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On the economic desirability of a currency union between Argentina and Brazil.

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2. List of Tables and Figures:

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4. List of Abbreviations:

AD: Aggregate Demand

AS: Aggregate Supply

EU: European Union

ECB: European Central Bank

EOP: End of Period

FXR: Foreign Exchange Rate

GDP: Gross Domestic Product

GFC: Global Financial Cycle

MU: Monetary Union

MUCB: Monetary Union's Central Bank

OCA: Optimum Currency Areas

PIR: Policy Interest Rate

PPIR: Preferred Policy Interest Rate

USD: United States Dollars

5. Introduction

Historically, there have been several instances of policy recommendations, discussions, and trade agreement efforts between authorities of the South American countries to enhance economic integration and prosperity within the region (Huelin, 1964; Blejer, 1988; O'Neil, 2012; Rosales and Herreros, 2013; Acosta and S. Paulo, 2022). More recently, for Argentina and Brazil, there was yet another episode of discussions for enhancing economic integration through the formation of a currency union (Stott and Elliott, 2023; Paraguassu, 2023). However, this was immediately met by negative criticism from economists and financial practitioners, on the grounds that the two countries did not meet the optimality criteria for starting a common currency area (Feingold, 2023). This report aims to examine the reasoning behind both the supporting and criticising views of such a monetary agreement between Argentina and Brazil. It does so by fulfilling two aims. First, it critically reviews the academic literature surrounding the theory of optimum currency areas and empirical studies on the experience of the European Union (EU). Second, it explores whether, and to what extent, the analysis and findings outlined in the literature review can be applied to the case of Brazil and Argentina. In doing so, it also incorporates implications of the US monetary policy transmissions and the dominance of the US dollar (USD) within global trade and financial markets. The possible opportunity costs of a monetary union (MU) are discussed in section 6, while section 7 covers its benefits and possible contributions towards economic integration. This report arrives on similar conclusions to those proposed by the criticising economists. However, it does so more in more detail by accounting for, and analysing, the specific circumstantial factors for Argentina and Brazil that make a currency union between the two countries economically undesirable.

6. Costs of a Monetary Union

The analytical lens adopted in this section is based on the theory of optimum currency areas – henceforth OCA (Mundell, 1961; McKinnon, 1963; Kenen, 1969). According to the OCA theory, asymmetric business cycle movements in output – gross domestic product (henceforth GDP) – within member countries in an MU can cause severe adjustment problems. Suppose that a country faces a negative demand shock and does not belong to an MU. The country would then be able to decrease the policy interest rate (PIR) to encourage investments – as investors account for the lower cost of capital borrowing – and encourage consumption – by reducing the return and thus incentive on savings. Simultaneously, a lower PIR, through the interest parity mechanism would lead to a foreign exchange rate (FXR) depreciation, causing a boost in export competitiveness, as exports become cheaper in the world market. Suppose now that the country belongs to an MU and the rest of the union is rather facing a positive demand shock, which instead requires a rise in the PIR. If the country is small[1], the common monetary authority would take a decision based on the overall economic conditions in the MU and would therefore increase the PIR. This would exacerbate the effects of the negative demand shock in said country.

[1] In the experience of the Eurozone, size was indeed shown to play a role in determining the PIR set by the European Central Bank (ECB), where ECB set the PIR closer to the needs of the group of relatively larger countries (De Grauwe, 2023).

In other words, given that the monetary union's central bank (henceforth MUCB) operates beyond the direct authoritative grasps of the member countries, the PIR set by the MUCB may not always represent the best interests of each member nation, particularly during incidences of asymmetric shocks. Therefore, the OCA theory views the loss of monetary independence as a critical opportunity cost for a country deciding to form an MU.

6.1 Economic implications of output asymmetries

6.1.1: Speed of economic recovery

The first implication of output asymmetries within an MU would be concerning the speed of economic recovery enjoyed by member countries. To illustrate this the ideal PIRs or preferred policy interest rates (PPIR) for Argentina and Brazil are identified in table 1, utilising the *Taylor Rule* while accounting for three different hypothetical situations.

Table 1. Implications of economic shocks on the PPIR for Argentina and Brazil within an MU.

Situation	Argentina		Brazil		Gap in PPIR
	Output Gap	PPIR	Output Gap	PPIR	
Symmetric shock	-1.00%	8.435%	-1.00%	8.435%	0
Asymmetric shock	-1.50%	8.185%	+1.50%	9.685%	1.50%
Symmetric shock with varying intensities	-2.50%	7.685%	-1.00%	8.435%	0.75%

Note: The PPIRs for Argentina and Brazil are calculated using equation 1.1 and 1.2 below.

Equation 1. Taylor Rule[2]

$$PPIR\ (\%) = NI + \pi^T + \alpha(\pi^A - \pi^T) + \ \beta(Y^G)$$

Source: (Taylor, 1998)

Equation 2. Taylor Rule adopted for Table 1.[3]

$$PPIR\ (\%) = 2 + 3.50 + 1.5(5.79 - 3.50) + \ 0.5(Y^G)$$

Given a symmetric shock with intensity differentials, the MUCB faces some decision-making paralysis, accounting for the gap in the PPIR of 0.75% for the two countries. Here, if the MUCB prioritises inflation targeting, it is likely to set the PIR closer to the needs of Brazil who is facing a relatively modest negative shock. This translates to a slower economic recovery in Argentina compared to Brazil.

[2] Here, NI reflects the natural interest rate, π^T is the target inflation, $\pi^A$is the actual inflation, and $Y^G$is the output gap.

[3] The values of the variable NI and coefficients α and β are selected based on the works of De Grauwe (2023) and Alesina et al. (2005) respectively. The values for $\pi^T$and π^Areflect the actual and target inflation for Brazil in 2022, adopted from the record maintained by the Central Bank of Brazil (Banco Central do Brasil, 2023). To isolate and illustrate the effects of the output gap, other variables in the Taylor Rule equation – natural interest rate, actual and target inflation - are assumed to be constant and equivalent amongst Argentina and Brazil across all situations mentioned in Table 1. The reality however is dramatically different given the difference in inflation rates between the two countries. This divergence in price stability performance and subsequent gap in PIRs for Argentina and Brazil can be seen in figure 3 and appendix 4 respectively.

This decision-making paralysis is more prominent in the case of an asymmetric shock. Here, the gap in PPIR, at 1.50%, is the highest among the three situations. And, if the MUCB still prioritises inflation targeting, then it will set its PIR closer to Brazil's needs as it faces inflationary pressures due to the positive shock. However, in this case, instead of merely causing a difference in the speed of recovery, the PIR would aid the needs of Brazil at the expense of Argentina where any recessionary pressures would be amplified. This occurs, as the higher PIR discourages investments and consumptions in both nations, which although tames the inflationary pressure in Brazil, amplifies the negative demand shock and thus unemployment pressures in Argentina. And so, considering the above dynamics, the speed of economic recovery is a critical channel through which asymmetric shocks would cause varying societal consequences for the two countries, where the needs of one would be met at the expense of the other. Such a preference given to Brazil over Argentina by the MUCB, when deciding on the PIR, can also occur accounting for the relative sizes. In terms of GDP, Brazil's relative size is at approximately 75% while that of Argentina is at 25% as of 2022 (The World Bank Group, 2023c).

