BORRADORES DE ECONOMÍA

Check for updates

Monetary Policy and the Current Account in Latin America: Revisiting the Mundellian Paradigm

By:
Juan Camilo Laborde Vera

No. 1343
2026

Monetary Policy and the Current Account in Latin America: Revisiting the Mundellian Paradigm

Juan Camilo Laborde Vera*

The opinions contained in this document are the sole responsibility of the author and do not commit Banco de la República or its Board of Directors.

Abstract

How does the current account respond to a monetary policy shock? The answer to this perennial question is theoretically ambiguous and empirical evidence is particularly scarce in emerging markets due to challenges in identifying exogenous policy variation. I construct a novel dataset of monetary policy shocks using analysts' forecasts of policy rate decisions for an unbalanced panel of five emerging market economies in Latin America during 1999-2024. I estimate impulse response functions using local projections and find that a monetary tightening shock leads to a "J curve" pattern in the current account: a short-run contraction followed by a medium-run expansion. The response is heterogeneous in the cross-section and depends on the strength of the exchange rate appreciation resulting from the monetary contraction and the country's export-import structure. The panel estimation results show that exports and imports exhibit a hump-shaped pattern and decline by 4.5 and 5.9 per cent, respectively, as a result of a one-percentage-point policy tightening shock. The results are robust to using alternative measures of high-frequency monetary shocks.

JEL Classification: E52, F32, F41.

Keywords: Monetary Policy, Local Projections, Monetary Policy Shocks, Current Account Adjustment, Open Economy Macroeconomics, International Macroeconomics.

*Banco de la República de Colombia. Email: jlaborve@banrep.gov.co

I hugely thank my advisor, Marc Hofstetter, for his continuous support and inspiration throughout my career. I am grateful to José Alberto Guerra, Juan Herreño and Fernando Jaramillo for their thoughtful comments and detailed guidance. I specially thank José Vicente Romero for his generous advice and teaching, and José David Pulido for providing me his Romer and Romer shocks for Colombia. I thank Hernán Rincón for his valuable comments and discussions. I have benefited from the discussions, insights, comments and help from Laura Acevedo, Adrien Auclert, Óscar Ávila, Camila Casas, Nicolás Fajardo, Sebastián García, Cristian González, Jorge Guerra, Franz Hamann, Óscar Jordá, Estefanía Laborde, Julián Pérez, Cristian Quesada, José Vicente Romero, Enrique Sanz, Martín Uribe, Leonardo Villar, and seminar participants at Universidad de los Andes, Universidad del Rosario and Banco de la República. All remaining errors are mine.

Política Monetaria y Cuenta Corriente en América Latina: Revisitando el Paradigma Mundelliano

Juan Camilo Laborde Vera*

Las opiniones contenidas en el presente documento son responsabilidad exclusiva del autor y no comprometen al Banco de la República ni a su Junta Directiva.

Resumen

¿Cómo responde la cuenta corriente a un choque de política monetaria? La respuesta a esta pregunta perenne es teóricamente ambigua y la evidencia empírica es particularmente escasa en países emergentes debido a desafíos en la identificación de fuentes de variación exógena de la política monetaria. En este artículo, construyo una base de datos novedosa de choques de política monetaria utilizando pronósticos de analistas sobre decisiones de tasa de política monetaria para un panel desbalanceado de cinco economías emergentes de América Latina durante 1999-2024. Estimo funciones de impulso-respuesta mediante proyecciones locales y encuentro que una contracción monetaria genera un patrón de "curva J" en la cuenta corriente: una caída en el corto plazo seguida de una expansión en el mediano plazo. La respuesta es heterogénea entre países y depende de la fortaleza de la apreciación cambiaria que resulta de la contracción monetaria y de la estructura exportadora e importadora del país. Los resultados de las estimaciones tipo panel muestran que las exportaciones y las importaciones exhiben un patrón jorobado y caen 4,5% y 5,9%, respectivamente, como resultado de un choque monetario contractivo de un punto porcentual. Los resultados son robustos a la utilización de medidas alternativas de choques monetarios.

Clasificación JEL: E52, F32, F41.

Palabras Clave: Política Monetaria, Proyecciones Locales, Choques de Política Monetaria, Ajuste de la Cuenta Corriente, Macroeconomía de Economía Abierta, Macroeconomía Internacional.

*Banco de la República de Colombia. Email: jlaborve@banrep.gov.co
Agradezco enormemente a mi asesor, Marc Hofstetter, por su apoyo continuo e inspiración a lo largo de mi carrera. Estoy agradecido con José Alberto Guerra, Juan Herreño y Fernando Jaramillo por sus comentarios reflexivos y su orientación detallada. Agradezco especialmente a José Vicente Romero por sus generosos consejos y enseñanzas, y a José David Pulido por proporcionarme sus choques de Romer y Romer para Colombia. Agradezco a Hernán Rincón por sus valiosos comentarios. Me he beneficiado de las discusiones, aportes, comentarios y ayuda de Laura Acevedo, Adrien Auclert, Óscar Ávila, Camila Casas, Nicolás Fajardo, Sebastián García, Cristian González, Jorge Guerra, Franz Hamann, Óscar Jordá, Estefanía Laborde, Julián Pérez, Cristian Quesada, José Vicente Romero, Enrique Sanz, Martín Uribe, Leonardo Villar, y de los participantes en seminarios de la Universidad de los Andes, la Universidad del Rosario y el Banco de la República. Todos los errores restantes son míos.

Many of the main empirical questions in macroeconomics are the same as they have been since at least the Great Depression... How does monetary policy affect the economy? ... Those new to our field may be tempted to ask, "How can it be that after all this time we don't know the answers to these questions?" The reason is that identification in macroeconomics is difficult.

- Nakamura and Steinsson (2018b).

The difficulty lies, not in the new ideas, but in escaping from the old ones.

- Keynes (1936).

1 Introduction

One of the primary indicators of a looming economic crisis is an unsustainable current account deficit.[1] Although they may arise from optimal intertemporal choices, large current account deficits are commonly perceived as symptoms of financial instability building up or fiscal misbehavior, while large surpluses may reflect economic distortions (e.g., low levels of social insurance that lead to precautionary savings or inefficient financial intermediation leading to low investment) (Obstfeld, 2012; Blanchard and Milesi-Ferretti, 2013). Moreover, sudden-stop crises, characterized by an abrupt decline in capital inflows (i.e., a current account reversal) and a sharp contraction in aggregate demand[2], can be the result of changes in foreign lender's perceptions about the ability of a country to honor its external debt obligations due to rising current account deficits (Schmitt-Grohé et al., 2022). Hence, a large literature in open economy macroeconomics has studied the determinants of the current account and its economic importance.[3]

A strand of this literature has found that the likelihood of an economic crisis after a capital inflow bonanza is higher and its effects are larger in emerging market economies relative to advanced economies (Mendoza and Terrones, 2008; Reinhart and Reinhart, 2008). High stocks of external debts that are short-term or denominated in foreign-exchange (i.e., maturity and currency mismatches)[4], lower institutional credibility, lower levels of financial development and higher exposure to global trade and financial conditions are some of the causes of this stylized fact (Calvo and Reinhart, 2000; Frankel, 2010; Kalemli-Özcan, 2019; IMF, 2020, 2021). Therefore, studying how policy affects the current account takes an increased relevance in emerging markets.

However, the perennial question of what is the effect of monetary policy on the current account has not

[1]See Fischer (1988), Fischer (1994), Edwards (2002), Rojas-Suárez (2002), Obstfeld (2012), Frankel and Saravelos (2012), Blanchard and Milesi-Ferretti (2013) and Catão and Milesi-Ferretti (2014) for studies and discussions on the nexus between current account imbalances and economic crises.

[2]Edwards (2002) estimates that a current account reversal results in a decline in private investment equal to 1,8% of GDP; the long term reduction of public sector investment is estimated to be, on average, 0.5% of GDP. Schmitt-Grohé et al. (2022) show that the sudden-stop in Argentina in 2001 resulted in a contraction of real GDP per capita of 12.5%.

[3]See Obstfeld and Rogoff (1996), Schmitt-Grohé and Uribe (2017) and Schmitt-Grohé et al. (2022) for textbook treatments of the topic. Obstfeld (2012) argues that the current account largely determines the dynamics of the Net International Investment Position and, therefore, "its direction and absolute size imply changes in the economy's overall consumption and investment opportunities".

[4]A sudden-stop leads to a currency depreciation that, in turn, raises the real value of foreign liabilities and thereby tightens financial constraints, which leads to a bigger and much more traumatic adjustment in emerging markets (Obstfeld, 2012; Korinek, 2018).

found a clear answer in the literature. Standard textbook models in the spirit of the canonical open-economy IS-LM model due to Mundell (1963) and Fleming (1962), such as the one by Mankiw (2022), assume that the Marshall-Lerner condition[5] holds and therefore predict an increase in the current account balance in response to an exchange rate depreciation caused by a monetary expansion. Other models, such as the ones by Krugman et al. (2022) and Blanchard (2020), specify an *ad-hoc* behavioral rule for the demand for imports that not only depends on the real exchange rate but, for instance, is an increasing function of disposable income. In these models the overall effect of a lower policy rate on the current account turns ambiguous because the expansion of imports due to higher aggregate demand may offset the expenditure-switching effect due to the depreciation and thus leave unchanged or even reduce the trade balance.

Microfounded dynamic general-equilibrium models with imperfect competition and nominal rigidities do not offer a definitive answer either.[6] The *Redux* model from Obstfeld and Rogoff (1995a) implies that the current account moves into surplus in response to a permanent increase in the money supply. Guo et al. (2023) obtain the same result in the context of a heterogeneous-agent, New Keynesian open economy model. However, there are two strands of the New-Keynesian open-economy macro literature that discuss the possibility that temporary monetary expansions may induce current account deficits (Tille, 2001; Kollmann, 2001; Lombardo, 2001; Auclert et al., 2024) as well as not have any effect at all on the trade balance[7] (Cole and Obstfeld, 1991; Corsetti and Pesenti, 2001; Galí and Monacelli, 2005).

This lack of consensus in the theoretical literature has led some authors to argue that the relationship between monetary shocks and the current account is ambiguous and therefore is ultimately an issue that must be resolved empirically (Lane, 2001a,b, 2019; Lombardo, 2001). For example, Lane (2019) argues that *a priori*, the overall effect of a monetary policy shock on the current account is non-trivial. If lower policy rates raise domestic income, increased demand for imports will weaken the current account. On the other hand, if the expansive monetary policy depreciates the exchange rate, this will improve the trade balance through expenditure switching effects.

Moreover, in recent times the strength of monetary policy in aiding external adjustment through the expenditure switching channel has been questioned by the *Dominant Currency Paradigm* (DCP) of Gopinath et al. (2020). As the argument goes, in a world of sticky dollar export prices, the expenditure-switching towards the exports of a country whose exchange rate is depreciating may be completely muted by the fact that their relative price with respect to other countries' exports (which also have sticky dollar prices) does not change (Basu and Gopinath, 2024). However, as Obstfeld (2020), Tenreyro (2019) and McLeay and Tenreyro (2025) argue, even

[5]This condition states that exchange rate depreciations improve the trade balance when export volumes increase enough and import volumes decrease enough to compensate for the increase in the price of imports caused by the depreciation. Mathematically, it states that the sum of the absolute value of the elasticities of exports and imports with respect to the exchange rate is greater than 1.

[6]Lane (2001b), Devereux (2001), Sarno (2001), Engel (2002), Corsetti (2007) and Corsetti et al. (2010) are great surveys on the New Open Economy Macroeconomics literature.

[7]Note that I am using interchangeably the terms current account and trade balance. In most countries the current account and the trade balance have the same sign and size and move closely together (Blanchard, 2020). However, this need not be the case for every country (Schmitt-Grohé et al., 2022). I show that for the countries in my sample they move closely together.

if a country invoices its entire trade in dominant currencies, export supply may increase as the home depreciation raises the domestic-currency price of exports[8] and therefore raises profits in the export sector, which in turn promotes entry and an expansion of export supply.

McLeay and Tenreyro (2025) further argue that the export structure of the country determines the strength of expenditure switching. Quantities exported of highly substitutable, homogeneous goods tend to be more sensitive to exchange rate fluctuations, as their demand is more elastic and supply shifts caused by exchange rate fluctuations lead to greater volume responses. By the same token, differentiated goods tend to have a relatively inelastic demand and hence expenditure switching is less strong for them. Nonetheless, Casas et al. (2023) show that dollar-denominated debt and imported inputs may limit the effects of exchange rates on export volumes through a countervailing balance-sheet effect; short-run supply constraints may also be crucial. In other words, one of the forces through which monetary policy affects exports and hence the current account remains under scientific debate and therefore requires further empirical research.

However, answering empirically this question is difficult because of the endogeneity of monetary policy to present and future (anticipated or expected) economic conditions. Central banks do not randomize when setting interest rates.[9] On the contrary, most variation in the policy interest rate represents systematic, predictable responses by the monetary authority to the state of the economy, so separating the effects of monetary policy from the effects of the non-policy disturbances to which the central bank is responding is difficult (Sims, 2010). In other words, estimation of the effects of monetary policy on the current account faces serious identification problems, as highlighted by Emi Nakamura and Jón Steinsson in the epigraph above.

Two concrete examples may be useful. First, consider a country that is hit by a positive domestic demand shock (e.g., due to a giant oil discovery that causes a positive *news shock*, as in Arezki et al. (2017)). This may lead the current account to deteriorate[10] and the policy rate to increase (if the central bank follows a Taylor-type rule). Using this variation in the policy rate to estimate the effect of monetary policy on the current account will yield misleading results since the direct effect of the positive demand shock on the economy is a confounder (which in this case would bias results towards finding that policy rate increases induce current account deficits, the Mundellian paradigm). Second, a country facing a positive external demand shock would exhibit an increase of both the current account and the policy rate. In this case, the results would be biased towards finding that a higher policy rate leads to a higher current account.

My approach to tackle this identification issue is to construct a new set of monetary policy shocks based

[8]Or, equivalently, lowers the costs of production expressed in dollars, as may be the case of sticky domestic-currency wages, utilities and real estate.

[9]Cunningham (2021) points out that in "observational data, correlations are almost certainly not reflecting a causal relationship because the variables were endogenously chosen by people who were making decisions they thought were best. In pursuing some goal while facing constraints, they chose certain things that created a spurious correlation with other things."

[10]Schmitt-Grohé and Uribe (2017) show that on average across countries the trade balance, trade-balance-to-output ratio, current account, and current-account-to-output ratio are all countercyclical, in the sense that they are negatively correlated with output. This means that countries typically import more than they export during booms and export more than they import during recessions. Of course, this is an unconditional moment of the data and hence only indicates that the relative variance of structural shocks that induce a negative correlation between the current account and GDP is higher than those which induce a positive correlation.

on the forecasts of policy rate decisions of analysts of financial institutions and economic research companies, following Aruoba et al. (2021) and Checo et al. (2024). I then use these shocks to assess the effects of monetary policy on the trade balance, exports, imports and the exchange rate by employing the local projections technique developed by Jordà (2005).[11] My sample covers five Latin-American emerging markets (Brazil, Chile, Colombia, Mexico and Peru) starting in the early 2000s up to late 2024.

My identification assumption is that analysts build their forecasts by incorporating the endogenous/systematic component of monetary policy due to public information about the economy at the time of the policy rate decision. Hence, the difference between the actual policy rate decision and the consensus forecast (i.e., the analysts' forecast error) isolates exogenous variation in the policy rate and can be used to estimate the effect of monetary policy on the current account and other macro outcomes.

My main empirical finding is that the trade balance's response to a monetary tightening shock exhibits a *J-curve* pattern: a short-run contraction followed by a medium-run expansion. The contractionary shock results in a decline in both exports and imports. Initially, exports decrease more than imports, leading to a lower trade balance. However, the reduction in imports eventually surpasses the reduction in exports, resulting in a subsequent expansion of the trade balance. Quantitatively, my panel estimates imply that a one percentage point monetary tightening shock[12] leads to an average decline of 8.1% in exports and 10.7% in imports over 36 months. The exchange rate appreciates in response to a monetary policy tightening that causes an economic contraction, so I interpret my results as implying that expenditure-switching is stronger in the short run while the aggregate-demand/intertemporal-substitution channel of monetary policy is stronger in the medium run.

I also analyze the cross-country heterogeneity in the responses of the trade balance, exports, and imports to the monetary policy tightening shock. I find that the export dynamics of Brazil, Chile, Mexico, and Peru align well with the *Mixed Currency Pricing* (MCP) paradigm proposed by McLeay and Tenreyro (2025), while for Colombia DCP remains valid. On the import side, the strong contraction in capital and consumption imports in the medium run drives the trade balance upwards and induces the *J*-curve pattern. Hence, using a different research design I confirm the evidence that McLeay and Tenreyro (2025) found for Chile and extend it to a larger set of emerging markets. The statistically insignificant response of exports in Colombia to monetary policy requires further research, but I argue that it may be due to different factors, such as a countervailing balance-sheet effect or supply constraints, as shown by Casas et al. (2023).

The finding of a short-run fall in net exports resulting from a monetary contraction is consistent with the Mundell-Fleming model (hence the inclusion of the epigraph by Keynes). However, in the medium run (16 to 36 months) the result of an increase in the trade balance is inconsistent with this model. These results may provide an explanation for the policy view that a temporary monetary contraction induces a current account surplus, which contradicts the Mundellian paradigm.[13] I show that this view may be correct only in the

[11] Ramey (2016), Nakamura and Steinsson (2018b), Jordà (2023) and Jordà and Taylor (2024) are great surveys on this methodology.

[12] The increase in the policy rate caused by the shock is quite persistent: it lasts roughly 32 months and averages 1.8 percentage points.

[13] Colombia's central bank governor, Leonardo Villar, said the following during an intervention in a seminar: "The tightening of

"medium-run", when the contraction in economic activity due to the higher policy rate has reduced imports enough to increase the trade balance.

My contributions to the literature can be summarized as follows. First, this paper causally identifies the dynamic response of the trade balance, exports and imports to an exogenous monetary policy shock in emerging markets. I find that a monetary contraction leads to a higher external deficit in the short run and a lower one in the medium run. However, this response is heterogeneous across countries and depends on the relative strength of the exchange rate appreciation that results from the monetary contraction and the type of goods the country exports (more differentiated goods are less subject to expenditure switching) and imports (capital and durable consumption goods are more sensitive to interest rate fluctuations).

Second, the impulse response functions estimated in this paper can be used as a moment restriction in a structural estimation exercise in order to help discriminate between models. In particular, expenditure switching might be stronger than the aggregate demand/intertemporal substitution channel of monetary policy in the short run, while in the medium run this sign reverses. In the structural models of Galí and Monacelli (2005) or Auclert et al. (2024) this means that the trade elasticity is higher than the intertemporal elasticity of substitution in the short run, while in the medium run it is lower.

Third, this paper finds that exports and imports persistently contract after a monetary tightening shock. This stands in contrast to the literature on *Local Currency Pricing* (LCP) and *DCP*, which assert that the effects of monetary policy on exports may be muted if exports are invoiced in a dominant currency or if there is pricing to market. I also show that my results are consistent with the Mundellian paradigm's *Producer Currency Pricing* (PCP)[14] or *MCP*. Nevertheless, I confirm the validity of *DCP* for Colombia, in line with Gopinath et al. (2020).

Finally, this is a paper in "positive economics" that can yield information to answer a "normative economics" question: how *should* monetary authorities respond to current account developments?[15] In particular, central banks may face a trade-off during a demand-driven boom that is accompanied by a capital inflow bonanza and hence an increase in the current account deficit: a monetary contraction leads to a higher external deficit in the short run, which may increase the vulnerability of the economy to a *sudden-stop* episode. Thus, things may get worse before they get better, but this may be the cost one has to pay in order to stabilize the economy. Macro-prudential and capital flow management policies, as well as communication about the systematic component of the monetary policy rule and the economic outlook expected by the central bank may avoid speculation and

monetary policy and the consequent increase in interest rates began to manifest itself from the last months of 2022, and much more clearly throughout 2023, in a lower dynamism of demand, which fell by 3.8, and in an adjustment of internal and external imbalances. The current account deficit of the balance of payments fell to 2.7 of GDP, which means that Colombia now requires less international financing and is much less vulnerable to international financial conditions and market perceptions of the country."

[14] Although the implicit mechanism through which the exchange rate affects exports in the Mundell-Fleming model is one where foreign demand switches towards the depreciating country, which in turn depends on the assumption that a country invoices its exports in its own currency. This does not hold for most emerging markets, including those in my sample, as shown in Table 1.

[15] As Milton Friedman puts it in his Nobel Prize Lecture: "In order to recommend a course of action to achieve an objective, we must first know whether that course of action will in fact promote the objective. Positive scientific knowledge that enables us to predict the consequences of a possible course of action is clearly a prerequisite for the normative judgment whether that course of action is desirable. The Road to Hell is paved with good intentions, precisely because of the neglect of this rather obvious point. (Friedman, 1977)"

self-fulfilling crises from occurring while the adjustment process in external accounts takes place.

2 Literature Review

2.1 Empirics

My analysis relates to the literature that has sought to estimate the effect of changes in monetary policy instruments on the current account. This literature has reached mixed conclusions about the sign of the effect and has concentrated in advanced economies. I extend the analysis to emerging markets and find that a J curve emerges after a monetary contraction: a short-run decline and a medium-run increase of the trade balance.

The first strand of this literature finds results consistent with the Mundell-Fleming model, as I do in the short run. Lane (2001a) estimates a VAR for the US and G-7 countries using the identification assumption that monetary shocks have no long-run effects on the current account. Lee and Chinn (2006) estimate a VAR for advanced economies with a short-run recursive identification scheme. Adler and Osorio Buitron (2020) estimate a sign-restricted structural VAR for the US. Each of these papers find that expansive nominal shocks tend to improve the current account position. Giuliodori (2004) finds that expansionary nominal shocks generate temporary improvements of the current account and the size of the effect is proportional to the degree of openness of the country. Fisher and Huh (2002) find that an expansionary monetary shock significantly improves the trade balance in both the short and long run.

Adler and Osorio Buitron (2020) find for the US that, in response to a monetary loosening that causes an exchange rate depreciation, exports increase while the response of import volumes is small and not statistically significant. The authors suggest this happens because for imports the demand-diverting- and demand-augmenting effects offset each other. In contrast, I find that both exports and imports react negatively to a monetary contraction, which indicates that the demand-augmenting/intertemporal substitution/income effect prevails on imports.

Second, there is a strand of the literature that finds a J-Curve effect of the current account to monetary policy shocks (Magee, 1973), just as I do. Lane (2001a) finds a J-curve response of the trade balance to expansionary monetary shocks, such that the impact effect is negative, with the improvement only occurring with a lag. Kim (2001) finds that U.S. expansionary monetary policy shocks worsen the U.S. trade balance in about a year, but subsequently improves it. I find that a monetary expansion improves the trade balance in the short run but deteriorates it in the medium run.

Third, Ivrendi and Guloglu (2010) find results inconsistent with the Mundell–Fleming model. They find that a contractionary monetary policy shock leads to an improvement in the trade balance, as I do in the medium run. Finally, Schuler and Sun (2022) estimate an open-economy structural VAR with zero and sign restrictions derived from a multi-country DSGE and find that euro area monetary policy does not affect the current account. They also find that monetary shocks in the United States have a non-significant impact on the current account.

In contrast, I find that monetary policy does affect the current account.

The identification assumptions used in these papers rule out reverse causality by imposing a Cholesky ordering that assumes that there are no omitted variables and the lag-length order of truncation of the variables is correctly specified, which can lead to endogenous variation being considered as exogenous (Nakamura and Steinsson, 2018b; Ramey, 2016). More recently, applied macroeconomists have been trying to identify exogenous variation in monetary policy and then estimating impulse responses from the estimated structural shocks (Angrist and Pischke, 2010). The seminal papers by Kuttner (2001) and Cochrane and Piazzesi (2002) innovated by using high-frequency identification. This approach builds exogenous shocks based on interest rate movements within narrow windows around policy announcements. The identification assumption is that financial markets anticipate the endogenous component of monetary policy that depends on economic conditions, and thus react only to unexpected shocks.

My paper follows this high-frequency identification empirical literature. Until recently, this type of research design had been limited to study monetary policy transmission in advanced economies (Gertler and Karadi, 2015; Nakamura and Steinsson, 2018a; Jarociński and Karadi, 2020; Ca' Zorzi et al., 2020; Miranda-Agrippino and Ricco, 2021; Bauer and Swanson, 2023a) due to the unavailability in emerging markets of intra-day data of interest rate changes in narrow intervals around monetary policy decisions. However, recently different researchers have used different sources of high-frequency information to assess the effects of monetary policy on macroeconomic outcomes in emerging markets (Kuersteiner et al., 2018; Pescatori, 2018; Brandao-Marques et al., 2020; Aruoba et al., 2021; Romero et al., 2021; Deb et al., 2023; Checo et al., 2024; Bolhuis et al., 2024).

In particular, since the pioneering work of Meyer (2006)[16], various researchers have used Bloomberg surveys to identify monetary policy shocks in emerging markets (Pescatori, 2018; Aruoba et al., 2021; Checo et al., 2024). These papers focus on the transmission of monetary policy to financial and macroeconomic variables, but leave aside the analysis of the international trade channel of monetary policy (i.e., the effects of monetary policy on the trade balance, exports and imports). My work fills this gap in the literature.

For the US, Miranda-Agrippino and Ricco (2021) build monetary policy shocks using surprises in the Fed funds futures market around FOMC announcements and orthogonalizing them with respect to Greenbook forecasts in order to control for the central bank information effect.[17]. They find that a contractionary monetary shock appreciates the real exchange rate and contracts exports and imports, as I do. The authors do not report their results for the trade balance, but it can be seen that imports fall more than exports on impact, implying a positive response of the trade balance to the tightening shock. Further out in the horizon the response is quantitatively similar between exports and imports. Camara et al. (2024) use the shocks of Bauer and Swanson

[16]As far as I have been able to determine, Meyer (2006) is the first work to estimate policy surprises in emerging markets using Bloomberg's surveys.

[17]This effect indicates that the private information set of the central bank may be different to the one of market participants, so a contractionary monetary policy surprise may indicate that the central bank is expecting/anticipating stronger activity or price dynamics, which would lead agents to react by raising their prices in anticipation. This effect may blur the effects of the "pure monetary policy effect" (Romer and Romer, 2000; Nakamura and Steinsson, 2018a; Miranda-Agrippino and Ricco, 2021; Bauer and Swanson, 2023a).

(2023a) and also find that exports and imports decline in the US after a monetary tightening shock.

For the US and the euro area, Ca' Zorzi et al. (2020) measure policy surprises in the time window starting 10 minutes before and ending 20 minutes after a central bank announcement. Then, they follow Jarociński and Karadi (2020) and estimate the impulse responses with a VAR. They find that euro area exports decline and imports do not move much after a policy tightening, implying a reduction in the trade balance during more than 30 months (consistent with the Producer Currency Pricing Paradigm embedded in the Mundell-Fleming model). For a Fed tightening, they find a decline in US exports and imports, as I do for my sample of emerging markets, that leads to an increase in the trade balance on impact and then a deterioration followed by an expansion. My results for the trade balance are similar to the ones obtained under an ECB tightening in the short run (a trade balance contraction) and to a Fed tightening in the medium run (a trade balance expansion).

Finally, McLeay and Tenreyro (2025) employ the monetary policy shocks constructed by Brandao-Marques et al. (2020) for a panel of 37 emerging markets. They find, as I do, a statistically significant decline of exports in response to a monetary policy tightening that induces an exchange-rate appreciation. Then they focus on Chile and find, as I do, that mining exports fall the most, while manufacturing exports also fall.

2.2 Theory

Why can't the question posed in this paper, namely the effect of monetary policy on the current account, be addressed solely with a theoretical model? In this section, I show that the answer to this question is theoretically ambiguous and depends on the relative magnitude of various elasticities for which there is a broad range of estimates. I also show that the response of exports to monetary policy is still an area of ongoing research and discussion. Additionally, theory can guide the interpretation of my empirical results.

