

Current account equilibrium exchange rate in Colombia (2000-2020)*

Taxa de equilíbrio da conta-corrente na Colômbia (2000-2020)

GONZALO HERNÁNDEZ **

RESUMO: Utilizando estimativas de Bresser-Pereira et al. (2021), este artigo analisa o desalinhamento entre a taxa de câmbio real e a taxa de câmbio de equilíbrio em conta-corrente na Colômbia nas últimas duas décadas (2000-2020). Evidências sugerem que o ciclo de alta e queda das *commodities* neste período é importante para explicar (i) a principal tendência de desalinhamento, (ii) a deterioração da conta-corrente nos últimos anos e (iii) o desempenho macroeconômico geral da economia colombiana. Uma discussão sobre desenvolvimento macroeconômico e estabilidade também é fornecida no contexto da configuração financeira colombiana, caracterizada por um regime cambial flexível, independência do banco central e metas de inflação. As ideias neste artigo são consistentes com os elementos-chave da Teoria do Novo Desenvolvimentismo.

PALAVRAS-CHAVE: Taxa de câmbio; conta-corrente; Colômbia; economias em desenvolvimento; termos de troca.

ABSTRACT: Using estimations by Bresser-Pereira et al. (2021), this paper analyses the misalignment between the real exchange rate and the current account equilibrium exchange rate in Colombia in the last two decades (2000-2020). Evidence suggests that the commodity boom and bust cycle in this period is important to explain (i) the main trend of the misalignment, (ii) the deterioration of the current account in recent years and (iii) the general macroeconomic performance of the Colombian economy. A discussion about macroeconomic development and stability is also provided in the context of the Colombian financial configuration, characterized by a flexible exchange rate regime, central bank independence and inflation targeting. Ideas in this paper are consistent with key elements in the New Developmentalism Theory.

KEYWORDS: Exchange rate; current account; Colombia; developing economies; terms of trade.

JEL Classification: E44; E61; F41.

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1. MOTIVATION AND BACKGROUND

In the last two decades, Colombia has relied on a flexible exchange rate regime, which is part of a financial configuration built during the economic reforms in the nineties. This configuration also includes: a central bank independence from the Government, an inflation target (currently in the range of 2% - 4%), open market operations using an intervention nominal interest rate as the main instrument of monetary policy, and a non-discretionary use of international reserves (international reserve accumulation depends on market-driven balance of payments dynamics). The Central Bank only intervenes in the foreign currency market in order to face episodes of high volatility of the exchange rate).

The current flexible exchange rate regime was preceded by a scheme of currency bands, which was abandoned in 1999, in the aftermath of the Asian crisis (1998) and after the following episode of capital outflows in emerging economies. In fact, capital outflows were an important determinant of a severe downturn in the Colombian economy in 1999, when Colombia experienced the deepest recession in recent economic history (growth rate of -4,2 percent), only overcome by the severe impact of the Covid pandemic in 2020 (the GDP fell 6,8 percent). In regard to adjustments of the financial configuration as a consequence of external financial crises, it is important to mention that after the financial crisis in 2007-2008, the Central Bank (Banco de la República) adopted a macroprudential framework to formally recognize the importance of financial instability in economic performance.

The monetary policy architecture in Colombia makes the country one of the most conservative ones in Latin America. Unlike other large economies in the region (i.e., Brazil, Mexico or Argentina), Colombia has not witnessed balance of payments crises, external debt crises or hyperinflation episodes. At least in the short run, the monetary policy and the management of international reserves are key elements to cushion the effects of external financial crises; that was the case, for example, during the crisis in 2007-2008 (Ocampo, 2009).

It is worth noticing, however, that this conservative monetary policy, bringing some macroeconomic stability, is accompanied by moderate results in terms of development. Monetary and fiscal policy, for example, are not actively used as part of a strategy of industrial policy and economic growth. Economic growth in Colombia is highly dependent on external factors (i.e., terms of trade shocks); more than 50 percent of Colombian exports are in four commodities (oil, coal, coffee, and nickel), and the manufacturing sector only represents 12 percent of the GDP. The average growth rate in the last two decades (2000-2019), including a phase of high commodity prices, was 3,8 percent but unemployment rates did not consistently fall below 10 percent. The poverty has an incidence above 40%, and Colombia is one of the most unequal countries in the world.