6.1.2: Sovereign debt sustainability

Additionally, a second implication is highlighted by De Grauwe, which is missing from the traditional OCA theory (2023). This is the channel of sovereign debt sustainability. Following the hypothetical case above, a relatively stronger recession in Argentina would imply a larger strain on its government finances compared to those faced by Brazil. This strain occurs automatically when, during a recessionary stage, governments simultaneously face reduced revenues – fuelled by reductions in taxes from consumers and corporates – and increased expenses – fuelled by welfare payments and subsidies. When such strain pressures differ between member countries within an MU, it can lead to varying implications for the probability of a sovereign debt crisis within the member countries. Outside of an MU, Argentina could have avoided a solvency crisis by either 1) devaluating their currency or 2) lowering interest rates to promote economic activity and subsequent tax revenues. But inside an MU, these variances in debt sustainability would impose a larger opportunity cost on Argentina's government, relative to Brazil, of giving up their monetary independence. And, if a solvency shock is met by aggressive financial speculation[4], then it may force Argentina's government to default. While this may help the nation's government avoid austerity measures in the short run, it would transfer the debt sustainability pressures to future citizens[5]. And so, in this manner, even a symmetric shock with varying intensities would cause different implications on the sustainability of the sovereign debt between the member countries, further contributing to adjustment difficulties to similar economic shocks. Such adjustment difficulties would become more severe, if the two members were to face an asymmetric shock. To elaborate, in presence of capital mobility, the investors might be incentivised to sell bonds of the government facing a negative shock, in exchange for those issued by the country facing a positive output shock. This would increase the long-term interest rate in the former country, while reducing the same in the latter.

[4] As was the case for Argentina in 2001, 2014, and 2020. Over this period of two decades, Argentina faced a government debt default thrice and two critical debt restructuring programmes (Delivorias, 2023).

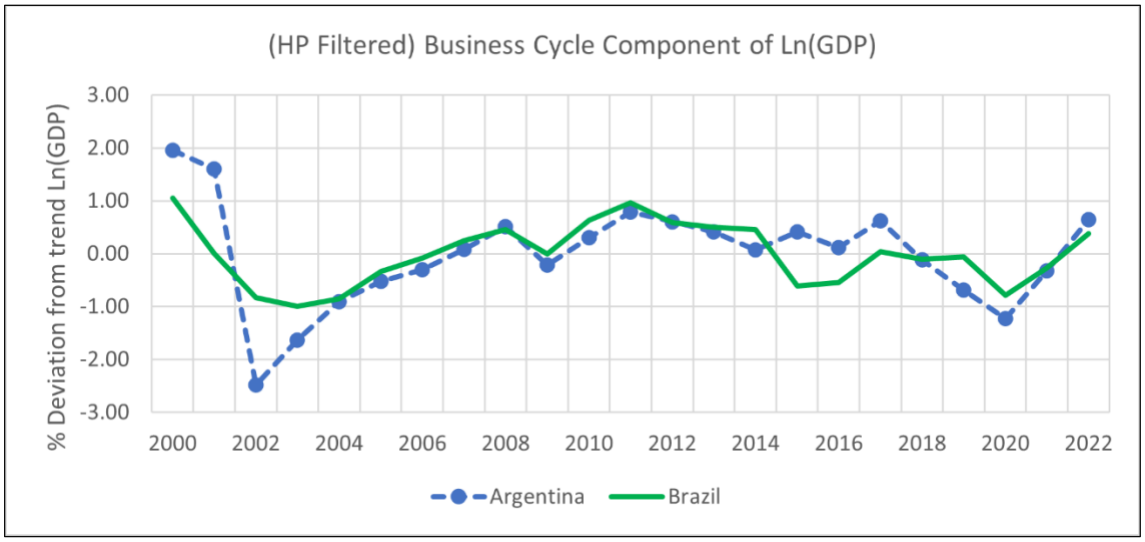
[5] This is so considering the potential drop in credit ratings following a default, which translates to a higher cost of borrowing funds in the future due to the higher default-risk premium demanded by investors. The fall in S&P's credit rating for Argentina has certainly been observed over the past two decades, from BB- in February 2000 to CCC- as of March 2023 (Trading Economics, 2023)

Considering the inverse correlation between aggregate demand and long-term interest rate – via channels of investment, government spending, and consumption – the above debt dynamic is likely to amplify the asymmetries caused by the initial output shock between MU members (De Grauwe, 2023). These adjustment difficulties are viewed as an opportunity cost under the presumption that outside of an MU, given a flexible FXR regime, the two countries would have been able to 1) depreciate their currency and/or 2) increase money supply to avoid a debt crisis. The former would aid the objective by reducing the value of outstanding debt while also stimulating investments and consumption. The latter, on the other hand, would act as a liquidity guarantee for investors in case of an increased debt burden.

6.2 Historic trend of asymmetric output shocks for Argentina and Brazil?

Considering the centrality of the asymmetric output shocks within the OCA theory, it can be useful to examine whether Argentina and Brazil have experienced high incidences of such shocks in the past. To answer this, one could start by using the Hodrick-Prescott filter to assess the business cycle component of the GDP of the said countries. This has been done, of which the results are displayed in figure 1.

Figure 1. Business Cycle Component of GDP (HP Filtered) for Argentina and Brazil, 2000-2022.



Source: (The World Bank Group, 2023c)

Note: Calculations have been performed using an excel add in for the HP Filter provided by Annen (2023).

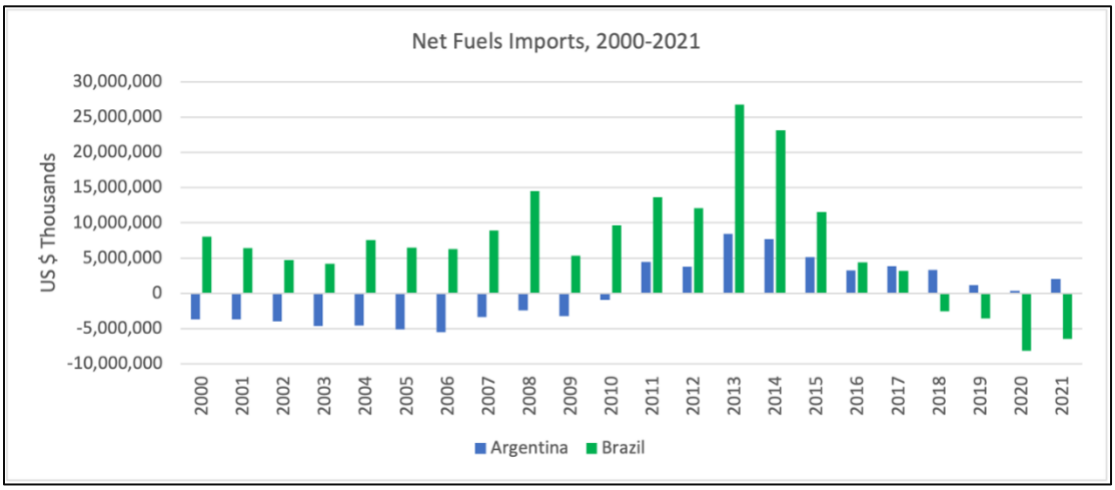
Over the period 2000 – 2022, the deviations from the trend output of the two countries have a correlation coefficient of 0.76, suggesting a strong positive correlation. This suggests that the cyclical output movements in the two countries were well synchronised over the past two decades, with relatively few asymmetric incidences – such as those during 2014-16. However, it is evident that during stages of symmetric movements, there were phases where the intensity had considerable variance among the two countries. For example, during the 2001-2 crisis and the COVID-19 Pandemic, Argentina witnessed a considerably higher deviation (negative) from the trend output compared to Brazil, by about 1.5% and 0.5% respectively. Therefore, despite having well synchronised business cycles overall, Argentina and Brazil have indeed witnessed incidences of both asymmetric shocks and symmetric shocks with intensity differentials over the past two decades.

6.3 Other sources of asymmetries

6.3.1 Energy importers vs energy exporters

A recent empirical study has shown that oil price shocks carry different consequences for oil importing and exporting countries (Değirmen et al., 2023). Here, the study suggests that given a positive oil price shock, the country having a relatively higher net fuels imports would be exposed to more intense negative output deviations and inflationary pressures. These differences in implications of oil shocks on aggregate supply and GDP – via production, interest rate, investment, and consumption – can in effect turn out to be a potential source of asymmetric incidences. And this indeed would be a useful dimension to consider for policy makers in the case of Argentina and Brazil, given their contrasting trends of net fuels imports over the past two decades – as evident from figure 2. If these contrasting positions of net fuels imports persist in the future for the two countries, then it may become another source of asymmetries within their MU, contributing to adjustment difficulties.