Obstfeld and Rogoff (1995a) is generally considered one of the first attempts to microfound the Mundell-Fleming model (Corsetti, 2007).[18] Their model assumes that export prices are sticky in the currency of the exporter (*Producer Currency Pricing*, PCP) and hence a monetary expansion that leads to a depreciation of the exporters' currency relative to the importer's currency will reduce the price of the good expressed in the latter's currency. This will increase the volume of exports due to increased export demand. They assume the law of one price (LOP) holds, so nominal import prices in local currency move one-to-one with the exchange rate and a depreciation will reduce the demand for imports. Hence, a monetary expansion will increase the trade balance if export quantities increase and import quantities decline enough to offset the higher import prices expressed in local currency (the Marshall-Lerner condition).

Betts and Devereux (2000) and Devereux and Engel (2003) introduced *Local Currency Pricing* (LCP). Under this view, export prices are sticky in the currency of the importer and hence exchange rate fluctuations do not

[18] Obstfeld and Rogoff (1995b) argue that the Mundell-Fleming model, "which ignores intertemporal choice and even intertemporal budget constraints, remains overwhelmingly dominant in policy circles. But as a framework for addressing fundamentally dynamic phenomena such as the current account and government debt, the Mundell-Fleming paradigm, even when jerry-rigged with dynamic add-ons, is fatally handicapped."

promote external adjustment since import prices remain fixed in their own currency so expenditure switching is muted. Therefore, a domestic monetary expansion that depreciates the domestic currency will increase the domestic price of exports (thereby increasing the value of exports), but it will also increase the demand for imports. Hence, the effect on the trade balance is ambiguous.

Finally, a *Dominant Currency Paradigm* (DCP) was proposed by Gopinath et al. (2020), where exports are priced in a dominant currency and hence a bilateral depreciation of an exporter's currency relative to any other currency different to the dominant currency does not generate expenditure switching, because the importer will continue observing fixed prices in the dominant currency. Only changes in the value of the exporters' or importers' currency against the dominant currency produces external adjustment. In particular, expenditure switching under this paradigm only works through imports, while export quantities stay put after a depreciation (export prices in domestic currency may change hence affecting export values).

Gopinath and Itskhoki (2022) argue that the direct aggregate demand effects of a monetary policy shock can partially or fully undo the expenditure switching effects from the exchange rate depreciation under both PCP and DCP. For example, an appreciation driven by a home monetary contraction reduces export quantities under PCP and export prices in local currency under DCP, but may not stimulate imports under both PCP and DCP, as the contraction of home demand may compensate for the expenditure switching towards imported goods and away from home goods. Hence, the sign of the response of the trade balance to a monetary policy shock is ambiguous, as it depends on whether the value of exports declines more or less than the value of imports after a monetary tightening shock.

Gopinath et al. (2020) use data for Colombia and find price and quantity patterns broadly consistent with this paradigm. I find that imports contract in Colombia in response to the monetary contraction and exports decline but in a statistically insignificant way, in line with *DCP*. For Brazil, Chile and Peru the estimates point to a significant decrease in export value expressed in dollars after a monetary tightening. This results stand in contrast to LCP and DCP and support either a PCP view or the Mixed Currency Pricing (MCP) paradigm proposed by McLeay and Tenreyro (2025), which nests DCP under a price-taking flexible price model.

In particular, according to MCP, an appreciation of the exchange rate will reduce the amount of local currency firms receive in exchange for each dollar, thereby reducing their local currency revenues (Tenreyro, 2019; McLeay and Tenreyro, 2025). However, the appreciation will also reduce the local currency costs of their imported inputs priced in dollars. The net effect will depend on the structure of the firm's balance sheet.

These currency mismatches have been studied for France by Barbiero (2021). He finds that: 1) large firms absorb the shocks through financial hedging or their cash-flows because they are highly liquid; 2) small exporting firms hedge their dollar-priced exports with dollar-priced imports; and 3) investment and payroll decisions of small domestic-oriented net-importing firms are sensitive to invoice currency valuations. Carranza et al. (2020) find that Colombian manufacturing firms face a strong balance-sheet effect due to their reliance on imported inputs and foreign currency debt. Casas et al. (2023) find that the Colombian depreciation of 2014 reduced imports for firms that borrowed in foreign currency and were not financially or naturally hedged.

Table A1 of the appendix illustrates the consequences of PCP, LCP, DCP and MCP on external adjustment as a result of exchange rate fluctuations. Note that this is a closely related question to the question posed in this paper (as some of the channels through which monetary policy affects the trade balance operate through the exchange rate: expenditure-switching, real income and/or balance-sheet channels), but it leaves aside the direct effect of monetary policy on quantities through effects such as intertemporal substitution or the financial/credit channels of monetary policy.

Corsetti and Pesenti (2001) and Cole and Obstfeld (1991) illustrate the sensitivity of the question posed in this paper to the structure of preferences assumed. They use a Cobb-Douglas aggregation function over home and foreign goods, implying a unitary elasticity of substitution between home and foreign goods, which in turn mutes the current account dynamics and results in a constant trade balance in response to monetary shocks.[19] Chari et al. (2002) also find that the current account remains in balance after a money shock.[20]

There is a set of models that predict a current account deficit in response to an expansive monetary policy shock. Lombardo (2001) shows that the trade balance response to a positive monetary shock may be negative if home and foreign goods are sufficiently poor substitutes. Kollmann (2001) finds that the strong rise in consumption triggered by a positive money supply shock increases domestic absorption more than national income, thus reducing the current account. Tille (2001) shows that in the case where the sum of the exports and imports elasticities is greater than one (goods produced in different countries are close substitutes), the Marshall-Lerner condition is fulfilled and an exchange rate depreciation generated by a monetary expansion leads to a current account surplus. If this elasticity is less than one (goods produced in different countries are poor substitutes), a monetary expansion leads to a current account deficit.

Lane (2001a) shows that the sign of the current account response depends on the interplay between the intertemporal elasticity of substitution and the intratemporal elasticity of substitution.[21] If the intratemporal elasticity is greater than the intertemporal elasticity, the rise in non-traded output and consumption after a monetary expansion leads to a decline in traded consumption and a current account surplus. In contrast, a current account deficit occurs if the intertemporal elasticity is greater than the intratemporal elasticity. The current account remains in balance only if they are equal. In that sense, the model illustrates that traditional Mundell–Fleming results are sensitive to the precise specification of a model's microfoundations.

[19] Sarno (2001) argues that in Obstfeld and Rogoff (1995a) "After a monetary shock, the economy will move to a different steady state." Because of this, many subsequent variants of the *Redux* model "de-emphasize the role of net foreign assets accumulation as a channel of macroeconomic interdependence between countries. This is done by assuming that (i) the elasticity of substitution between domestic and foreign goods is unity or (ii) financial markets are complete. Both of these assumptions imply that the current account does not react to shocks. While this framework achieves the desired result of determinacy of the steady state, it requires strong assumptions. In a sense these solutions circumvent the problem of indeterminacy, but they do not solve it."

[20] In an early version of their paper they argued that a lower interest rate could trigger an investment boom, which would increase domestic absorption more than national income, thus reducing the current account balance. I revisit this argument below, as capital imports strongly contract in response to a monetary tightening shocok.

[21] The former guides the willingness to substitute consumption across periods and the latter the degree of substitutability between traded and non-traded consumption.

Galí and Monacelli (2005) is the canonical representative-agent, complete markets New Keynesian open economy model. In their model a monetary expansion implies a balanced trade at all times because of their assumption of unitary intertemporal and intratemporal elasticities of substitution. However, they highlight that their model allows for movements in the trade balance when the baseline calibration is changed. In particular, they highlight that the sign of the relationship between the exchange rate and net exports is ambiguous and depends on the relative magnitudes of these elasticities. Figure A1 of the appendix illustrates their argument.

Auclert et al. (2024) extend Galí and Monacelli (2005) to a heterogeneous-agent setting. In their model the relationship between monetary shocks and the current account is *a priori* ambiguous and depends on the relation between the trade elasticity and the intertemporal elasticity of substitution. Their model resembles the inequality of the Galí and Monacelli (2005) model that determines the sign of the impulse response of net exports to a monetary policy shock. This inequality is shown in figure A1 of the appendix. They argue that the empirically relevant trade elasticity is a low one, which implies that a monetary expansion worsens the current account because import prices rise and import volumes don't fall enough to compensate the effect on the value of net exports, and second, the monetary stimulus creates a boom which raises import demand[22].

3 Stylized facts

3.1 Monetary and exchange rate frameworks

The countries in my sample have central bank independence and their monetary policy strategy is inflation targeting. Brazil, Chile and Colombia adopted inflation targeting in 1999, while Mexico adopted it in 2001 and Peru in 2002 (De Gregorio, 2019). Their monetary policy instrument is the nominal interest rate. Table B1 of the appendix shows the exchange rate regime classification of the countries in my sample according to Ilzetzki et al. (2019). During most of the sample period I analyze, these countries have "freely floating" or "managed floating" exchange rate regimes, except for Peru, which is the country that intervenes the most in the foreign exchange market, thus being characterized as having a "crawling/moving band".

Given that these countries have open capital accounts, it can be inferred, according to the impossible trinity of international finance, that they gave up fixed exchange rates in order to have monetary independence. This means that the expenditure-switching channel may be present, albeit with different magnitudes. Other exchange-rate channels triggered by monetary policy shocks, such as the real income or balance-sheet channels (Auclert et al., 2024), may also be present.[23]

[22] I thank Professor Adrien Auclert for his kindness in clearly explaining me this result.

[23] Recently, Fukui et al. (2023) found that exchange-rate depreciations decrease net exports. Hence, they argue that expenditure-switching is not present after a depreciation. However, monetary policy is not the force that triggers the depreciations they study: if anything, interest rates increase in the depreciating countries. This points to a different underlying shock and causal mechanism than the one I study.

3.2 Currency of invoicing of exports and imports

Table 1 shows that these countries invoice most of their exports and imports in dollars, which may mute the expenditure-switching channel of exchange rate fluctuations on exports in the short run, as argued by Gopinath et al. (2020) and (Boz et al., 2022). However, as McLeay and Tenreyro (2025) argue, the two assumptions on which the Dominant Currency Paradigm rests (monopoly power and sticky dollar prices of exports) may not be realistic for these emerging markets. In particular, their commodity export prices are flexible and they are not price-setters in global commodity markets. Hence, in the presence of sticky local wages a depreciation may have a large effect on exports even if there is no pass-through of the exchange rate to local prices: if the demand curve is flat, because of a high elasticity of substitution of the commodity exported, an expansion in the supply curve will have little effects on prices but big effects on quantities.[24] The effect will be increasing in the flatness of the supply curve, which may depend on how binding are capacity constraints in the short run, the share of imported intermediate inputs and how strong and persistent is the depreciation.

Table 1: Share of exports and imports invoiced in US dollars.

	Brazil	Chile	Colombia	Mexico	Peru
Exports	94%	94%	98%	>80%	>30%
Imports	84%	90%	99%	>50%	95%

Note: The table displays the share of exports and imports invoiced in US dollars for each country of the sample. The sources are: for Brazil (Ilzetzki et al., 2019; Gourinchas, 2021), Chile (De Gregorio et al., 2024; Ilzetzki et al., 2019; McLeay and Tenreyro, 2025; Giuliano and Luttini, 2020), Colombia (Ilzetzki et al., 2019; Gourinchas, 2021; Gopinath et al., 2020), Mexico (Ilzetzki et al., 2019) and Peru (Ilzetzki et al., 2019; Gourinchas, 2021)

4 Construction of the monetary policy shocks

I construct monetary policy shocks as the difference between the policy rate decision taken by the central bank and the consensus policy rate forecast of economic analysts, based on Checo et al. (2024).[25] I proceed in two steps. First, for each monetary policy meeting, I obtain analysts' forecasts from Bloomberg's Economic Forecasts Survey for Brazil, Colombia, Chile, Mexico and Peru. Table 2 summarizes this data. The forecasts are available for the entire period during which these countries have used the nominal interest rate as their primary monetary policy instrument (i.e., the period during which they have had inflation-targeting frameworks).

Analysts can update their forecast up to the time of the policy meeting, so I take into account only the latest available forecast they submit. In the vast majority of cases there is only one monetary policy meeting per month, so there is only one forecast per analyst.[26] Similarly, months without policy meetings (or with policy

[24] McLeay and Tenreyro (2025) argue that lack of pass-through does not imply that prices are sticky. Prices may not change because of strategic decisions made by firms that are aware of the high elasticity of substitution of the good they export, i.e., how flat (elastic) is the demand curve for their good.

[25] A point can be made about how these shocks may be due to the difference in information sets on economic conditions between the central bank and economic analysts (Miranda-Agrippino and Ricco, 2021). I perform an orthogonalization procedure following Checo et al. (2024), which removes predictable components of monetary policy surprises, and find similar results to my baseline results.

[26] At the beginning of the sample, Brazil and Mexico had a couple of months where monetary policy interest rate decisions were made twice a month. For these months, I only took the last interest rate decision. Changing this does not alter the results.

meetings where decisions on the policy interest rate are not taken) are assigned the observed policy rate. There are between 173, for Mexico, and 252, for Chile, monetary policy meetings for each country in the sample. This ensures that I have enough policy variation to estimate the effects of monetary policy on aggregate outcomes. Figure C1 of the appendix shows the distribution of the number of analysts per policy meeting.

Table 2: Descriptive statistics of the monetary policy shocks in emerging markets

	Brazil	Chile	Colombia	Mexico	Peru
Initial Date	28 jul 1999	09 aug 2001	15 mar 2002	14 oct 2005	06 jul 2006
Last Date	31 jul 2024	03 sep 2024	31 jul 2024	08 aug 2024	08 aug 2024
Avg. analysts per date	23.4	12.9	18.6	16.8	9.3
Number of meetings	230	252	244	173	218
Avg. forecast error	-0.0001	-0.0002	-0.0001	0.00001	-0.0001
Avg. policy rate	13.25%	4%	5.91%	6.23%	3.82%

Note: This table reports descriptive statistics of the policy shocks. Initial and Last Date rows indicate the first and last date for which there is Bloomberg survey data for each of the countries in the sample. Average analysts per date indicates the average number of analysts per monetary policy meeting in the sample. Number of meetings indicates how many policy meetings are comprised between the initial and last date of the sample. Average forecast error is the average difference between the actual policy rate and the median forecast made by the analysts. Average policy rate is the average nominal policy interest rate in the sample.

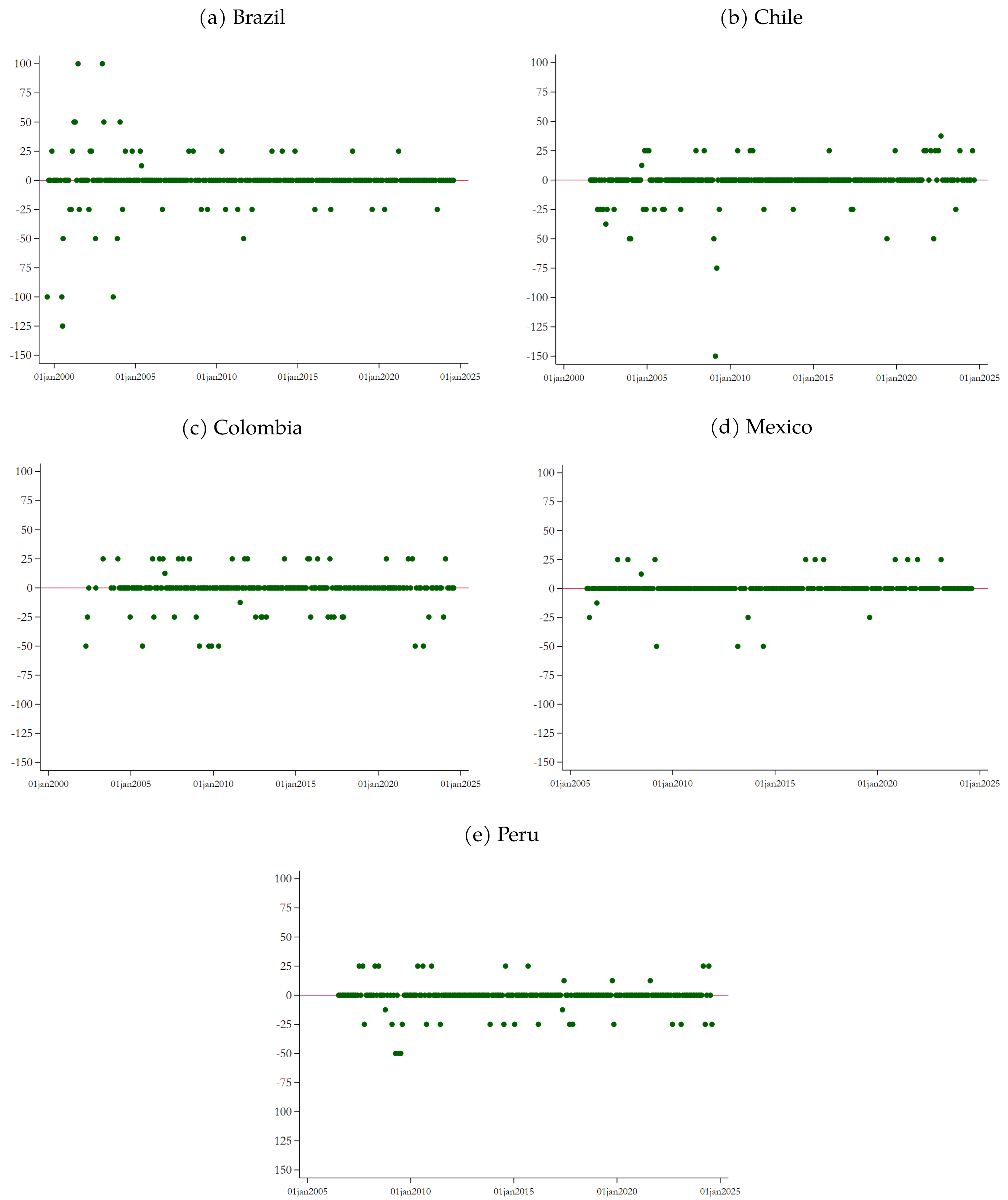
My second step is to obtain the difference between the actual policy rate decision and the median forecast of the analysts (the consensus forecast). The consensus forecast error for the policy rate decision in country c at time t is $FE_{c,t} = i_{c,t} - f_{c,t}$, where $i_{c,t}$ is the policy rate decision and $f_{c,t}$ is the median of the analysts' forecast.

Table 2 shows that the average difference between the actual policy rate and the analysts' forecast (i.e., the average forecast error) is close to zero for every country in my sample. Most of the probability mass of the distribution of policy surprises is centered around zero. This lends credibility to my identification assumption, as analysts have very accurate forecasts on average. Figure 1 shows the shocks. The dots that are different from zero can be interpreted as monetary policy surprises and hence exogenous shocks.

Some shocks appear serially correlated, so I perform a robustness check including lags of the shocks and find that the results are virtually unchanged. It is also worth noting that some shocks are concentrated around times of economic distress. During these periods, analysts might have a greater lack of understanding of the implicit policy reaction function in the central bank's decisions. I perform a robustness test controlling for these periods and find that my results remain largely unchanged.

Mboup and Wurtzel (2018) argue that the median is not the only reasonable choice for a consensus forecast, but it is robust to any outlier forecast submitted by survey participants. In any case, I also ran my empirical estimates using the mean forecast as the consensus forecast. The results remain very similar for Brazil, Chile, Mexico and Peru (not shown). However, for Colombia the responses turn statistically significant for exports (traditional exports, in particular, lead the decline in aggregate exports after the monetary contraction), and statistically insignificant for the trade balance (even though the point estimates still show a reversed J-curve).

Figure 1: Monthly Time Series of the Monetary Policy Surprises



Note: Each figure of the panel displays the monthly time series of the identified monetary policy shocks for the five countries in the sample. The dots that are different from 0 represent a monetary policy surprise in basis points (100 basis points is 1 percentage point).

5 Data

My main data source is Haver Analytics. I obtain monthly data on the goods trade balance, exports and imports, all measured in current US dollars. Haver also provides more disaggregated data on exports and imports. For Brazil, Chile, and Mexico, it categorizes exports into agricultural, mining, and manufacturing exports, and for Colombia and Peru into traditional and non-traditional exports. For imports, Haver classifies them into consumption, capital, and intermediate imports for each country.

The exchange-rate data I use is a trade-weighted real exchange rate constructed by the Bank of International Settlements for each country in my sample. I also construct a real exchange rate against the US dollar to obtain an "invoice-weighted" exchange rate, which may be more relevant for expenditure-switching (Gopinath and Itskhoki, 2022). For the nominal monetary policy rate, I obtain data from Bloomberg. I also obtain data for industrial production and an economic activity index for each country from Haver.

Current account data has a quarterly frequency[27], while my monetary policy shocks have a monthly frequency. Goods exports and imports data have a monthly frequency in every country of the sample. Therefore, following Lane (2001a) and Ca' Zorzi et al. (2020) I will use net exports as my dependent variable. As Figure D1 of the appendix shows, this is not a big assumption, as the correlation between the current account and net exports is between 70 and 93% for the countries in the sample. Additionally, as a robustness exercise I rerun my empirical analysis with the current account of Brazil and find that the sign and magnitude of the impulse response of the current account closely follows the response of the goods trade balance.

6 Credibility of the identification assumption

My empirical results can be causally interpreted if the following identification assumption holds: the monetary policy rate forecasts submitted by economic analysts incorporate the component of monetary policy that is endogenous to the state of the economy at the time of the policy rate decision. If this is true, then analysts' forecast errors are exogenous to macroeconomic conditions. This variation in the policy rate can then be used to estimate the effects of monetary policy on economic aggregate outcomes.

The credibility of my identification assumption depends on two factors. First, as Checo et al. (2024) highlight, analysts must *be able* to revise their forecasts up to the time of the policy meeting, so that they can incorporate every piece of information that is relevant to the decision. I consider there is a second condition that must be fulfilled for this identification strategy to work, which is that analysts must *have the incentive* to report truthfully an accurate forecast.

To fulfill the first factor, following Aruoba et al. (2021) and Checo et al. (2024), I use Bloomberg's economic forecasts survey because it collects forecasts for the policy rate until the day of the Central Bank's Board meeting, which allows analysts to incorporate new information relevant to the policy decision. Additionally, this survey

[27] Except for Brazil, which has balance of payments data at a monthly frequency.

allows me to construct a long sample that consistently measures expectations for every monetary policy meeting since the beginning of the 2000s for each country. Alternative surveys are conducted at a lower frequency and do not cover such a long period.[28]

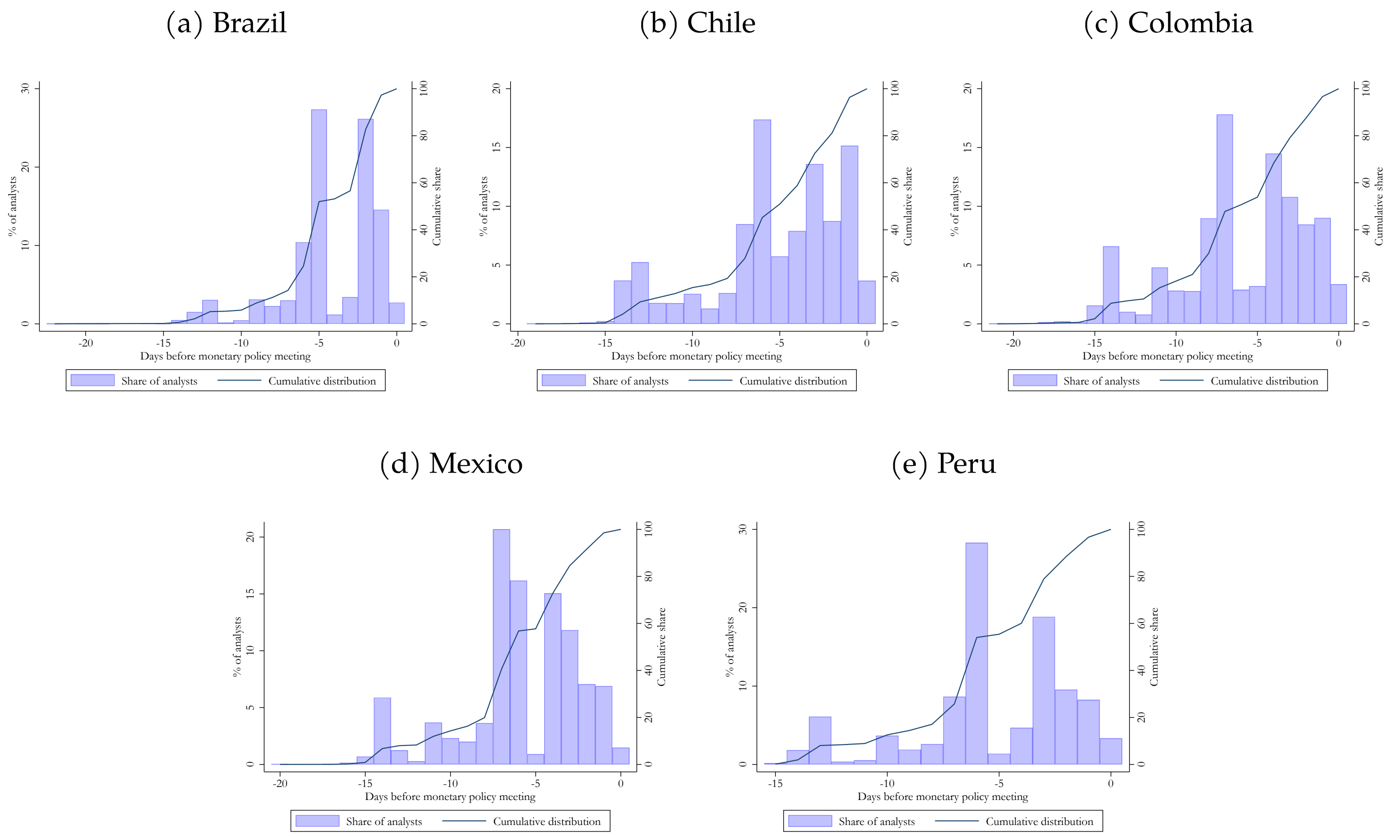
But even if they are able to submit their forecasts and revise them up to the day of the monetary policy meeting, when do analysts submit their definitive forecast? This is a relevant question insofar as the validity of my high-frequency identification research design crucially depends on the assumption that there are no economic shocks that occur between the day of the forecast submission and the policy rate decision. For instance, if there is a positive economic activity data release between the day of the analysts' forecast submission and the monetary policy meeting, this could lead the central bank to preemptively increase the policy rate and induce a contractionary policy surprise, which would in turn create an attenuation bias in the estimated responses (e.g., a higher policy rate causing an increase in economic activity). This is the "Fed response to news" shock described and analyzed by Bauer and Swanson (2023a) and Jarociński and Karadi (2025).

To rule out this possibility, Figure 2 shows the distribution of the submission days of analysts' policy rate forecasts relative to the day of the monetary policy meeting. Nearly the totality of forecasts are submitted within an interval of two weeks preceding the monetary policy meeting. For every country in the sample, around 50% of analysts submit their forecasts up to five days before the policy meeting. This descriptive evidence suggests that the median analyst waits up to a close date relative to the policy meeting date in order to incorporate any information which is relevant to the policy decision. In that sense, my policy surprises use a narrow time-window previous to the monetary policy meeting that allows analysts to incorporate every piece of public information available that may affect the policy decision and hence their expectations internalize the component of monetary policy that is endogenous to the state of the economy.

And why not use policy surprises that exploit high-frequency financial data such as short-term rates? As Checo et al. (2024) highlight, based on De Leo et al. (2022), there is a disconnect between policy rates and market rates in emerging markets, as fluctuations in a country's external funding conditions (e.g., risk premia) transmit to the short-term market rate and contribute to its divergence from the policy rate (De Leo et al., 2022). In that sense, using policy rate forecasts yields a better measure of market expectations, even if the time-window is not as narrow as the one that could be obtained using financial data.

[28] Colombia's Central Bank conducts a monthly survey to economic analysts since 2014 asking for their forecasts of the policy rate. Brazil's Central Bank conducts a monthly survey. Peru does not conduct any survey. Chile is the country for which most surveys are conducted, at a higher frequency and with the longest sample. But as Aruoba et al. (2021) highlight, Bloomberg's survey offers the best performance.

