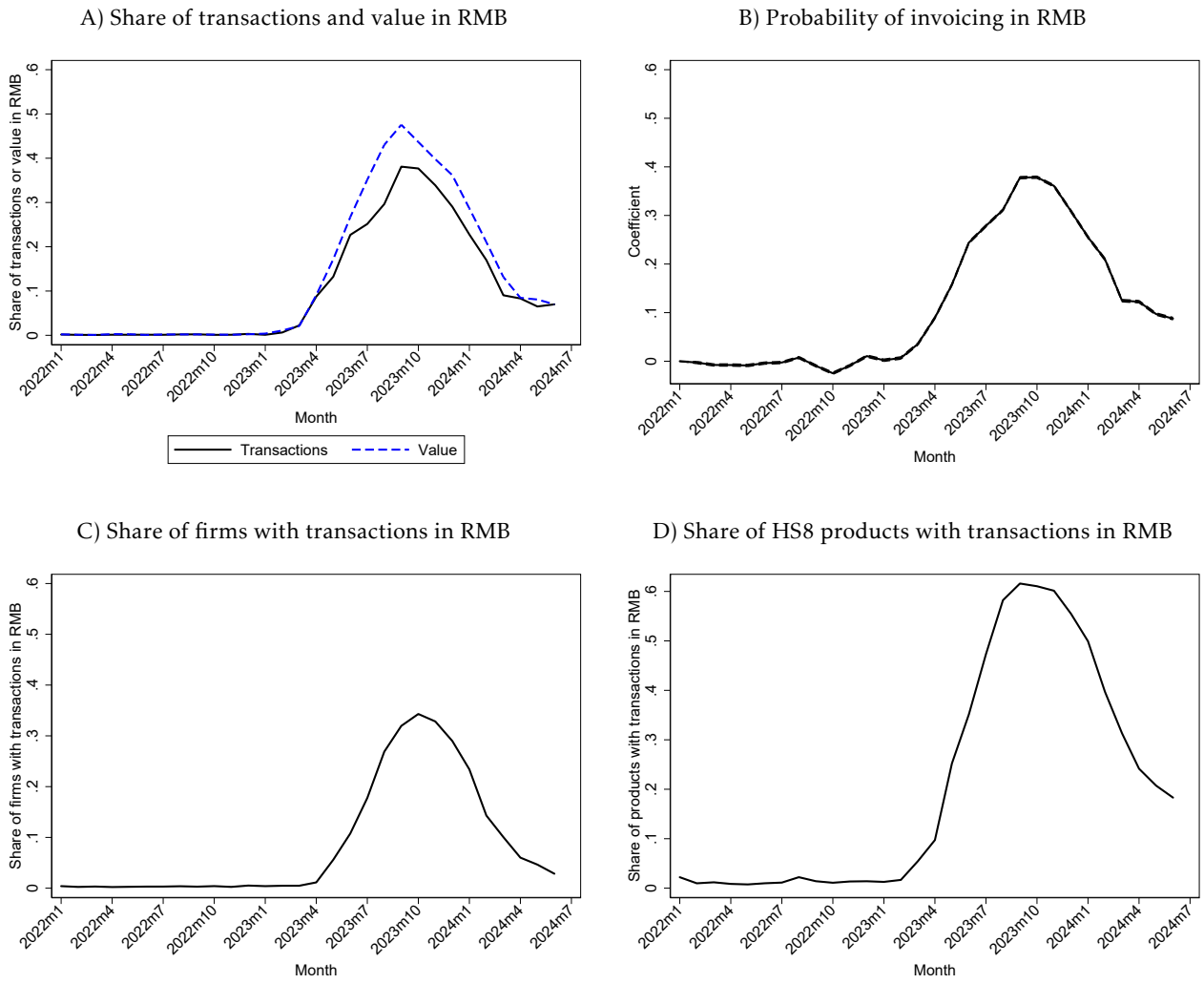



B) Ratio between black market and official exchange rates



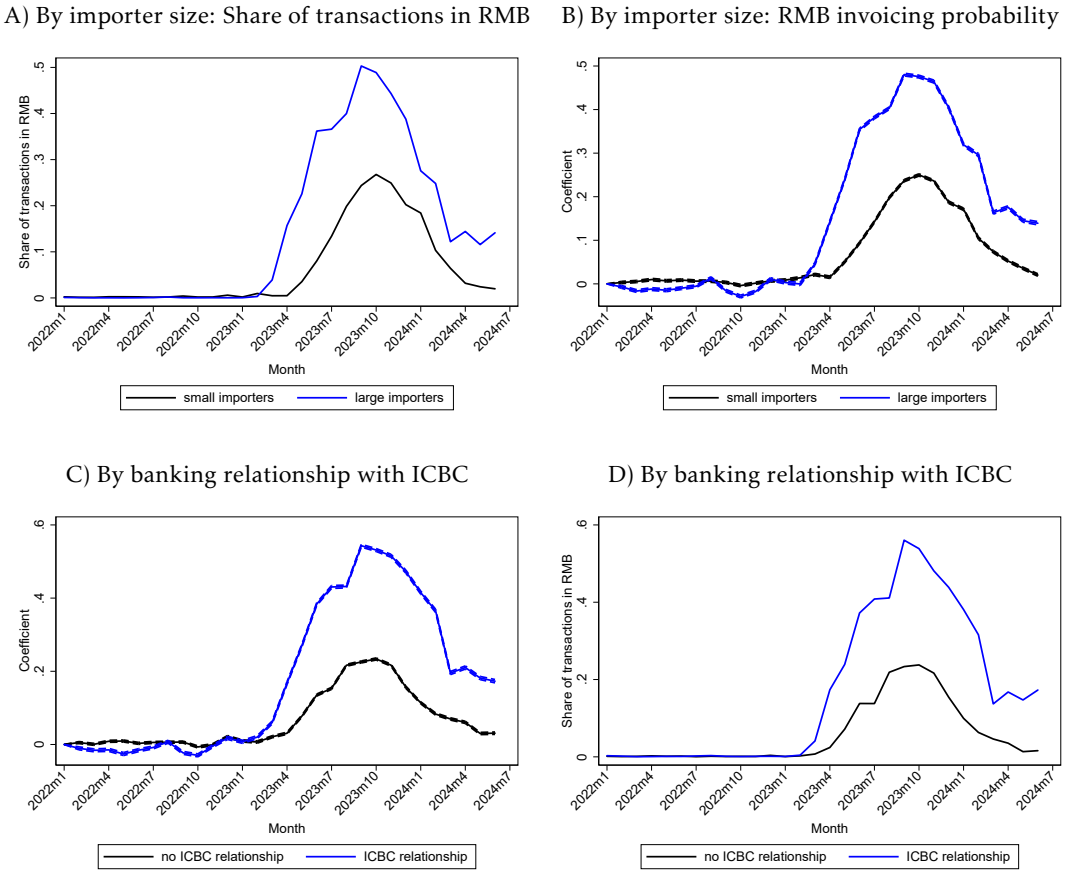

**Notes**: Panel A shows the official and black market exchange rates between the Argentine peso and the US dollar. Panel B shows the difference between the black market and the official exchange rates. The black market exchange rate is widely called "dólar blue."

**Figure 3:** RMB invoicing for imports from China



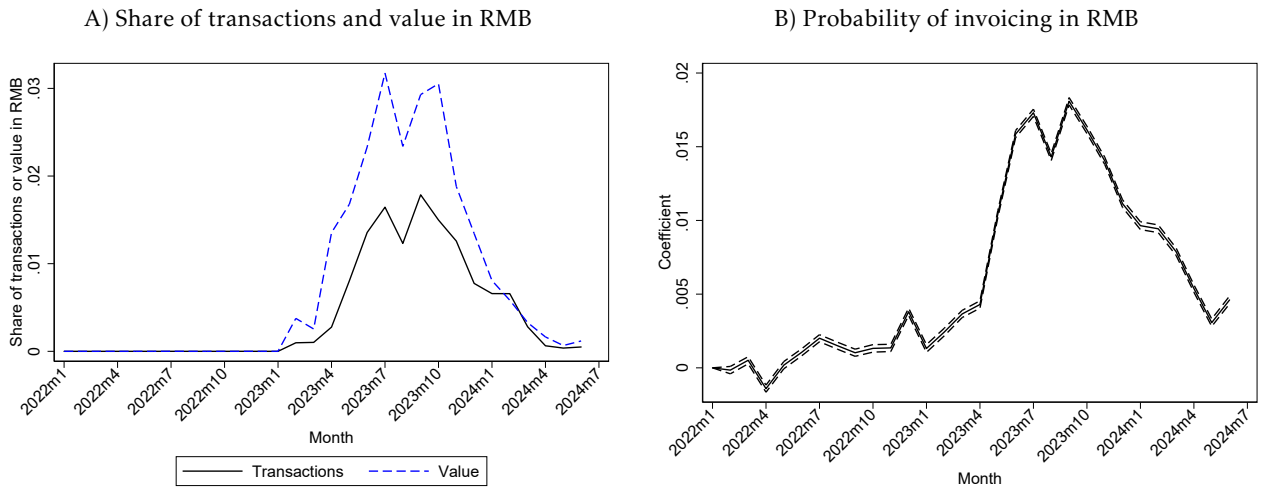

**Notes**: Panel A shows the share of transactions and the share of value invoiced in RMB in imports from China. Panel B shows estimated time dummies from a regression using transaction-level data on imports from China in which the dependent variable is a dummy variable for transactions invoiced in RMB and including time dummies and firm × HS8 product fixed effects. Panel C shows the share of firms with at least one transaction in RMB. Panel D shows the share of HS 8-digit products with at least one transaction in RMB.