The exposure of the Colombian economy to external factors and the lack of a sound strategy of productive development with international competitiveness and diversified exports is shown in the current account deficit. After the end of the last commodity price supercycle in 2013, the current account deficit (as a percentage of

GDP) deteriorated. In the last 6 years, this deficit has been on average above 4 percent of GDP (the average for the entire period 2000-2020 was 1,9 percent). More recently, during the economic crisis in 2020, imports decreased faster than exports, giving some relieve to the current account deficit, but in 2021 imports recovered faster than exports. The current account deficit in Colombia is expected to be close to 5 percent of the GDP, and it is likely that constraints in the access to external financial markets become more binding (due to higher fiscal deficits after the pandemic and the end of a phase of low international interest rates). The Colombian economy is nowadays facing some signals of alarm due to the performance in the external balance despite a financial configuration favoring macroeconomic stability.

All these elements lead to recognizing that there is not necessarily a trade-off between macroeconomic stability and development, not only in the mainstream sense of stability driving a better economic performance, but in the sense of a good development strategy driving more economic stability, especially in an economy highly dependent on factors determined in external markets (where the small-open economy has a negligible market power, like it is the case in Colombia). International competitiveness and export diversification may reduce the degree of international exposure, may strengthen the current account, may reduce the risks of a balance of payments crisis and, thus, may foster macroeconomic stability of the country. The activation of the virtuous circle is certainly one of the main objectives of the economic policy.

Different approaches can be undertaken in order to examine the consistency of the economic policy with a sound strategy of development and macroeconomic stability. This paper, in particular, follows Bresser-Pereira et al. (2021), attempting to examine the Colombian case in the period 2000-2020, by analyzing the performance of the real exchange rate using the real exchange rate consistent with a current account in equilibrium (zero surplus or deficit) as a benchmark. A real exchange rate (endogenously determined) below the estimated real exchange rate consistent with a balanced current account is a concern for macroeconomic performance in regard to the current account, the investment and the economic growth. This particular approach highlights two key elements in the literature: (i) the current account surplus/deficit as a variable that describes the general macroeconomic performance and simultaneously as a mechanism of economic growth (Hernández and Razmi, 2014), and (ii) the role of the exchange rate and its potential management as an instrument of productive development, (e.g., literature on stable and competitiveness real exchange rate or literature on the new developmentalism theory), which focuses on the causal relationship between the real exchange rate and growth. This paper shows that the estimations in Bresser-Pereira et al. (2021) are useful to explain the macroeconomic performance of the Colombian economy once the role of terms of trade cycle is taken into account.

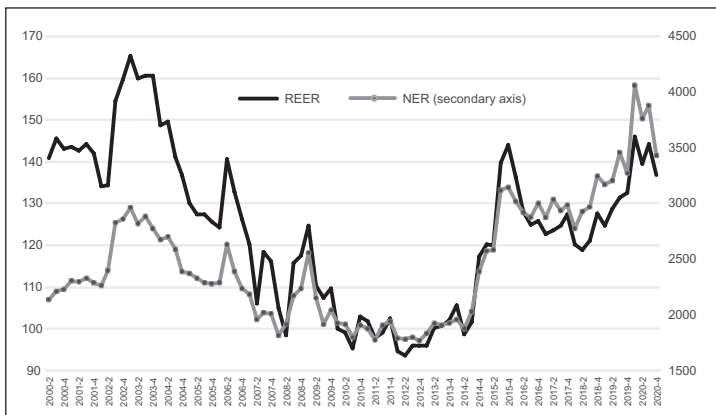
Section 2, after this introduction, describes the performance of the exchange rate in the period 2000-2020, and explains the methodology and estimations for Latin American countries based on Bresser-Pereira et al. (2021). Section 3 discusses the main macroeconomic conditions that might explain the results in Bres-

ser-Pereira et al. (2021) for the Colombian case. Section 4 provides evidence suggesting a relationship between the current account equilibrium exchange rate and investment and growth. Section 5 concludes.

2. CURRENT ACCOUNT EQUILIBRIUM EXCHANGE RATE METHODOLOGY AND ESTIMATIONS FOR LATIN AMERICA IN BRESSER-PEREIRA ET AL. (2021)

Colombia’s exchange rate time series displays (mostly) a U-shaped trend in the period 2000-2020, descending from 2003 to 2013, and increasing from 2014 to 2020 (Figure 1). Besides the general trend, the real exchange rate is highly correlated with the nominal exchange rate, with ups and down in the nominal exchange rate followed by a similar variation in the real exchange rate. This correlation is consistent with a period of relatively low volatility in international and domestic inflation (with inflation targeting) and negligible changes in both inflation trends.