Figure 2: Analysts' policy rate forecast distribution by submission day prior to the monetary policy meeting per country



Note: This figure shows the distribution of analysts' forecast submissions during the 20 days prior to the monetary policy meeting per country.

The second condition that must be fulfilled for my research design to identify a causal effect is that analysts *have the incentive* to submit an accurate and truthful forecast. As Diebold (2017) points out, survey-based statistical inference is often criticized on the grounds that survey participants have "nothing on the line" and therefore lack the incentive to submit accurate forecasts or to truthfully report their views. The argument goes on by saying that market participants, in contrast, do have "real money on the line" and thus market-based forecasts are more accurate and likely to truthfully reveal traders' views. I show that analysts do have "real money on the line" and hence their forecast errors are reliable measures of monetary surprises.

I use web-scrapping techniques to build a dataset of 64 LinkedIn profiles of economic analysts that have participated in the Bloomberg survey during the sample period. I obtain information about their reported profile description, the name of each company they have worked for, the description of each job they have had, the duration of their employment at each company, the academic degrees they have obtained, the academic institutions where they obtained each degree, and the 'soft' and 'hard' skills they consider they have.

Some analysts report that implementing forecasting models to provide support to decision-making at the trading-desk on asset allocation activities is one of their duties, as well as designing investment portfolios that "improve the risk-return relationship". This suggests that these analysts do in fact have "real money on the line"; if they report a wrong forecast, their company may lose money.

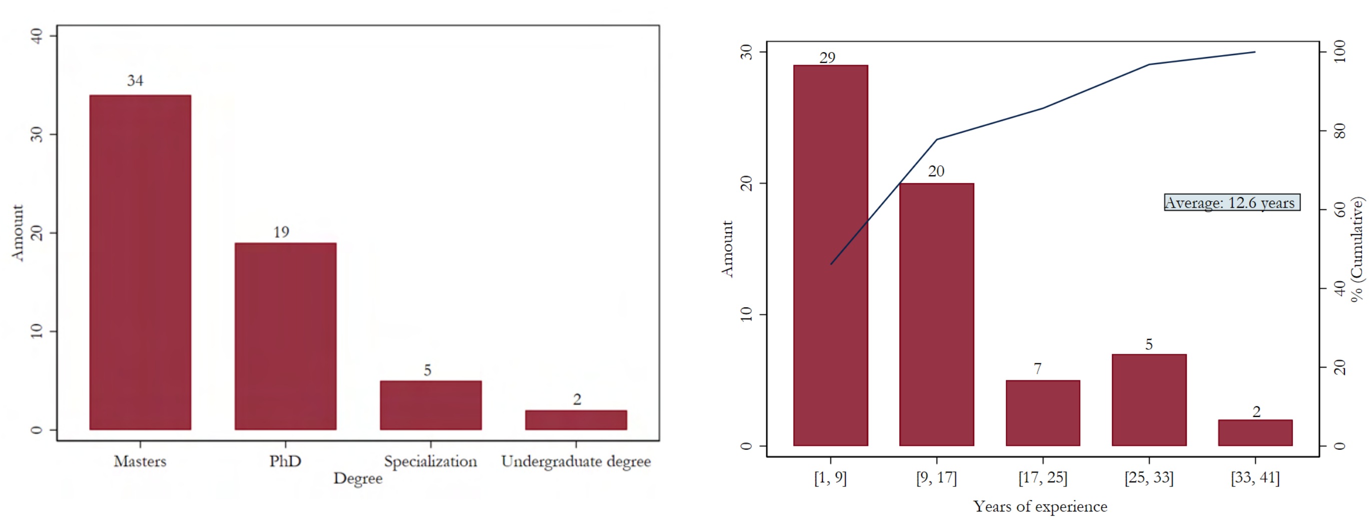
But a question remains: why would analysts have the incentive to truthfully submit the real/actual forecasts they use in their trading activities? Because their submissions are visible to Bloomberg users (with their name and the institution for which they work) and because Bloomberg publishes the ranking of top forecasters. This implies that submitting a very inaccurate forecast may damage the reputation of the analyst and the financial institution. Analysts care about maintaining a "good reputation": some of them share in their LinkedIn profiles their achievements regarding forecasting performance, highlighting being part of the "top-5 economic forecasters of the country".

Additionally, analysts are highly qualified and experienced. Panel (a) of Figure 3 shows the highest academic degree obtained by the analysts in the sample. 19 have a PhD, 34 have a master's degree, 5 have a specialization and only 2 have an undergraduate as their highest academic-degree. Panel (b) of Figure 3 shows the distribution of the years of experience of the analysts. They have on average 12.6 years of experience. More than half of the analysts have 9 or more years of experience. Finally, Figures E1 and E2 in the appendix show word clouds of the academic institutions to which the analysts attended, as well as the skills they report having. This is suggestive evidence that analysts are capable of providing the most accurate policy rate forecast possible and care about doing it.

Figure 3: Highest Academic Degree and Years of Work Experience of the Analysts

(a) Highest Academic Degree Attained by the Analysts

(b) Distribution of the Years of Work Experience of the Analysts



Note: Each bar of Panel (a) of this figure shows the number of analysts per highest educational degree attained (Masters, PhD, Specialization and Undergraduate). Panel (b) illustrates the distribution of the analysts' years of work experience. The bars represent the number of analysts within specific intervals of work experience, as indicated on the horizontal axis. The right vertical axis, along with the solid line, depicts the cumulative distribution function of the years of experience. The data source is the information shared by analysts on their LinkedIn profiles.

But even if analysts are able and willing to submit accurate and truthful forecasts, central banks may have more/different information about the state of the economy than survey-participants. If this is the case, and I do not control for the central bank's private information (which might be driving its policy decisions), part of the shocks may reflect the endogenous response of policy to current economic conditions or their expected path (Ramey, 2016; Miranda-Agrippino and Ricco, 2021).[29] To address this issue I follow Checo et al. (2024) and perform a robustness test where I orthogonalize the policy surprises with respect to a broad range of economic variables, aiming to control for the predictable component of policy surprises. My results remain largely unchanged, but the contraction phase of the trade balance lasts longer.

Furthermore, during periods of high volatility and financial distress there may be systematic variation in the policy rate that is missed by analysts because of imperfect knowledge of the monetary authority's information set or its decision rule (Bauer and Swanson, 2023a). I run a battery of robustness checks controlling for time-fixed effects during economic crises and find that my results remain virtually unchanged.

7 New Evidence on the Effect of Monetary Policy on the Current Account

7.1 Unconditional correlation between interest rates and the current account

As a preliminary/descriptive exercise, Figure F1 in the appendix illustrates the unconditional correlation of the policy rate and the current account as a percentage of GDP for each of the countries. Colombia, Brazil and Mexico exhibit a positive correlation, while Chile and Peru exhibit a negative correlation. This reflects the fact that shocks that induce a negative correlation between these two variables (e.g., domestic demand shocks) have a larger variance in the former countries than in the latter relative to shocks that induce a positive correlation (e.g., external demand shocks). However, this unconditional correlation does not provide any insight into the causal relationship between these two variables.

7.2 Empirical specification

I am interested in characterizing how a change in the monetary policy rate affects the trade balance, exports and imports up to 36 months[30] in the future relative to a baseline of no-intervention. This Impulse Response Function (IRF) can be estimated with the cumulative local projection of $y_{t+h} - y_{t-1}$ on s_t, given by:

$$y_{t+h} - y_{t-1} = \alpha_h + \beta_h s_t + \gamma_h' x_t + \nu_{t+h}; \quad h = 0, 1, ..., 30, \tag{1}$$

[29] This is the motivation behind the Greenbook-forecasts identification strategy of monetary policy shocks by Romer and Romer (2004). I do not control for the central banks' private forecasts because some of them are confidential and the narrative approach is highly time intensive.

[30] I use 30 months as the horizon in the country-by-country estimation and 36 months in the panel estimation because of the additional statistical power that the latter provides.

where x_t includes 12 lags of the dependent variable. The coefficient of interest is β_h. If we assume that $\mathbb{E}(s_t, \nu_{t+h}) = 0$, because s_t is exogenous, then the local projection is identified and might be estimated by OLS. The error term incorporates Newey–West correction for serial correlation. Equation 1 is the specification that I will use in the individual country-by-country estimation exercise in order to identify the heterogeneity of the dynamic response of the dependent variable of interest to a monetary policy shock.

Additionally, I perform a panel local projections estimation exercise with country-fixed-effects, denoted by $\alpha_{c,h}$. To this end, let $y_{c,t}$ denote the natural logarithm of exports and imports, and the level of the policy rate and net exports[31], at time t in country c. Let $\Delta y_{c,t-1} = y_{c,t-1} - y_{c,t-1-12}$, such that it includes yearly changes of the dependent variable, and $A_h(L)$ is a lag-operator of degree 11, thus allowing for 12 lags, and $s_{c,t}$ the shock at time t in country c. The specification is:

$$y_{c,t+h} - y_{c,t-1} = \alpha_{c,h} + \beta_h s_{c,t} + A_h(L)\Delta y_{c,t-1} + \nu_{c,t+h}, \quad h = 0, 1, ..., 36. \tag{2}$$

The coefficient of interest is β_h. Note that for the baseline specification I will use 12 lags of the dependent variable. The choice of lag length is not innocuous. Soosalu (2024) provides an overview of the lag-length used in various papers, ranging from two lags Soosalu (2024), six lags (Brennan et al., 2024), up to twelve lags (Gertler and Karadi, 2015; Miranda-Agrippino and Ricco, 2021; Bauer and Swanson, 2023a). I show that my results are robust to using 3, 6, 9, and 12 lags. I also test for the inclusion of 0, 1 and 2 lags of the shocks and find that the results remain virtually the same.

7.2.1 Local Projections vs. Vector Autoregressions: which one to use?

Why use local projections and not just a Vector Autoregression (VAR) to estimate the impulse responses? The local projections specification imposes minimal structure (apart from linearity[32]) and directly estimates the impulse response function with single-equation methods and without further assumptions on the underlying data generating process (Jordà and Taylor, 2024). VARs that use exogenous policy shocks as external instruments still must assume that the VAR is a correct representation of the dynamics of all the variables in the system (Plagborg-Møller and Wolf, 2021). When the lag-length of the variables is not chosen correctly, small misspecification errors compound quickly and turn into non-negligible distortions to the impulse response, specially at long horizons (Jordà et al., 2020). On the contrary, local projections have lower bias than VARs at horizons greater than the optimal truncation lag-length (Montiel Olea et al., 2024). The reason is that in a local projection, the impulse response coefficient is directly estimated horizon by horizon, while in a VAR(p)

[31] As net exports can take negative values, I use the level instead of the log, which is not defined for negative values. However, I also try the "long-difference" specification for the log of the exports-imports ratio, following Degasperi et al. (2021), and report it in the appendix. The responses are qualitatively consistent with my baseline results.

[32] As Jordà and Taylor (2024) argue, this assumption is not as restrictive as it may appear because since a different regression is estimated for each horizon of the impulse response, one can think of local projections as a semi-parametric estimate of the coefficient of interest. However, the authors argue that linearity does imply that: (i) interventions have symmetric effects; (ii) responses are state-independent; and (iii) responses are linearly proportional to the size of the intervention.

impulse responses are obtained by extrapolation based only on the first p autocovariances of the data and hence suffer from extrapolation bias (Montiel Olea et al., 2025).

However, because local projections imposes fewer restrictions on the impulse responses, the estimates are often less precisely estimated and are sometimes erratic (Ramey, 2016). In that sense, there is a bias-variance trade-off between local projections and VARs in finite samples. LPs have low bias and high variance, while VARs produce low variance IRFs at the expense of potentially large bias (Montiel Olea et al., 2025). Jordà (2023) argues that the "premium is on bias over efficiency...researchers may prefer using LPs over VARs in settings where getting the dynamic response correctly is at a premium", such as in this case.

Therefore, I use local projections and to avoid excessive volatility in the impulse response functions I proceed in two steps. First, I seasonally adjust the data using X-13 ARIMA-SEATS. Second, I smooth the time series for the trade balance, exports, imports, the exchange rate, industrial production and the economic activity index using moving averages.[33] The results with the raw data are similar but much more volatile.

7.3 Results for the panel estimation exercise

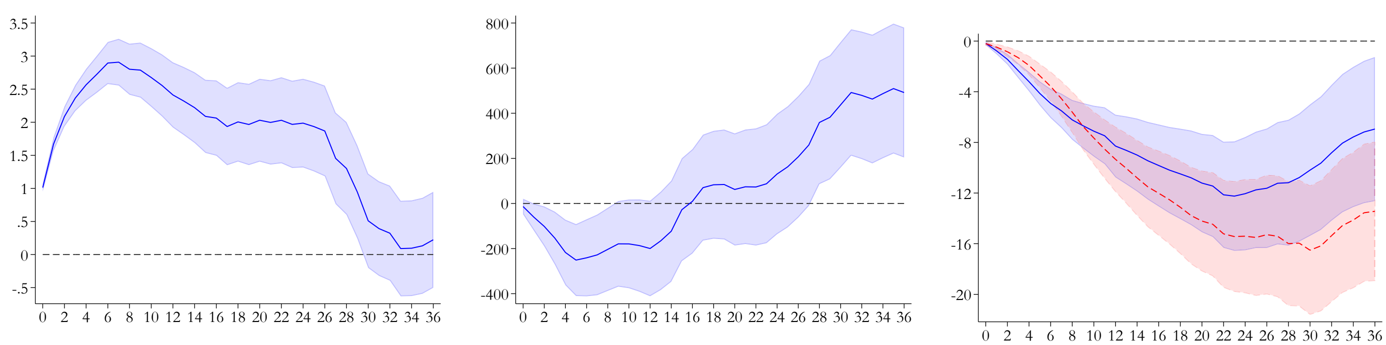
Figure 4 plots my estimates of β_h in Equation 2 for four outcome variables: the monetary policy interest rate, the trade balance, total exports and total imports.

Figure 4: Impulse Response Functions of the Policy Rate, the Trade Balance, Exports and Imports to a one percentage point monetary tightening shock

(a) Monetary Policy Interest Rate

(b) Trade Balance

(c) Exports (solid blue) and Imports (dashed red)



Note: This figure plots the response of the monetary policy rate, the trade balance, total exports (blue solid line) and total imports (red dashed line) upon an identified exogenous monetary shock of 100 basis points for the panel estimation exercise. These are my estimates of β_h in Equation 2. For the country's exports and imports the dependent variable is the h+1-period change in the natural logarithm of the variable. For net exports and the policy rate, the dependent variable is the h+1-period change in the level of the variable. The specification for the policy rate has no lags of the dependent variable. The time series for the trade balance is smoothed using a two-month moving average, while for exports and imports I use a six month moving average. The shaded areas show a 68% confidence interval.

[33] I thank Professor Óscar Jordá for this suggestion.

7.3.1 Monetary policy interest rate

Panel (a) shows the dynamic causal effect of a 100 basis points policy rate shock on the monetary policy interest rate.[34] After the initial impact, the policy rate continues increasing up to 7 months, when it reaches a maximum rise relative to its initial level of 2.87 percentage points. It gradually reverts back to its original level and converges to it by the end of the horizon. The increase in the policy rate is quite persistent: it lasts roughly 32 months and averages 1.8 percentage points.

7.3.2 Trade balance

Panel (b) shows that the increase in the policy rate results in a decline in the trade balance that is modest to begin with, but builds over time and reaches a trough of USD -251 million after five months. The trade balance begins to recover but remains in negative territory until month 15. Starting from month 16, the response turns positive and continuously increases, reaching a maximum of USD 492 million. Hence, the response of the trade balance to a monetary policy shock exhibits a *J*-curve shape, with the initial impact being negative and the improvement occurring with a lag. The average value of the response of the trade balance during the first 15 months is USD -158 million, while the average value from month 16 onward is USD 257 million, indicating that net foreign assets increase as a result of the monetary contraction.[35]

Panel (a) of Figure F2 of the appendix shows the result of estimating Equation 2 for the export-import ratio. Qualitatively, the responses are very similar. There is a short-run contraction and a medium-run expansion of the trade balance. The trough is reached five months after the shock and represents a fall of 3.9% relative to the initial level. The response turns positive after one year and reaches a maximum of 6.4%.

7.3.3 Exports and imports

The response of the trade balance can be decomposed between the response of exports and imports. Panel (c) of Figure 4 shows that the impact effect of the contractionary shock on the value of exports is negative but small. The effect accumulates over time and reaches a trough after two years, where it stands 12.2% below its initial value. Then, exports start recovering, but at the end of the horizon are 7% below their initial level. The response of exports to the monetary policy shock has a hump-shaped pattern, which is consistent with the conventional view that monetary policy has little immediate effects on real variables and its full effects can only be seen with a lag (Woodford, 2003). During the first 5, 10 and 15 months exports decline on average 2, 3.9 and 5.3%.

The response of the value of imports to the tightening shock, displayed in Panel (c), also exhibits a hump-shape pattern. Imports reach a trough of -16.5% 30 months after the shock. At the end of the horizon they are still 13.4% below their initial level. During the first 5, 10 and 15 months imports decline on average 1.25, 3.2 and 5%, which explains why the trade balance declines during this period: exports fall more than imports on

[34] I rescale the monetary policy shocks to generate an increase in the policy rate by 1 percentage point on impact.

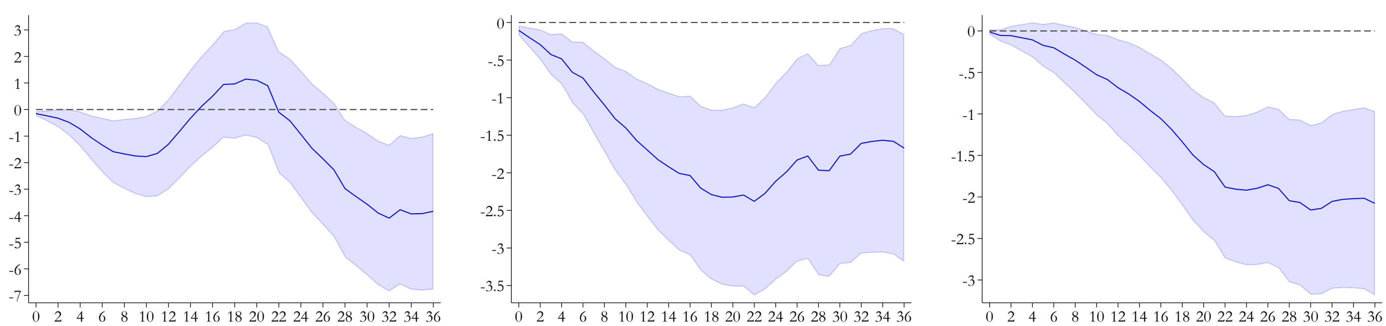
[35] This is a "back-of-the-envelope" calculation. An accurate calculation would be done in present-value terms.

average. However, the average decline in imports from month 15 onward is greater than the decline in exports, so the trade balance expands and a *J*-curve pattern emerges. The average decline in imports throughout the horizon is 10.7%, compared to 8.1% for exports. Dividing these estimates by the average increase in the policy rate of 1.8% implies that for every 1 percentage point increase in the policy rate, exports and imports decline by 4.5 and 5.9%, respectively, in the three years that follow the shock.

7.4 Inspecting the causal mechanisms

Why is it that exports fall more than imports during the first 16 months after the shock, causing the trade balance to decline, but then imports fall more than exports, causing the trade balance to increase? To shed more light on the underlying mechanisms behind these results, I present the responses of the exchange rate and economic activity in Figure 5. I find that the exchange rate appreciates and economic activity declines, in line with the standard view on the effects of monetary policy on these variables.

Figure 5: Impulse Response Functions of the Real Effective Exchange Rate, Industrial Production and an Economic Activity Index to a 100 basis points monetary tightening shock



Note: This figure plots the response of the real exchange rate, industrial production and an economic activity index upon an identified exogenous monetary shock of 100 basis points for the panel estimation exercise. The economic activity index for Brazil is FGV GDP Monitor, IMACEC for Chile, ISE for Colombia, Economic Activity Indicator of INEGI for Mexico and Nominal GDP Index for Peru. These are my estimates of β_h in Equation 2. The dependent variable is the *h+1*-period change in the natural logarithm of the variable. An increase in the exchange rate corresponds to a depreciation of the home currency. The time series are smoothed using six month moving averages. The shaded areas show a 68% confidence interval.

7.4.1 Real Exchange Rate

Panel (a) of Figure 5 shows the response of the real exchange rate to the monetary tightening shock. The trade-weighted real exchange rate appreciates on impact and keeps appreciating until month 16. It reaches its trough at month 10 standing 1.5% below its initial level. During this period, imports decline less than exports. The exchange rate then depreciates transitorily, around 1%, from month 16 to 22. This depreciation turns against imports, which begin to fall more than exports during this period. Exports, on the contrary, benefit from this slight depreciation and start to recover. However, the exchange rate then appreciates even more, which may explain why exports remain depressed at the end of the horizon.

7.4.2 Industrial Production and Economic Activity

Panels (b) and (c) show the responses of industrial production and a monthly economic activity index. Both responses show signs of a contraction in activity due to the higher interest rate. The decline is modest to begin with, but builds over time and reaches a trough of -2.4% at month 23 for industrial production and of -2.2% at month 30 for economic activity. This may explain why imports fall, instead of rising due to the exchange rate appreciation.

7.4.3 Further discussion of the results

The patterns found are observationally consistent with PCP or MCP. According to these paradigms, the monetary tightening reduces the trade balance because, while the value of both exports and imports falls, imports are propped up by expenditure switching towards foreign goods and thus decline less than exports. The expenditure switching effect is counteracted by the aggregate demand/intertemporal substitution channel of monetary policy, so imports end up falling, but less than in a counterfactual scenario without an exchange rate appreciation. In other words, the appreciation works as a cushion for imports and an amplifier for exports.

In that sense, the initial fall of the trade balance implies that expenditure switching is stronger in the short-run, while the aggregate demand/intertemporal substitution/income channels of monetary policy are stronger in the medium-run. Note, however, that the mechanism through which the exchange rate affects exports under PCP (higher external demand for the depreciating country's exports) crucially depends on exports being invoiced in local currency, which does not hold for the countries in my sample, as shown in Table 1. I study whether MCP better explains this evidence in the following sections.

Finally, these results are inconsistent with DCP and LCP. Under DCP, export prices are sticky in dollars, so the appreciation of the home currency against the dollar will not alter the price that the importer faces, as she will continue observing fixed prices in dollars, so external demand for home-exports will not change and hence export quantities will also remain fixed. Therefore, a testable implication of DCP is that after a home monetary contraction the dollar value of exports should not change. However, my results indicate that exports are significantly and negatively affected by a monetary tightening shock. This result also stands in contrast to LCP, under which expenditure switching is completely muted.

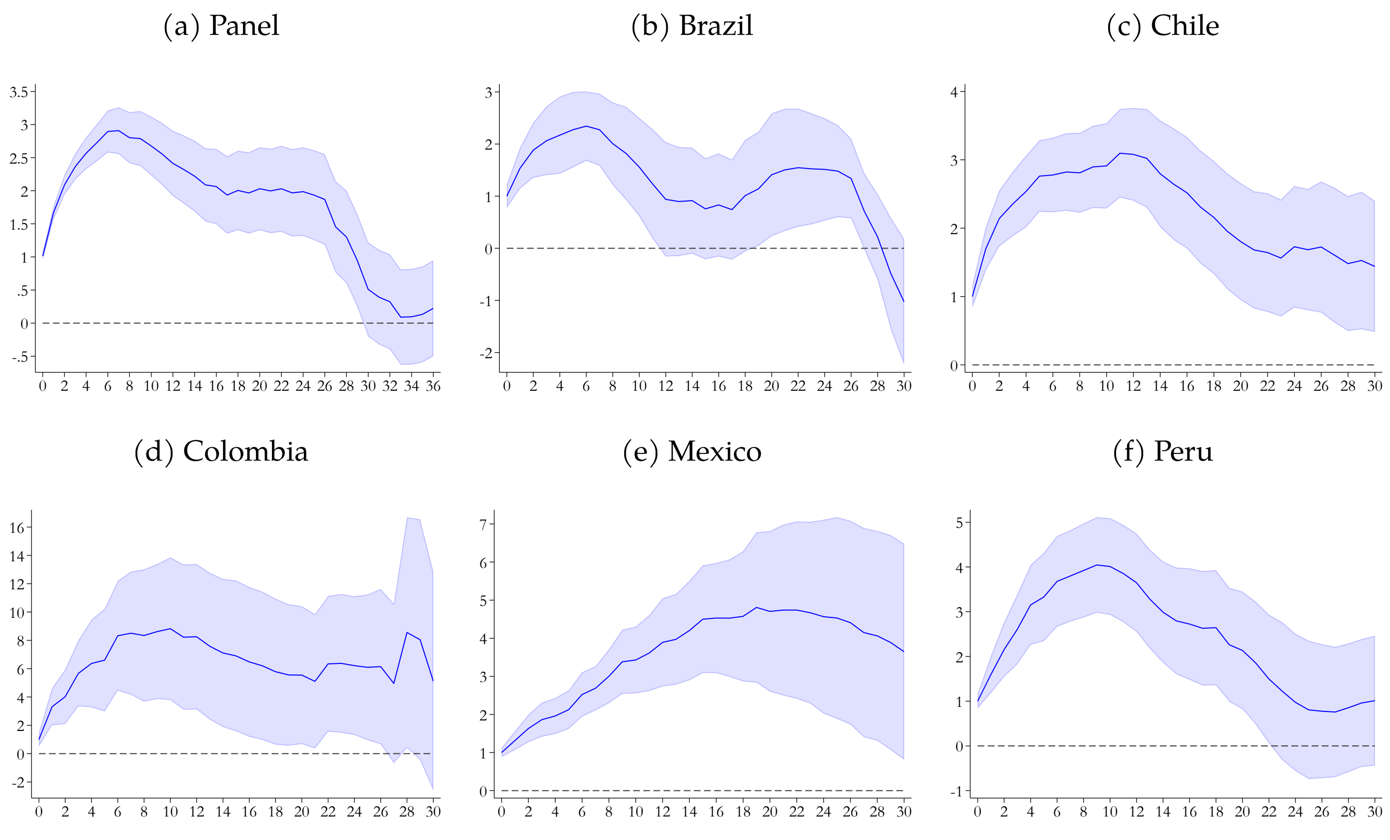
7.5 Results for the individual country-by-country estimation exercise

The panel estimation exercise was cast in terms of the cross-sectional average of individual-country aggregate results. However, individual heterogeneity across countries may provide a richer narrative of the transmission of monetary policy and its effects on international trade. This is particularly evident when considering the export-import structure of each country (e.g., how differentiated are the goods it exports and imports) and the effects triggered by the monetary shock that depend on the institutional setting of the country (e.g., how strong is the exchange rate appreciation that results from the tightening shock or how sensitive are its imports to interest rates, which may depend on the depth of its financial market and monetary policy transmission). Therefore, in this section, I estimate responses by country.

7.5.1 Monetary policy interest rate

Figure 6 shows the response of the policy rate to a 100 basis points tightening shock. Following the initial impact, the policy rate persistently increases in every country for at least 6 months (in Brazil) and up to 19 months (in Mexico). The policy rate rises to a maximum of 2.3% in Brazil and 8.8% in Colombia. Note the wide 68% confidence bands for Colombia, indicating that the point estimate is not highly precise for this country. In contrast, the other countries exhibit relatively narrow confidence bands. The average increase in the policy rate over the horizon is 1.3% for Brazil, 2.2% for Chile, 6.5% for Colombia, 3.6% for Mexico and 2.4% for Peru. This statistic is important to make sense of the quantitative effects monetary policy has on aggregate outcomes.