**Figure 4:** RMB invoicing for imports from China



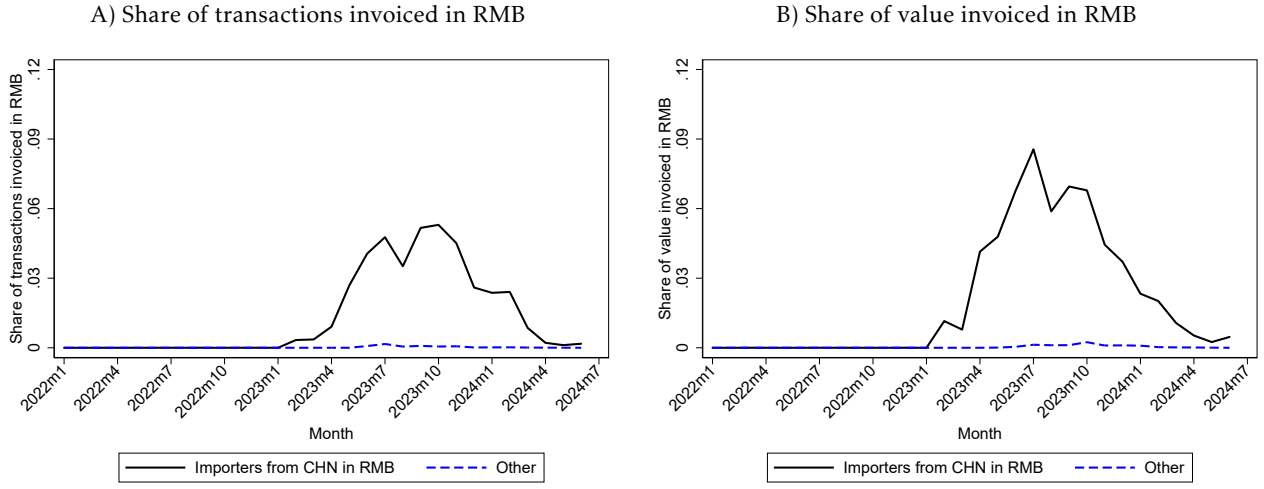

**Notes**: Panel A shows the share of import transactions from China invoiced in RMB for small and large importers. Importer size is measured as total imports from the world in 2022. These categories are defined such that half of the transactions belong to each group. Panel B shows estimated time dummies from a regression using transaction-level data on imports from China in which the dependent variable is a dummy variable for transactions invoiced in RMB and including time dummies and firm × HS8 product fixed effects. This regression is estimated separately for small and large importers. Panel C shows the share of import transactions from China invoiced in RMB for importers with and without a banking relationship with ICBC in 2022. Panel D shows estimated time dummies from a regression using transaction-level data on imports from China in which the dependent variable is a dummy variable for transactions invoiced in RMB and including time dummies and firm × HS8 product fixed effects. This regression is estimated separately for importers with and without a banking relationship with ICBC. In panels C and D, the sample is restricted to firms in the bank-to-firm loans data.

**Figure 5:** RMB invoicing for imports from the rest of the world




**Notes**: Panel A shows the share of transactions and the share of value invoiced in RMB. Panel B shows estimated time dummies from a regression using transaction-level data on imports from China in which the dependent variable is a dummy variable for transactions invoiced in RMB and including time dummies and product fixed effects.

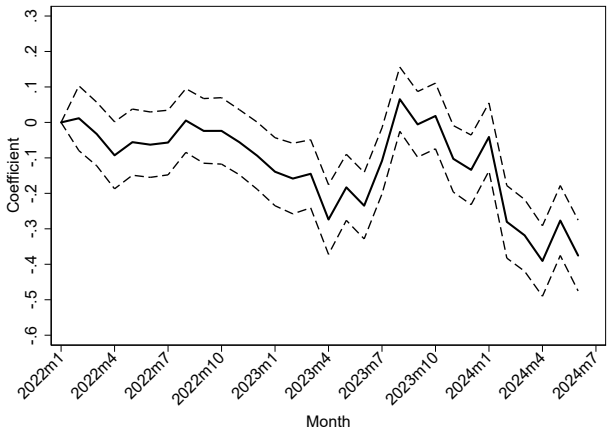
**Figure 6:** RMB invoicing for imports from the rest of the world



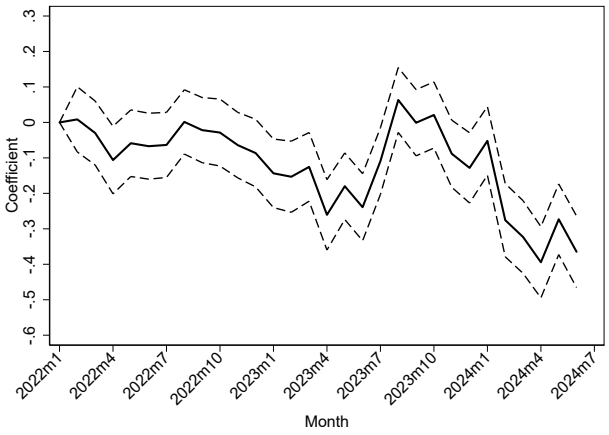

**Notes**: Panel A shows the share of transactions invoiced in RMB for imports from the rest of the world (i.e., all countries excluding China). Panel B shows the share of value invoiced in RMB for imports from the rest of the world. In both panels the solid black line corresponds to firms with imports from China invoiced in RMB in the same month. The dashed blue line corresponds to the rest of the firms.

**Figure 7:** RMB invoicing and import volumes from China

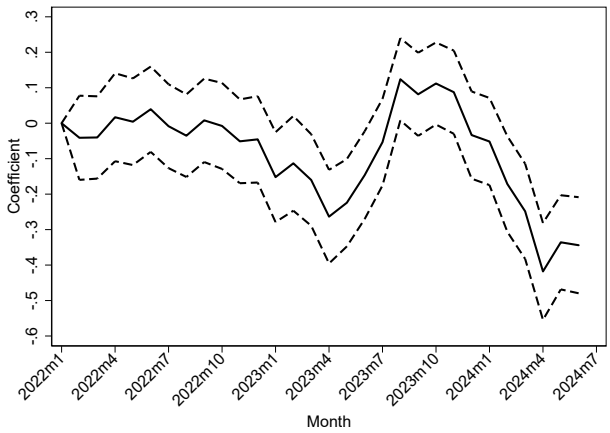
A) Baseline




B) With sector × time fixed effects




C) With sector × time fixed effects and higher cutoff for RMB use




**Notes**: Each panel shows estimated time-varying $\beta_t$ coefficients from specification (7) using the sample of imports from China. Panel A corresponds to the baseline specification described in the main text. Panel B adds sector × time fixed effects, with the sector defined as the main HS2 imported by the firm. Panel C also includes these additional fixed effects, and the RMB dummy variable is equal to one for firms with more than 30% of transactions in RMB after January 2023.

**Table 1:** Summary statistics for loan shares by currency based on bank balance sheets

| | *Loan shares by currency* | | | | |
|---|---|---|---|---|---|
| | Argentine peso | US dollar | Euro | Brazilian real | Other |
| Panel A: 2022Q4 | | | | | |
| Mean | 92.25% | 7.71% | 0.03% | 0.00% | 0.01% |
| St. dev. | 10.32% | 10.30% | 0.10% | 0.02% | 0.05% |
| 10th pct. | 83.94% | 0.31% | 0.00% | 0.00% | 0.00% |
| 25th pct. | 89.58% | 1.81% | 0.00% | 0.00% | 0.00% |
| 50th pct. | 95.24% | 4.76% | 0.00% | 0.00% | 0.00% |
| 75th pct. | 98.19% | 10.42% | 0.00% | 0.00% | 0.00% |
| 90th pct. | 99.69% | 15.89% | 0.02% | 0.00% | 0.00% |
| Panel B: 2023Q4 | | | | | |
| Mean | 90.25% | 9.21% | 0.02% | 0.03% | 0.03% |
| St. dev. | 11.47% | 11.31% | 0.06% | 0.17% | 0.14% |
| 10th pct. | 73.00% | 0.21% | 0.00% | 0.00% | 0.00% |
| 25th pct. | 89.05% | 2.12% | 0.00% | 0.00% | 0.00% |
| 50th pct. | 92.90% | 6.16% | 0.00% | 0.00% | 0.00% |
| 75th pct. | 97.00% | 10.75% | 0.00% | 0.00% | 0.00% |
| 90th pct. | 99.43% | 26.03% | 0.07% | 0.00% | 0.03% |

**Notes**: This table reports summary statistics for the distribution of loan shares by currency across banks in 2022Q4 and 2023Q4. For example, the cell in the first row, first column of panel A indicates that the mean across banks of the share of loans in Argentine pesos is 92.25%, while the cell in the fifth row in the first column indicates that the 50th percentile is 95.24%. These summary statistics are not weighted by bank size. The currencies in the first four columns are reported individually in the bank balance sheets. All other currencies in bank balance sheets are grouped.

**Table 2:** Summary statistics for invoicing currencies used in Argentine imports from China

| | Share of transactions | | | Share of value | | |
|---|---|---|---|---|---|---|
| | 2022 | 2023 | 2024 | 2022 | 2023 | 2024 |
| US dollar | 95.8% | 74.9% | 82.1% | 98.2% | 70.9% | 82.5% |
| Renminbi | 0.2% | 21.6% | 12.0% | 0.2% | 27.2% | 15.2% |
| Euro | 2.6% | 2.5% | 3.4% | 0.9% | 1.2% | 1.7% |
| Argentine peso | 0.8% | 0.5% | 0.6% | 0.7% | 0.5% | 0.4% |
| Brazilian real | 0.3% | 0.2% | 1.2% | 0.0% | 0.0% | 0.0% |
| Pound | 0.1% | 0.1% | 0.2% | 0.0% | 0.0% | 0.0% |
| Yen | 0.1% | 0.2% | 0.3% | 0.0% | 0.0% | 0.0% |
| Other | 0.2% | 0.2% | 0.3% | 0.1% | 0.1% | 0.1% |

**Notes**: This table reports the share of import transactions and the share of imported value by currency and by year for imports from China. Values for 2024 correspond to January through June.

**Table 3:** Probability of RMB invoicing for imports from China: Firm-level determinants

| | (1) Jan. 2023 to Jun. 2024 | (2) Jan. 2023 to Jun. 2024 | (3) Jan. 2023 to Jun. 2024 | (4) Jan. 2023 to Sep. 2023 |
|---|---|---|---|---|
| $\ln FirmSize_f$ | 0.055*** | | 0.048*** | 0.050*** |
| | (0.010) | | (0.010) | (0.011) |
| $ICBC_f$ | | 0.146*** | 0.088*** | 0.049** |
| | | (0.033) | (0.024) | (0.024) |
| HS8 fixed effects | Yes | Yes | Yes | Yes |
| Year-month fixed effects | Yes | Yes | Yes | Yes |
| Observations | 1,143,802 | 1,143,802 | 1,143,802 | 614,429 |
| $R^2$ | 0.339 | 0.312 | 0.347 | 0.387 |

**Notes**: This table reports the results of estimating specification (1). Each observation corresponds to an import transaction from China. The dependent variable is equal to one for transactions invoiced in RMB, and zero otherwise. In columns 1 through 3 the sample consists of all transactions between January 2023 and June 2024. In column 4 the sample consists of all transactions between January 2023 and September 2023. Standard errors are clustered by firm and HS8 product using multiway clustering. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level.