Figure 2. Net fuels imports for Argentina and Brazil, 2000-2021.



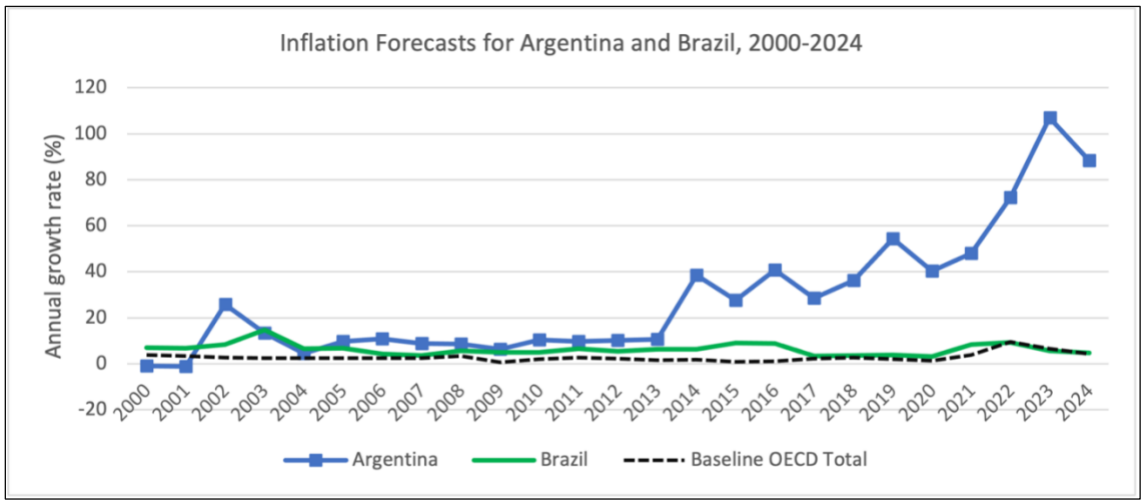
Source: (World Integrated Trade Solution, 2023)

6.3.2 Institutional differences

This sub-section focuses on two key institutional dynamics which have often been cited as potential transmission channels for asymmetric incidences within the EU. First, the way wages develop in response to supply shocks and inflationary pressures in member countries have been shown to have varying macroeconomic consequences among these countries (Bruno and Sachs, 1985; Hall and Soskice, 2001; Johnston and Regan, 2016). Accounting for the difference in wage bargaining systems between northern and southern EU countries, these studies find that in countries with a more organised wage bargaining – or higher labour union centralisation – the negative spill overs for economic shocks would be weaker compared to those with unorganised wage bargaining dynamics. A second institutional dynamic would be concerning legal and regulatory differences, particularly in the context of financial markets. Through the channel of mortgages, – accounting for differences in loan-to-value ratios and interest rate adjustment frequency – regulatory differences amongst financial sectors within member countries in the EU have shown to contribute considerably to asymmetries caused by similar shocks (Cecchetti, 1999; Maclennan et al., 1998; Mojon, 2000; Peersman and Smets, 2001; De Grauwe, 2023).

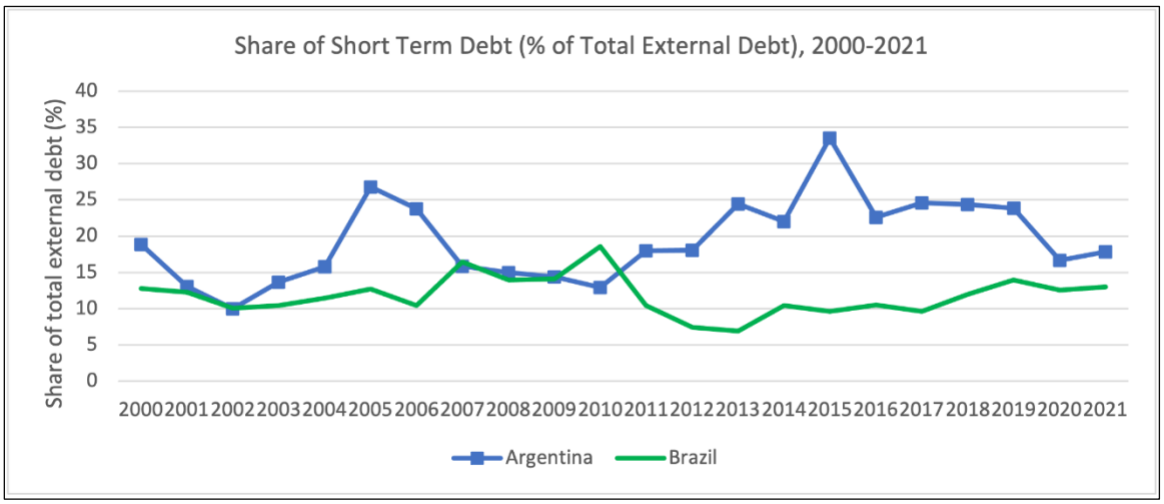
However, further systematic research is required to assess the presence of the said two institutional differences for Argentina and Brazil. Finally, such market differences can also be brought about by price stability differences caused by varying historical trend of monetary policy strategies. For example, in countries with a poor record of price stability, perhaps due to misguided monetary policies, long term debt markets may occupy a lower share of the total debt market compared to countries with a better record. This is so as investors are reluctant to hold long term contracts given unanchored inflation expectations, as they translate to a high degree of uncertainty in inflation-adjusted expected future cashflows (De Grauwe, 2023). A substantial difference in price stability performance between Argentina and Brazil can certainly be observed in figure 3.

Figure 3. Inflation forecasts for Argentina and Brazil, 2000-2024.



Source: (OECD, 2023)

Figure 4. Share of short-term debt (% of total external debt) for Argentina and Brazil, 2000-2021.



Source: (The World Bank Group, 2023c)

And, figure 4 shows persistent, although inconsistent, differences in share of short-term debt[6] contracts for the two countries. Argentina – between 2001-2007 and 2010-2020 – had a considerably higher proportion of short-term debt relative to Brazil. In such cases, a PIR hike by the MUCB, in case of a symmetric positive shock, would have caused Argentina to face a higher immediate interest payment burden, given a relatively greater share of short-term debt contracts compared to Brazil. Therefore, differences in debt maturity structures, brought about by differences in historic monetary policy performance, become yet another source of potential asymmetries for Argentina and Brazil within an MU.

6.4 Insurance mechanisms

It is important to note that the traditional OCA theory authors did not regard the incidence of asymmetric shocks as a stalemate when assessing suitability of monetary integration. Two key insurance mechanisms can be identified within the said literature, which are proposed to reduce the exposure to asymmetric shocks for MU member countries, in turn reducing their opportunity cost of joining the MU. These were 1) wage/price flexibility and labour mobility and 2) fiscal unification.

6.4.1 Wage/price flexibility & labour mobility

Mundell argued that if wages in member countries were sufficiently flexible, and labour sufficiently mobile, then the members would enjoy an automatic adjustment mechanism to an asymmetric demand shock (1961). Suppose country A faces a negative demand shock while country B faces a positive one. If wages were flexible, workers in country A would reduce their salary claims – in response to unemployment – while those in country B would claim higher wages given the surplus demand for labour. Thus, in country A, the downward shift in the aggregate demand (AD) curve would be offset by an upward shift in the aggregate supply (AS) curve as the marginal cost of labour would decline. Considering the lower price level in country A at the new equilibrium, a second order effect would reinforce the economic recovery, as exports of that country become relatively cheaper and thus more competitive, in turn fuelling an upward shift in the AD curve[7]. Empirically, however, recent studies suggest presence of rigid labour markets for Argentina and Brazil primarily attributed to increasing labour formalisation and stringent labour market regulations (Maurizio, 2014; David, Pienknagura and Roldos, 2020). Additionally, Mundell also argued that if workers were sufficiently mobile, then workers in country A could migrate to country B to meet the latter country's excess demand for labour. In this way, labour mobility would prevent unemployment in country A and inflationary pressures in country B.