Figure 6: Impulse Response Functions of the Monetary Policy Rate to a one percentage point monetary tightening shock by country

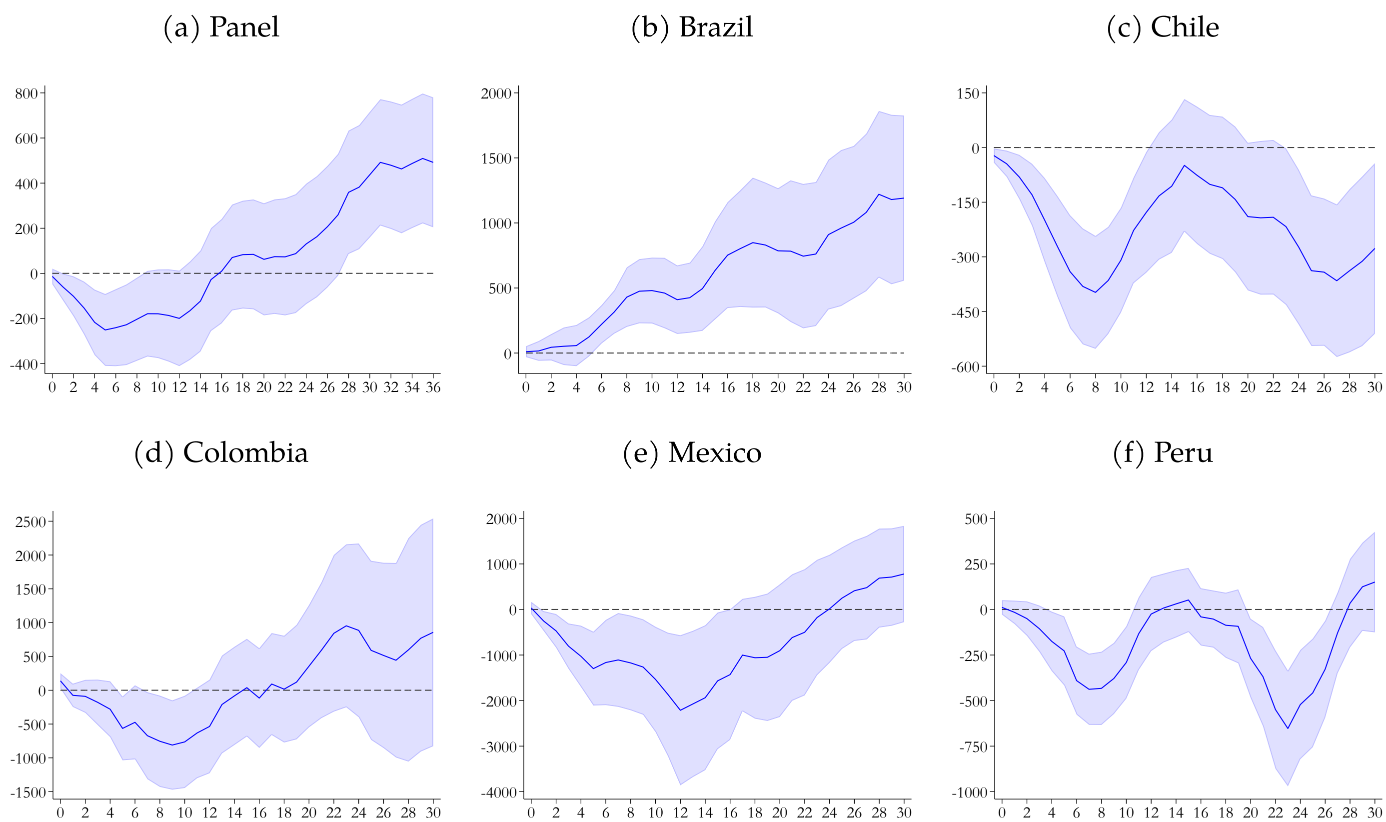


Note: This figure plots the response of the monetary policy rate upon an identified exogenous monetary shock of 100 basis points for the panel and individual country-by-country estimation exercises. These are my estimates of β_h in Equations 1 and 2. The dependent variable is the *h+1*-period change in the level of the policy rate. The shaded areas show a 68% confidence interval.

7.5.2 Trade Balance

Figure 7 illustrates the dynamic causal effect of a monetary tightening shock on the trade balance. The responses are quite heterogeneous across countries and can be categorized into three types. First, Chile and Peru exhibit a consistently negative response (i.e., they are reminiscent of the Mundellian paradigm). The responses of both countries display a W-curve pattern, as hypothesized by Magee (1973). Second, Colombia and Mexico exhibit a J-curve pattern, with an initial contraction followed by a subsequent expansion. These responses are reminiscent of the panel estimation results for the trade balance. Finally, Brazil shows a positive and persistently increasing response, which is consistent with the policy view cited in the introduction, according to which a monetary tightening reduces the current account deficit.

Figure 7: Impulse Response Functions of the Trade Balance to a one percentage point monetary tightening shock by country



Note: This figure plots the response of the trade balance upon an identified exogenous monetary shock of 100 basis points for the panel and individual country-by-country estimation exercises. These are my estimates of β_h in Equations 1 and 2. The dependent variable is the h+*1*-period change in the level of the trade balance in USD millions. The time series are smoothed using two month moving averages. The shaded areas show a 68% confidence interval.

Quantitatively, Mexico exhibits the largest movement in absolute value of net exports, reaching a trough of USD -2213 million 16 months after the shock and then starting to recover. The response turns positive two years after the shock but zero is within the 68% confidence bands from month 16 onward. Colombia's response reaches its trough at month 10, standing USD 859 million below its initial level, and then recovers to reach a maximum of USD 989 million two years after the shock. The response is imprecisely estimated.

The responses of Chile and Peru are very similar both quantitatively and qualitatively up to month 20 of the IRF. Subsequently, Peru experiences a blip, reaching USD -650 million in month 23 and recovering rapidly to positive territory by the end of the horizon. Both countries exhibit very precise estimates. Finally, Brazil's response increases rapidly and reaches a maximum of USD 1220 million at month 28. The response is precisely estimated. It can be seen that the panel estimates are greatly influenced by the dynamics of the Brazilian response towards the end of the horizon. Figure F2 of the appendix shows the result of estimating Equation 1 for each country with the export-import ratio as the dependent variable, following Degasperi et al. (2021). The responses are very similar.

7.5.3 Exports and imports

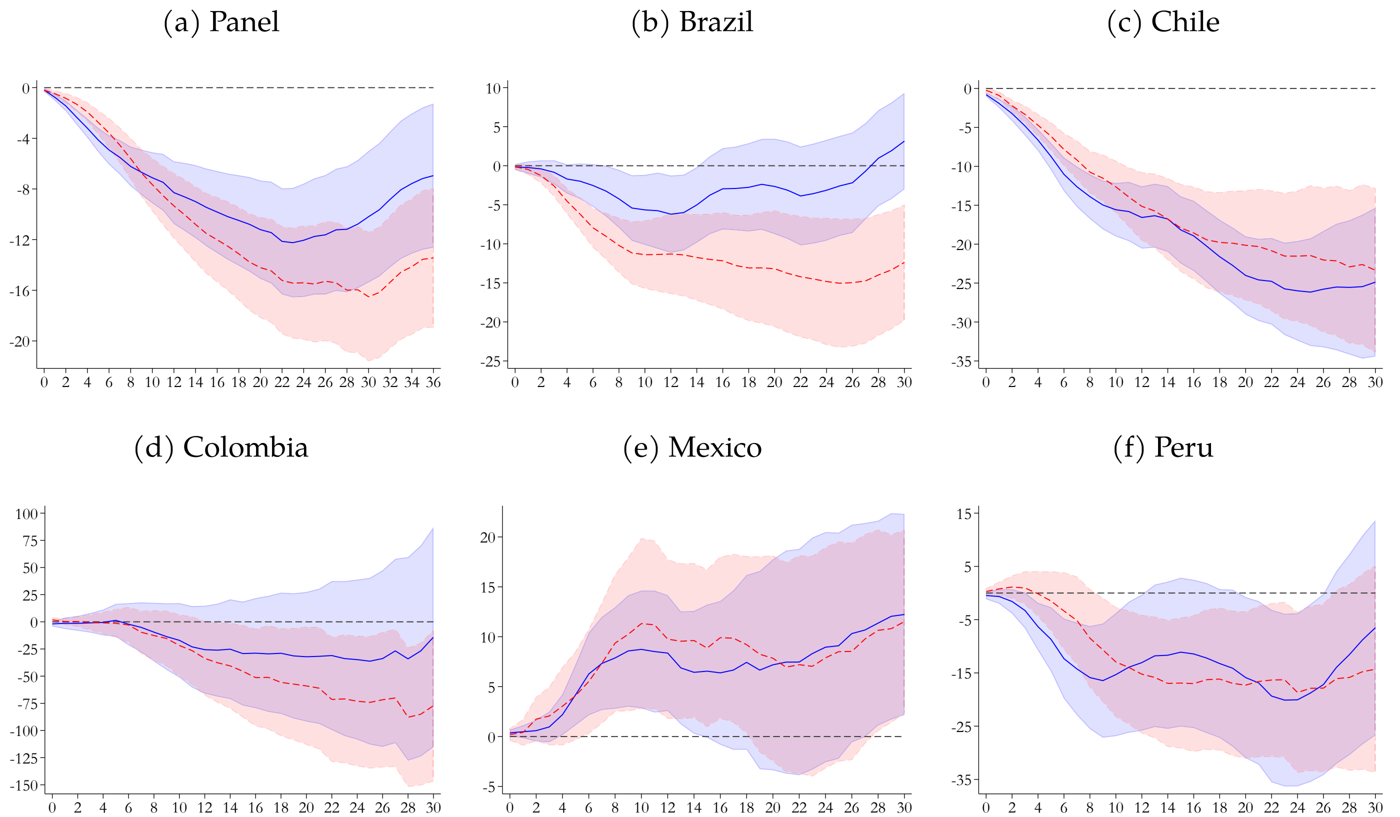
Turning to the behavior of exports and imports by individual country, the point estimates in Figure 8 show that exports and imports fall in Brazil, Chile, Colombia, and Peru. The negative effect builds up over time and the IRF remains negative always. Exports increase in Mexico for reasons I discuss in the next section.

Initially, imports fall less than exports in Chile, Colombia, and Peru, while in Mexico imports increase more than exports. This explains why the trade balance responds negatively on impact in these countries. In Brazil, the positive trade balance response is explained by imports always falling more than exports. By the end of the horizon, imports have fallen more than exports in Brazil, Colombia, Mexico, and Peru, while in Chile they stand at a similar level. This explains the *J*-curve pattern of the trade balance's response in Colombia and Mexico and the consistently positive response in Brazil.

Note that in Colombia the point estimates for exports are highly imprecisely estimated. The confidence bands are very wide, ranging from -125% to 75% and zero is consistently within the 68% confidence bands. For imports, zero is within the 68% confidence bands until month 15, when the response becomes statistically significant. On the contrary, the point estimates for imports are precisely estimated for every other country. The result of a non statistically significant response of exports in Colombia is consistent with DCP. Gopinath et al. (2020) find that the pass-through of exchange rate fluctuations to export quantities is insignificantly different from zero in Colombia.

My results for Colombia are also related to the findings of Carranza et al. (2020), who conclude, for Colombian manufacturing firms, that their reliance on imported intermediate inputs and foreign-currency-denominated debt offset the local-currency-gains from the 2014 depreciation (i.e., a negative balance-sheet effect that fully offset the positive expenditure switching effect). Casas et al. (2023) also study the Colombian 2014 exchange rate depreciation, caused by a strong decline in oil prices. They find that the depreciation reduced the net worth of non-exporting firms through a revaluation of their foreign-currency denominated debt, which in turn reduced their imports. However, the depreciation did not affect the imports of firms that also exported (natural hedging) or had foreign currency asset holdings or derivative contracts (financial hedging). Exports did not react to the depreciation, consistent with DCP.

Figure 8: Impulse Response Functions of Exports and Imports to a one percentage point monetary tightening shock by country



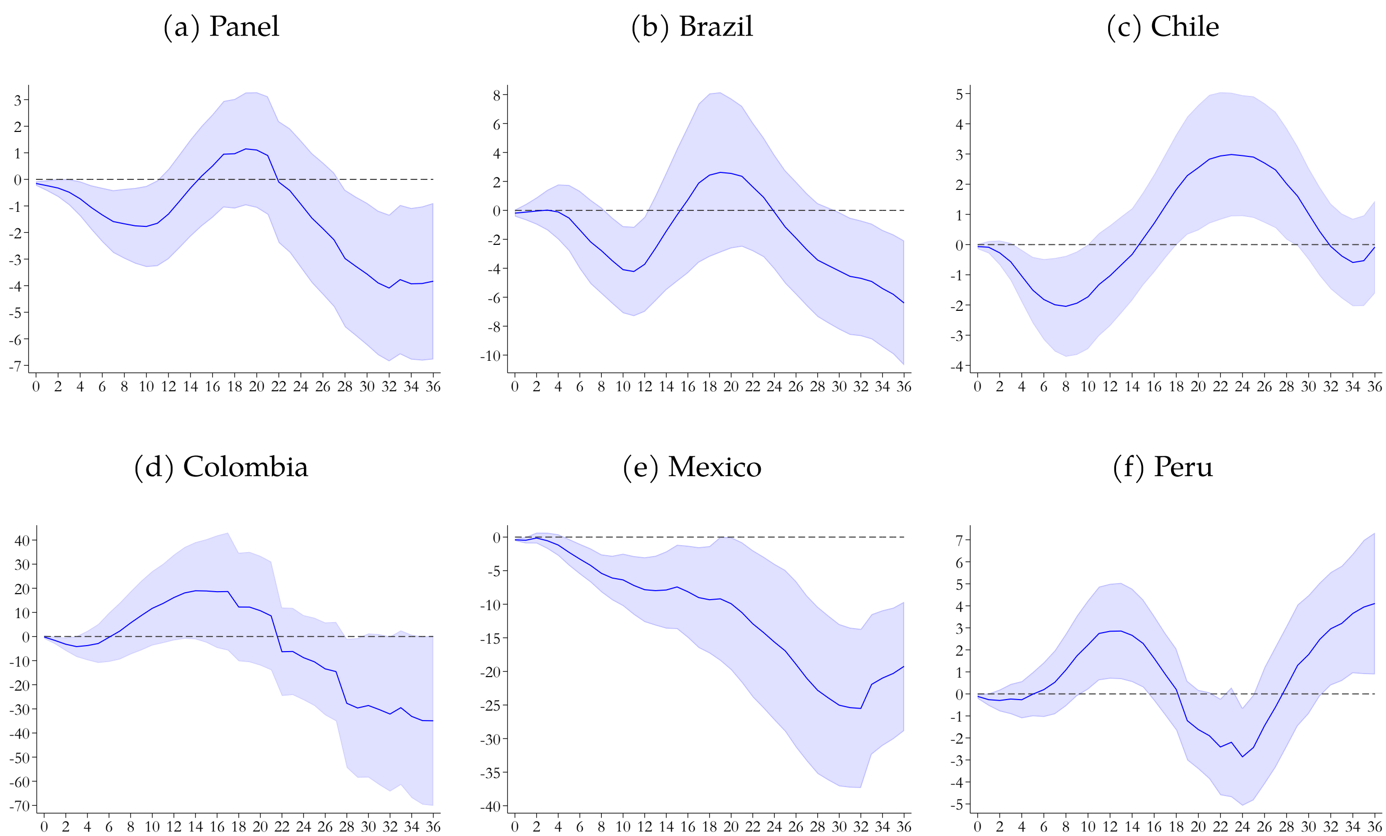
Note: This figure plots the response of total exports (blue solid line) and imports (red dashed line) upon an identified exogenous monetary shock of 100 basis points for the panel and individual country-by-country estimation exercises. These are my estimates of β_h in Equations 1 and 2. The dependent variable is the *h+1*-period change in the natural logarithm of exports and imports. The time series for every country are smoothed using three month moving averages and for the panel six month moving averages. The shaded areas show a 68% confidence interval.

However, the null-effect of monetary policy on Colombia's exports is also consistent with previous work on why Colombia doesn't export more. Alternative explanations have been given, such as the low insertion in global value chains, the high cost of imported inputs due to non-tariff barriers, rigidities in installed capacity, inefficiency in the provision of logistical services for internal cargo transportation and port operations, excessive regulations and institutional complexity, as well as the lack of infrastructure, which significantly increases the costs of trade (García-García et al., 2019). These factors hinder entrepreneurs from competing in the external market, leading them to prefer allocating their production to the domestic market.

7.5.4 Real Exchange Rate

Figure 9 shows the response of the real exchange rate to the tightening shock by country. The impact effect is negative, indicating an exchange rate appreciation, in line with the predictions of an *Uncovered Interest Rate Parity* condition. The exchange rate continues to appreciate, then momentarily depreciates before appreciating again. Qualitatively, the responses are very similar across countries, except for Mexico, where the exchange rate continuously appreciates. Quantitatively, the appreciation is particularly strong in Mexico, which may explain the increase in imports in this country. Peru exhibits the smallest appreciation, in line with it having a relatively rigid exchange rate regime, as seen in Table B1.

Figure 9: Impulse Response Functions of the Real Exchange Rate to a 100 basis points monetary tightening shock by country



Note: The figure reports the response of the Real Exchange Rate by country upon the identified exogenous monetary shocks. These are my estimates of β_h in Equations 1 and 2. The dependent variable is the $h+1$-period change in the natural logarithm of the real effective trade-weighted exchange rate. The time series for every country are smoothed using six month moving averages and for the panel six month moving averages.The shaded area shows a 68% confidence interval.

Finally, Figure F3 of the appendix shows that the tightening shock results in an economic contraction in every country. The result of a fall in economic activity may explain why imports end up falling, in spite of the fact that the exchange rate is appreciating. Quantitatively, the contraction is particularly strong in Peru, where industrial production reaches a trough of around -8%. The results for Colombia and Mexico are statistically insignificant, as zero is within the 68% confidence bands throughout the horizon.

7.6 Uncovering the heterogeneity in the response of the trade balance by country according to their export and import structure

The countries in my sample are exporters of primary commodities (crude petroleum for Brazil, Colombia and Mexico, and copper for Peru and Chile) that are price takers on global markets and have common destination markets (China and the United States) (Esquivel et al., 2021). Even the non-copper, manufacturing exports of Chile and Peru consist of commodity-like, homogeneous goods, such as processed food (McLeay and Tenreyro, 2025). Similarly for Colombia, its agricultural exports such as coffee, sugar and bananas are highly substitutable and face intense competition from international competitors. Hence, if MCP serves as a valid framework for analyzing these countries, expenditure-switching may be strong as the demand for their exports is highly elastic (McLeay and Tenreyro, 2025).

Brazil exports agricultural goods such as soybean and coffee, which are highly substitutable. It also exports some differentiated manufacturing goods, such as machinery, vehicles and chemicals. Mukhin (2020) calculates that the share of export goods that are differentiated rounds 20-30% in Chile, Colombia, and Peru, while for Brazil it is around 40-50%. Hence, expenditure-switching may be weaker for Brazil and, setting aside imports for a moment, this would imply that monetary contractions should reduce the trade balance the most in Chile, Colombia and Peru.

Mexico's manufacturing exports account for over 70% of its total exports, with significant contributions from automobiles, electronics, machinery, and chemicals. These goods are differentiated and cannot be easily substituted, so demand for these goods may be relatively inelastic and expenditure switching may be weak. Mukhin (2020) calculates that the share of differentiated export goods in Mexico is between 60-70%. Viewed through this lens, manufacturing exports in Mexico should not be highly sensitive to monetary policy.

On the import side, the capital imports of the countries in my sample, which consist mainly of machinery, vehicles, and industrial equipment, can be highly sensitive to interest rate shocks through a credit channel, an intertemporal substitution channel or an indirect aggregate demand/income channel. Durable consumption import goods, such as consumer electronics, may also be highly sensitive to the interest rate.

Intermediate goods imports may be inputs for the production of other goods, which may be associated with a more inelastic demand for these goods. This may partly offset the negative effect of interest rates on their demand. The exchange rate appreciation that results from a tightening monetary shock may also partially offset the negative effect of the interest rate on the demand for these goods through expenditure-switching. The relative magnitude of each channel is an empirical question that I attempt to answer in what follows.

7.6.1 Exports

Figure 10 shows the response of agricultural, mining and manufacturing exports for Brazil, Chile and Mexico, and non-traditional and traditional exports for Colombia and Peru.[36] I also show petroleum exports for Mexico. The point estimates indicate that the monetary contraction causes a decline in all types of exports in Brazil, Chile and Peru. Traditional exports fall in Colombia, while non-traditional exports are not affected by the shock.

Why do exports increase in Mexico as a result of the contractionary monetary policy shock? The positive response of Mexico's exports is largely driven by an increase in petroleum exports, the purple dotted line in Panel (d) of Figure 10. I dig deeper into the reasons behind this response and report them in Figure F4 of the appendix. Panel (a) shows that the response of the value of petroleum exports is driven by an increase in the price of petroleum. Mexico is a large producer of petroleum in world markets, but it does not directly control its price, so the correlation between the price of oil and the policy surprises is most likely an identification problem.[37] Conversely, petroleum export volumes, shown in Panel (b) of Figure F4 of the appendix, which may arguably be under the country's control, decline in response to the monetary contraction. They do not react on impact, but around five months after the shock start falling and at the end of the horizon are approximately 11% below their initial level. The point estimates are statistically and economically significant.

Mexico's manufacturing exports, which comprise the largest share of its exports, have a positive point estimate but it is imprecisely estimated and statistically insignificant. Panel (d) of Figure F4 of the appendix categorizes Mexico's manufacturing exports into autos and non-autos manufacturing exports. The figure shows that autos exports' point estimate is negative, although statistically insignificantly so, while non-autos exports are not sensitive to the policy interest rate. This may be consistent with the fact that Mexico's manufacturing exports are highly differentiated goods that cannot be easily substituted and hence expenditure switching is weak for them.

Commodity exports, such as mining exports for Brazil, Chile and Mexico, and traditional exports for Colombia and Peru, decline in response to the monetary tightening. For Colombia, Chile and Mexico these are the exports that decline the most, which is consistent with MCP, although in Colombia and Mexico the point estimates are very imprecise and statistically insignificant. Brazil's mining exports are also very imprecisely estimated, with zero always within the 68% confidence bands. On the contrary, Chile's responses are very precisely estimated. Peru's confidence bands are relatively wide for traditional exports, but zero is not within them always. Quantitatively, mining exports in Chile reach a trough 26 months after the shock, where they stand around 25% below their initial level. Traditional exports in Peru reach a trough of around -13% at month 20.

Commodity-like, homogeneous goods such as industrial and agricultural exports for Brazil and Chile and non-traditional exports for Peru also fall. The trough in Chilean industrial exports is around 14% below their

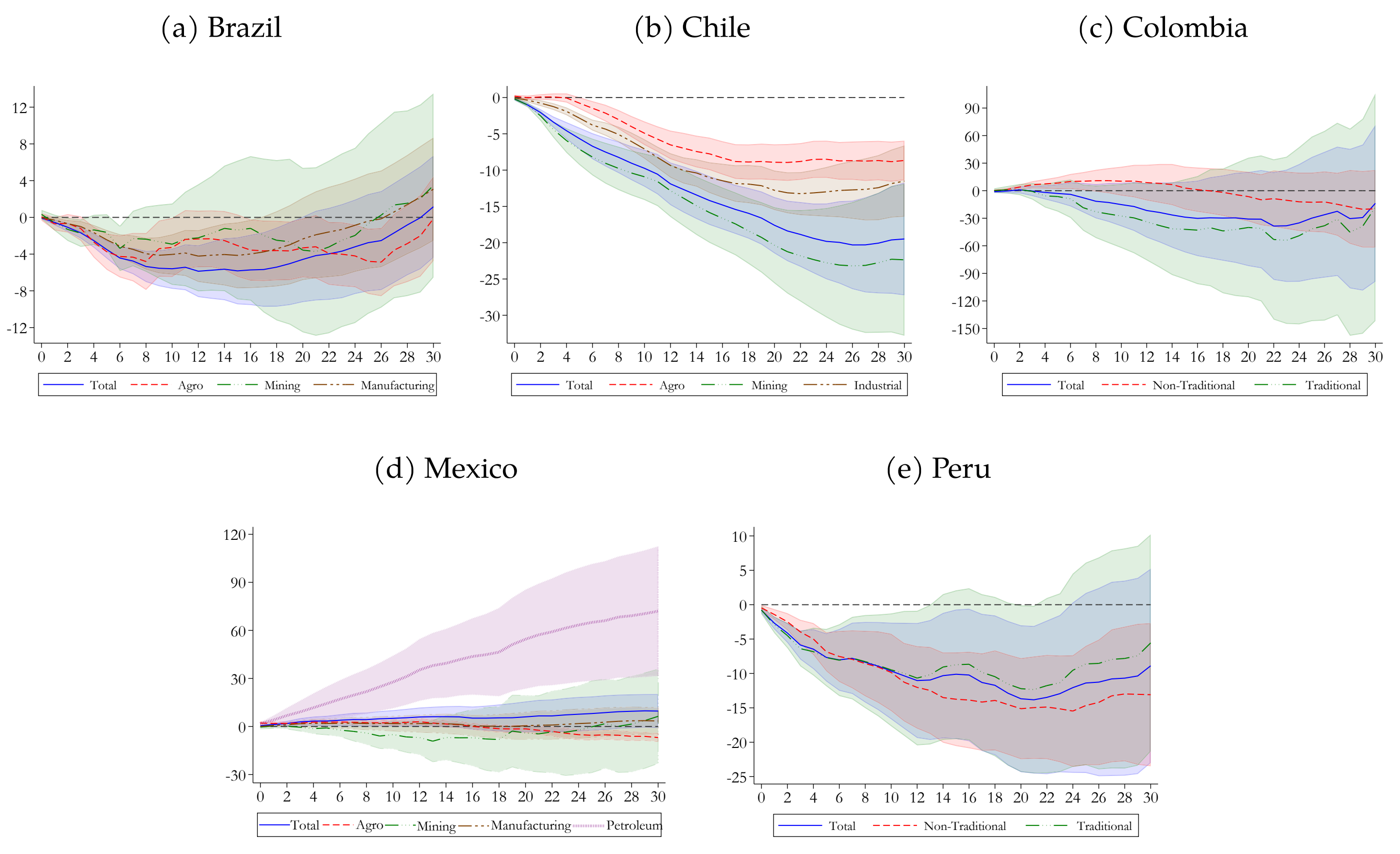
[36] Haver does not report agricultural, mining and manufacturing exports for Colombia and Peru.

[37] Maybe the central bank anticipated the price increase and acted countercyclically by raising rates beyond what analysts expected, inducing a positive correlation between the interest rate and the price of oil.

initial level and they reach it around two years after the shock, while agricultural exports reach their trough around one and a half years after the shock and stay permanently around 10% below their initial level. In Brazil, the three types of exports appear to have similar responses quantitatively, with a contraction relative to their initial level of around 3-7%. Agricultural exports for Brazil are the most affected segment from month 23 to 30. The responses of manufacturing and agricultural exports for Brazil are precisely estimated. Non-traditional exports in Peru reach a trough of around 16% two years after the shock. The point estimates are precise.

Hence, the evidence provided in this paper points to MCP being present in Brazil (for its manufacturing and agricultural exports, but not for its mining exports), Chile (for all of its exports), Mexico (for its manufacturing exports and the volume of its petroleum exports, but not for its agricultural exports) and Peru (for all of its exports), while the estimates for Colombia are statistically insignificant and hence may be consistent with DCP. In terms of magnitude, Chile and Peru see their exports decrease the most, which, leaving imports aside for a moment, is consistent with them having a consistently negative response of the trade balance to the monetary contraction.