**Table 4:** Probability of RMB invoicing for imports from China: Firm-level determinants

| | (1) Jan. 2023 to Jun. 2024 | (2) Jan. 2023 to Jun. 2024 | (3) Jan. 2023 to Sep. 2023 | (4) Jan. 2023 to Sep. 2023 |
|---|---|---|---|---|
| $\ln FirmSize_f$ | 0.047*** | 0.047*** | 0.049*** | 0.049*** |
| | (0.009) | (0.009) | (0.010) | (0.010) |
| $ICBC_f$ | 0.102*** | 0.102*** | 0.057** | 0.057** |
| | (0.026) | (0.026) | (0.025) | (0.025) |
| $USD\ loan\ share_f$ | -0.694** | | -0.540* | |
| | (0.322) | | (0.279) | |
| $USD+EUR+BRL\ loan\ share_f$ | | -0.695** | | -0.541** |
| | | (0.318) | | (0.276) |
| HS8 fixed effects | Yes | Yes | Yes | Yes |
| Year-month fixed effects | Yes | Yes | Yes | Yes |
| Observations | 1,103,584 | 1,103,584 | 593,239 | 593,239 |
| $R^2$ | 0.353 | 0.353 | 0.394 | 0.394 |

**Notes**: This table reports the results of estimating specification (3). Each observation corresponds to an import transaction from China. The dependent variable is equal to one for transactions invoiced in RMB, and zero otherwise. In columns 1 and 2 the sample consists of all transactions between January 2023 and June 2024. In columns 3 and 4 the sample consists of all transactions between January 2023 and September 2023. Standard errors are clustered by firm and HS8 product using multiway clustering. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level.

**Table 5:** Probability of RMB invoicing for imports from the rest of the world

| | (1) Jan. 2023 to Jun. 2024 | (2) Jan. 2023 to Sep. 2023 |
|---|---|---|
| $\ln FirmSize_f$ | 0.001 | 0.001 |
| | (0.001) | (0.001) |
| $Importer\ from\ China_f$ | 0.044* | 0.046 |
| | (0.024) | (0.029) |
| HS8 × Country fixed effects | Yes | Yes |
| Year-month fixed effects | Yes | Yes |
| Observations | 6,906,844 | 3,650,798 |

**Notes**: This table reports the results of estimating specification (4). Each observation corresponds to an import transaction from the rest of the world. The dependent variable is equal to one for transactions invoiced in RMB, and zero otherwise. In column 1 the sample consists of all transactions between January 2023 and June 2024. In column 2 the sample consists of all transactions between January 2023 and September 2023. Standard errors are clustered by firm and HS8 product using multiway clustering. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level.

**Table 6:** Probability of RMB invoicing for imports from China: Firm-level determinants

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| $\ln FirmSize_f$ | 0.039*** | 0.034*** | 0.040*** | 0.047*** | 0.053*** |
| | (0.006) | (0.008) | (0.007) | (0.009) | (0.011) |
| $Exporter\ to\ rest\ of\ world_f$ | -0.127*** | | -0.131*** | -0.138*** | |
| | (0.026) | | (0.028) | (0.030) | |
| $Exporter\ to\ China_f$ | | 0.046 | -0.021 | -0.054 | |
| | | (0.060) | (0.058) | (0.049) | |
| $ICBC_f$ | | | | 0.101*** | |
| | | | | (0.024) | |
| $USD\ loan\ share_f$ | | | | -0.506** | |
| | | | | (0.252) | |
| $\ln Total\ exports_f$ | | | | | -0.015*** |
| | | | | | (0.004) |
| $Share\ exports\ to\ China_f$ | | | | | 0.270*** |
| | | | | | (0.083) |
| HS8 fixed effects | Yes | Yes | Yes | Yes | Yes |
| Year-month fixed effects | Yes | Yes | Yes | Yes | Yes |
| Observations | 1,528,438 | 1,528,438 | 1,528,438 | 1,103,584 | 712,624 |
| $R^2$ | 0.303 | 0.285 | 0.303 | 0.369 | 0.371 |

**Notes**: This table reports the results of estimating specification (3). Each observation corresponds to an import transaction from China. The dependent variable is equal to one for transactions invoiced in RMB, and zero otherwise. In all columns the sample consists of transactions between January 2023 and June 2024. Standard errors are clustered by firm and HS8 product using multiway clustering. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level.

# A Online Appendix

## A.1 Timeline of China-Argentina currency swaps and key events

Below we provide a timeline with key dates on the history of China-Argentina currency swaps, drawn from various newspaper articles for the most recent events as well as Horn et al. (2023) and (Arnold, 2023a) for earlier events.

- April 2009: Argentina and China initiate their first a bilateral swap agreement worth RMB 70bn (USD $11bn). It remains dormant for three years without being drawn down. Source: Bloomberg, 26 June 2023.
- July 2014: Following its sovereign debt default, Argentina extends its swap agreement for an additional three years.
- October 2014: Argentina starts drawing down swap lines and begins serial rollovers, borrowing close to USD $11bn by October 2015, representing about 40% of Argentina's foreign currency reserves.
- 2018: Argentina and China agree to increase the swap line from RMB 70bn to RMB 130bn (USD $19bn).
- December 2018: Argentina draws an additional RMB 60bn (USD $8.7bn) from the swap line, bringing its total outstanding swap debt to USD $18.9bn.
- December 2021: Argentina's total PBOC swap debt increases to USD $20.5bn, representing 51.6% of the BCRA's foreign currency reserves. See Arnold (2023b).
- October 2022: The Argentine government creates the Sistema de Importaciones de la República Argentina (SIRA), a new import licensing system.
- November 2022: The PBOC expands its currency swap agreement with Argentina by RMB 35bn (roughly USD $5 billion) to RMB 165bn. See Arnold (2023b).
- March 2023: Seen as a milestone in China's efforts to internationalize the use of its currency, the RMB surpasses the US dollar for the first time as the most widely used currency for cross-border transactions in China (covering both the current and capital accounts). The RMB was used in 48% of cross-border transactions, and the dollar was used in 47%. Source: Reuters, 26 April 2024
- April 2023: On a visit to China, Brazilian President Luiz Inácio Lula da Silva questions the use of "US dollars for settlements and not the yuan or other international currencies" and calls on BRICS countries (Brazil, Russia, India, China, and South Africa) to settle bilateral

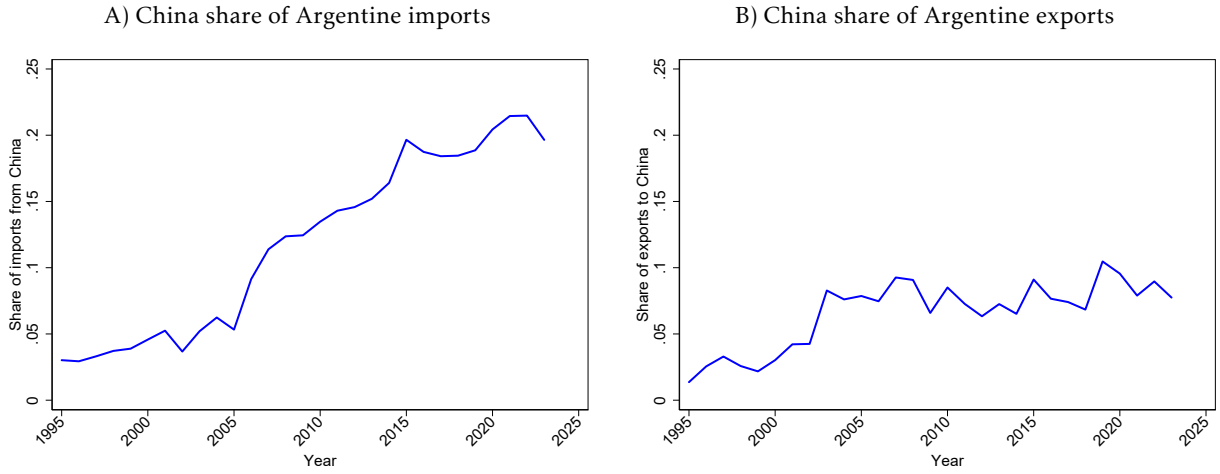
trade and investments in their own currencies. Source: China Southern Morning Post, 21 April 2023 and 27 April 2023.

- May 2023: The Argentine aggregate monthly trade deficit for May reaches its largest extent (USD $1.2bn) since 2018. Source: Bloomberg 20230626. Minister of Economy Sergio Massa blames the drought for having USD $15bn less in dollar income due to reduced agricultural exports. Source: El País, 26 April 2023.
- June 2023: The Chinese swap line is renewed, standing at RMB 130bn in total (USD $19bn). The portion that can be used freely for "any type of financial operation" is doubled to RMB 70bn. The dollar reserves of the Argentine central bank reach the lowest level since 2016. Source: Bloomberg, 26 June 2023.
- June 2023: For the first time ever, Argentina uses funds worth USD $1bn drawn down from the PBOC swap line to repay IMF debts.
- August 2023: Argentina makes another payment worth USD $1.7bn to the IMF, also drawn from the PBOC swap line.
- August 2023: Argentina devalues the peso against the USD by 18%.
- October/November 2023: Javier Milei is elected president of Argentina. Sergio Massa wins the first round of the presidential election. But Milei wins 55.7% of the popular vote in the second round, which is the highest winning margin since Argentina's transition to democracy.
- December 2023: Milei devalues the official peso exchange rate by more than 50% on taking office. Source: Financial Times, 9 October 2024.
- December 2023: The SIRA requirement is abolished and replaced with a simplified system (Sistema Estadístico de Importaciones, or SEDI). The BCRA started issuing a bond (Bonos para la Reconstrucción de una Argentina Libre, or BOPREAL) to help importers pay debts to international suppliers.
- April 2024: The Milei government achieves a first-quarter primary fiscal surplus, the first of its kind in 16 years. Source: Reuters, 17 May 2024.
- June 2024: The BCRA announces it has renewed a portion of its currency swap with China, worth around USD $5bn, for another two years until July 2026. The funds are meant to be used to make payments owed to the IMF and to finance imports. Argentina is scheduled to begin paying down the active portion of the swap starting in mid-2025 over a 12-month period. Source: Bloomberg, 12 June 2024.