[6] This analysis only considers data on external debt as data on internal public sector debt for Argentina and Brazil lacks granularity and availability. Nonetheless, external debt, as seen in table 2, does indeed occupy a substantial proportion of the GDP for both countries.

[7] However, this may not hold true if country A experiences a drop in consumption – fuelled by a drop in real wages of country A workers – which offsets, or even outweighs, the positive output gains from improved exports competitiveness (De Grauwe, 2023).

This view, however, is based on two critical assumptions. First, it assumes that each country faces a shock to the same or similar sectors making the inter-country migratory transfers feasible. Second, it assumes presence of factors supporting mobility – such as availability of, and accessibility to, training and re-training schemes – and absence of factors hampering mobility – such as family commitments, conditional pension contracts, and immigration laws[8]. And so, to assess the mobility of workers amongst Argentina and Brazil, further systematics research would be required to test the validity of the said two assumptions.

6.4.2 Fiscal unification

Fiscal unification as an insurance mechanism was first proposed by Kenen (1969). Kenen's analysis, however, was limited to a fiscal union's function as a risk sharing mechanism among member countries. Empirically, indeed, such benefits of a fiscal unification have been confirmed by Asdrubali et al., who found the US federal budget to be one of the key sources of risk sharing among the states, the other being financial markets (1996). The study found that the federal budget reallocates 2.5 % of every 10% drop in state's revenues back to that state. That said, De Grauwe further illustrates a second functionality of a fiscal union; that of providing insurance against speculative sovereign debt crisis (2023). By merging the fiscal mechanism, a budgetary union would combine the cost and benefit calculus, for a sovereign debt default, for all member countries. Such a union can be advantageous in two ways. First, in cases of asymmetric shocks, it can help reduce the incidence of serious solvency shocks. It does so by providing an automatic balancing mechanism which utilises the budgetary surplus of the country facing a positive output shock to finance the deficit in the country facing a negative shock – as proposed by Kenen. Second, in cases of symmetric shocks with varying intensities, it can increase the probability for achieving the good equilibria, given financial speculation, by improving the liquidity guarantee provided to investors. In the absence of a fiscal unification within an MU, the risk sharing capabilities within member nations would depend on the successful integration of financial markets – which is discussed further in section 7.2.

6.5 Implications of the Global Financial Cycle (GFC) and US monetary policy transmissions

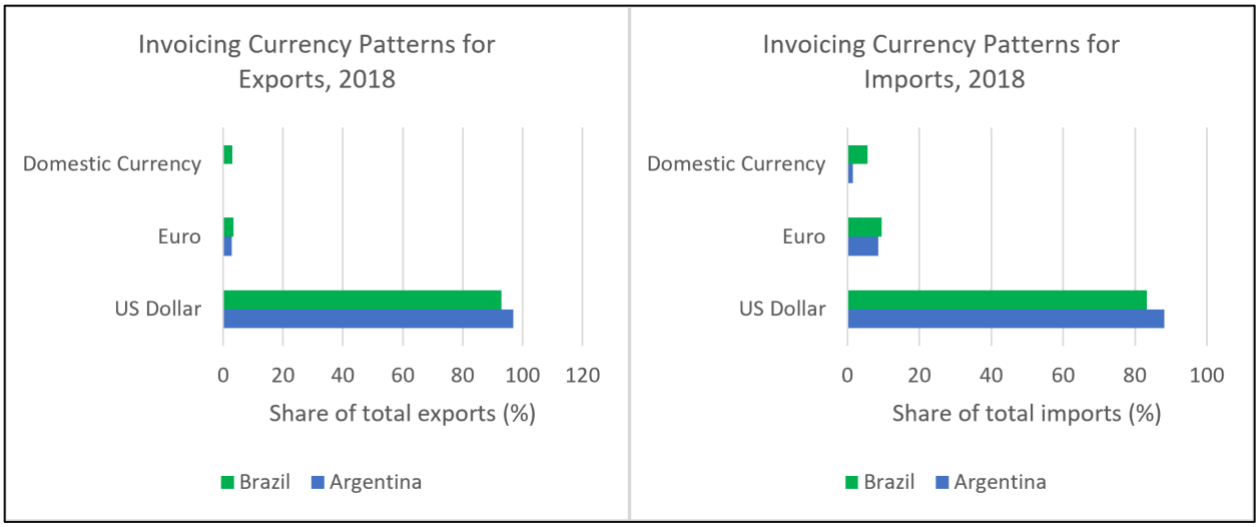
6.5.1 Trade currency denominations

The analysis conducted in section 6, which outlines the ability of countries with monetary independence to manipulate export/import competitiveness, presumes that the exports and imports were invoiced in the domestic currency to begin with. As evident from figure 5, this is certainly not the case for Argentina and Brazil[9]. For both countries, more than 80% of international trade is invoiced in USD, with domestic currency occupying a share of less than 5%. This suggests that, even without an MU, both countries face severe short run constraints in using the PIR tool to manipulate export competitiveness for economic recovery – through nominal FXR depreciations/appreciation (Gopinath, 2015; Boz et al, 2020; International Monetary Fund, 2020; International Monetary Fund, 2023a). This phenomenon essentially becomes a sunk cost for both countries, which partly weakens the opportunity cost of forming an MU for Argentina and Brazil.

[8] Recent policy developments do suggest a positive outlook on the resolution of workers' cross border mobility issues among the South American trade bloc Mercosur (Margheritis, 2015).

[9] Not unlike many other developing economies where business try to avoid currency volatility risks by invoicing their trade in a stable currency.

Figure 5. Invoicing currency patterns for exports and imports in Argentina and Brazil, 2018.

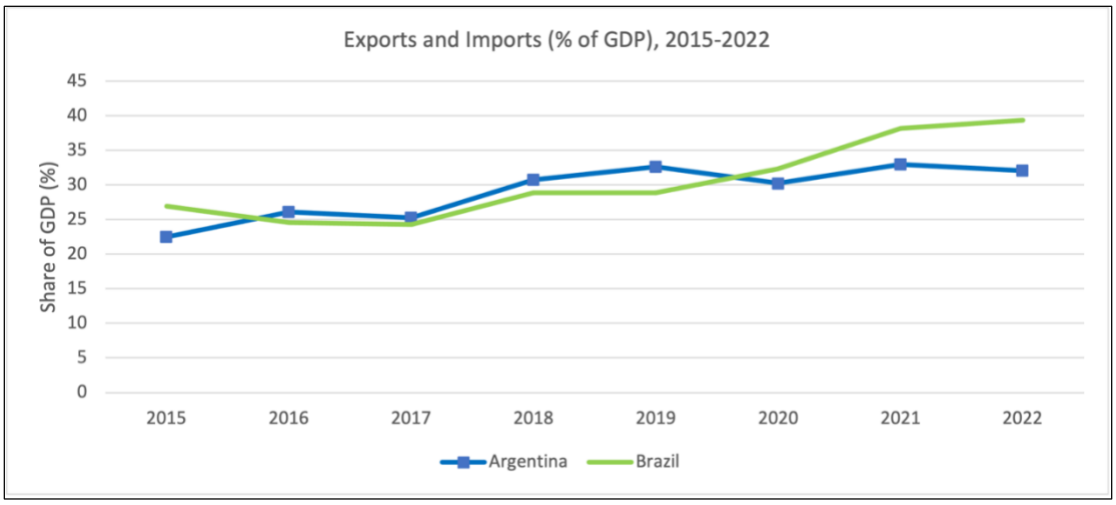


Source: (Boz et al., 2020)

However, additionally, recent studies have also shown that the USD dominance can create considerably exposure to negative spill overs from US monetary policy decisions (International Monetary Fund, 2020; International Monetary Fund, 2023a). And, if the degree of exposure to these spill overs differs between countries in an MU, then these spill overs become a further source of asymmetries contributing to adjustment problems. For instance, a period of PIR hikes by the US Federal Reserve, causing an appreciation in the USD, could translate to a drop in export competitiveness for those countries who have invoiced their exports in USD. Additionally, a USD appreciation would certainly make imports – invoiced in the USD – more expensive, which carries with it a potential negative impact on consumers' incomes and businesses' cost structures in the importing countries.