Figure 10: Impulse Response Functions of Exports to a 1 percentage point monetary tightening shock

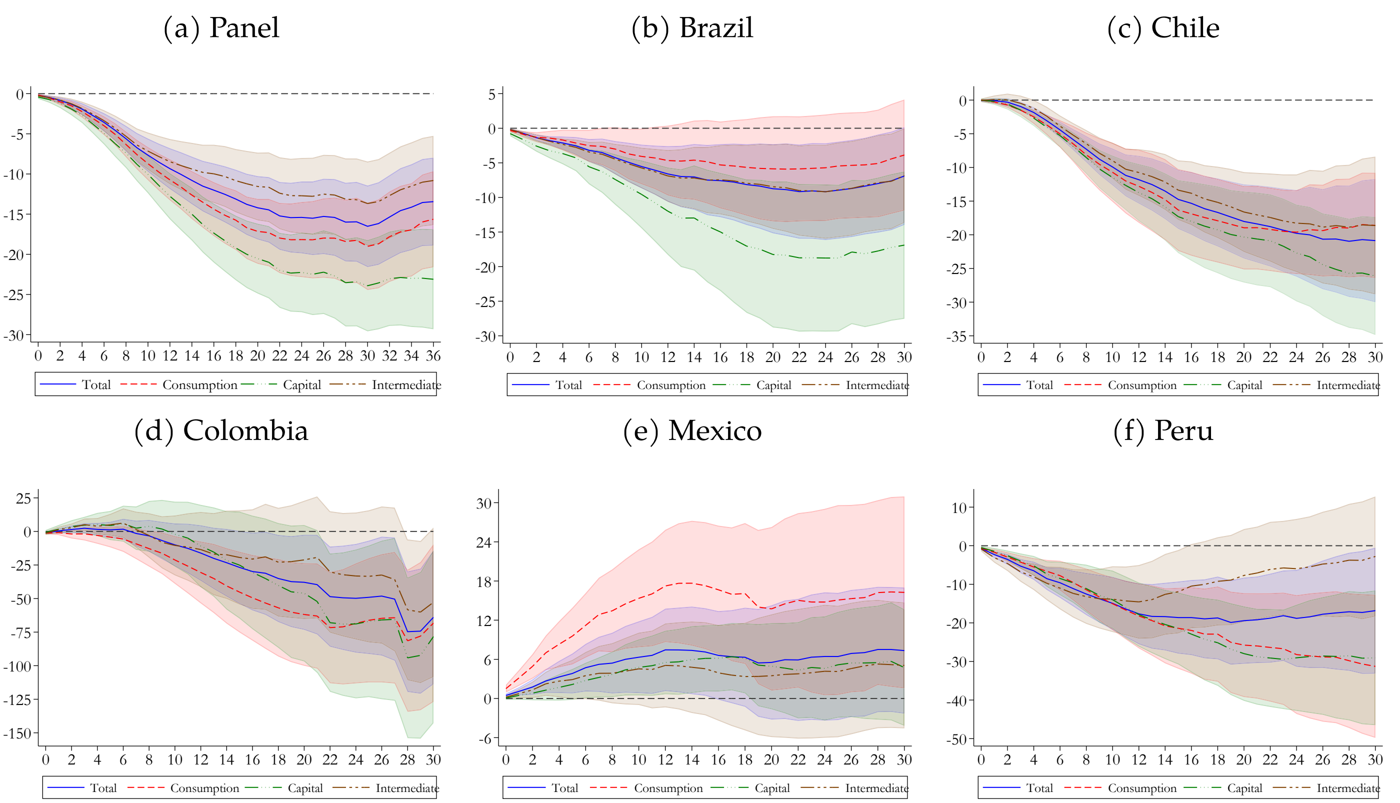


Note: This figure plots the response of total goods exports (blue, solid), consumption imports (red, dashed), capital imports (green, large dash followed by three points) and intermediate imports (brown, large dash followed by two short dashes) upon an identified exogenous monetary shock of 100 basis points. These are my estimates of β_h in Equations 1 and 2. The dependent variable is the h+1-period change in the natural logarithm of imports. The time series for every country are smoothed using six month moving averages. The shaded areas show a 68% confidence interval.

7.6.2 Imports

Figure 11 plots the response of imports categorized into consumption, capital and intermediate imports for the panel and country-by-country estimation exercises.[38] The panel responses show a decline in the three categories of imports after the monetary contraction. This suggests that the exchange rate appreciation caused by the higher interest rate, shown in Figure 9, is not enough to compensate for the credit, intertemporal substitution or the aggregate demand/income channels (with the latter channel illustrated by the economic downturn shown in Figure F3 of the appendix).

Figure 11: Impulse Response Functions of Total, Consumption, Capital and Intermediate Imports to a one percentage point monetary tightening shock



Note: This figure plots the response of total goods imports (blue, solid), consumption imports (red, dashed), capital imports (green, large dash followed by three points) and intermediate imports (brown, large dash followed by two short dashes) upon an identified exogenous monetary shock of 100 basis points. These are my estimates of β_h in Equations 1 and 2. The dependent variable is the *h+1*-period change in the natural logarithm of imports. The time series for every country are smoothed using six month moving averages. The shaded areas show a 68% confidence interval.

Capital imports experience the largest decline in the panel estimation. Quantitatively, capital imports reach a trough at the end of the horizon of around -24% relative to their initial level. This result is both qualitatively and quantitatively shared by Brazil, Chile, Colombia and Peru. In Colombia the magnitude of the response is three times higher than the panel estimate, which has to do with the fact that Colombia's interest rate response

[38] Haver provides this categorization for each country's imports, so unlike for exports, I can do the the panel estimation with imports.

to the shock, illustrated in Figure 6, is on average three times higher than the panel estimate. The decline in capital imports is an important determinant of the expansion-phase in the trade balance, specially in Brazil and Colombia. This is consistent with investment having a central role in the transmission mechanism of monetary policy (Auclert et al., 2020).

Consumption imports contract in all countries except for Mexico, where a strong exchange rate appreciation may be leading to expenditure switching being greater than intertemporal substitution for imports, as seen in Figure 9. In Colombia, consumption imports decline more sharply than capital imports for most of the IRF, while in Peru, both types of imports have similar responses. In Chile, consumption imports begin to recover from month 20, but before that they mirror the decline in capital imports. This pattern is mostly driven by durable consumption goods, which are highly sensitive to interest rates.

Intermediate imports, which may include crucial inputs for production and hence their demand might be relatively inelastic, also fall due to the aggregate demand decline, but they do not fall as much as capital and consumption imports in Chile, Colombia and Peru. They also return to their initial level at the end of the horizon in Peru, but the point estimates have wide confidence bands. Quantitatively, the panel estimates point to a trough of intermediate imports of around -13% 30 months after the shock. Then they start to recover.

8 Robustness

In this section I show results for alternative versions of my baseline specification. Figure G1 of the appendix shows what happens if I consider 3, 6, 9 and 12 lags of the dependent variable, "y-lags". Including 3, 6 or 9 y-lags keeps the qualitative response of the trade balance, exports, imports and the real exchange rate of my baseline specification: a J-curve in the trade balance, a contraction in both exports and imports and an appreciation of the exchange rate. However, it changes the magnitude of the responses. The response of the trade balance is pulled towards zero at the beginning and at the end of the horizon, as if it was tilted clockwise. The response of imports is around four percentage points less negative, while the response of exports is around two percentage points less negative at the end of the horizon. The exchange rate appreciates further, which is consistent with the less-negative response of imports, but is inconsistent with the less-negative response of exports.

Figure G2 of the appendix considers alternative numbers of lags of the shocks (0, 1 and 2) to control for the possibility of there being serial correlation in the shocks. In all three cases, the results are largely unchanged relative to my baseline results for the trade balance, exports, imports and the real exchange rate.

Gopinath and Itskhoki (2022) and Barbiero (2021) argue that an invoiced-weighted, instead of a trade-weighted, exchange rate matters more for determining the force of the expenditure switching effect. The countries in my sample invoice most of their exports and imports in dollars, as Table 1 shows. Hence, Figure G3 of the appendix presents the response of the US dollar real exchange rate that I constructed using the nominal exchange rate and the CPI of each respective country, instead of the BIS trade-weighted real effective exchange rate that I presented in my baseline results. The responses are very similar to the baseline case, with the real exchange rate appreciating in response to the monetary tightening shock. I also estimated the response of the local currency-US Dollar nominal exchange rate to the monetary tightening shock and the response resembles a very transitory exchange rate appreciation following the tightening shock and a subsequent depreciation (not shown).[39]

Brazil is the only country of my sample that has balance of payments data at a monthly frequency. I take advantage of this and rerun my baseline empirical analysis for Brazil with the current account as the dependent variable. Figure G4 of the appendix shows the results. The current account's response is positive and is closely related to the response of the goods trade balance, which lends credence to my decision of choosing the goods trade balance as the dependent variable in my analysis. The services trade balance also responds positively to the monetary tightening shock but quantitatively its response is around half of the goods' trade balance response. The response of primary income is statistically insignificant.

The emerging markets in my sample have faced various economic turmoil periods during the sample period. During this episodes it is arguably more likely that economic analysts miss some of the variation of the policy rate because they may have imperfect information of the implicit policy decision rule of the central bank, or because the central bank has more information than them about the state of the economy.[40] Hence, I include dummy variables that control for these periods to discard that they are driving my results.

The first episode I control for is July 1999 to December 2003. During this period Brazil has the largest shocks of the sample, as can be seen in Figure 1. This may have to do with the uncertainty surrounding Brazil's macroeconomic conditions during this period, which covers the Argentinian 2001 crisis, as well as the recovery from the Brazilian end-of-century crisis. Relative to the baseline results, including this dummy decreases exports and keeps imports practically unchanged, so net exports fall.

The second period I control for is the Global Financial Crisis of 2008-2009. I tested four different dummies: 1) a dummy that takes the value of one during 2008 and zero otherwise; 2) a dummy that takes the value of one during 2009 and zero otherwise; 3) a dummy that takes the value of one during 2008 and 2009 and zero otherwise; and 4) a dummy that takes the value of 1 from the period when exports/imports start to decline until the trough and zero otherwise. Relative to the baseline results, each of these dummies increases exports and imports in a similar magnitude, so net exports are largely unchanged. However, the dummy that increases exports and imports the most relative to the baseline is the fourth one, so I include it to avoid biasing my results towards finding that monetary contractions reduce exports and imports.

The third period I control for is the crisis of 2014-2016, when the price of oil fell around 70%, passing from

[39] The discussion about which pricing paradigm represents reality more accurately is all about trying to understand how the *nominal* exchange rate affects relative prices and hence real variables. I thank Camila Casas for making clear this point for me.

[40] Even if the central bank does not have superior information relative to economic analysts, the fact that their information set is *private* and *different* will lead them to take policy actions that generate information effects. Additionally, my estimates may reflect the effects of surprise shifts in the policy rule rather than in the exogenous component of the policy rule. I regard the study of the process by which analysts form expectations and learn about the policy rule as a promising area for future research.

USD 111.8 per barrel in June 2014 to USD 32.18 per barrel in February 2016. I control for this period using a dummy that takes the value of one from July 2014 to February 2016. Relative to the baseline results, including this dummy increases the response of exports and imports in a similar magnitude, so net exports are largely unchanged. Finally, to control for the COVID pandemic I include a dummy that takes the value of one during 2020 and 2021 and zero otherwise. Relative to the baseline results, including these dummies reduces the response of exports and imports.

The net effect of controlling for these four episodes can be seen in Figure G5 of the appendix. Exports and imports still have a negative response to a monetary contraction, but relative to the baseline results the decline of exports and imports is around two and five percentage points lower, respectively. The trade balance's response is largely unchanged during 20 months. Then, the relative increase of imports pulls down the response, but its still on positive territory. In that sense, my baseline results remain largely unchanged.

I also perform a robustness test following Bauer and Swanson (2023b) and Checo et al. (2024) and orthogonalize my monetary policy shocks against a set of economic and financial variables available in Haver for every country. I estimate the following regression model:

$$FE_{c,t} = \alpha_c + \beta_c X_{c,t} + \varepsilon_{c,t} \tag{3}$$

where $FE_{c,t}$ is the set of policy surprises (forecast errors) for country c at month t and $X_{c,t}$ is a vector that includes nominal, real and financial variables. All variables are expressed in percentage changes between the last data release within the month of the respective monetary policy meeting and their values 3 months before. The nominal variables I include are Consumer Price Index, expected one-year-ahead Consumer Price Index, Producer Price Index, Import Prices (CPI-based or PPI-based), and a measure of labor cost, which can be the nominal wage growth or a measure of unit labor cost. The real variables I include are Industrial Production, an index of economic activity, the fiscal balance and the unemployment rate. Finally, I consider as financial variables the nominal exchange rate against the US Dollar, the expected one-year-ahead exchange rate and the 5-year Credit Default Swaps.

I estimate Equation 3 country by country. The algorithm I follow is to first run the policy surprises against all the independent variables and then sequentially remove the variables with the highest p-value until there only remain statistically significant regressors at a level of at least 10%. This is to ensure that I remove the variation of the policy surprises that is correlated with predictable components of the policy rule, such as data releases that were very close to the policy meeting and were not incorporated by analysts in their forecast.

Table G1 of the appendix reports the results of the final regressions per country, which only include statistically significant regressors. There is an average R^2 of 8.6%, which suggests that economic analysts take into account most of the public information available before the monetary policy meeting in order to forecast the policy rate. Colombia and Mexico have very low R^2 of only 4 and 2%, respectively, while Brazil and Chile have an R^2 of 15 and 14%, respectively. This may explain why Mexico has the lowest number of shocks in Figure 1.

Some common regressors left after the algorithm is done are PPI, expected CPI and import prices, and they tend to have positive coefficients, which suggests that stronger price news tend to be accompanied by a central bank that leans against inflation in a way that was not anticipated by economic analysts. That is, when prices are growing faster, central banks tend to surprise economic analysts by increasing their policy rate even more than analysts expected, or leaving it unchanged when analysts expected the central bank to cut rates, or cut rates in a slower magnitude than was expected. Stronger economic activity in the case of Chile is also associated with positive policy surprises. This confirms the findings of Checo et al. (2024) and Bauer and Swanson (2023a) for emerging markets and the US, respectively.

Using the residuals from these regressions as the shocks of my empirical estimation does not change my main conclusions. Figure G6 of the appendix shows that after the tightening shock exports and imports decline and the trade balance exhibits a *J*-curve. However, the initial contraction phase of the trade balance extends one additional year due to the fact that the response of imports increases around four percentage points relative to the baseline results, so these IRFs support the Mundellian paradigm in the short run to an even greater extent than my baseline results.

I perform two additional robustness tests. First, the sample period for my panel estimates is 1999m7-2024m8, but the panel is unbalanced, with Brazil (1999m7-2024m7) having the largest sample and Peru the shortest one (2006m7-2024m8). Hence, I rerun my empirical estimates with the longest sample available such that no country represents a larger proportion of the panel data than the other ones. This rules out the possibility that any particular country might be driving the results. This sample corresponds to 2006m7-2024m8. The results are very similar to my baseline estimates, as can be seen in Figure G7 of the appendix.

Second, I collect and employ an alternative set of monetary policy shocks for Brazil, Chile, Colombia and Mexico[41] and rerun my empirical analysis to evaluate whether my results are robust to using other identified monetary shocks. For Brazil (2009m4-2022m10), Chile (2009m12-2022m12) and Mexico (2003m7-2022m12) I use the shocks estimated by Bolhuis et al. (2024), who adopt a high-frequency identification approach by computing monetary policy surprises as daily changes in one-year interest rate swaps around central bank announcements. A similar approach is followed for Colombia by Romero et al. (2021) for the period 2008m1-2025m1. For Colombia I also use the narrative identification shocks *a la* Romer and Romer (2004) estimated by López et al. (2020) between 2002m3 and 2025m3.

Figure G8 of the appendix shows the response of the policy rate to the estimated shocks for each country. I normalize the shocks such that the maximum response of the policy rate is one percentage point. The responses are positive on impact but accumulate over time and reach their peak after some months. Then they tend to go back to their initial level. The Romero et al. (2021) shocks for Colombia are an exception and exhibit a more persistent response. Regarding the precision of the point estimates, the Bolhuis et al. (2024) shocks are

[41] I was not able to find an alternative set of high-frequency or narrative monetary shocks for Peru.

imprecisely estimated relative to my Bloomberg shocks for Brazil and Chile, but are more precisely estimated for Mexico towards the end of the response horizon.

Figure G9 of the appendix shows the response of the trade balance to the monetary tightening shocks. The responses are very similar to my baseline results, except for Colombia, where both the narrative and high-frequency shocks display a persistently negative response of the trade balance to the monetary tightening shock. The responses are more precisely estimated with the alternative sets of shocks for Colombia, but not for the other countries. This result supports the Mundellian paradigm and rejects the presence of a J-Curve response in Colombia.

Turning to exports, Figure G10 of the appendix shows that the negative responses for Brazil and Chile attenuate towards zero. In Brazil the response is statistically insignificant throughout the horizon. In Mexico the point estimate is negative but statistically insignificant using the alternative monetary shock, while in Colombia the responses are negative and statistically significant throughout the response horizon with both of the alternative shock measures. The responses are very precisely estimated relative to my baseline results for Colombia.

Finally, the response of imports, shown in Figure G11 of the appendix, attenuates towards zero but remains negative throughout the horizon for Brazil and Chile. The response is qualitatively and quantitatively similar for Colombia, but the precision of the estimates is higher with the alternative shock measures, as reflected by the narrower confidence intervals. Mexico exhibits a negative point estimate response, but it is statistically insignificant after month 6.

9 Conclusions

I estimate the effects of monetary policy on the current account in Brazil, Chile, Colombia, Mexico and Peru for the period 1999-2024. This question is theoretically ambiguous for a large class of sticky-price intertemporal models, independently of the pricing paradigm one adopts. Therefore, it is fundamentally an empirical question and poses serious identification issues because monetary policy is endogenous to the state of the economy.

My approach to tackle this identification challenge is to employ the high-frequency-identification strategy proposed by Checo et al. (2024), which constructs monetary policy shocks as the difference between the monetary policy rate decision taken by the central bank and the consensus policy rate forecast of economic analysts (i.e., the analysts' forecast errors of policy rate decisions). Identification is achieved because analysts are able to revise their forecasts up to the time of the policy meeting, so they can include in their forecast every piece of information that is relevant to the policy decision. Bloomberg's economic survey allows this. I show that the median analyst submits her forecast in a time-window of up to five days before the policy meeting, which lends credence to my high-frequency identification research design as it rules out confounders between the submission date and the policy meeting date. Additionally, I provide evidence that analysts have the incentive to truthfully submit the most accurate forecast possible.

Once I build the shocks, I employ the local projections technique developed by Jordà (2005) and find in a panel estimation exercise that a contractionary policy rate shock causes a "*J* curve" effect on the trade balance, with an initial contraction and a posterior expansion. Exports and imports persistently fall throughout the horizon with a hump-shape pattern, but the exchange rate appreciation cushions the decline in imports in the short-run, so the trade balance falls initially. However, the economic downturn caused by the interest rate hike weighs in the demand for imports in the medium-run and causes imports to fall more than exports, thereby inducing an expansion in the trade balance.

Interestingly, the response in the trade balance is heterogeneous in the cross-section. Chile and Peru exhibit a consistently negative *W*-curve response, Colombia and Mexico have a *J*-curve pattern (a short-run contraction and a medium-run expansion) and Brazil shows a positive and persistently increasing response. Hence, in the short run, the panel results resemble the responses of Chile, Colombia, Mexico, and Peru. In the medium run, the panel results are significantly influenced by the responses of Brazil, Colombia, and, to a lesser extent, Mexico. I attribute this heterogeneity to the response of exports and imports in each country, which in turn depend on the strength of the exchange rate response and the export-import structure of each country.

In particular, Chile and Peru export highly substitutable homogeneous goods, so expenditure switching is strong for them and they fall more than imports throughout the horizon. Exports in Brazil are a mix between homogeneous and differentiated goods, so quantitatively the decline in Brazilian exports is less severe than the contraction in its imports, particularly capital imports, which are highly sensitive to the interest rate. This causes the persistently positive response of Brazil's trade balance to the monetary contraction.

Mexican petroleum export volumes decline, while manufacturing exports, which are highly differentiated goods, are insensitive to the monetary shock. Imports increase as a result of the strong exchange rate appreciation, hence reducing the trade balance in the short run. The economic downturn at the end of the horizon induces a positive trade balance response. Finally, Colombian traditional exports, which are highly substitutable commodities, fall with a lag, but the point estimates are statistically insignificant, while imports decline with a lag. Hence, in the short run exports drop more than imports, while in the medium run the sign reverses.

In that sense, the response of the trade balance to monetary shocks in countries that export more differentiated goods is driven mostly by the interaction between the positive effect of the exchange rate appreciation on imports in the short run and the negative effect of the economic downturn on imports in the medium run. On the other hand, countries that export less differentiated goods exhibit a more persistent deterioration of the trade balance due to the fall in exports caused by the exchange rate appreciation. Brazil, Chile, Mexico and Peru fit in this pattern, which was proposed by McLeay and Tenreyro (2025) and is called the *Mixed Currency Pricing* paradigm. Models that endorse the *Local Currency Paradigm* or the *Dominant Currency Paradigm*, such as those by Betts and Devereux (2000), Devereux and Engel (2003) and Gopinath et al. (2020), are not consistent with the effects on exports found for these countries. According to these paradigms, the dollar-value of exports should not change as a result of a monetary shock, which stands in contrast to my finding of a stark contraction of exports in these countries caused by the policy rate shock.

By contrast, Colombia exports mostly commodities or commodity-like, highly substitutable goods, but I find a statistically insignificant response of exports to the monetary shock. Imports, however, are statistically and negatively affected by the monetary contraction. This pattern is consistent with the *Dominant Currency Pricing* paradigm proposed by Gopinath et al. (2020), which argues that expenditure switching occurs only through imports when export prices are sticky and invoiced in dollars. Carranza et al. (2020) and Casas et al. (2023) argue that this result is due to firms relying on imported intermediate inputs and foreign-currency-denominated debt, which creates a balance-sheet effect that fully offsets the expenditure switching effect, particularly for firms that are not naturally (i.e., denominate their exports and imports in foreign currency) or financially hedged (e.g., have foreign currency denominated assets or derivative contracts) against exchange rate movements. Capacity constraints and the persistence of the exchange rate movement may also be relevant.

However, the null-response of Colombian exports is also consistent with the arguments of diverse studies, such as García-García et al. (2019), which argue that the institutional context significantly increases the costs of exporting. Examples include high non-tariff barriers, inefficiency in the provision of logistical services for internal cargo transportation and port operations, excessive regulations and the lack of physical and technological infrastructure to export.

Nonetheless, a point might also be made that this is an identification problem. Ramey (2016) argues that in more recent samples, when monetary policy has been conducted systematically and central bank communication has enhanced the understanding of the underlying policy rule by economic analysts, "pure" monetary policy shocks are rare and "it is difficult to extract meaningful monetary shocks that are not contaminated by problems with foresight on the part of the monetary authority" (Ramey, 2016). This is reflected by the fact that for Colombia the response of exports to the monetary tightening shock turns negative and statistically significant when using alternative sets of monetary shock measures, such as the ones estimated by Romero et al. (2021) and López et al. (2020). Using the mean instead of the median as the analysts' consensus forecast also turns the responses negative and statistically significant, which may happen because using the mean creates more variation in the estimated policy surprises than using the median. More research is needed in order to decide which viewpoint represents most accurately the truth.

For instance, I regard as a very promising avenue for future research extending the approach of Jarociński and Karadi (2025) and separately identify the monetary policy shock, central bank information and the Fed response to news components of my policy surprises, in order to contrast their contributions to the economy. Monetary policy shocks, cleaned from the impact of the other (potential) components of the policy surprises, may solve some of the "puzzles" or confounding factors I found, such as the positive response of Mexico's petroleum exports to the monetary policy tightening shock.

On the theoretical front, the responses found in this paper provide valuable discipline on models of how monetary policy affects international trade, such as Lane (2001a), Galí and Monacelli (2005) and Auclert et al. (2024). In particular, the intratemporal elasticity of substitution between home and foreign goods (or, more generally, the trade elasticity) may be higher than the intertemporal elasticity of substitution of consumption in the short run, while in the medium run this sign reverses. Additionally, structural models that do not include investment dynamics might miss the strong contraction of capital imports I found and hence might bias their results towards finding that monetary contractions induce current account deficits, the Mundellian paradigm.

Finally, on the policy implications of this paper, my findings indicate that central bankers might face a trade-off during a demand-driven boom that is accompanied by a capital inflow bonanza and hence an increase in the current account deficit. Since a monetary contraction leads to a higher external deficit in the short run, this may increase the vulnerability of the economy to a *sudden-stop* episode. Thus, things may get worse before they get better, but this may be the cost one has to pay in order to stabilize an overheated aggregate demand in the medium run. Macroprudential measures and a clear communication about the policy rule and the path ahead may avoid capital flow reversals and self-fulfilling crises from occurring while the adjustment process in external accounts takes place.

References

Adler, G. and Osorio Buitron, C. (2020). Tipping the scale? the workings of monetary policy through trade. *Review of International Economics*, 28(3):744–759.

Angrist, J. D. and Pischke, J.-S. (2010). The credibility revolution in empirical economics: How better research design is taking the con out of econometrics. *Journal of Economic Perspectives*, 24(2):3–30.

Arezki, R., Ramey, V. A., and Sheng, L. (2017). News shocks in open economies: Evidence from giant oil discoveries. *The Quarterly Journal of Economics*, 132(1):103–155.

Aruoba, B., Fernández, A., Guzmán, D., Pastén, E., and Saffie, F. (2021). Monetary Policy Surprises in Chile: Measurement & Real Effects. Working Papers Central Bank of Chile 921, Central Bank of Chile.

Auclert, A., Rognlie, M., Souchier, M., and Straub, L. (2024). Exchange rates and monetary policy with heterogeneous agents: Sizing up the real income channel. Technical report.

Auclert, A., Rognlie, M., and Straub, L. (2020). Micro jumps, macro humps: Monetary policy and business cycles in an estimated hank model. Working Paper 26647, National Bureau of Economic Research.

Barbiero, O. (2021). The Valuation Effects of Trade. Working Papers 21-11, Federal Reserve Bank of Boston.

Basu, M. S. S. and Gopinath, M. G. (2024). An Integrated Policy Framework (IPF) Diagram for International Economics. IMF Working Papers 2024/038, International Monetary Fund.

Bauer, M. D. and Swanson, E. T. (2023a). An alternative explanation for the "fed information effect". *American Economic Review*, 113(3):664–700.

Bauer, M. D. and Swanson, E. T. (2023b). A reassessment of monetary policy surprises and high-frequency identification. *NBER Macroeconomics Annual*, 37(1):87–155.

Betts, C. and Devereux, M. B. (2000). Exchange rate dynamics in a model of pricing-to-market. *Journal of International Economics*, 50(1):215–244.

Blanchard, O. (2020). *Macroeconomics, Global Edition*. Pearson Education.

Blanchard, O. J. and Milesi-Ferretti, G. M. (2013). *(Why) Should Current Account Balances Be Reduced?* International Monetary Fund, USA.

Bolhuis, M., Das, S., and Yao, B. (2024). A New Dataset of High-Frequency Monetary Policy Shocks. *IMF Working Papers*, 2024(224):1.

Boz, E., Casas, C., Georgiadis, G., Gopinath, G., Le Mezo, H., Mehl, A., and Nguyen, T. (2022). Patterns of invoicing currency in global trade: New evidence. *Journal of International Economics*, 136:103604. NBER International Seminar on Macroeconomics 2021.

Brandao-Marques, L., Gelos, R., Harjes, T., Sahay, R., and Xue, Y. (2020). *Monetary policy transmission in emerging markets and developing economies*. International Monetary Fund.

Brennan, C. M., Jacobson, M. M., Matthes, C., and Walker, T. B. (2024). Monetary policy shocks: Data or methods? Technical report, Board of Governors of the Federal Reserve System (US).

Ca' Zorzi, M., Dedola, L., Georgiadis, G., Jarociński, M., Stracca, L., and Strasser, G. (2020). Monetary policy and its transmission in a globalised world. Working Paper Series 2407, European Central Bank.

Calvo, G. and Reinhart, C. (2000). When Capital Inflows Come to a Sudden Stop: Consequences and Policy Options. MPRA Paper 6982, University Library of Munich, Germany.

Camara, S., Christiano, L., and Dalgic, H. (2024). *The International Monetary Transmission Mechanism*. University of Chicago Press.

Carranza, J. E., Casas, C., and González-Ramírez, A. X. (2020). The Colombian peso depreciation of 2014-2015 and the adjustment of trade in the manufacturing sector. Borradores de Economia 1125, Banco de la Republica de Colombia.

Casas, C., Meleshchuk, S., and Timmer, Y. (2023). *The Dominant Currency Financing Channel of External Adjustment*. Munich Society for the Promotion of Economic Research - CESifo.