- October 2024: Milei says Argentina is not ready to lift its currency controls. The controls were imposed by a previous government in 2019 amid an economic crisis. They "fix the peso at an official rate and limit individual and company purchases of foreign currency, creating a black market for the US currency." Source: Financial Times, 9 October 2024.

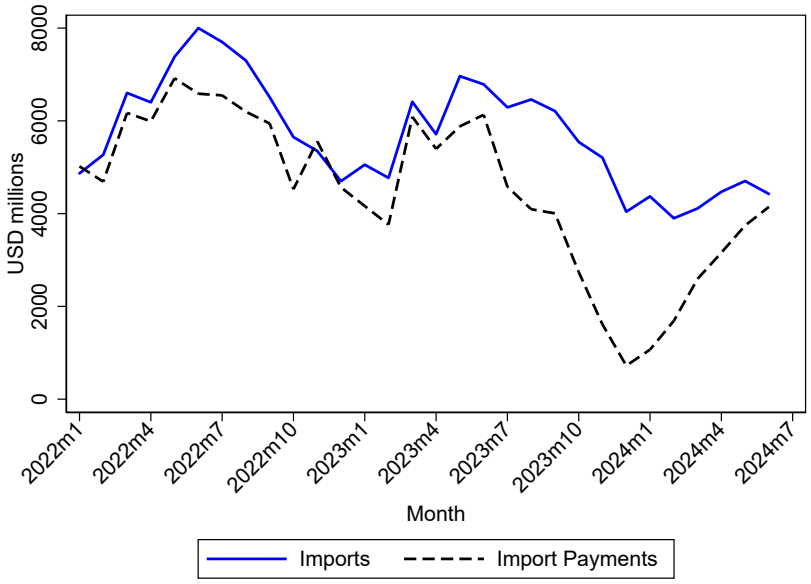
## A.2 Appendix figures and tables

**Figure A.1:** China share of Argentine imports and exports



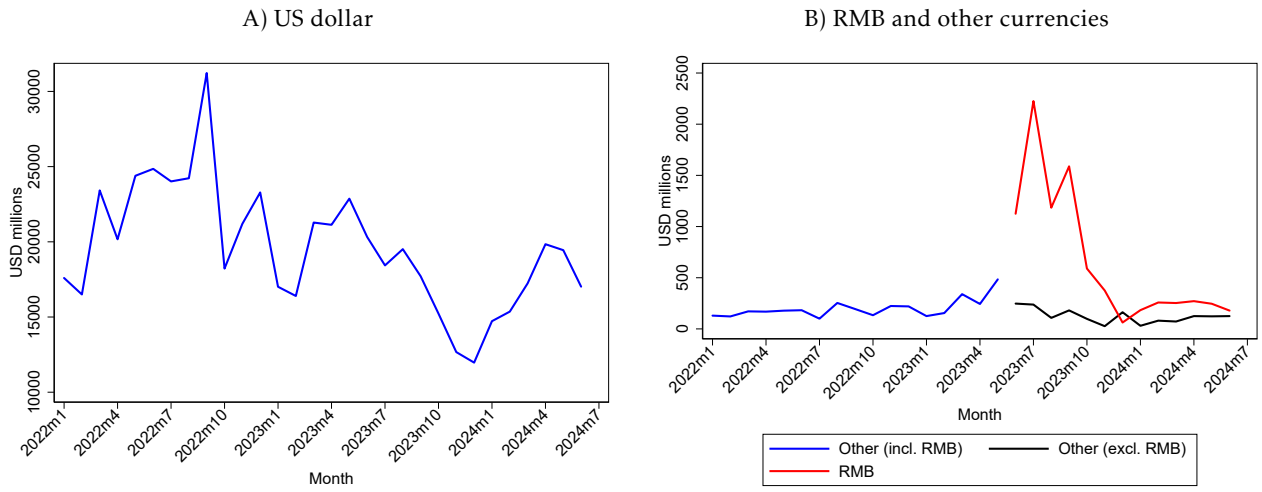

**Notes**: This graph shows the share of Argentine imports from China (panel A) and the share of Argentine exports to China (panel B) at annual frequency between 1995 and 2023. The data are obtained from the United Nation's Comtrade database.

**Figure A.2:** Argentine imports and import payments



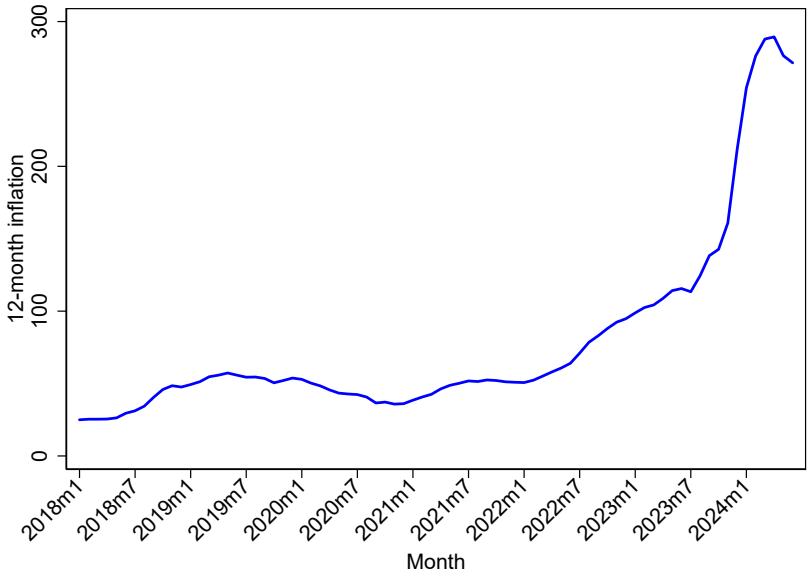

**Notes**: Source: BCRA.

**Figure A.3:** Argentine foreign exchange market volumes



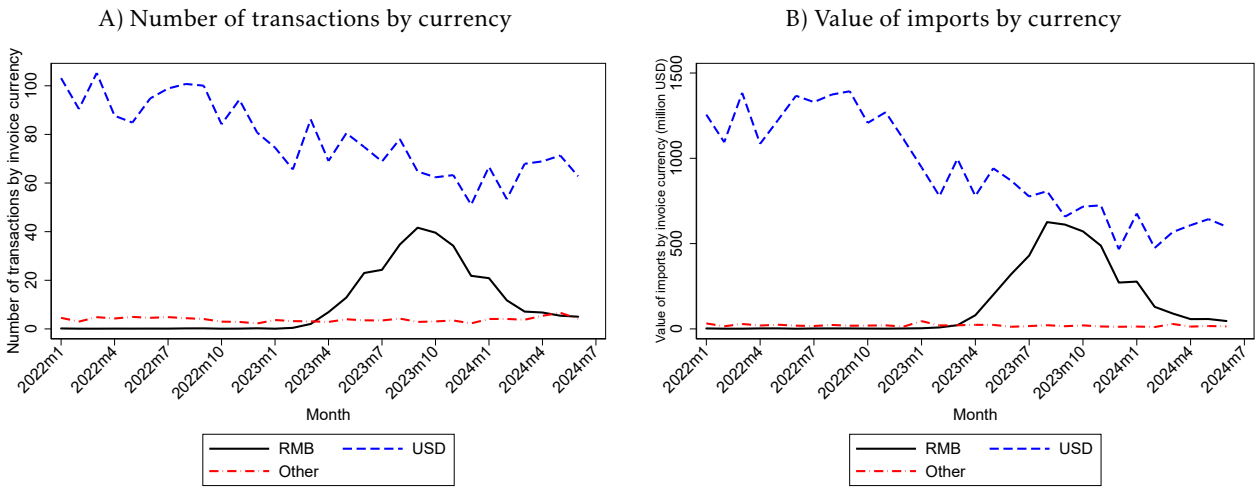

**Notes**: Source: BCRA. Panel A shows the foreign exchange market volume for US dollars. In panel B, the "Other (incl. RMB)" category includes all currencies except the US dollar and the euro up to May 2023. Reporting changes in June 2023 when the RMB becomes a separate category so that the "Other (excl. RMB)" category includes all currencies except the US dollar, the euro, and the RMB.

**Figure A.4:** Inflation in Argentina



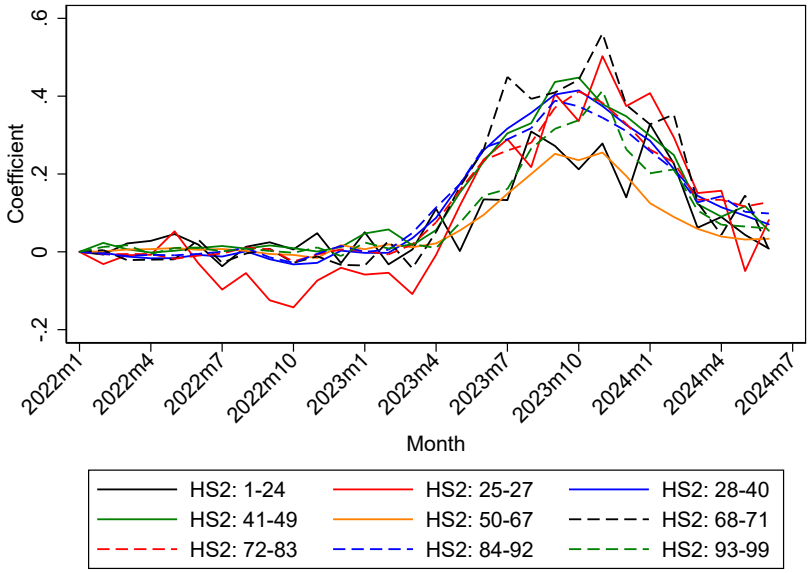

**Notes**: This figure shows the 12-month percent change in the consumer price index as reported by Argentina's statistical institute (INDEC).