That said, these exposures to negative spill overs can become a source of asymmetric shocks between countries in an MU, if they have differences in 1) degree of openness and 2) industry structures. The former matters as it directly influences the scale of exposure to a USD appreciation, where given a dominance of USD invoiced trade, a higher degree of openness would translate to a larger exposure. Secondly, industry structures matter as they play a role in shaping the price elasticity of demand for a country's imports and exports. And so, if the sector concentration for imports and exports differs considerably between two countries, then they may face different magnitudes of negative spill overs given a USD appreciation, accounting for the difference in price elasticity of demand across sectors. The difference in openness can certainly be observed in the case of Argentina and Brazil. It can be seen from figure 6, that following the COVID-19 pandemic, Brazil has become increasingly more open relative to Argentina. And, as evident from appendices 1., 2., and 3., the two countries share considerable differences in sector concentration for exported goods, while these differences are relatively small for imported goods. Thus, through the international trade channel, accounting for the variances in the degree of openness and sector concentration for exported goods, the US monetary policy transmissions becomes another potential contributor to asymmetries for Argentina and Brazil within an MU.

Figure 6. Exports and imports (% of GDP) for Argentina and Brazil, 2015-2022.

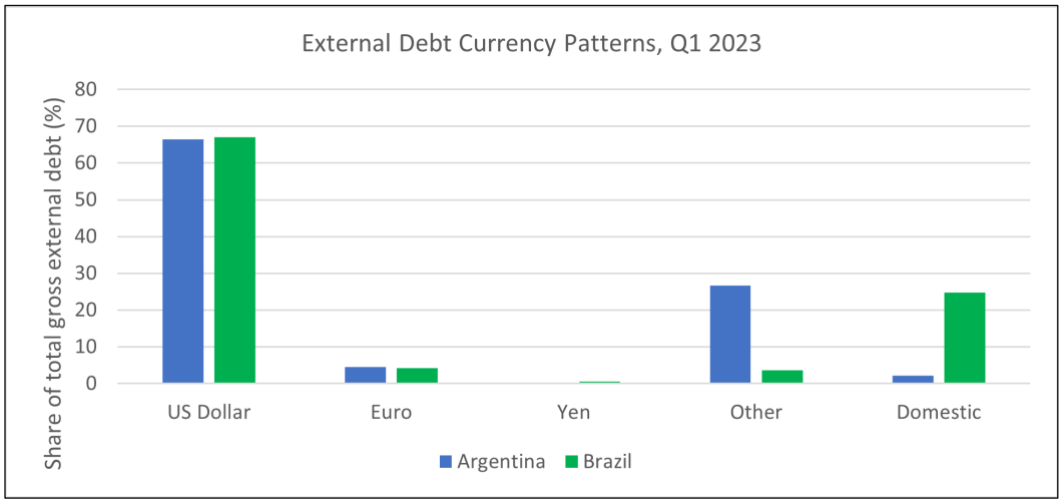


Source: (The World Bank Group, 2023)

6.5.2 Debt currency denominations

Similarly, the analysis in section 6.1.2 presumes that the sovereign debt sustainability would be improved outside of an MU, given that countries 1) issue external debt in domestic currency[10] and 2) operate a flexible FXR regime. The former presumption, as can be seen in figure 7, is not entirely applicable to Argentina and Brazil, although it is relatively more so for Brazil.

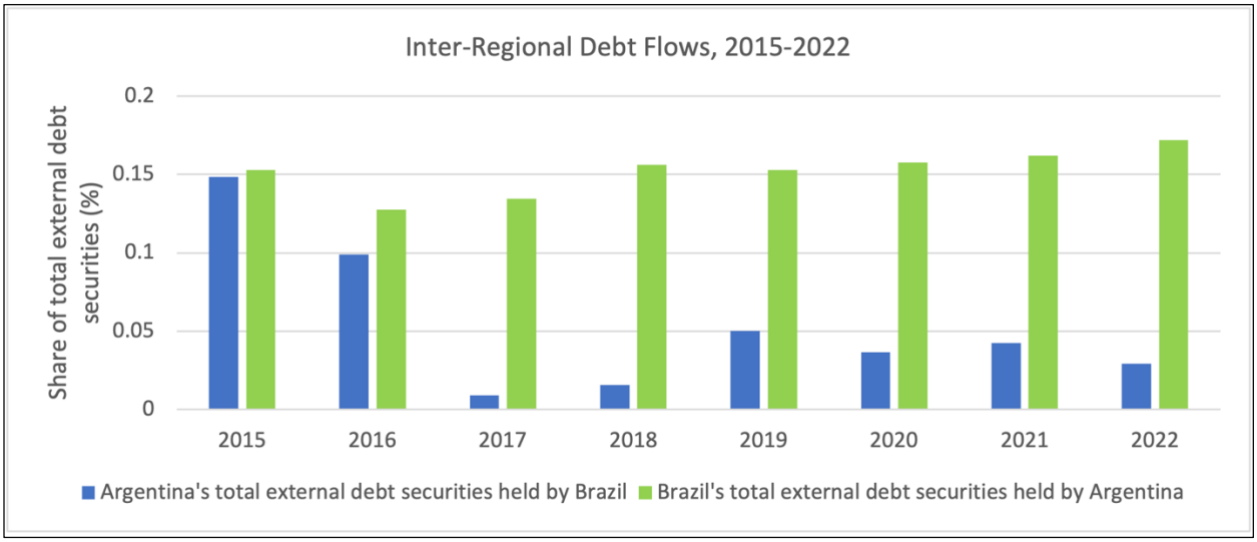
Figure 7. External debt currency patterns for Argentina and Brazil, Q1 2023.



Source: (The World Bank Group, 2023a)

[10] This presumption may not necessarily be required. Even if the debt is issued in a foreign currency, a domestic currency devaluation may still reduce the value of collateral upon which the debt is issued (Fornaro, 2022). And so, in cases of expropriation, devaluation may indeed indirectly help lower the value of the foreign currency denominated debt.

Figure 8. Inter-regional debt flows between Argentina and Brazil, 2015-2022.



Source: (International Monetary Fund, 2023c)

The share of external debt denominated in domestic currency for Argentina is around 2%, while that for Brazil is approximately 25%. Here, both countries face constraints in directly devaluating their external debt in face of a negative output shock. However, Brazil – given a larger share of domestic currency denominated debt – faces a relatively higher cost of giving up its national currency compared to Argentina. Now, it may be argued that the two countries can reduce the proportion of foreign currency denominated debt by adopting a common currency. However, this would only hold true if the two countries had a high proportion of inter-regional external debt flows to begin with. As evident from figure 8., this is not the case for Argentina and Brazil, where the share of inter-regional external debt flows have accounted for less than 1% of total external debt flows for both countries.