Catão, L. A. and Milesi-Ferretti, G. M. (2014). External liabilities and crises. *Journal of International Economics*, 94(1):18–32.

Chari, V. V., Kehoe, P. J., and McGrattan, E. R. (2002). Can Sticky Price Models Generate Volatile and Persistent Real Exchange Rates? *The Review of Economic Studies*, 69(3):533–563.

Checo, A., Grigoli, F., and Sandri, D. (2024). Monetary Policy Transmission in Emerging Markets: Proverbial Concerns, Novel Evidence. BIS Working Papers 1170, Bank for International Settlements.

Cochrane, J. H. and Piazzesi, M. (2002). The fed and interest rates - a high-frequency identification. *American Economic Review*, 92(2):90–95.

Cole, H. L. and Obstfeld, M. (1991). Commodity trade and international risk sharing: How much do financial markets matter? *Journal of Monetary Economics*, 28(1):3–24.

Corsetti, G. (2007). New open economy macroeconomics. *Robert Schuman Centre for Advanced Studies (RSC). European University Institute*.

Corsetti, G., Dedola, L., and Leduc, S. (2010). Chapter 16 - optimal monetary policy in open economies. volume 3 of *Handbook of Monetary Economics*, pages 861–933. Elsevier.

Corsetti, G. and Pesenti, P. (2001). Welfare and macroeconomic interdependence. *The Quarterly Journal of Economics*, 116(2):421–445.

Cunningham, S. (2021). *Causal inference: The mixtape*. Yale university press.

De Gregorio, J. (2019). Inflation Targets in Latin America. Working Papers Working Paper No. 19-19, Peterson Institute for International Economics.

De Gregorio, J., García, P., Luttini, E., and Rojas, M. (2024). From dominant to producer currency pricing: Dynamics of chilean exports. *Journal of International Economics*, 149:103934. International Seminar on Macroeconomics, 2023.

De Leo, P., Gopinath, G., and Kalemli-Özcan, 2022). Monetary policy and the short-rate disconnect in emerging economies. Working Paper 30458, National Bureau of Economic Research.

Deb, P., Estefania-Flores, J., Firat, M., Furceri, D., and Kothari, S. (2023). Monetary Policy Transmission Heterogeneity: Cross-Country Evidence. IMF Working Papers 2023/204, International Monetary Fund.

Degasperi, R., Hong, S. S., and Ricco, G. (2021). The global transmission of us monetary policy.

Devereux, M. B. (2001). The new international macroeconomics: Some policy implications. *Economic Papers: A journal of applied economics and policy*, 20(S1):30–41.

Devereux, M. B. and Engel, C. (2003). Monetary Policy in the Open Economy Revisited: Price Setting and Exchange-Rate Flexibility. *The Review of Economic Studies*, 70(4):765–783.

Diebold, F. X. (2017). Forecasting in economics, business, finance and beyond.

Edwards, S. (2002). Does the current account matter? *University of Chicago Press*, (1):21–76.

Engel, C. (2002). Expenditure switching and exchange rate policy. Working Paper 9016, National Bureau of Economic Research.

Esquivel, C., Kehoe, T. J., and Nicolini, J. P. (2021). *Lessons from the Monetary and Fiscal History of Latin America*, pages 537–566. University of Minnesota Press.

Fischer, S. (1988). Real balances, the exchange rate, and indexation: Real variables in disinflation. *The Quarterly Journal of Economics*, 103(1):27–49.

Fischer, S. (1994). Comment on dornbusch and werner. mexico: Stabilization, reform, and no growth. *Brookings Papers on Economic Activity*, 1994(1):303–309.

Fisher, L. and Huh, H.-S. (2002). Real exchange rates, trade balances and nominal shocks: evidence for the g-7. *Journal of International Money and Finance*, 21(4):497–518.

Fleming, J. M. (1962). Domestic financial policies under fixed and under floating exchange rates. *Staff Papers-International Monetary Fund*, pages 369–380.

Frankel, J. (2010). Chapter 25 - monetary policy in emerging markets. volume 3 of *Handbook of Monetary Economics*, pages 1439–1520. Elsevier.

Frankel, J. and Saravelos, G. (2012). Can leading indicators assess country vulnerability? evidence from the 2008–09 global financial crisis. *Journal of International Economics*, 87(2):216–231.

Friedman, M. (1977). Nobel lecture: Inflation and unemployment. *Journal of Political Economy*, 85(3):451–472.

Fukui, M., Nakamura, E., and Steinsson, J. (2023). The macroeconomic consequences of exchange rate depreciations. Working Paper 31279, National Bureau of Economic Research.

Galí, J. and Monacelli, T. (2005). Monetary policy and exchange rate volatility in a small open economy. *The Review of Economic Studies*, 72(3):707–734.

García-García, J., López-Valenzuela, D. C., Montes-Uribe, E., Esguerra-Umaña, M. d. P., Echavarría, J. J., Giraldo-Salazar, I., Jaramillo-Mejía, F., and Collazos-Gaitán, M. M. (2019). *Comercio exterior en Colombia: política, instituciones, costos y resultados*, volume Primera edición. Banco de la República de Colombia.

Gertler, M. and Karadi, P. (2015). Monetary policy surprises, credit costs, and economic activity. *American Economic Journal: Macroeconomics*, 7(1):44–76.

Giuliano, F. and Luttini, E. (2020). Import prices and invoice currency: Evidence from chile. *Journal of International Money and Finance*, 106:102183. Micro data and the exchange rate pass-through to prices and trade.

Giuliodori, M. (2004). Nominal shocks and the current account: A structural var analysis of 14 oecd countries. *Review of World Economics / Weltwirtschaftliches Archiv*, 140(4):569–591.

Gopinath, G., Boz, E., Casas, C., Díez, F. J., Gourinchas, P.-O., and Plagborg-Møller, M. (2020). Dominant currency paradigm. *American Economic Review*, 110(3):677–719.

Gopinath, G. and Itskhoki, O. (2022). Chapter 2 - dominant currency paradigm: a review. In Gopinath, G., Helpman, E., and Rogoff, K., editors, *Handbook of International Economics: International Macroeconomics, Volume 6*, volume 6 of *Handbook of International Economics*, pages 45–90. Elsevier.

Gourinchas, P.-O. (2021). The dollar hegemon? evidence and implications for policymakers. In *The Asian monetary policy forum: Insights for central banking*, pages 264–300. World Scientific.

Guo, X., Ottonello, P., and Perez, D. J. (2023). Monetary policy and redistribution in open economies. *Journal of Political Economy Macroeconomics*, 1(1):191–241.

Ilzetzki, E., Reinhart, C. M., and Rogoff, K. S. (2019). Exchange arrangements entering the twenty-first century: Which anchor will hold? *The Quarterly Journal of Economics*, 134(2):599–646.

IMF (2020). *External Sector Report, 2020: Global Imbalances and the COVID-19 Crisis*. International Monetary Fund, USA.

IMF (2021). How to assess country risk: The vulnerability exercise approach using machine learning.

Ivrendi, M. and Guloglu, B. (2010). Monetary shocks, exchange rates and trade balances: Evidence from inflation targeting countries. *Economic Modelling*, 27(5):1144–1155.

Jarociński, M. and Karadi, P. (2020). Deconstructing monetary policy surprises—the role of information shocks. *American Economic Journal: Macroeconomics*, 12(2):1–43.

Jarociński, M. and Karadi, P. (2025). Disentangling monetary policy, central bank information, and fed response to news shocks. *CEPR Discussion Paper*, (19923).

Jordà, (2005). Estimation and inference of impulse responses by local projections. *American Economic Review*, 95(1):161–182.

Jordà, (2023). Local projections for applied economics. *Annual Review of Economics*, 15(Volume 15, 2023):607–631.

Jordà, , Singh, S. R., and Taylor, A. M. (2020). The long-run effects of monetary policy. Working Paper 26666, National Bureau of Economic Research.

Jordà, and Taylor, A. M. (2024). Local projections. Working Paper 32822, National Bureau of Economic Research.

Kalemli-Özcan, 2019). Us monetary policy and international risk spillovers. Technical report, National Bureau of Economic Research.

Keynes, J. M. (1936). *The General Theory of Employment, Interest and Money*.

Kim, S. (2001). International transmission of u.s. monetary policy shocks: Evidence from var's. *Journal of Monetary Economics*, 48(2):339–372.

Kollmann, R. (2001). The exchange rate in a dynamic-optimizing business cycle model with nominal rigidities: a quantitative investigation. *Journal of International Economics*, 55(2):243–262.

Korinek, A. (2018). Regulating capital flows to emerging markets: An externality view. *Journal of International Economics*, 111:61–80.

Krugman, P., Obstfeld, M., and Melitz, M. (2022). *International Economics: Theory & Policy*. Pearson series in economics. Pearson.

Kuersteiner, G. M., Phillips, D. C., and Villamizar-Villegas, M. (2018). Effective sterilized foreign exchange intervention? evidence from a rule-based policy. *Journal of International Economics*, 113:118–138.

Kuttner, K. N. (2001). Monetary policy surprises and interest rates: Evidence from the fed funds futures market. *Journal of Monetary Economics*, 47(3):523–544.

Lane, P. R. (2001a). Money shocks and the current account. *Money, Capital Mobility, and Trade: Essays in Honor of Robert A. Mundell*, pages 385–411.

Lane, P. R. (2001b). The new open economy macroeconomics: a survey. *Journal of international economics*, 54(2):235–266.

Lane, P. R. (2019). The international transmission of monetary policy. *CEPR's International Macroeconomics and Finance (IMF) Programme.*

Lee, J. and Chinn, M. D. (2006). Current account and real exchange rate dynamics in the g7 countries. *Journal of International Money and Finance*, 25(2):257–274.

Lombardo, G. (2001). On the trade balance response to monetary shocks: the marshall-lerner conditions reconsidered. *Journal of Economic Integration*, pages 590–616.

López, M., Bohorquez-Penuela, C., Carranza, J. E., Moreno-Burbano, S., Grajales-Olarte, A., Latorre, M. P., and Pulido, J. (2020). Crédito y efectos reales en colombia 2000-2017: evidencia con microdatos. *Revista ESPE - Ensayos sobre Política Económica*, None(94):1–58.

Magee, S. P. (1973). Currency contracts, pass-through, and devaluation. *Brookings Papers on Economic Activity*, 4(1):303–325.

Mankiw, N. (2022). *Macroeconomics*. Worth Publishers, Macmillan Learning.

Mboup, F. and Wurtzel, A. L. (2018). Battle of the forecasts: Mean vs. median as the survey of professional forecasters' consensus. *Research Brief (Federal Reserve Bank of Philadelphia)*.

McLeay, M. and Tenreyro, S. (2025). Dollar dominance and the transmission of monetary policy.

Mendoza, E. G. and Terrones, M. E. (2008). An anatomy of credit booms: evidence from macro aggregates and micro data. Technical report, National Bureau of Economic Research.

Meyer, J. d. P. (2006). Impacto de las Sorpresas Económicas en el Rendimiento de los Bonos del Banco Central de Chile. *Notas de Investigación Journal Economía Chilena* (*The Chilean Economy*), 9(2):61–71.

Miranda-Agrippino, S. and Ricco, G. (2021). The transmission of monetary policy shocks. *American Economic Journal: Macroeconomics*, 13(3):74–107.

Montiel Olea, J. L., Plagborg-Møller, M., Qian, E., and Wolf, C. K. (2025). Local projections or vars? a primer for macroeconomists.

Montiel Olea, J. L., Plagborg-Møller, M., Qian, E., and Wolf, C. K. (2024). Double robustness of local projections and some unpleasant varithmetic. Working Paper 32495, National Bureau of Economic Research.

Mukhin, D. (2020). Discussion of dominant currency and the impact of monetary policy by michael mcleay and silvana tenreyro. Presentation, Banque de France Lecture.

Mundell, R. A. (1963). Capital mobility and stabilization policy under fixed and flexible exchange rates. *Canadian Journal of Economics and Political Science/Revue canadienne de economiques et science politique*, 29(4):475–485.

Nakamura, E. and Steinsson, J. (2018a). High-Frequency Identification of Monetary Non-Neutrality: The Information Effect. *The Quarterly Journal of Economics*, 133(3):1283–1330.

Nakamura, E. and Steinsson, J. (2018b). Identification in macroeconomics. *Journal of Economic Perspectives*, 32(3):59–86.

Obstfeld, M. (2012). Does the current account still matter? *The American Economic Review*, 102(3):1–23.

Obstfeld, M. (2020). Harry johnson's "case for flexible exchange rates" – 50 years later. Working Paper 26874, National Bureau of Economic Research.

Obstfeld, M. and Rogoff, K. (1995a). Exchange rate dynamics redux. *Journal of Political Economy*, 103(3):624–60.

Obstfeld, M. and Rogoff, K. (1995b). The intertemporal approach to the current account. volume 3 of *Handbook of International Economics*, pages 1731–1799. Elsevier.

Obstfeld, M. and Rogoff, K. (1996). *Foundations of International Macroeconomics*. MIT press.

Pescatori, A. (2018). Central Bank Communication and Monetary Policy Surprises in Chile. IMF Working Papers 2018/156, International Monetary Fund.

Plagborg-Møller, M. and Wolf, C. K. (2021). Local projections and vars estimate the same impulse responses. *Econometrica*, 89(2):955–980.

Ramey, V. (2016). Chapter 2 - macroeconomic shocks and their propagation. volume 2 of *Handbook of Macroeconomics*, pages 71–162. Elsevier.

Reinhart, C. M. and Reinhart, V. R. (2008). Capital flow bonanzas: An encompassing view of the past and present. *NBER International Seminar on Macroeconomics*, 5(1):9–62.

Rojas-Suárez, L. (2002). Comment on Edwards. does the current account matter? *University of Chicago Press*, (1):21–76.

Romer, C. D. and Romer, D. H. (2000). Federal reserve information and the behavior of interest rates. *American Economic Review*, 90(3):429–457.

Romer, C. D. and Romer, D. H. (2004). A new measure of monetary shocks: Derivation and implications. *American Economic Review*, 94(4):1055–1084.

Romero, J. V., Vargas, H., Cardozo, P., and Murcia, A. (2021). How foreign participation in the colombian local public debt market has influenced domestic financial conditions. *Latin American Journal of Central Banking*, 2(4):100043.

Sarno, L. (2001). Toward a new paradigm in open economy modeling: Where do we stand? *Federal Reserve Bank of St. Louis Review*, 83(May/June 2001).

Schmitt-Grohé, S. and Uribe, M. (2017). *Open economy macroeconomics*. Princeton University Press.

Schmitt-Grohé, S., Uribe, M., and Woodford, M. (2022). *International macroeconomics: A modern approach*. Princeton University Press.

Schuler, T. and Sun, Y. (2022). The current account and monetary policy in the euro area. Working Paper Series 2696, European Central Bank.

Sims, C. A. (2010). But economics is not an experimental science. *Journal of Economic Perspectives*, 24(2):59–68.

Soosalu, M. (2024). Monetary policy transmission in canada–a high frequency identification approach. *The BE Journal of Macroeconomics*, 24(2):781–811.

Tenreyro, S. (2019). Monetary policy and open questions in international macroeconomics. john flemming memorial lecture. *Bank of England*.

Tille, C. (2001). The role of consumption substitutability in the international transmission of monetary shocks. *Journal of International Economics*, 53(2):421–444.

Woodford, M. (2003). *Interest and Prices: Foundations of a Theory of Monetary Policy*. Princeton University Press.

Appendix

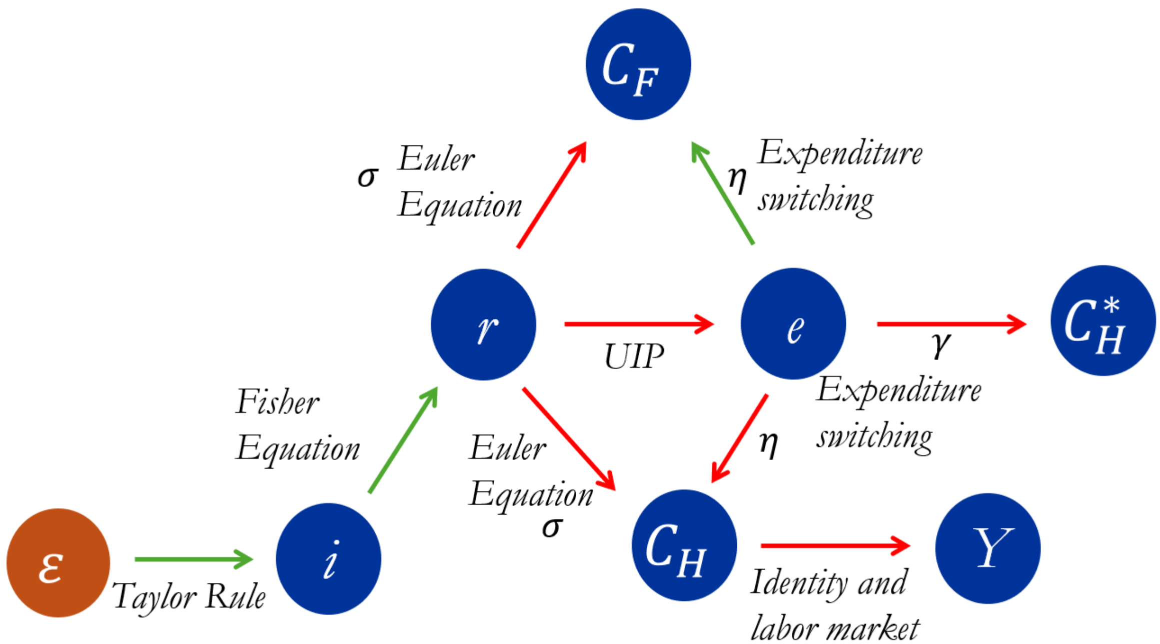
A Appendix of the *Theoretical Literature Review*

Table A1: Effects on prices and quantities of an exchange rate appreciation under PCP, LCP, DCP and MCP

	Expressed in Local Currency				Expressed in Foreign Currency			
	PCP	LCP	DCP	MCP	PCP	LCP	DCP	MCP
Exports, X	$\downarrow$	0	0	$\downarrow$	$\downarrow$	0	0	$\downarrow$
Imports, M	$\uparrow$	0	$\uparrow$	$\uparrow$	$\uparrow$	0	$\uparrow$	$\uparrow$
Export price, P_X	0	$\downarrow$	$\downarrow$	$\downarrow$	$\uparrow$	0	0	0
Import price, P_M	$\downarrow$	0	$\downarrow$	$\downarrow$	0	$\uparrow$	0	0
Net exports, $P_X X - P_M M$	?	$\downarrow$	?	?	?	$\downarrow$	$\downarrow$	?

Note: This table illustrates how the prices of exports P_x and imports P_m, and quantities of exports and imports, X and M move in response to an exogenous exchange rate appreciation $\downarrow e$ when expressed in local currency (pesos) and foreign currency (dollars) according to each of the four pricing paradigms: 1) Producer Currency Paradigm (PCP), where the price of exports is fixed in domestic currency and the price of imports is fixed in the currency from which Home is importing; 2) Local Currency Paradigm (LCP), where the price of exports is fixed in the destination currency and the price of imports is fixed in domestic currency; 3) Dominant Currency Paradigm (DCP), where the price of exports and imports is fixed in the dominant currency; and 4) Mixed Currency Paradigm (MCP), which entails DCP pricing of exports and imports but assumes high elasticities of substitution for exported goods, which yields directions that resemble PCP for X and M, and DCP for P_x and P_m. When a direction is ambiguous I place a “?” sign.

Figure A1: Monetary Transmission in the canonical New-Keynesian Open-Economy Model



Note: This figure describes the transmission of a monetary tightening shock in the Galí and Monacelli (2005) model. The color of an arrow indicates if the variable increases (green) or falls (red). A positive monetary policy shock, ε, increases the nominal interest rate, i. This results in a higher real interest rate, r, which in turn decreases aggregate consumption (which is a composite of "foreign" goods, C_F, produced abroad and imported, and domestically produced "home" goods, C_H, which can be exported), where the magnitude of the effect depends on the intertemporal elasticity of substitution, $1/\sigma$. This higher real interest rate also appreciates the real exchange rate, e, which tilts domestic consumption away from home goods C_H and towards foreign goods C_F via the expenditure switching effect, with a magnitude that depends on the intratemporal elasticity of substitution between home and foreign goods, η. The appreciation also reduces foreign demand for home goods (i.e., exports), C_F^*, with a magnitude that depends on the elasticity of substitution between goods produced in different foreign countries, γ. The effect of the shock on the current account will be nil if $\sigma(\gamma-1)+(1-\alpha)(\sigma\eta-1)=0$, where α is the degree of openness of the country. The monetary shock will increase (decrease) the current account if the condition holds with $<$ ($>$).

B Appendix of the section *Stylized facts*

B.1 Details on Exchange Rate Regime Classification

Table B1 shows the exchange rate regime of the countries in my sample based on Ilzetzki et al. (2019). The authors define a *managed floating* regime as one where the central bank conducts "reserve operations or restrictions on capital mobility that have the clear intent to affect exchange rate's level, path, or volatility" (Ilzetzki et al., 2019), whereas *freely floating* exchange rates are those in which the central bank "only looks at the effect of exchange rate changes through their effects on output and inflation"(Ilzetzki et al., 2019). A *moving band* refers to the cases where "periods of sustained appreciations are also evident"(Ilzetzki et al., 2019); with *crawling bands*, "changes are always in the direction of depreciation"(Ilzetzki et al., 2019).

Table B1: Exchange Rate Arrangement Classification During the Sample Period

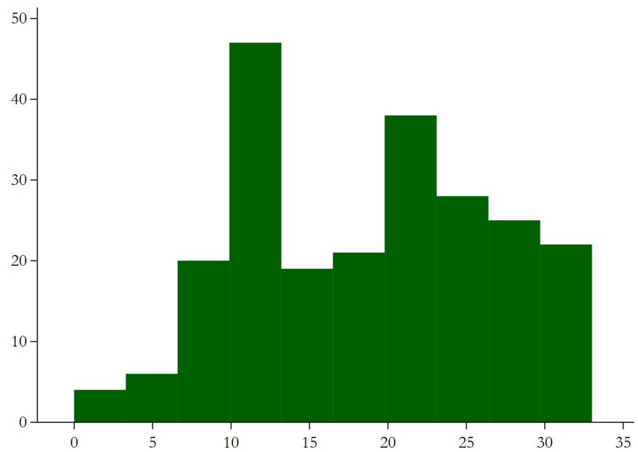
	Brazil	Chile	Colombia	Mexico	Peru
Managed float	1999.9-2002, 2008.10-end	all	all	2005-2015	-
Free float	2003-2008.9	-	-	2016-end	-
Moving band	-	-	-	-	2006.7-2012.6
Crawling band	-	-	-	-	2012.7-end
Anchor currency	USD	USD	USD	USD	USD

Note: The table lists the Exchange Rate Arrangement Classification and anchor currencies for the countries in the sample based on the Ilzetzki et al. (2019) Fine De Facto Exchange Rate Arrangement Classification. The format of the table is such that, for example, 1999.9 indicates year 1999 month 9. The word "end" means end of the sample from Ilzetzki et al. (2019), which is 2019.12. When there is no month after the year, it means that it is month 1 of the year (e.g., 2003 is equivalent to 2003.1). Brazil and Mexico had their own currency as anchor during the period they were free floats. USD means US dollar.

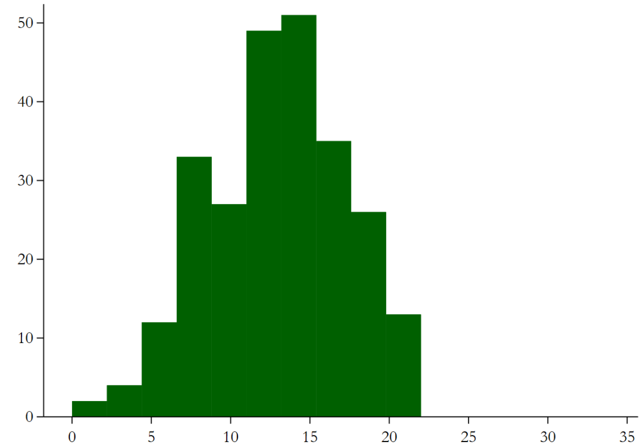
C Appendix of the section *Construction of the monetary policy shocks*

Figure C1: Histogram of the Number of Analysts Submitting Forecasts per Policy Meeting

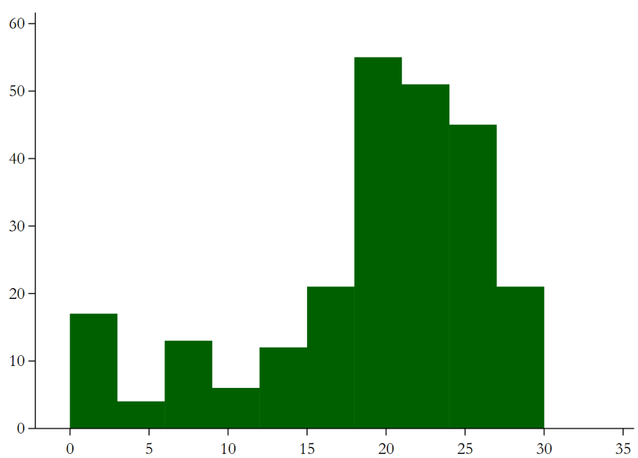
(a) Brazil



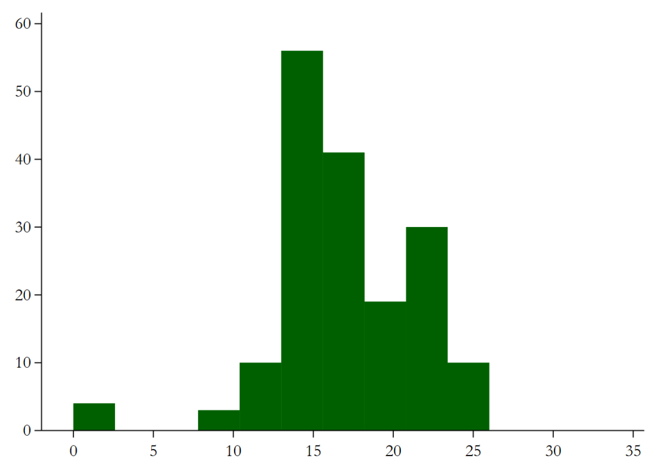
(b) Chile



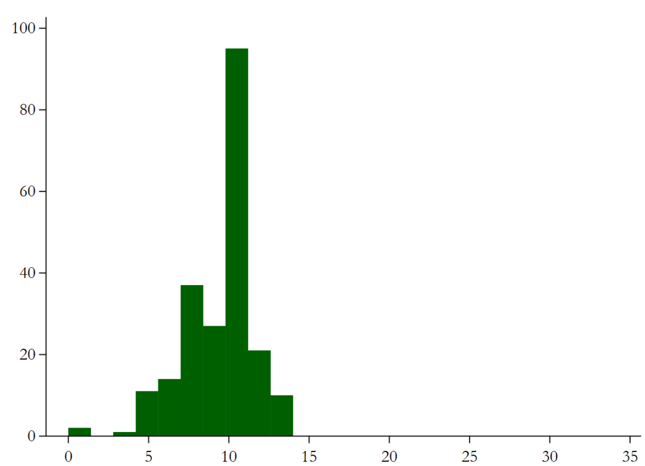
(c) Colombia



(d) Mexico



(e) Peru

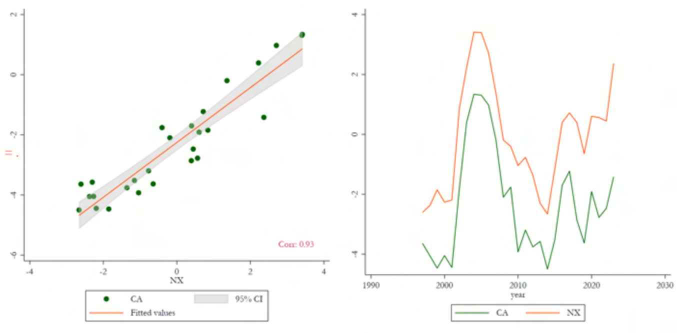


Note: Each figure displays the histogram of the number of economic analysts submitting a monetary policy rate forecast per meeting during the sample period for each of the countries in the sample. The horizontal axis shows the number of analysts per meeting, while the vertical axis shows the frequency of the number of analysts per meeting (i.e., how many monetary policy meetings have a certain number of analysts submitting their forecasts).