**Figure A.5:** RMB invoicing for imports from China



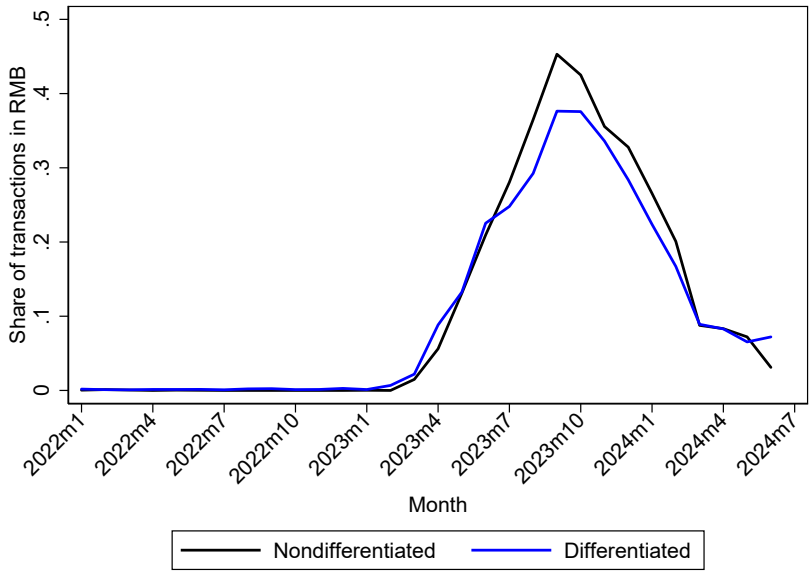

**Notes**: Panel A shows the number of transactions (in thousands) invoiced in RMB, US dollars, and other currencies. Panel B shows the value of imports (in million US dollars) invoiced in RMB, US dollars, and other currencies.

**Figure A.6:** RMB invoicing for imports from China: Breakdown by sectors




**Notes**: This figure shows estimated time dummies from a regression using transaction-level data on imports from China in which the dependent variable is a dummy variable for transactions invoiced in RMB and including time dummies and product fixed effects. The legend indicates the HS 2-digit chapters in each sector.

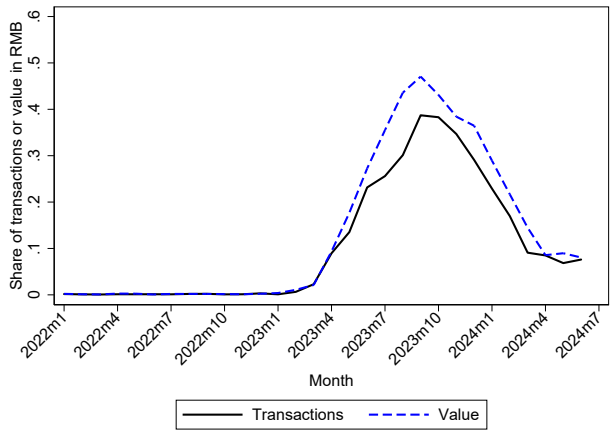
**Figure A.7:** RMB invoicing for imports from China: Differentiated vs. nondifferentiated products



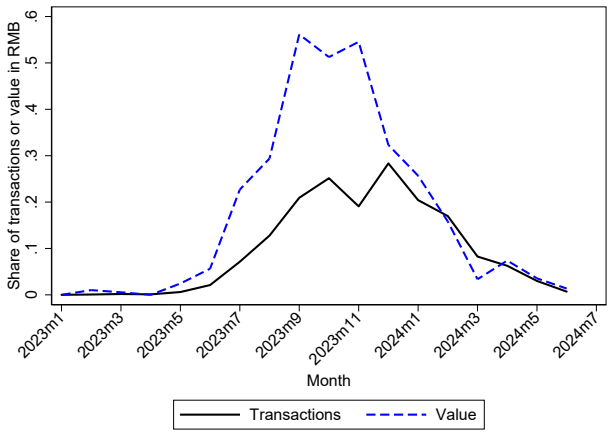

**Notes**: This figure shows the share of import transactions from China invoiced in RMB for differentiated and nondifferentiated products following the Rauch (1999) classification.

**Figure A.8:** RMB invoicing for imports from China

A) Share of transactions and value in RMB: Existing firms

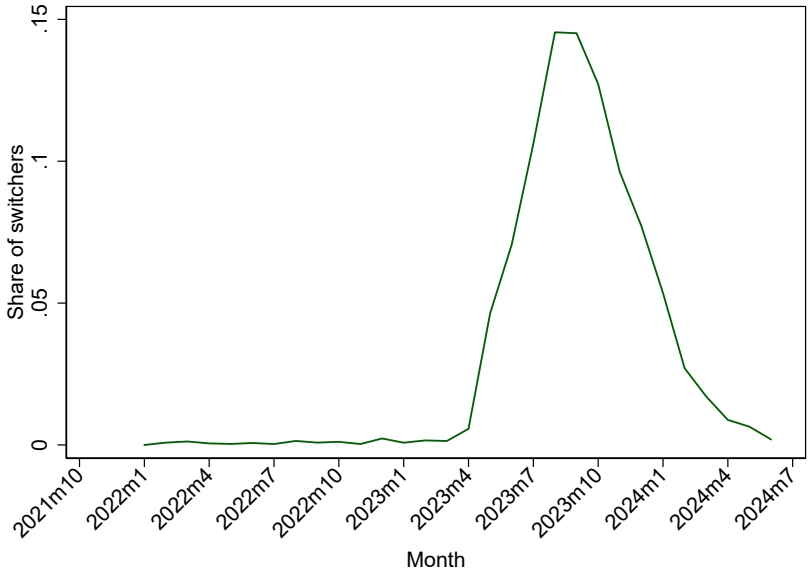



B) Share of transactions and value in RMB: New firms




**Notes**: Both panels show the share of transactions and the share of value invoiced in RMB in imports from China. Panel A corresponds to existing firms, defined as those importing in 2022. Panel B corresponds to new firms, defined as those with no imports in 2022.

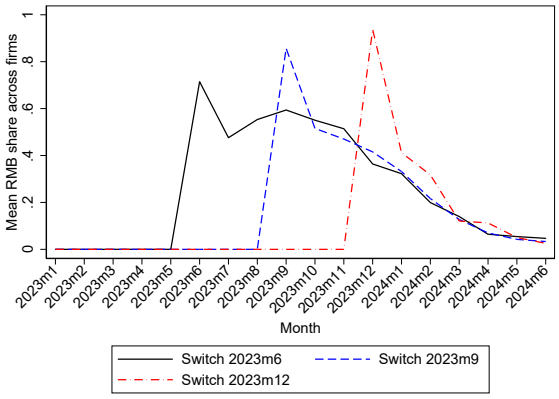
**Figure A.9:** First-time RMB use for imports from China



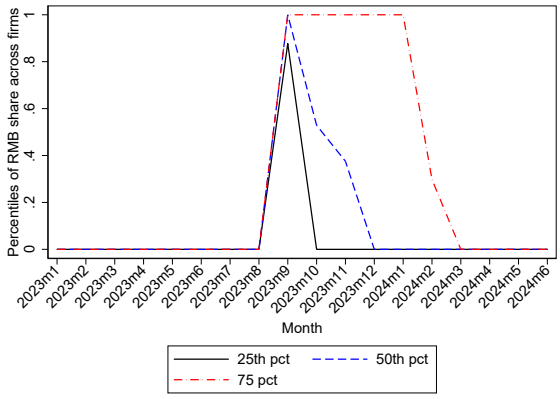

**Notes**: This figure shows the ratio between the number of firms that switch from USD to RMB and the total number of importers in each month. The sample is restricted to imports from China.

**Figure A.10:** Importing firms' share of value imported in RMB for imports from China

A) Mean RMB share by time of switching



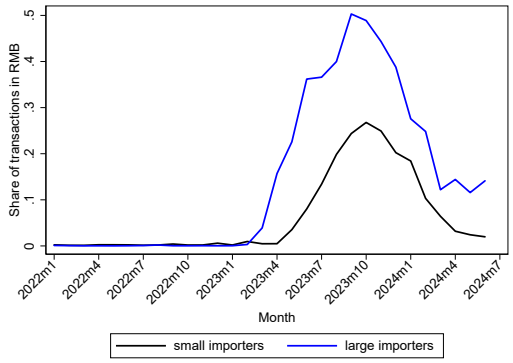

B) Percentiles of RMB share for September 2023 switchers



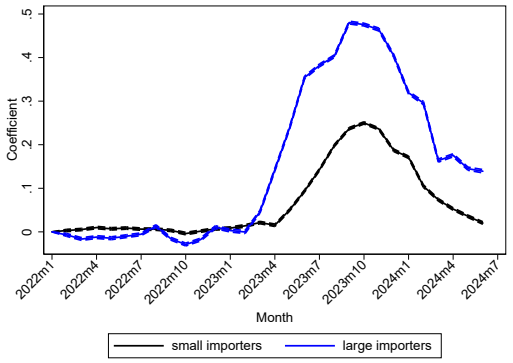

**Notes**: Panel A shows the mean across firms of the share of value imported in RMB for imports from China in each month. It splits firms into groups based on the first date in which they switch to RMB. Panel B shows percentiles across firms of the share of value imported in RMB for imports from China in each month. It is restricted to firms that switch to using RMB in September 2023.