7. Benefits of monetary union

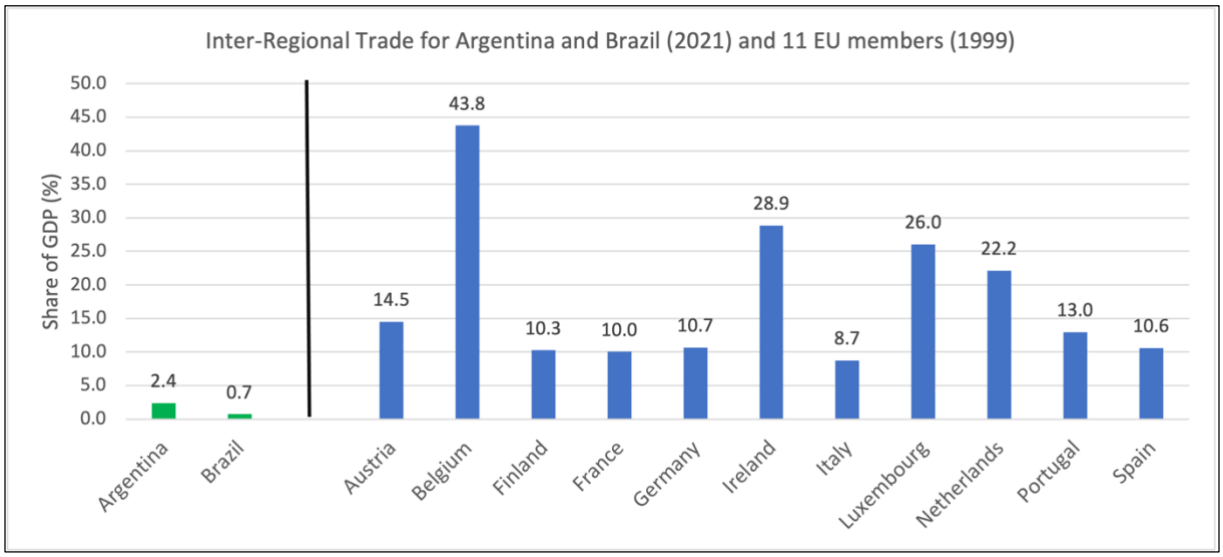
MU members primarily benefit from eradication of two key sources of trade inefficiencies – 1) transaction costs and 2) FXR volatility. Elimination of these two is proposed to bring about a positive momentum for trade integration and financial integration. The following sections aim to assess the applicability of this view to the case of Argentina and Brazil.

7.1 Dynamics for trade integration

Eradicating transaction costs removes the deadweight loss imposed on consumers and businesses occurring due to the fees paid to financial institutions for exchanging national currencies. Simultaneously, it also frees up labour in these financial institutions to engage in alternative investment tasks with arguably better societal externalities. And so, this is argued to set in a momentum that would promote trade integration, as consumers would have an incentive to increase their consumption – accounting for an increase in purchasing power – and financial institutions would have an increase in resources available for identification of cross-border investment opportunities (De Grauwe, 2023).

Secondly, eradicating FXR volatility reduces the risk premium accounted for by investors and financial managers when evaluating cross-border portfolio and capital investment projects, in turn boosting inter-union investments and trade. Empirically, studies have indeed found evidence for an increase in trade integration among members of an MU (Lane, 2006; Glick and Rose, 2016; De Grauwe, 2023). Although, there is a lack of agreement on the magnitude of the increase and is expected to be around 5% to 20% for the EU.

Figure 9. Inter-regional trade between Argentina and Brazil, as of 2021, and between 11 EU members, as of 1999.



Source: (World Integrated Trade Solution, 2023; The World Bank, 2023)

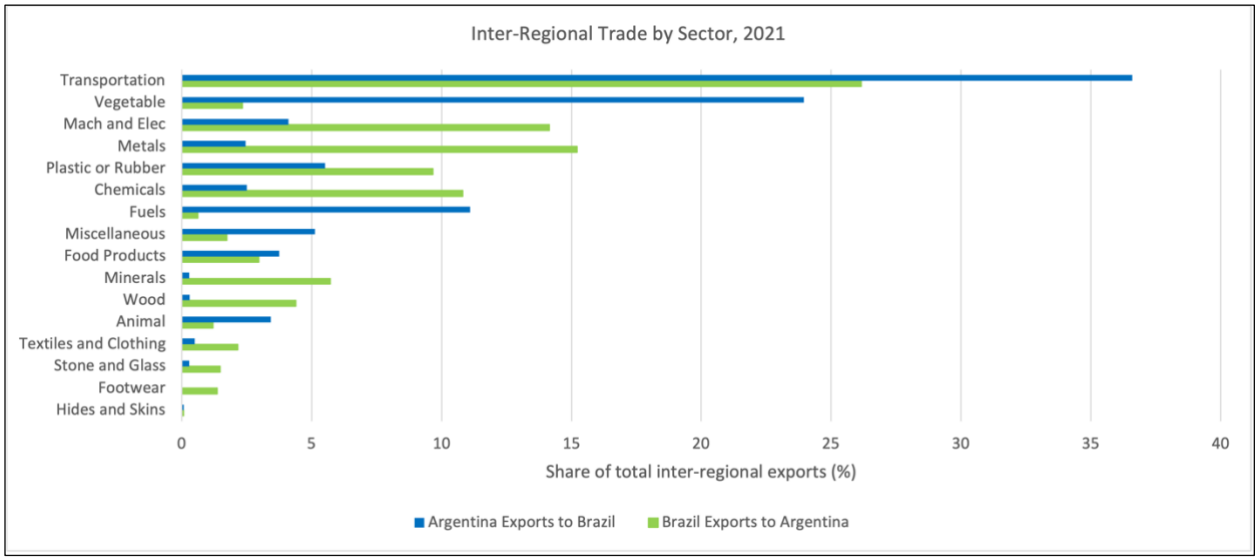
Note: This figure accounts for goods exported from a given country to other countries in the region. Data for exports from Netherlands to Luxembourg for 1999 is not available and thus omitted from calculations.

However, the conclusions from these studies face certain limitations when used to forecast the situation for Argentina and Brazil, considering the difference in pre-union bilateral trade levels, and intra-industry trade flows among member countries. The former, as can be seen in figure 9, was substantially larger in the 11 EU member countries before the union – in 1999 – compared to Argentina and Brazil – as of 2021. And so, *ex ante*, the latter two nations stand to enjoy significantly fewer gains from elimination of cross border transaction costs, compared to those that were available to the 11 EU members in 1999.

Secondly, intra industry trade flows also play a role due to their capacity to reduce incidences of asymmetric shocks. This is argued considering the view that nations trading in similar product groups would face similar consequences from economic shocks to those product markets (European Commission, 1990). This dynamic applies only partially to Argentina and Brazil. As evident from figure 10, although intra-industry trade is substantial for certain sectors such as transportation and food products, most sectors have relatively low intra-industry trade flows.

Considering the contrasting views that persists within the academic literature on the impact of MU on such trade flows[11], further research is certainly required to understand how an MU between Argentina and Brazil may impact their cross-border intra industry trade. To summarise, even though trade integration is likely to increase for Argentina and Brazil within an MU given the elimination of trade inefficiencies, with the magnitude remaining uncertain, the exposure to asymmetric output shocks may persist given a low proportion of intra-industry trade flows.

Figure 10. Inter-regional trade by sector between Argentina and Brazil, 2021.



Source: (World Integrated Trade Solution, 2023)

7.2 Dynamics for financial integration

The theoretical origins that suggest a momentum for financial integration through MU are similar to those for trade integration. A reduction in FXR volatility incentives integration in money markets, bond markets, equity markets, and the banking sector (De Grauwe, 2023). However, as highlighted by De Grauwe, this reduction by itself is not sufficient for full integration and needs to be complemented by integration across other institutions such as regulatory and legal systems. Empirical studies have indeed confirmed that the Euro has contributed significantly to financial integration among member economies in all four markets, although the degree of integration was observed to differ amongst these markets, which can primarily be attributed to budgetary asymmetries for bond markets and institutional asymmetries for the banking sector (Fornaro, 2022; De Grauwe, 2023). Overall, successful integration within the financial sector of union members is critical as it acts as an insurance mechanism against asymmetric shocks, which otherwise, as discussed in section 6.1.2, can lead to amplifications of shocks, in turn imposing austerity for those facing a negative shock, and inflationary pressures for those facing a positive one.