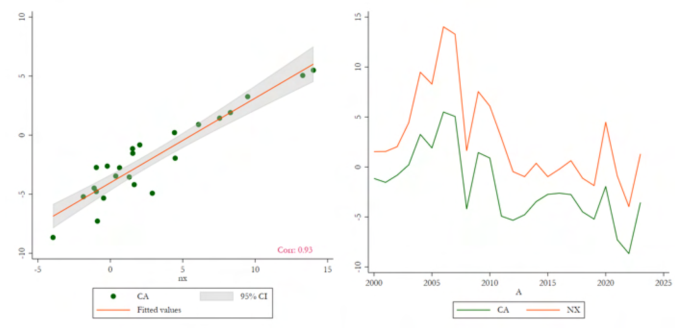
D Appendix of the section *Data*

Figure D1: Unconditional correlation between Net Exports and Current Account in Emerging Markets.

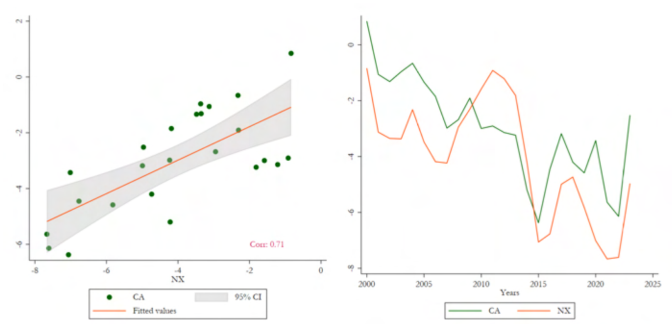
(a) Brazil



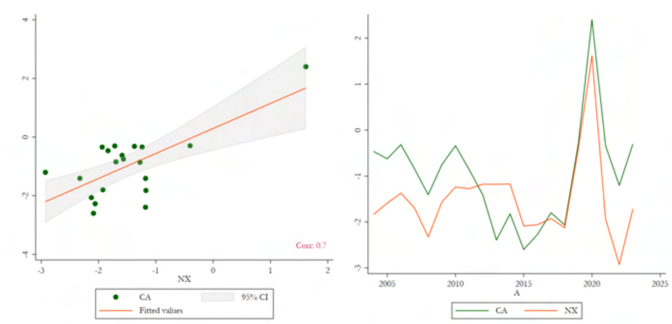
(b) Chile



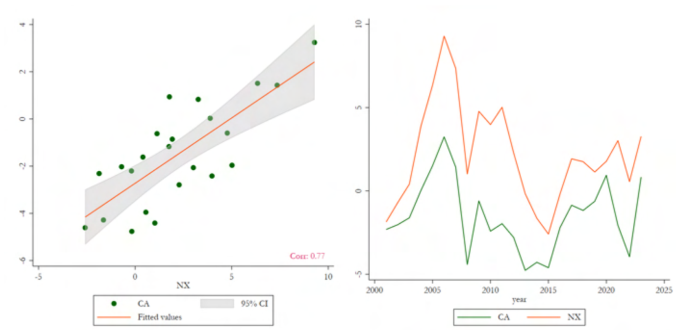
(c) Colombia



(d) Mexico



(e) Peru



Note: The panel shows, for each country, the unconditional correlation between net exports and the current account, as well as the yearly-frequency time series of these variables for the sample period. "CA" stands for Current Account and "NX" for Net Exports.

E Appendix of the section *Credibility of the identification assumption*

Figure E1: Word cloud of analysts' reported skills

Note: The figure shows a word cloud created with Copilot of the skills that analysts report on their LinkedIn profiles.

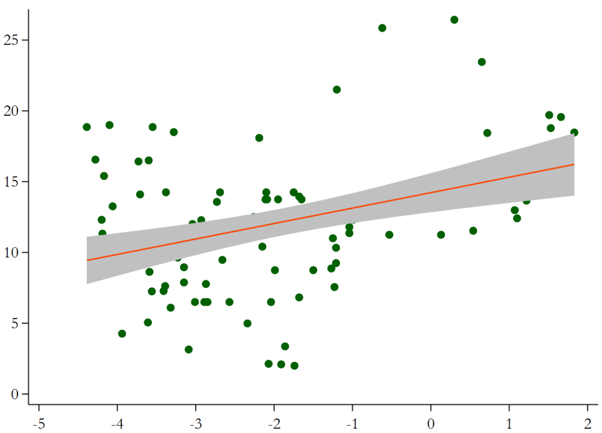
Figure E2: Word cloud of analysts' schools

Note: The figure shows a word cloud created with Copilot of the academic institutions that analysts report having attended on their LinkedIn profiles.

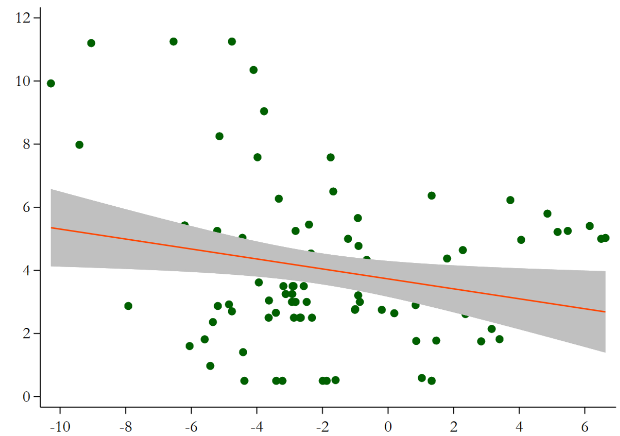
F Appendix of the section *New Evidence on the Effect of Monetary Policy on the Trade Balance*

Figure F1: Unconditional correlation between Quarterly-Average of Monetary Policy Rate and Current Account (% GDP)

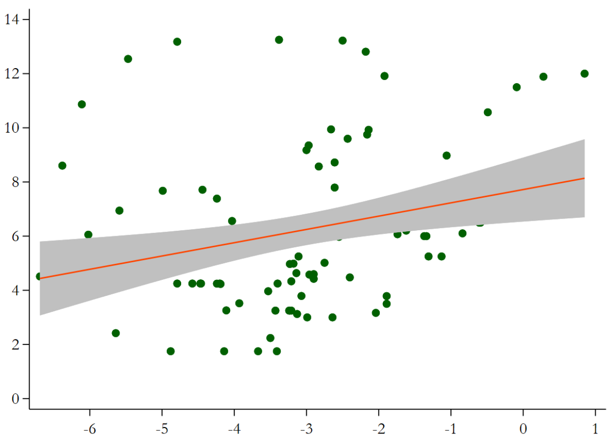
(a) Brazil



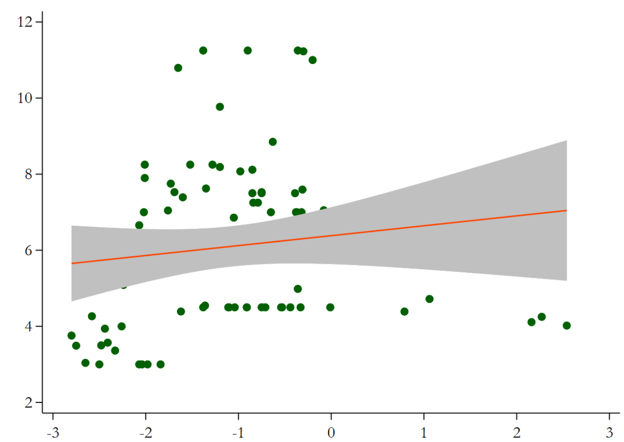
(b) Chile



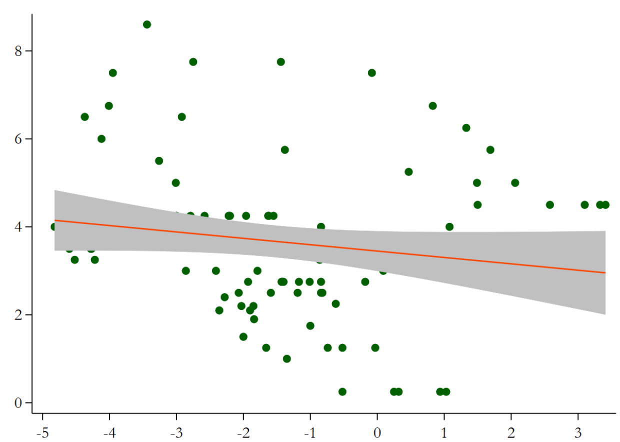
(c) Colombia



(d) Mexico

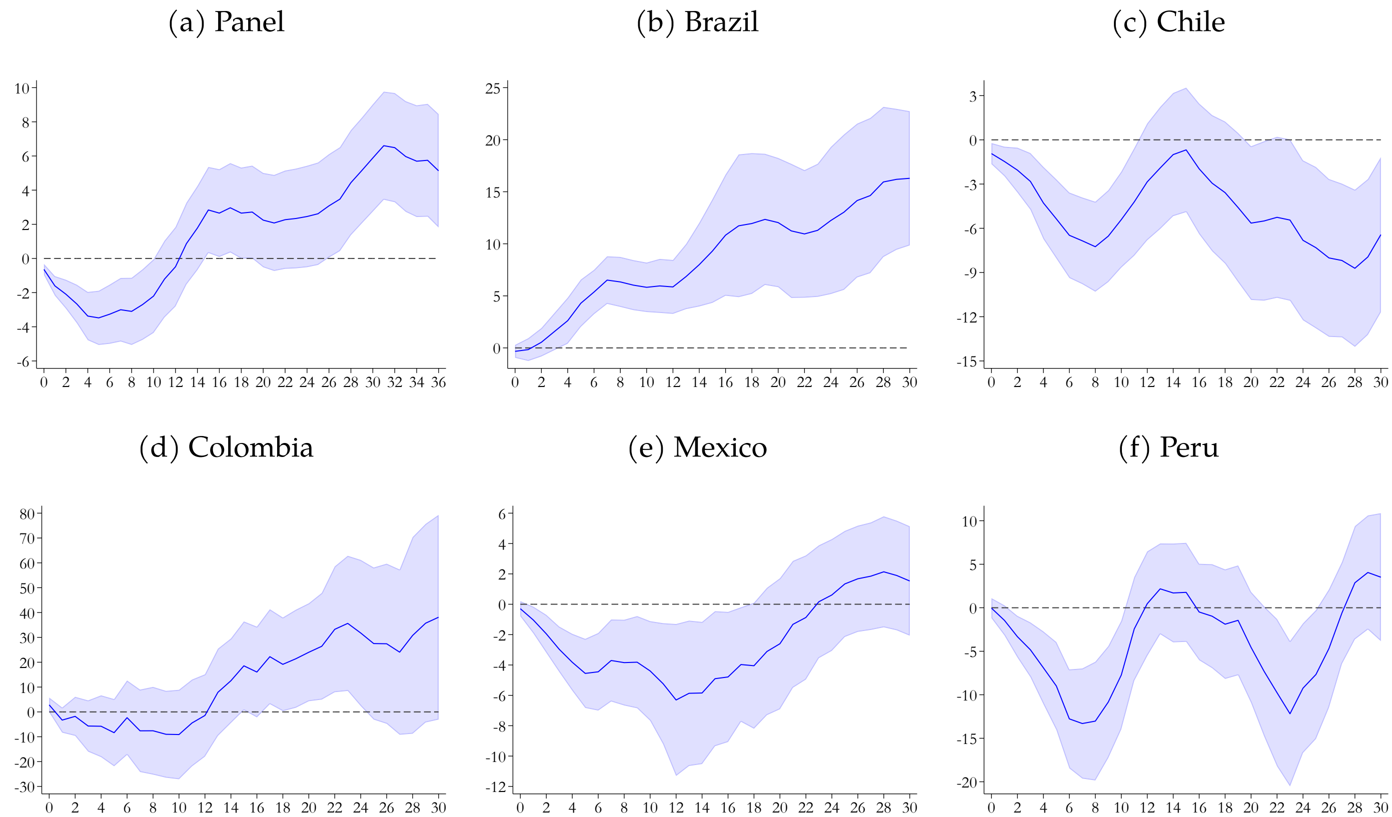


(e) Peru



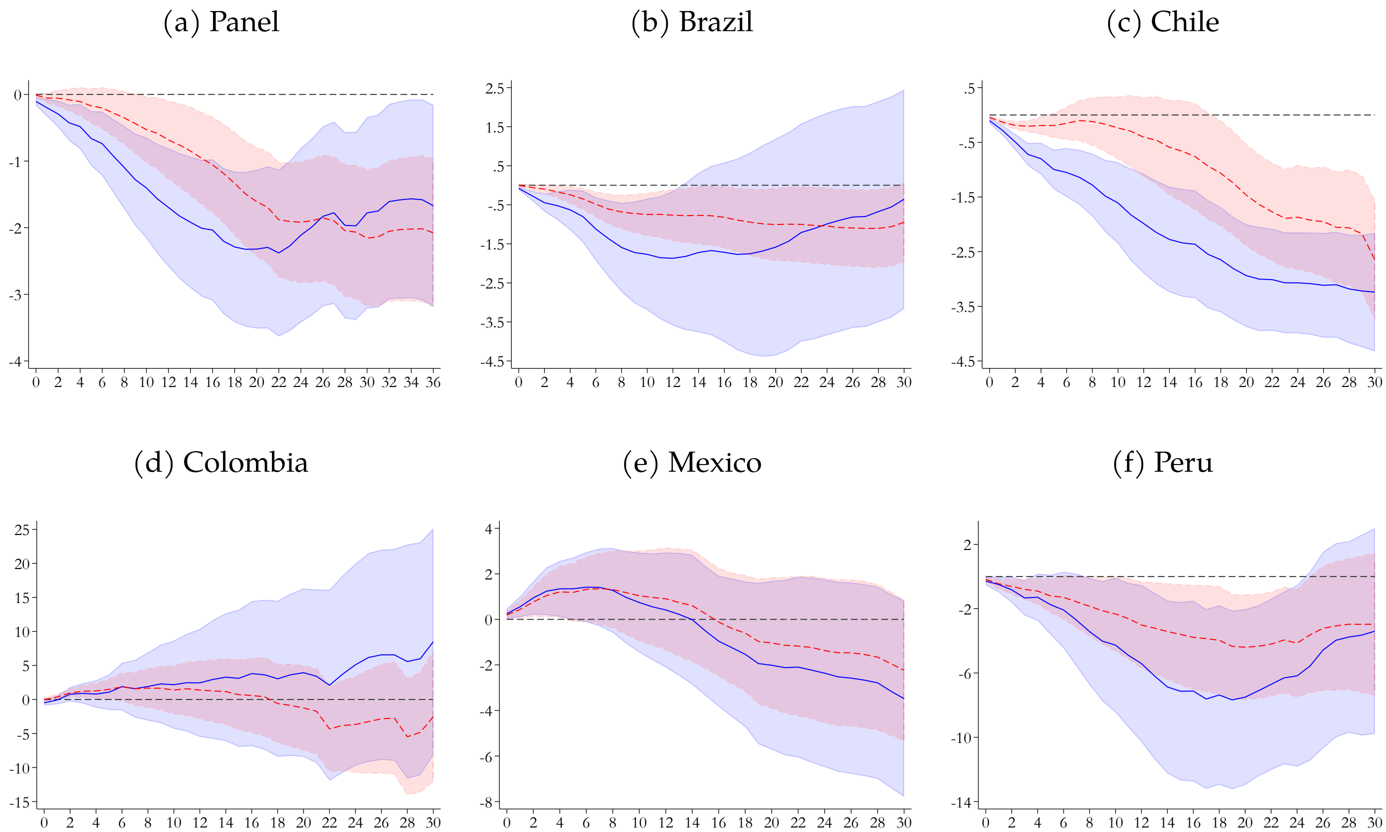
Note: The panel shows the unconditional correlation between the quarterly average of the monetary policy rate (vertical axis) and the level of the current account as a percentage of GDP (horizontal axis) during the whole sample for each country analyzed.

Figure F2: Impulse Response Functions of the Trade Balance to a one percentage point monetary tightening shock by country



Note: This figure plots the response of the trade balance upon an identified exogenous monetary shock of 100 basis points for the panel and individual country-by-country estimation exercises. These are my estimates of β_h in Equations 1 and 2. The dependent variable is the *h+1*-period change in the natural logarithm of the exports/imports ratio. The time series are smoothed using two month moving averages. The shaded areas show a 68% confidence interval.

Figure F3: Impulse Response Functions of Industrial Production and Economic Activity Index to a 100 basis points monetary tightening shock by country



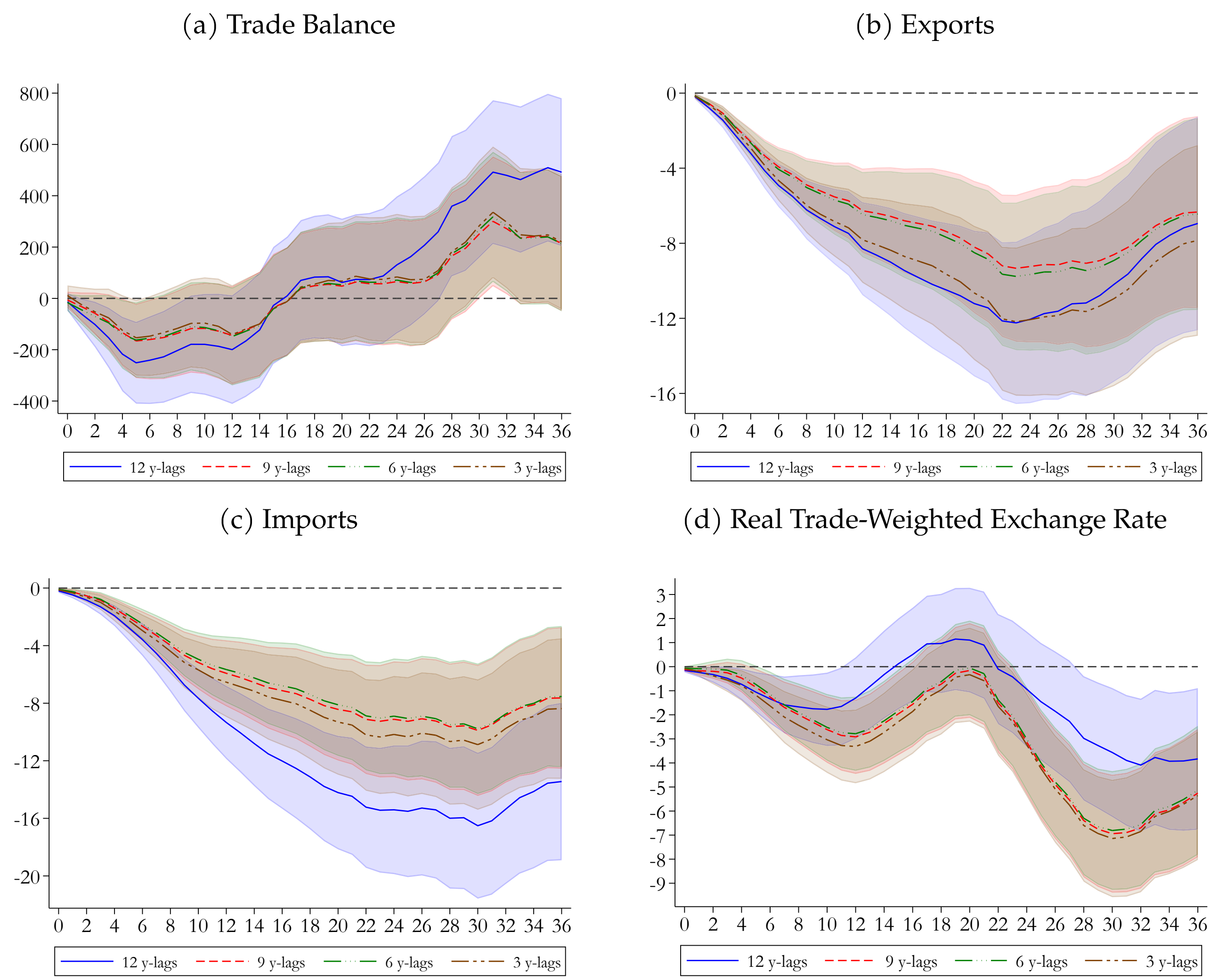
Note: The figure reports the response of Industrial Production (blue, solid line) and an economic activity index (red, dashed line) by country upon the identified exogenous monetary shocks. These are my estimates of β_h in Equations 1 and 2. The dependent variable is the *h+1*-period change in the natural logarithm of industrial production and the activity index. The time series for every country are smoothed using six month moving averages.The shaded area shows a 68% confidence interval.

Figure F4: Impulse Response Functions of different types of exports in Mexico to a 1 percentage point monetary tightening shock

Note: This figure plots the response of different types of exports in Mexico to a one percentage point monetary tightening shock. Panel (a) shows the response of total petroleum exports (blue solid line), price per barrel (red, dashed), and quantity of barrels exported (green, long dash followed by three points). Panel (b) shows the response of the quantity of barrels exported. Panel (c) shows the response of agricultural (blue, solid line), mining (red, dashed) and manufacturing exports (green, long dash followed by three points). Panel (d) shows the response of manufacturing exports categorized into autos (blue, solid line) and non-autos exports (red, dashed line). These are my estimates of β_h in Equation 1. The dependent variable is the *h+1*-period change in the natural logarithm of the respective variable, such that the interpretation is the percentage change with respect to $t = -1$. The time series are smoothed using six month moving averages. The shaded areas show a 68% confidence interval.

G Appendix of the section *Robustness*

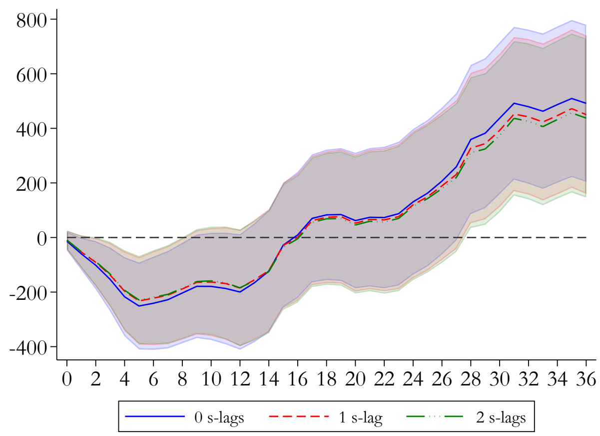
Figure G1: Impulse Response Functions of the trade balance, exports, imports and the exchange rate to a 100 basis points monetary tightening shock with 3, 6, 9 and 12 lags of the dependent variable



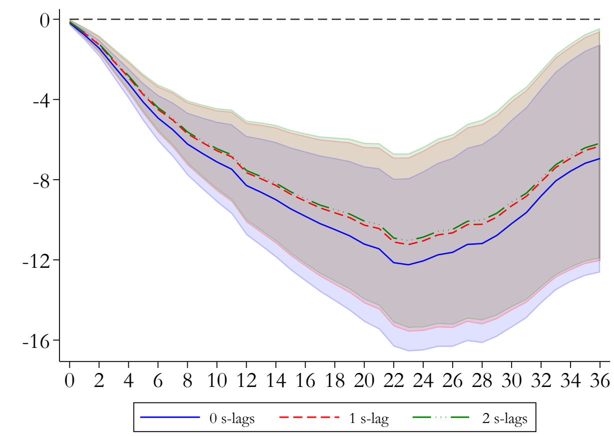
Note: This figure plots the responses of the trade balance, exports, imports and the exchange rate upon the identified exogenous monetary shock for a specification analogous to my baseline specification except that 3 (brown line with long dashes followed by two short dashes), 6 (green line with long dashes followed by three dots) and 9 (red dashed line) lags of the dependent variable are included. I also plot the baseline responses for comparison (12 lags, blue solid line). These are my estimates of β_h in Equation 2. The dependent variable is the h+1-period change in the natural logarithm of the exchange rate, exports and imports and the level of the trade balance. The time series are smoothed using six month moving averages for exports, imports and the exchange rate, while a two month moving average is used for the trade balance. The shaded area shows a 68% confidence interval.

Figure G2: Impulse Response Functions of the trade balance, exports, imports and the exchange rate to a 100 basis points monetary tightening shock with 0, 1 and 2 lags of the shock

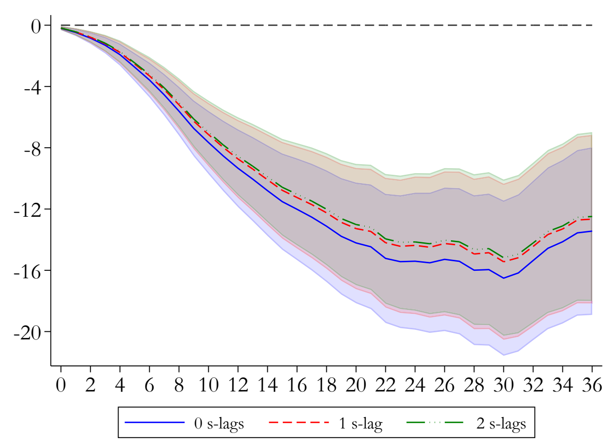
(a) Trade Balance



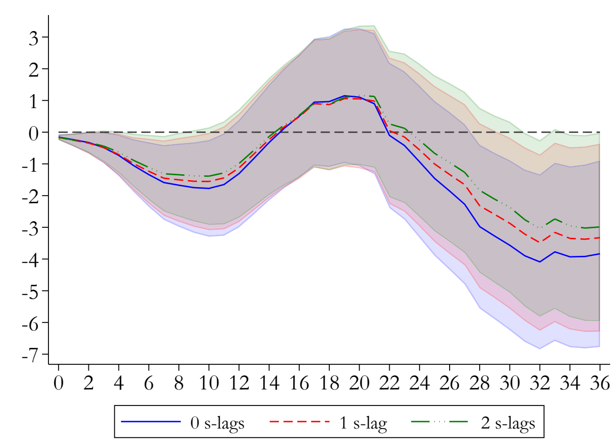
(b) Exports



(c) Imports

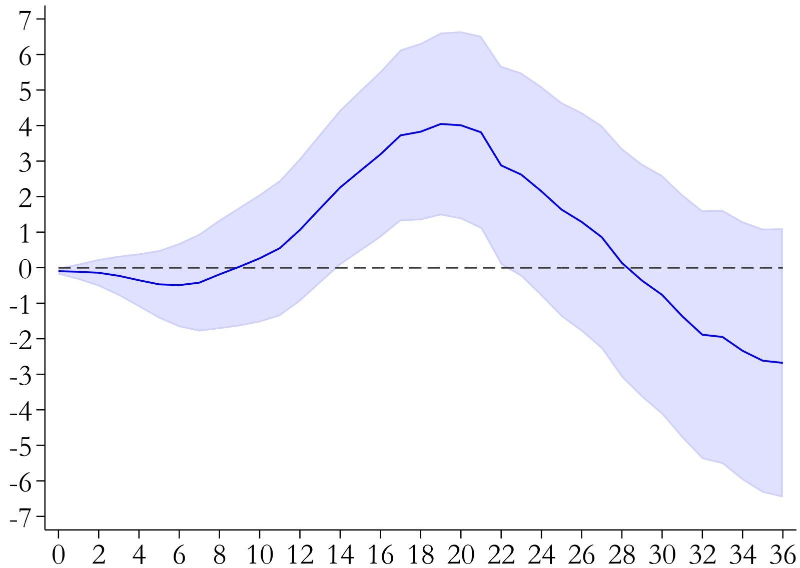


(d) Real Trade-Weighted Exchange Rate



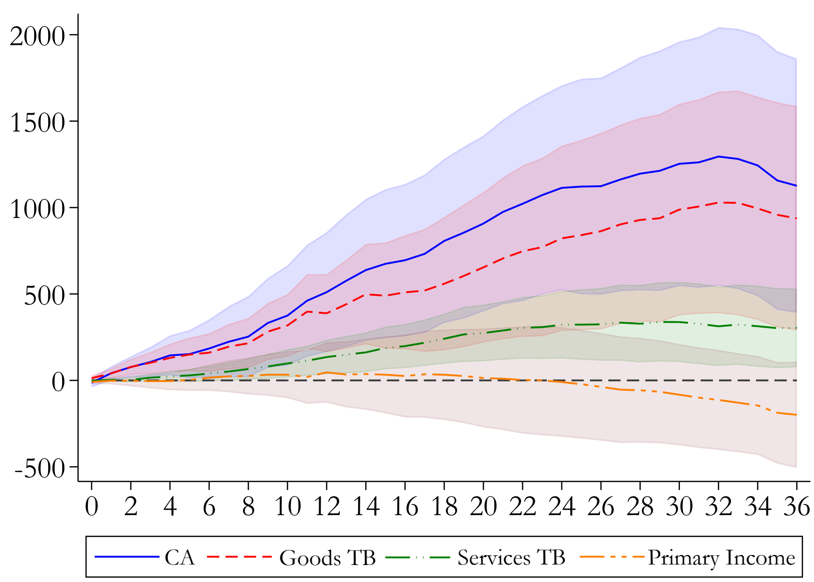
Note: This figure plots the responses of the trade balance, exports, imports and the exchange rate upon the identified exogenous monetary shock for a specification analogous to my baseline specification except that 1 (red dashed line) and 2 (green line with long dashes followed by three dots) lags of the shock are included. I also plot the baseline responses for comparison (0 lags, blue solid line). These are my estimates of β_h in Equation 2. The dependent variable is the h+*1*-period change in the natural logarithm of exports, imports and the exchange rate, and the level of the trade balance. The time series are smoothed using six month moving averages for exports, imports and the exchange rate, while a two month moving average is used for the trade balance. The shaded areas show a 68% confidence interval.