**Figure A.11:** RMB invoicing for imports from China: Robustness

A) By importer size: Share of transactions in RMB

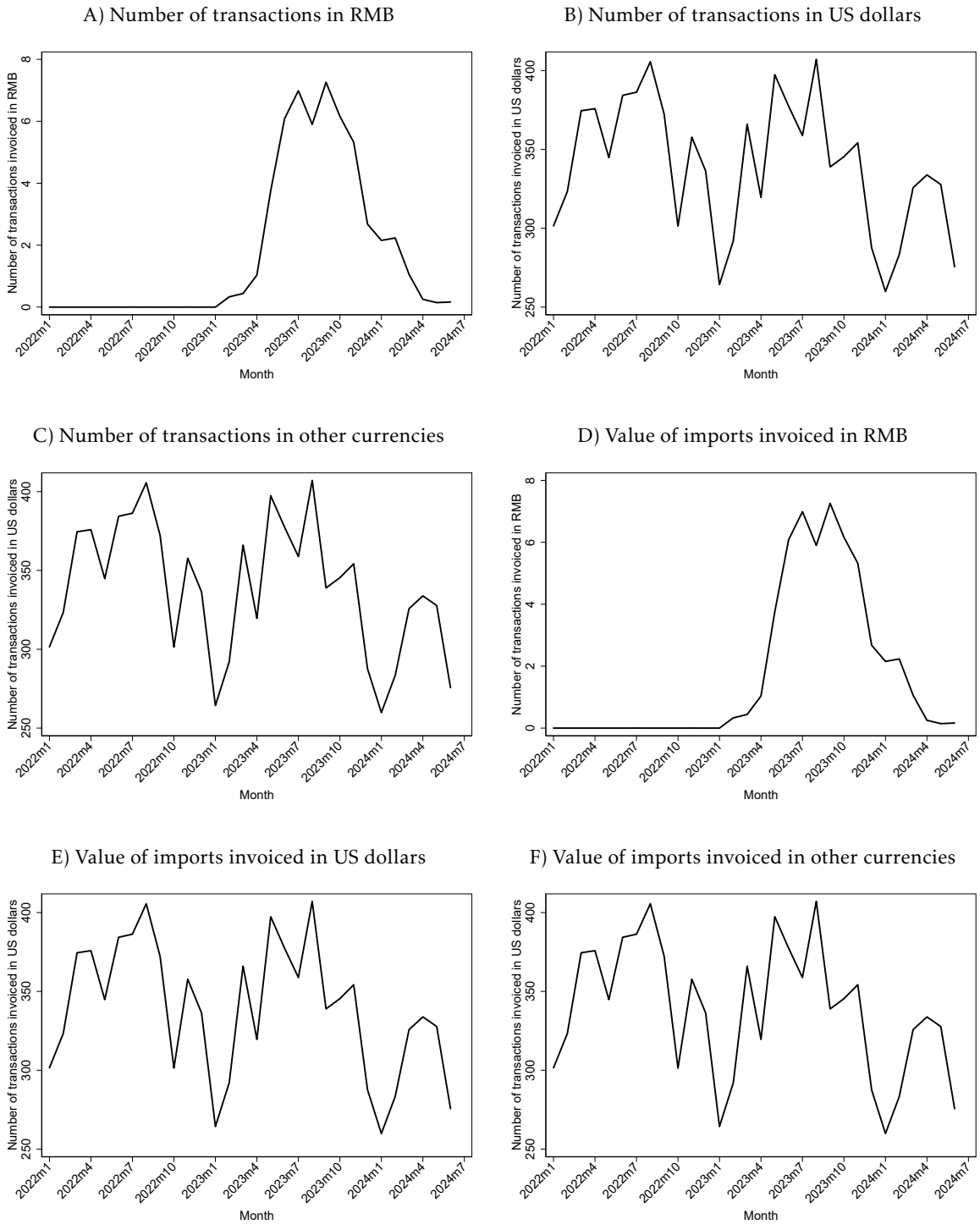



B) By importer size: Probability of RMB invoicing



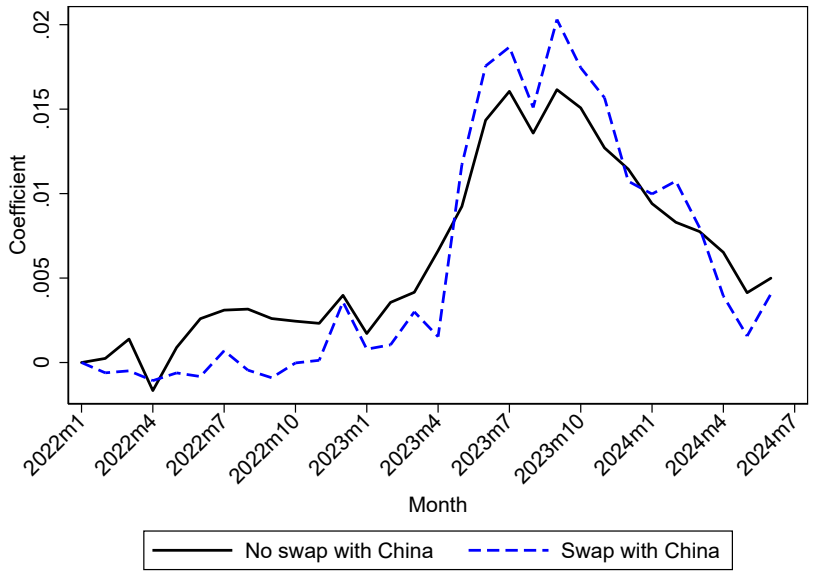

**Notes**: Panel A shows the share of import transactions from China invoiced in RMB for small and large importers. Importer size is measured as total imports from the world in 2022. These categories are defined such that half of the firms belong to each group. Panel B shows estimated time dummies from a regression using transaction-level data on imports from China in which the dependent variable is a dummy variable for transactions invoiced in RMB and including time dummies and firm × HS8 product fixed effects. This regression is estimated separately for small and large importers.

**Figure A.12:** RMB invoicing for imports from the rest of the world



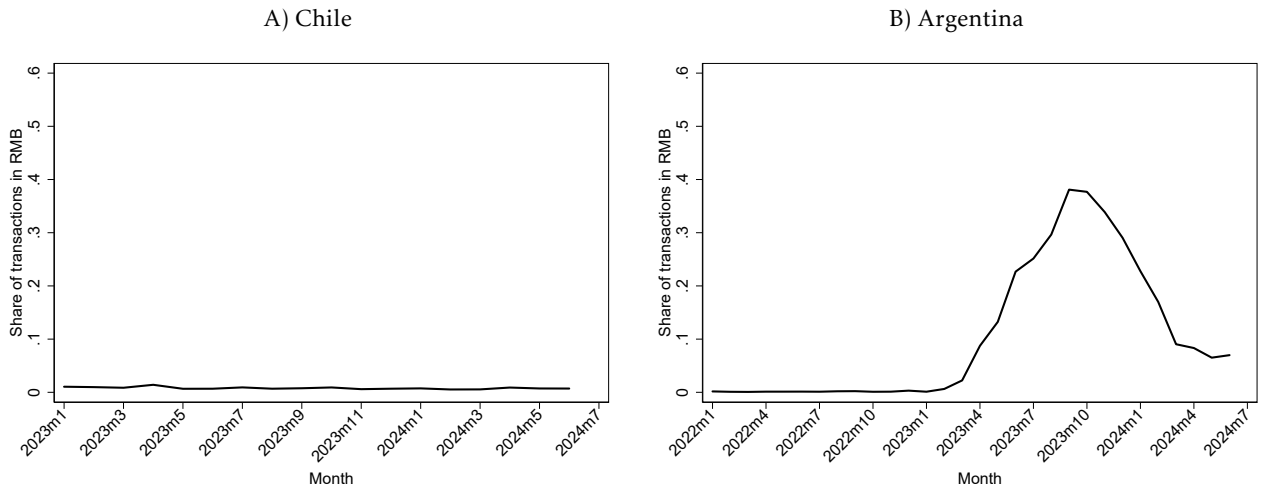

**Notes**: Panels A thorugh C show the number of transactions (in thousands) invoiced in RMB, US dollars, and other currencies. Panels D through F show the value of imports (in million US dollars) invoiced in RMB, US dollars, and other currencies.

**Figure A.13:** RMB invoicing for imports from the rest of the world: The role of swap agreements with China



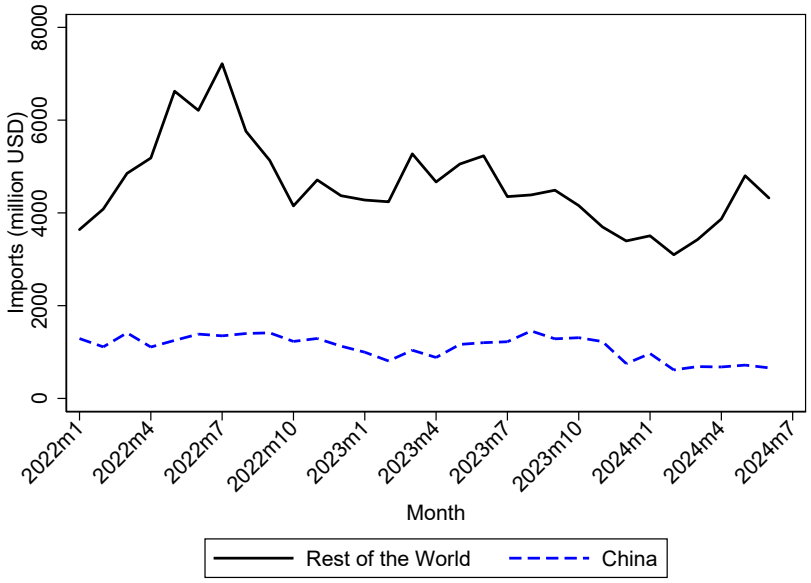

**Notes**: This figure shows estimated time dummies from a regression using transaction-level data on imports from the rest of the world in which the dependent variable is a dummy variable for transactions invoiced in RMB and including time dummies and firm × HS8 product × country fixed effects. The sample is split between source countries with and without swap agreements with China.