[11] Two key opposing views had emerged on this issue. The European Commission (1990) argued for a positive impact of a monetary union on intra industry trade flows, while Krugman (1991) argued for the opposite, given the possibility of regional concentration of production (De Grauwe, 2023).

That said, application of the findings from the EU experience to the case of Argentina and Brazil certainly faces challenges. The financial integration within the EU did not occur solely due to the formation of a common currency. The regulatory and governing authorities within the EMU employed several taskforces and institutional bodies both before and after the union to ensure compatibility of member countries *ex ante,* and improving the momentum for integration *ex post* (De Grauwe, 2023). Thus, for Argentina and Brazil, successful financial integration does not solely depend on the adoption of a common currency, but also on the ability of the appropriate governing authorities to employ similar taskforces to pro-actively create and maintain optimum conditions necessary to ensure full integration.

8. Conclusion

To summarise, the opportunity cost arising from the loss of monetary independence is significant for Argentina and Brazil considering the possibility of asymmetric shocks and symmetric shocks with intensity differentials, factoring in historical trends and existence of potential sources of industrial and institutional asymmetries. This is weighted against uncertain, and arguably weak benefits from trade integration, accounting for the low initial levels of inter-regional trades. However, full integration of financial markets and budgetary unification within an MU would prominently reduce the opportunity cost by providing a strong insurance mechanism in face of asymmetric shocks. But, the formation of these mechanisms would require collaboration on multiple aspects of political economics, including economic institutions, public policies, and legal frameworks. Nonetheless, the potential impact of these two dynamics on trade integration – although arguably straightforward in theory – remains empirically uncertain for Argentina and Brazil given a lack of systematic research. In terms of reducing the exposure to the US monetary policy, a currency union by itself would prove largely ineffective for both Argentina and Brazil, given low proportions of ex ante inter-regional trade and debt flows. Therefore, under existing circumstances, the literature and evidence lean towards to the conclusion that a common currency union between the two nations would prove economically undesirable for both nations.

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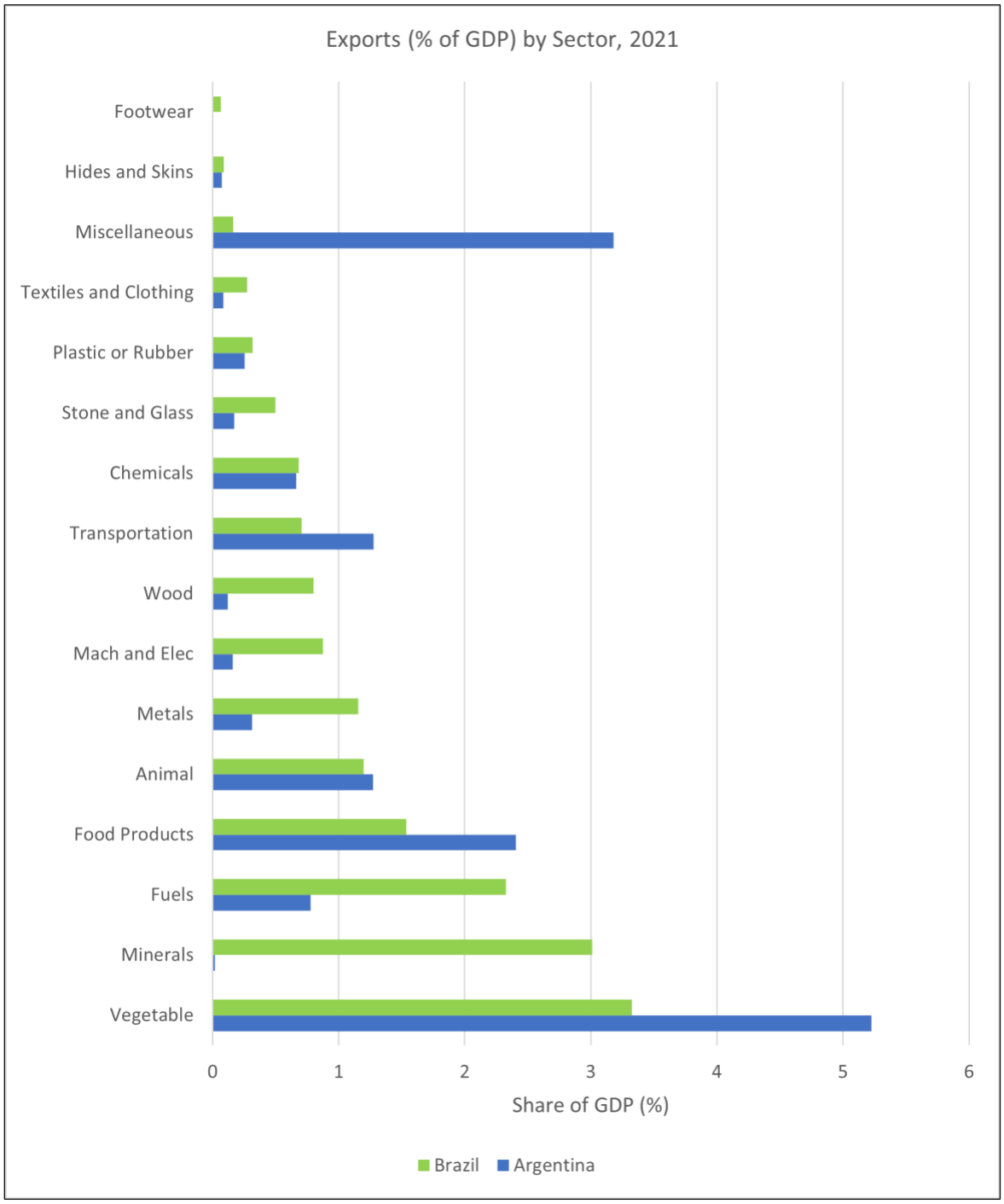
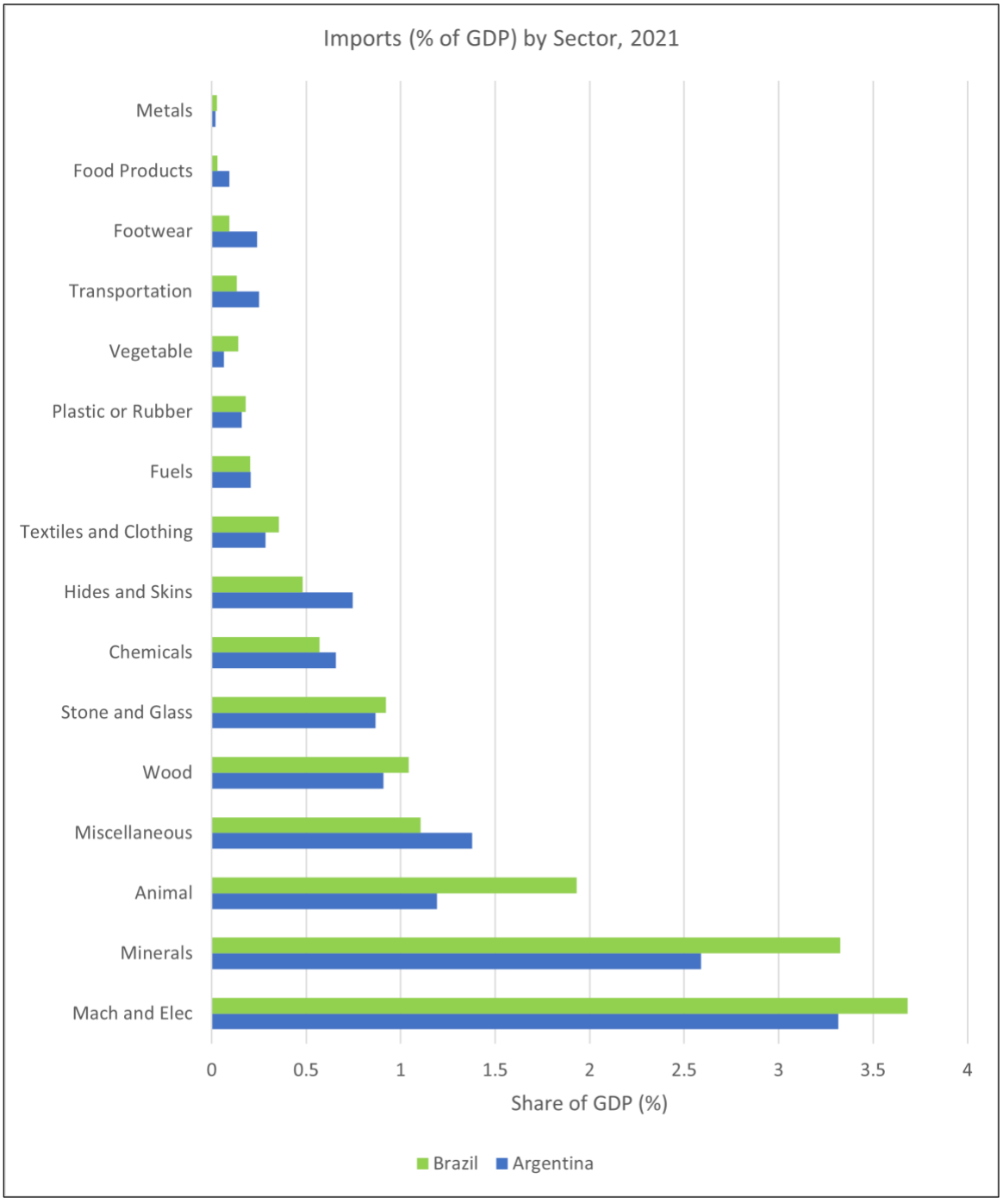
10. Appendices:

Appendix 1. *Figure 11. Exports (% of GDP) by sector for Argentina and Brazil, 2021.*



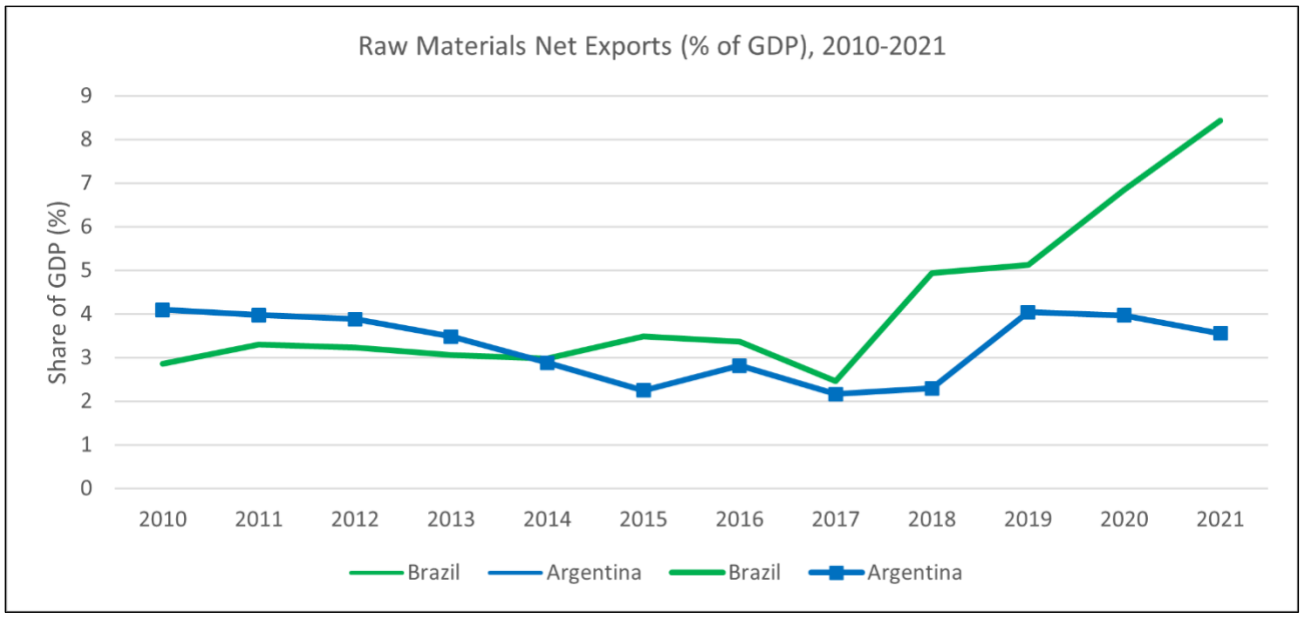
Source: (World Integrated Trade Solution, 2023)

Appendix 2. *Figure 12. Imports (% of GDP) by sector for Argentina and Brazil, 2021.*



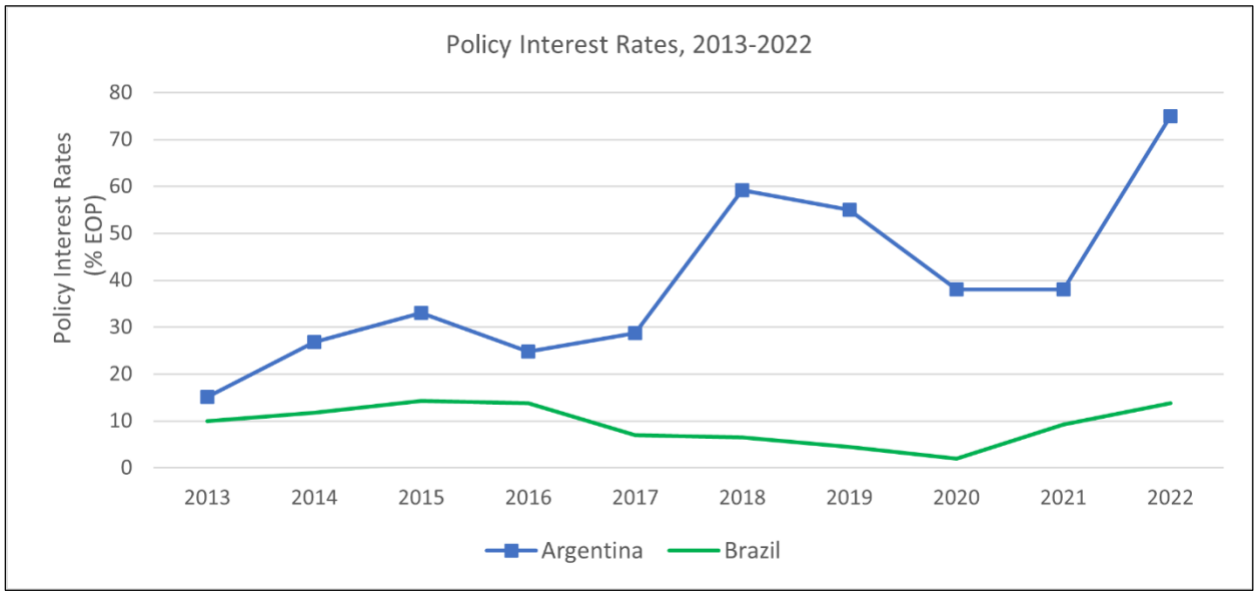
Source: (World Integrated Trade Solution, 2023)

Appendix 3. *Figure 13. Net exports of raw materials (% of GDP) for Argentina and Brazil, 2010-2021.*



Source: (World Integrated Trade Solution, 2023)

Appendix 4. *Figure 14. Policy Interest Rates (% EOP) for Argentina and Brazil, 2013-2022*



Source: (Central Bank of Argentina cited in FocusEconomics, 2023; Central Bank of Brazil cited in FocusEconomics, 2023)