Figure G3: Response of the US Dollar Exchange Rate to the monetary tightening shock



Note: This figure plots the response of the US-dollar real exchange rate, instead of my baseline specification that uses the BIS effective trade-weighted real exchange rate, upon the identified exogenous monetary shock of 100 basis points. These are my estimates of β_h in Equation 2. The dependent variable is the *h+1*-period change in the natural logarithm of the real exchange rate. An increase in the exchange rate corresponds to a depreciation of the home currency. The time series is smoothed using six month moving averages. The shaded area shows a 68% confidence interval.

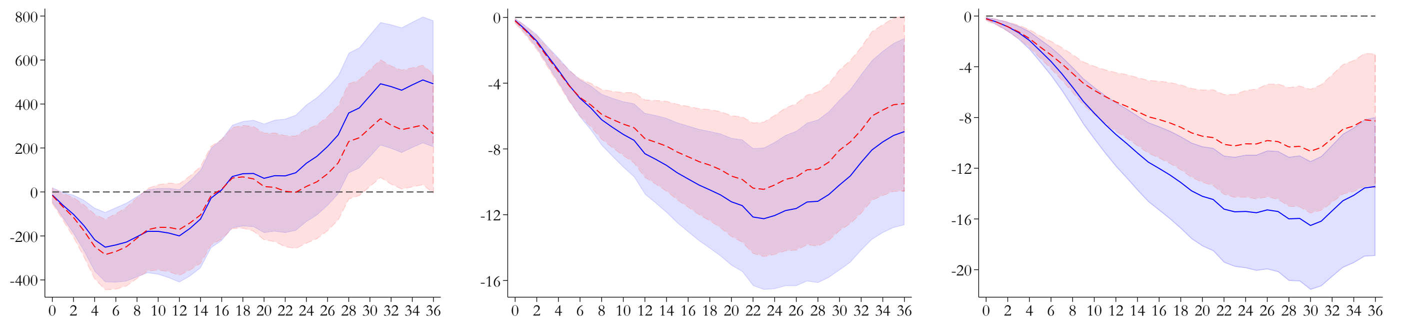
Figure G4: Impulse Response Functions of the Current Account of Brazil and its components: Goods Trade Balance, Services Trade Balance and Primary Income



Note: This figure illustrates the response to an identified exogenous monetary shock of 100 basis points in Brazil for the Current Account (blue solid line), Goods Trade Balance (red dashed line), Services Trade Balance (green line with long dashes followed by two dots), and Primary Income (yellow line with long dashes followed by two short dashes). These are my estimates of β_h in Equation 1. The dependent variable is the *h+1*-period change in the level of the respective variable. The time series are smoothed using six month moving averages. The shaded areas show a 68% confidence interval.

Figure G5: Responses with added controls for economic turmoil periods

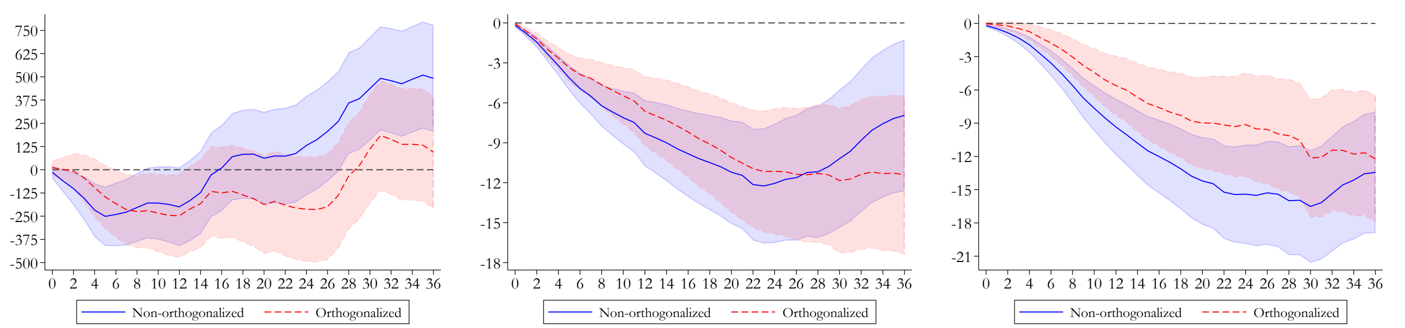
(a) Trade Balance (b) Exports (c) Imports



Note: This figure plots the responses of the trade balance, exports and imports for a specification analogous to my baseline specification except that I include dummy variables to control for the Global Financial Crisis, the commodity-price decline of 2014-2016, the COVID-19 pandemic and the economic turmoil in Brazil at the beginning of the century. I also plot the baseline responses for comparison (blue solid line). The shaded areas show 68% confidence intervals.

Figure G6: Responses with orthogonalized shocks

(a) Trade Balance (b) Exports (c) Imports



Note: This figure shows the effects of a one percentage monetary policy shock on the trade balance, exports and imports during the 36 months following the shock for a specification analogous to my baseline specification except that I use the orthogonalized version of the monetary policy shocks (red, dashed lines). I also plot the baseline responses for comparison (blue solid line). The shaded areas correspond to 68% confidence intervals.

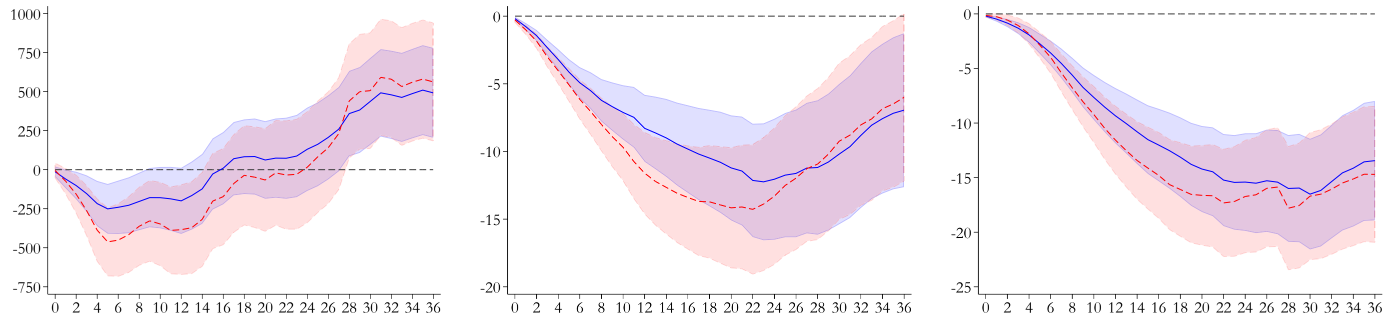
Table G1: Orthogonalization of the monetary policy shocks

	Prices					Real variables				Financial variables			
Country	CPI	Expected CPI	PPI	Imports Prices	Labor Cost	IP	Economic Activity	Fiscal Balance	Unempl. Rate	FX	Expected FX	CDS	R^2
Brazil		0.46**											0.15
		(0.19)											
Chile		0.55***				0.99**				0.68***			0.14
		(0.19)				(0.49)				(0.24)			
Colombia			0.54**	-0.17*					0.04**				0.04
			(0.26)	(0.09)					0.02				
Mexico				0.92**									0.02
				(0.42)									
Peru			2.66***					0.002*					0.08
			(0.81)					(0.001)					

Note: This table reports the results of the procedure of orthogonalizing the monetary policy surprises, following Checo et al. (2024) and Bauer and Swanson (2023a). For each country I run regressions in which initially the dependent variable is the monetary policy surprises expressed in basis points and the independent variables are reported in the columns. If a variable is not statistically significant I drop it and continue until only statistically significant variables remain. I only report the estimates for the variables that remained statistically significant. All independent variables are expressed in 3 month changes. Robust standard errors are in parenthesis. ***, **,* denote statistical significance at 1, 5, and 10 percent levels. CPI stands for Consumer Price Index, PPI for Producer Price Index, IP for Industrial Production, FX is the nominal exchange rate against the US Dollar, CDS is the 5-year Credit Default Swaps taken from Bloomberg, and Economic Activity for Brazil is the FGV GDP Monitor, IMACEC for Chile, ISE for Colombia, Economic Activity Indicator of INEGI for Mexico and Nominal GDP Index for Peru.

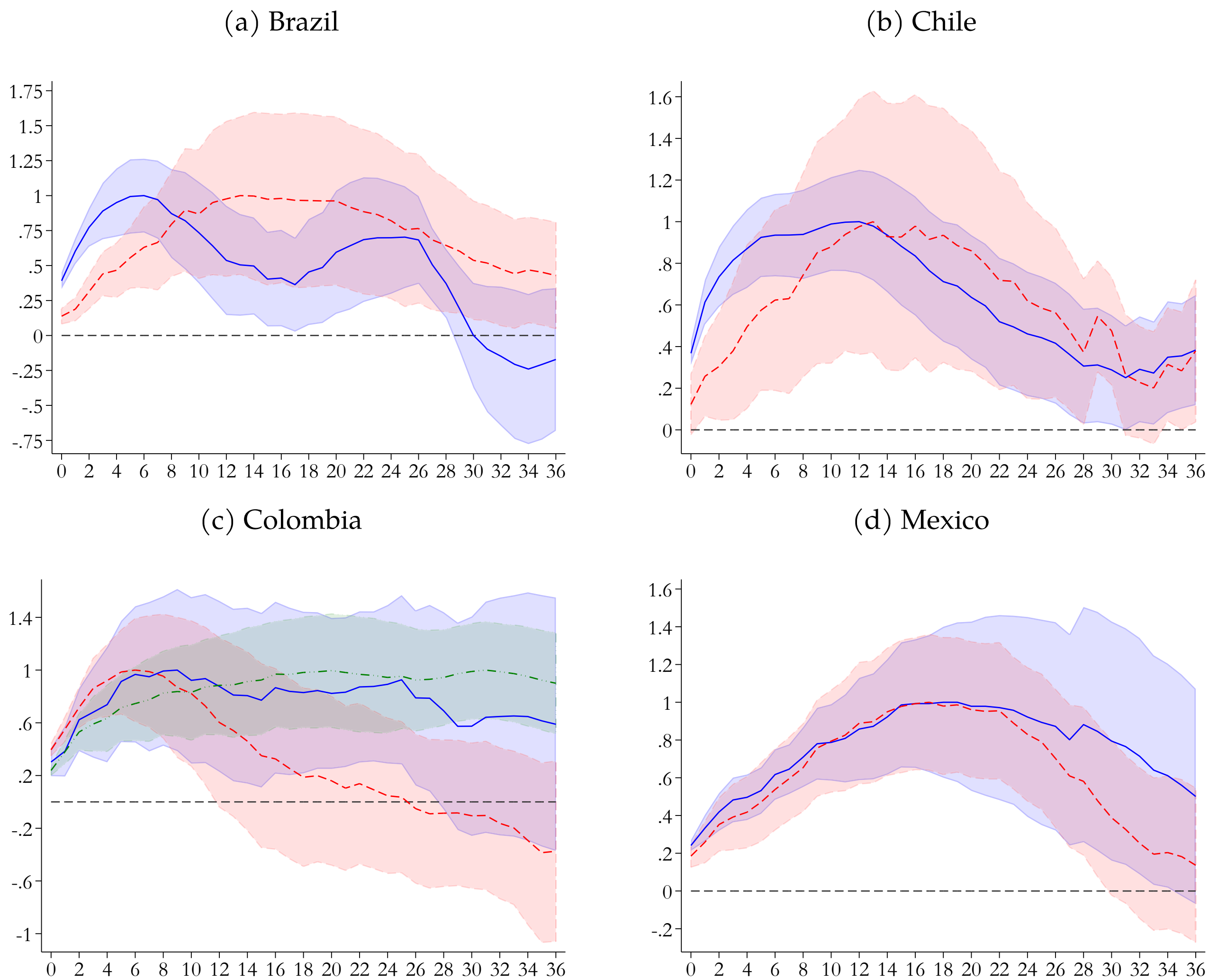
Figure G7: Responses with Same Sample for All Countries

(a) Trade Balance (b) Exports (c) Imports



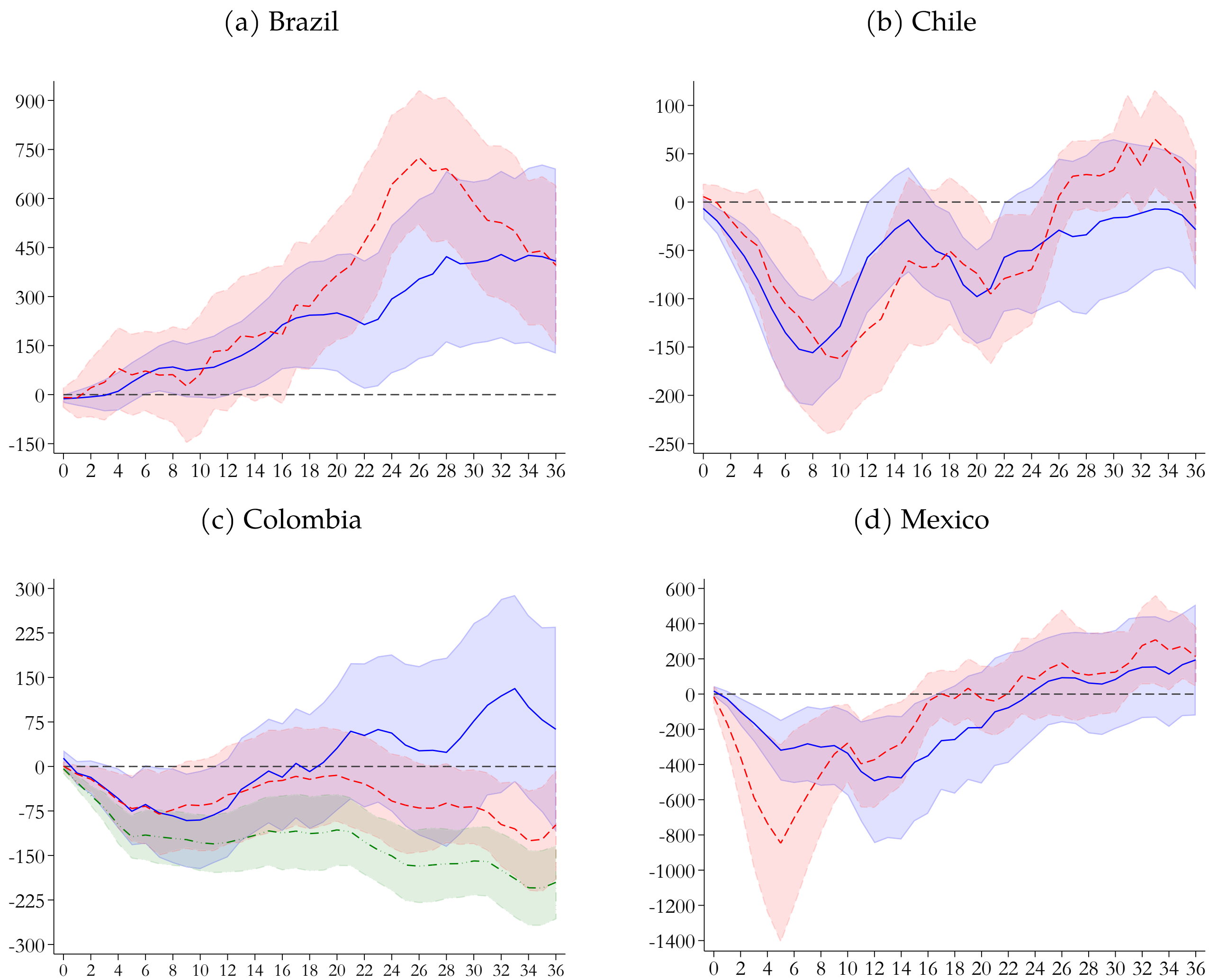
Note: This figure shows the effects of a one percentage point monetary policy shock on the trade balance, exports and imports during the 36 months following the shock for a specification analogous to my baseline specification except that I estimate it on the largest sample where I have all five countries available in my sample (red, dashed lines), which corresponds to 2006m7-2024m6. I also plot the baseline responses for comparison (blue solid line). The shaded areas correspond to 68% confidence intervals.

Figure G8: Responses of the Policy Rate to an up-to-one percentage point tightening shock with different monetary shocks



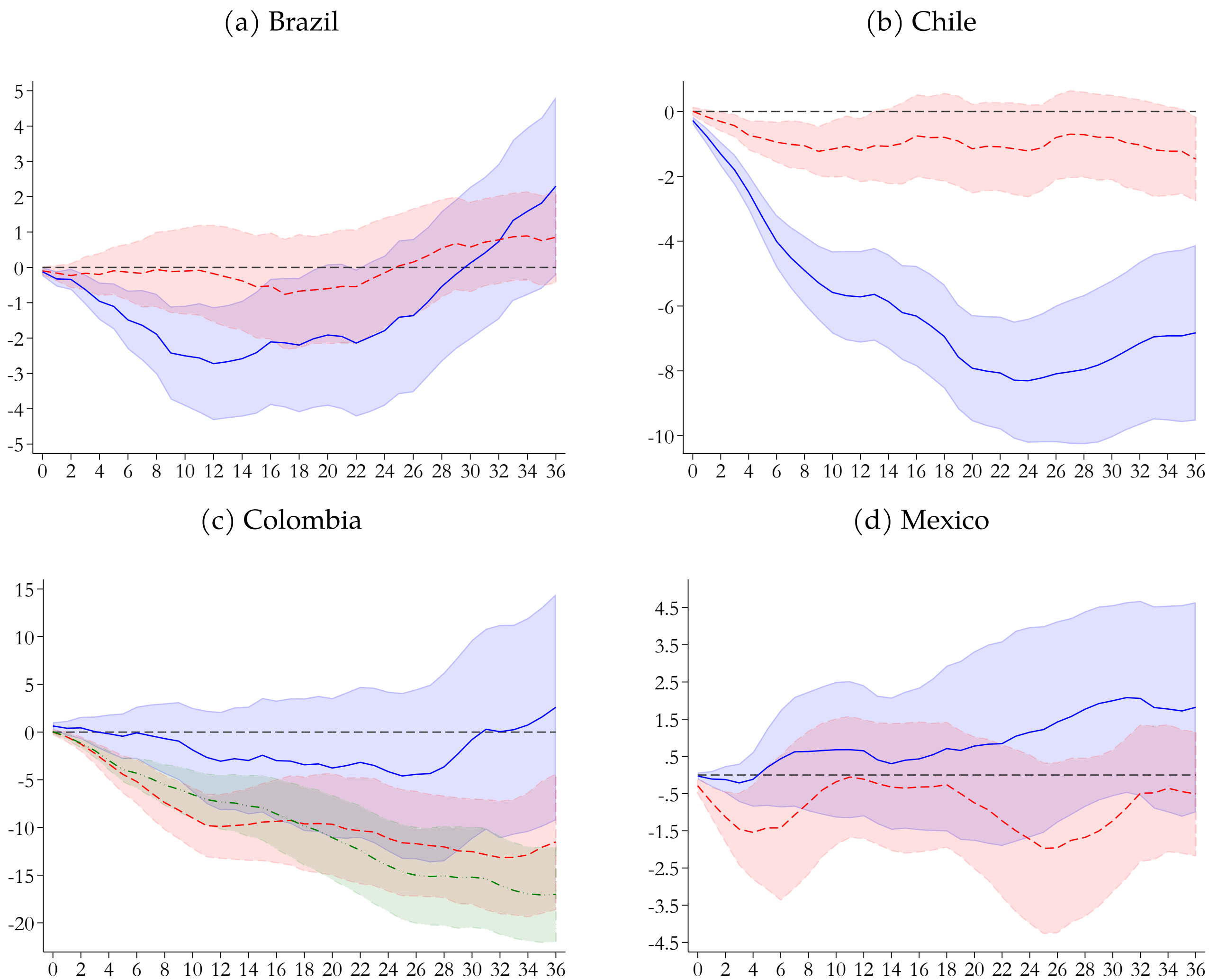
Note: This figure plots the response of the monetary policy rate upon an identified exogenous monetary shock that reaches a maximum increase of 100 basis points in the policy rate for a specification analogous to my baseline specification except that I use other types of monetary shocks estimated by the literature. I also plot the baseline responses for comparison (blue solid line). For Brazil, Chile and Mexico, the red dashed line uses the high-frequency shocks estimated by Bolhuis et al. (2024). For Colombia, the green line with a dash followed by two dots uses the high-frequency shocks estimated by Romero et al. (2021) and the red dashed line uses the shocks *a la* Romer and Romer (2004) estimated by López et al. (2020). The shaded areas show a 68% confidence interval.

Figure G9: Responses of the Trade Balance to an up-to-one percentage point tightening shock with different monetary shocks



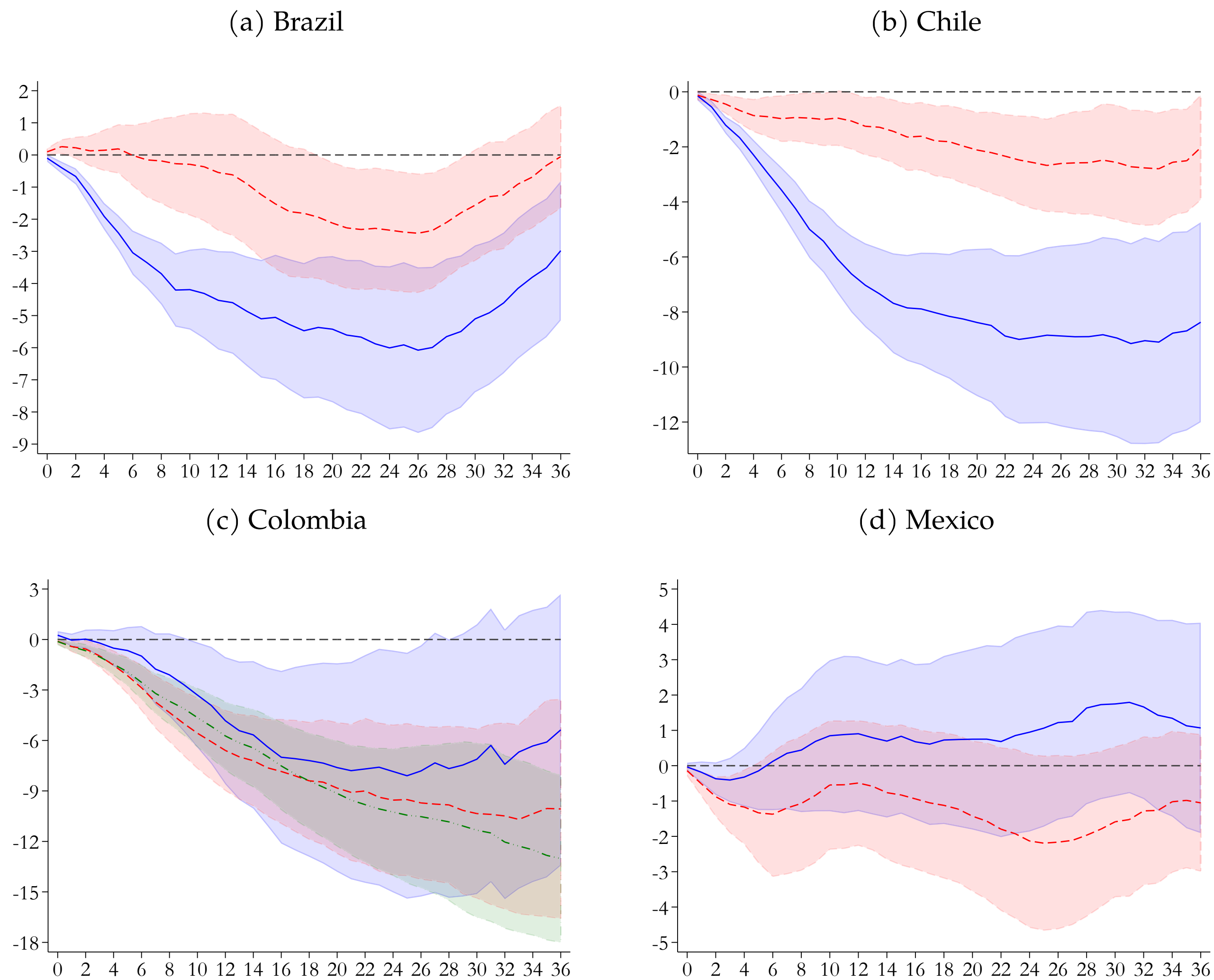
Note: This figure plots the response of the goods trade balance upon an identified exogenous monetary shock that reaches a maximum increase of 100 basis points in the policy rate for a specification analogous to my baseline specification except that I use other types of monetary shocks estimated by the literature. I also plot the baseline responses for comparison (blue solid line). For Brazil, Chile and Mexico, the red dashed line uses the high-frequency shocks estimated by Bolhuis et al. (2024). For Colombia, the green line with a dash followed by two dots uses the high-frequency shocks estimated by Romero et al. (2021) and the red dashed line uses the shocks *a la* Romer and Romer (2004) estimated by López et al. (2020). The shaded areas show a 68% confidence interval.

Figure G10: Responses of Exports to an up-to-one percentage point tightening shock with different monetary shocks



Note: This figure plots the response of exports upon an identified exogenous monetary shock that reaches a maximum increase of 100 basis points in the policy rate for a specification analogous to my baseline specification except that I use other types of monetary shocks estimated by the literature. I also plot the baseline responses for comparison (blue solid line). For Brazil, Chile and Mexico, the red dashed line uses the high-frequency shocks estimated by Bolhuis et al. (2024). For Colombia, the green line with a dash followed by two dots uses the high-frequency shocks estimated by Romero et al. (2021) and the red dashed line uses the shocks *a la* Romer and Romer (2004) estimated by López et al. (2020). The shaded areas show a 68% confidence interval.

Figure G11: Responses of Imports to an up-to-one percentage point tightening shock with different monetary shocks



(a) Brazil
(b) Chile
(c) Colombia
(d) Mexico

Note: This figure plots the response of imports upon an identified exogenous monetary shock that reaches a maximum increase of 100 basis points in the policy rate for a specification analogous to my baseline specification except that I use other types of monetary shocks estimated by the literature. I also plot the baseline responses for comparison (blue solid line). For Brazil, Chile and Mexico, the red dashed line uses the high-frequency shocks estimated by Bolhuis et al. (2024). For Colombia, the green line with a dash followed by two dots uses the high-frequency shocks estimated by Romero et al. (2021) and the red dashed line uses the shocks *a la* Romer and Romer (2004) estimated by López et al. (2020). The shaded areas show a 68% confidence interval.