**Figure A.14:** RMB invoicing for Chilean imports from China



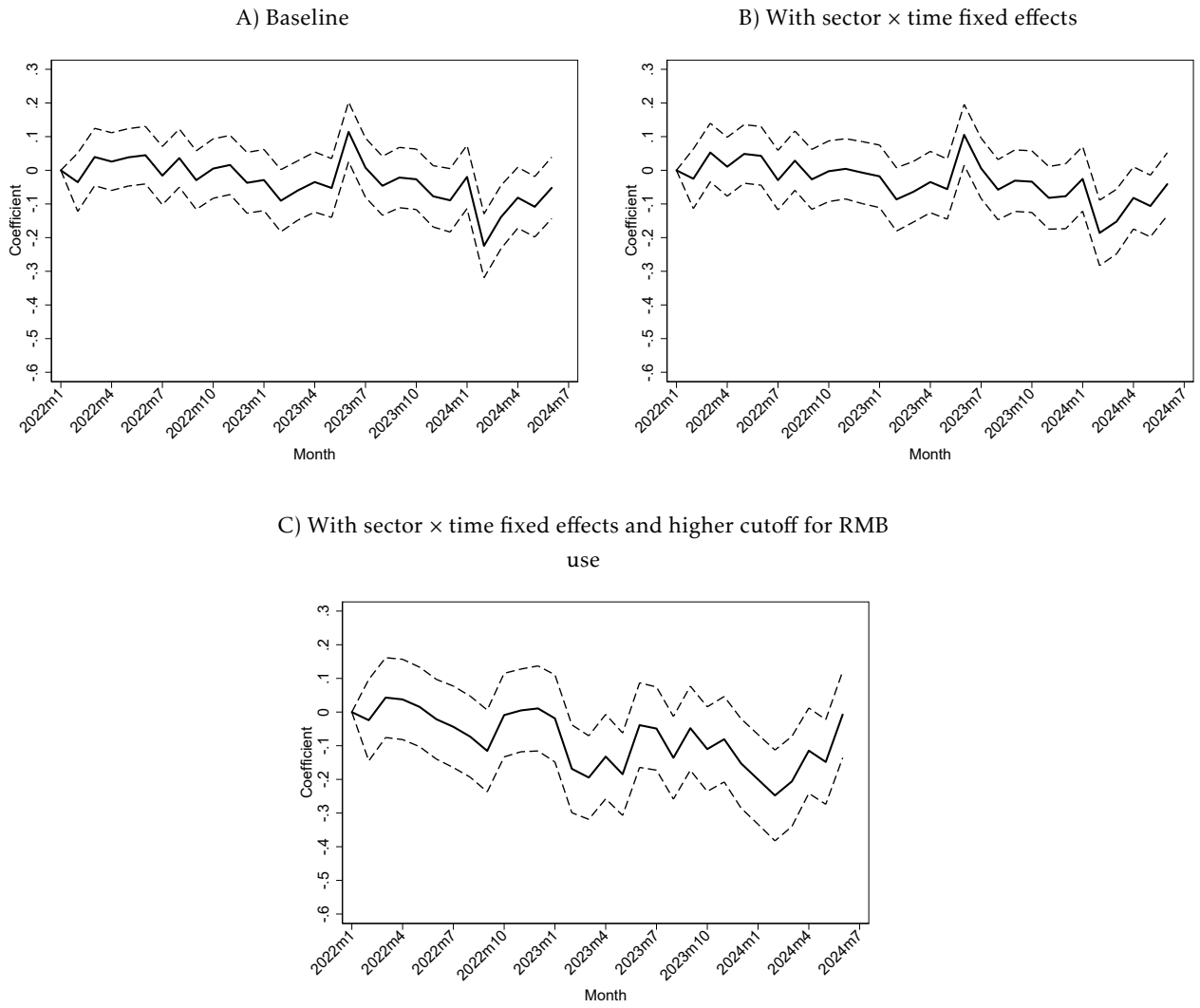

**Notes**: This figure shows the share of transactions invoiced in RMB in Chilean imports from China (panel A) and Argentine imports from China (panel B).

**Figure A.15:** Imports from China and the rest of the world




**Notes**: This figure shows total imports from China and the rest of the world in millions of US dollars.

**Figure A.16:** RMB invoicing and import volumes from the rest of the world




**Notes**: Each panel shows estimated time dummies from specification (7) using the sample of imports from the rest of the world. Panel A corresponds to the baseline specification described in the main text. Panel B adds sector × time fixed effects, with the sector defined as the main HS2 imported by the firm. Panel C also includes these additional fixed effects, and the RMB dummy variable is equal to one for firms with more than 30% of transactions in RMB after January 2023.

**Table A.1:** List of countries with swap agreements with China

| | | | |
|---|---|---|---|
| Albania | Hungary | Nigeria | Tajikistan |
| Argentina | Island | Pakistan | Thailand |
| Armenia | Japan | Qatar | Turkey |
| Australia | Indonesia | Russia | United Kingdom |
| Belarus | Kazakhstan | Serbia | Ukraine |
| Brazil | South Korea | Singapore | United Arab Emirates |
| Canada | Malaysia | South Africa | Uzbekistan |
| Chile | Mongolia | Sri Lanka | |
| Egypt | Morocco | Suriname | |
| Hong Kong | New Zealand | Switzerland | |

**Notes**: This table reports the list of countries with swap agreements with China.

**Table A.2:** List of largest banks in our sample

| Bank name | Market share (2022Q4) |
|---|---|
| Banco de Galicia y Buenos Aires S.A.U. | 14.93% |
| Banco Santander Argentina S.A. | 13.31% |
| Banco BBVA Argentina S.A. | 11.69% |
| Banco de la Nación Argentina | 7.27% |
| Banco Credicoop Cooperativo Limitado | 6.03% |
| Industrial and Commercial Bank of China (ICBC) | 5.98% |
| HSBC Bank Argentina S.A. | 5.23% |
| Banco de la Provincia de Buenos Aires | 5.13% |
| Banco Macro S.A. | 4.21% |
| Banco Supervielle S.A. | 3.77% |
| Banco Patagonia S.A. | 3.03% |
| Banco BMA S.A.U. | 2.53% |
| Citibank N.A. | 2.17% |
| Banco Comafi Sociedad Anónima | 2.03% |
| Banco de la Ciudad de Buenos Aires | 1.73% |

**Notes**: This table provides the list of the 15 largest banks in our sample measured in terms of outstanding loans in 2022Q4. The market share in the second column is calculated as the share of outstanding loans in 2022Q4 over the total outstanding loans in 2022Q4 in our sample.

**Table A.3:** RMB invoicing for imports from China: Breakdown by HS2 chapter in September 2023

| HS2 code | HS2 name | Share of transactions in RMB | Share of value in RMB |
|---|---|---|---|
| Panel A: Top ten HS2 chapters by share of transactions in RMB | | | |
| 43 | Furskins and artificial fur; manufactures thereof | 1.00 | 1.00 |
| 74 | Copper and articles thereof | 0.85 | 0.71 |
| 75 | Nickel and articles thereof | 0.82 | 0.08 |
| 35 | Albuminoidal substances; etc. | 0.77 | 0.31 |
| 8 | Edible fruit and nuts; etc. | 0.67 | 0.54 |
| 59 | Impregnated, coated, etc. textile fabrics | 0.66 | 0.54 |
| 48 | Paper and paperboard; etc. | 0.61 | 0.40 |
| 80 | Tin and articles thereof | 0.59 | 0.80 |
| 27 | Mineral fuels, mineral oils; etc. | 0.59 | 0.48 |
| 20 | Preparations of vegetables, fruit, nuts; etc. | 0.52 | 0.45 |
| Panel B: Bottom ten HS2 chapters by share of transactions in RMB | | | |
| 45 | Cork and articles of cork | 0.20 | 0.22 |
| 53 | Other vegetable textile fibers; etc. | 0.20 | 0.69 |
| 61 | Articles of apparel and clothing accessories, knitted or crocheted | 0.20 | 0.22 |
| 12 | Oil seeds and oleaginous fruits; etc. | 0.18 | 0.25 |
| 89 | Ships, boats and floating structures | 0.14 | 0.41 |
| 79 | Zinc and articles thereof | 0.13 | 0.06 |
| 57 | Carpets and other textile floor coverings | 0.10 | 0.27 |
| 64 | Footwear, gaiters and the like; | 0.06 | 0.10 |
| 13 | Lac; gums, resins; etc. | 0.06 | 0.13 |
| 30 | Pharmaceutical products | 0.05 | 0.08 |

**Notes**: This table reports the share of transactions and the share of value invoiced in RMB for imports from China by HS2 chapter. Panel A corresponds to the top ten HS2 chapters in terms of the share of transactions in RMB. Panel B corresponds to the bottom ten HS2 chapters in terms of the share of transactions in RMB.

**Table A.4:** RMB invoicing in imports from China: Existing firms vs. new firms

| | RMB | Other |
|---|---|---|
| Share of value by existing firms | 0.934 | 0.953 |
| Share of transactions by existing firms | 0.981 | 0.956 |

**Notes**: This table reports the share of value and transactions in imports from China in September 2023 that correspond to existing firms (i.e., firms that import in 2022). These statistics are reported separately by currency, split between RMB and other currencies.

**Table A.5:** Importing firms' share of value imported in RMB for imports from China

| Date | Number of firms | 10th pct. | 25th pct. | 50th pct. | 75th pct. | 90th pct. |
|---|---|---|---|---|---|---|
| 2023m6 | 587 | 0.12 | 0.41 | 0.92 | 1.00 | 1.00 |
| 2023m9 | 1815 | 0.35 | 0.76 | 1.00 | 1.00 | 1.00 |
| 2024m3 | 424 | 0.21 | 0.63 | 1.00 | 1.00 | 1.00 |

**Notes**: This table reports percentiles of the distribution of firms' share of value imported invoiced in RMB at different points in time. The sample is restricted to imports from China and importing firms with at least some RMB use.

**Table A.6:** Probability of RMB invoicing for imports from China: Firm-level determinants with alternative fixed effects

| | (1) | (2) |
|---|---|---|
| $\ln FirmSize_f$ | 0.049*** | 0.048*** |
| | (0.010) | (0.009) |
| $ICBC_f$ | 0.084*** | 0.099*** |
| | (0.025) | (0.026) |
| $USD\ loan\ share_f$ | | -0.693** |
| | | (0.333) |
| HS8 × Year-month fixed effects | Yes | Yes |
| Observations | 1,131,538 | 1,091,304 |
| $R^2$ | 0.481 | 0.488 |

**Notes**: Column 1 of this table reports the results of estimating specification (1) but with product × time fixed effects. (This corresponds to column 3 in Table 3.) Column 2 reports the results of estimating specification (3) but with product × time fixed effects. (This corresponds to column 1 in Table 4.) Each observation corresponds to an import transaction from China. The dependent variable is equal to one for transactions invoiced in RMB, and zero otherwise. Note that the number of observations differs across columns because the number of "singletons" excluded in the estimation procedure depends on the fixed effects. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level.

**Table A.7:** Probability of RMB invoicing for imports from China: Firm-level determinants

| | (1) | (2) |
|---|---|---|
| $\ln FirmSize_f$ | 0.033*** | 0.040*** |
| | (0.009) | (0.009) |
| $ICBC_f$ | 0.082*** | |
| | (0.009) | |
| $ICBC\ branch_f$ | | 0.074*** |
| | | (0.020) |
| HS8 fixed effects | Yes | Yes |
| Year-month fixed effects | Yes | Yes |
| Province fixed effects | Yes | Yes |
| Observations | 1,143,802 | 1,143,802 |
| $R^2$ | 0.381 | 0.376 |

**Notes**: This table reports the results of estimating specification (1). In column 1 we use the dummy variable indicating a banking relationship with ICBC. In column 2 we replace it with a dummy variable indicating whether a firm is located in a city with an ICBC branch. Each observation corresponds to an import transaction from China. The dependent variable is equal to one for transactions invoiced in RMB, and zero otherwise. In all columns the sample consists of all transactions between January 2023 and June 2024. Standard errors are clustered by firm, HS8 product, and province using multiway clustering. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level.

**Table A.8:** Probability of RMB invoicing for imports from China: Firm-level determinants with time-varying coefficients

| | (1) | (2) |
|---|---|---|
| $\ln FirmSize_f \times$ 2023Q1 | -0.011*** | -0.011*** |
| | (0.004) | (0.004) |
| $\ln FirmSize_f \times$ 2023Q2 | 0.081*** | 0.081*** |
| | (0.019) | (0.019) |
| $\ln FirmSize_f \times$ 2023Q3 | 0.089*** | 0.089*** |
| | (0.015) | (0.015) |
| $\ln FirmSize_f \times$ 2023Q4 | 0.084*** | 0.084*** |
| | (0.015) | (0.015) |
| $\ln FirmSize_f \times$ 2024Q1 | 0.049*** | 0.049*** |
| | (0.014) | (0.014) |
| $\ln FirmSize_f \times$ 2024Q2 | 0.026 | 0.026 |
| | (0.016) | (0.016) |
| $ICBC_f \times$ 2023Q1 | 0.003 | 0.003 |
| | (0.017) | (0.017) |
| $ICBC_f \times$ 2023Q2 | 0.037 | 0.038 |
| | (0.040) | (0.040) |
| $ICBC_f \times$ 2023Q3 | 0.105* | 0.105* |
| | (0.058) | (0.058) |
| $ICBC_f \times$ 2023Q4 | 0.154** | 0.154** |
| | (0.060) | (0.060) |
| $ICBC_f \times$ 2024Q1 | 0.158*** | 0.158*** |
| | (0.050) | (0.050) |
| $ICBC_f \times$ 2024Q2 | 0.117** | 0.117** |
| | (0.049) | (0.049) |
| *USD loan share*$_f \times$ 2023Q1 | 0.105 | |
| | (0.161) | |
| *USD loan share*$_f \times$ 2023Q2 | -0.595 | |
| | (0.426) | |
| *USD loan share*$_f \times$ 2023Q3 | -1.103* | |
| | (0.667) | |
| *USD loan share*$_f \times$ 2023Q4 | -1.310* | |
| | (0.762) | |
| *USD loan share*$_f \times$ 2024Q1 | -0.755 | |
| | (0.553) | |
| *USD loan share*$_f \times$ 2024Q2 | -0.786 | |
| | (0.513) | |
| *USD+EUR+BRL loan share*$_f \times$ 2023Q1 | | 0.107 |
| | | (0.161) |
| *USD+EUR+BRL loan share*$_f \times$ 2023Q2 | | -0.599 |
| | | (0.421) |
| *USD+EUR+BRL loan share*$_f \times$ 2023Q3 | | -1.111* |
| | | (0.663) |
| *USD+EUR+BRL loan share*$_f \times$ 2023Q4 | | -1.312* |
| | | (0.755) |
| *USD+EUR+BRL loan share*$_f \times$ 2024Q1 | | -0.757 |
| | | (0.552) |
| *USD+EUR+BRL loan share*$_f \times$ 2024Q2 | | -0.791 |
| | | (0.513) |
| HS8 fixed effects | Yes | Yes |
| Year-month fixed effects | Yes | Yes |
| Observations | 1,103,584 | 1,103,584 |
| $R^2$ | 0.388 | 0.388 |

**Notes**: This table reports the results of estimating specification (3) where we allow the coefficients of the explanatory variables to vary by quarter (2023Q1-2024Q2). Each observation corresponds to an import transaction from China between January 2023 and June 2024. The dependent variable is equal to one for transactions invoiced in RMB, and zero otherwise. Standard errors are clustered by firm and HS8 product using multiway clustering. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level.

**Table A.9:** Summary statistics for invoicing currencies used in Argentine imports from the rest of the world

| | Share of transactions | | | Share of value | | |
|---|---|---|---|---|---|---|
| | 2022 | 2023 | 2024 | 2022 | 2023 | 2024 |
| US dollar | 84.4% | 84.3% | 83.4% | 77.9% | 74.5% | 70.3% |
| Renminbi | 0.0% | 0.9% | 0.3% | 0.0% | 1.7% | 0.3% |
| Euro | 9.4% | 8.5% | 10.3% | 5.3% | 6.7% | 6.4% |
| Argentine peso | 3.5% | 3.7% | 3.3% | 8.4% | 8.4% | 6.4% |
| Brazilian real | 1.2% | 1.4% | 1.3% | 7.9% | 8.0% | 15.9% |
| Pound | 0.4% | 0.4% | 0.4% | 0.1% | 0.1% | 0.1% |
| Yen | 0.4% | 0.4% | 0.4% | 0.1% | 0.2% | 0.1% |
| Other | 0.5% | 0.5% | 0.6% | 0.2% | 0.3% | 0.3% |

**Notes**: This table reports the share of import transactions and the share of imported value by currency and by year for imports from the the rest of the world. Values for 2024 correspond to January through June.

**Table A.10:** RMB invoicing for imports from the rest of the world in September 2023

| Country | Share of transactions in RMB | Share of value in RMB |
|---|---|---|
| Niger | 1.00 | 1.00 |
| Zambia | 1.00 | 1.00 |
| British territories in America | 0.96 | 0.99 |
| Egypt | 0.89 | 0.08 |
| Hong Kong | 0.79 | 0.59 |
| Vietnam | 0.32 | 0.69 |
| South Korea | 0.23 | 0.15 |
| Singapore | 0.13 | 0.03 |
| Taiwan | 0.10 | 0.06 |
| El Salvador | 0.07 | 0.05 |
| Indonesia | 0.06 | 0.23 |
| Thailand | 0.05 | 0.07 |
| United Arab Emirates | 0.04 | 0.06 |
| Ukraine | 0.01 | 0.07 |
| Estonia | 0.01 | 0.09 |
| Peru | 0.01 | 0.11 |
| Lithuania | 0.00 | 0.26 |
| Morocco | 0.00 | 0.06 |

**Notes**: This table reports the share of transactions and the share of value invoiced in RMB for imports for countries with at least 5% of transactions or value invoiced in RMB. The data are sorted from largest to smallest share of transactions in RMB. The term "British territories in America" is the exact translation of the name used in the original data.

**Table A.11:** Probability of invoicing in RMB in imports from the rest of the world

| | (1) Jan. 2023 to Jun. 2024 | (2) Jan. 2023 to Jun. 2024 | (3) Jan. 2023 to Sep. 2023 | (4) Jan. 2023 to Sep. 2023 | (5) Jan. 2023 to Jun. 2024 | (6) Jan. 2023 to Sep. 2023 |
|---|---|---|---|---|---|---|
| $\ln FirmSize_f$ | -0.001 | -0.001 | -0.001 | -0.001 | -0.001 | -0.001 |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| $ICBC_f$ | 0.004* | 0.005* | 0.002 | 0.003 | 0.003 | 0.002 |
| | (0.002) | (0.003) | (0.002) | (0.003) | (0.002) | (0.002) |
| $USD\ loan\ share_f$ | | -0.015 | | -0.015* | -0.035** | -0.042** |
| | | (0.009) | | (0.009) | (0.015) | (0.020) |
| $Importer\ from\ China_f$ | | | | | 0.028** | 0.027* |
| | | | | | (0.013) | (0.016) |
| HS8 × Country fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Year-month fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 5,594,323 | 5,594,323 | 2,971,226 | 2,971,226 | 5,594,323 | 2,971,226 |
| $R^2$ | 0.343 | 0.343 | 0.452 | 0.452 | 0.354 | 0.461 |

**Notes**: This table reports the results of estimating specification (3). Each observation corresponds to an import transaction from the rest of the world. The dependent variable is equal to one for transactions invoiced in RMB, and zero otherwise. In columns 1, 2 and 5 the sample consists of all transactions between January 2023 and June 2024. In columns 3, 4 and 6 the sample consists of all transactions between January 2023 and September 2023. Standard errors are clustered by firm and HS8 product using multiway clustering. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level.

**Table A.12:** Summary statistics for invoicing currencies used in Argentine exports

| | Share of transactions | | | Share of value | | |
|---|---|---|---|---|---|---|
| | 2022 | 2023 | 2024 | 2022 | 2023 | 2024 |
| Panel A: Exports to China | | | | | | |
| US dollar | 99.8% | 99.9% | 99.9% | 100.0% | 99.9% | 99.9% |
| Renminbi | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Euro | 0.2% | 0.1% | 0.1% | 0.0% | 0.1% | 0.1% |
| Argentine peso | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Brazilian real | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Pound | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Yen | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Other | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Panel B: Exports to the rest of the world | | | | | | |
| US dollar | 97.5% | 97.5% | 97.6% | 91.6% | 88.2% | 95.4% |
| Renminbi | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Euro | 1.9% | 1.8% | 1.8% | 2.9% | 1.4% | 1.0% |
| Argentine peso | 0.2% | 0.3% | 0.2% | 5.4% | 10.3% | 3.5% |
| Brazilian real | 0.1% | 0.1% | 0.1% | 0.0% | 0.0% | 0.0% |
| Pound | 0.1% | 0.1% | 0.1% | 0.0% | 0.1% | 0.0% |
| Yen | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Other | 0.2% | 0.2% | 0.2% | 0.1% | 0.1% | 0.1% |

**Notes**: This table reports the share of export transactions and the share of exported value by currency and by year for exports to China (panel A) and to the rest of the world (panel B). Values for 2024 correspond to January through June.

**Table A.13:** Probability of RMB invoicing for imports from China: Argentine vs. Chilean importers

| | (1) | (2) |
|---|---|---|
| $ARGENTINA_s$ | 0.133** | |
| | (0.004) | |
| $ARGENTINA_s \times$ 2023Q2 | | 0.154*** |
| | | (0.001) |
| $ARGENTINA_s \times$ 2023Q3 | | 0.306*** |
| | | (0.002) |
| $ARGENTINA_s \times$ 2023Q4 | | 0.340*** |
| | | (0.002) |
| $ARGENTINA_s \times$ 2024Q1 | | 0.204*** |
| | | (0.002) |
| $ARGENTINA_s \times$ 2024Q2 | | 0.106*** |
| | | (0.001) |
| Firm × HS6 | Yes | Yes |
| Year-month fixed effects | Yes | Yes |
| Observations | 2,993,126 | 2,988,430 |
| $R^2$ | 0.676 | 0.673 |

**Notes**: This table reports the results of estimating equation (6). Each observation corresponds to an import transaction from China either from Argentina or Chile between January 2023 and June 2024. The dependent variable is equal to one for transactions invoiced in RMB, and zero otherwise. Standard errors are clustered by importing country and HS6 product using multiway clustering. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level.