Figure 1: Nominal Exchange Rate (NER) and Real Exchange Rate (REER)



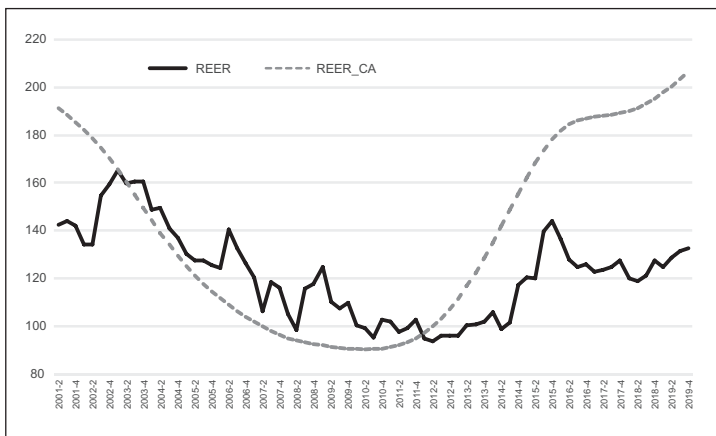
Source: Banco de la República de Colombia.

In order to examine the performance of the real exchange rate in relation to the current account equilibrium exchange rate (the exchange rate consistent with zero deficit/surplus) an estimation is necessary. Bresser-Pereira et al. (2021) estimated the current account equilibrium exchange rate for Argentina, Brazil, Chile, Colombia and Mexico (the largest Latin American economies) with time series from 2000 to 2019 (excluding the effects of the Covid pandemic). Their methodology consists of the following two main steps. First, they estimate the short and long run effects of fundamental variables on the real exchange rate (controlling for the possibility of endogeneity), with a set of fundamental variables (right-hand side variables) including, for example: terms of trade, interest rate differential, sovereign risk premium and the current account deficit (as a percentage of GDP). The authors also

control for the possibility of the Balassa-Samuelson effect. Second, they calculate the real exchange rate for a balanced current account, meaning the real exchange rate consistent with a current account deficit/surplus equal to zero, given that the current account deficit was part of the set of fundamental variables. Since the specification includes variables with transitory (short run) and permanent (long run) impact, Bresser-Pereira et al. (2021) follow Edwards (1989) and Nassif, Feijó et al. (2011) and use a Hodrick-Prescott filter to decompose cyclical and trend components. This way the estimation of the current account equilibrium exchange rate focuses on the long run trends.

Figure 2 shows both the real exchange rate (REER) and the estimated current account equilibrium exchange rate (REER_CA). REER_CA displays a U-shape trend as it is the case of the real exchange rate; however, more importantly, the estimation shows the magnitude of the misalignment between REER and REER_CA, which is particularly important in the period 2013-2019. For this period, the estimation suggests that the real exchange rate (REER) was relatively appreciated in relation to REER_CA. This finding is surprising since this period was characterized by a relatively high real exchange rate in comparison to other years in the full period of analysis.

Figure 2: Real Exchange Rate (REER) and Current Account Equilibrium Exchange Rate (REER_CA)

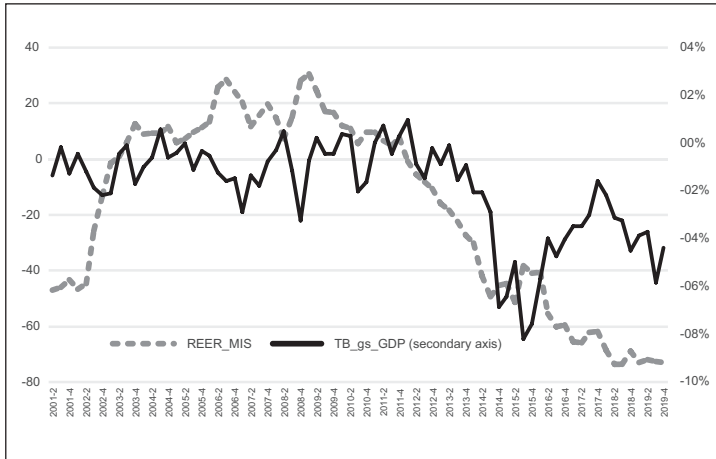


Source: Banco de la República de Colombia and Bresser-Pereira et al. (2021).

A second important result, derived from the estimation, is that the negative misalignment of the real exchange rate, relative to the current account equilibrium exchange rate, is highly correlated with the deterioration of the deficit of the trade balance of goods and services (as a percentage of GDP). As shown in Figure 3, around year 2013, when the difference between REER and REER_CA starts plummeting from -20 (index points) to almost -80, the trade balance deficit deteriorates and displays a lower average than the average in the first decade (2000-2010). Although the period 2000-2010 was never characterized by outstanding surpluses,

the trade balance oscillated around 0 percent. Later, the average plummeted to levels close to -4%.

Figure 3. Real Exchange Rate Misalignment (REER_MIS) and Net Trade Balance of Goods and Services as a percentage of GDP (TB_gs_GDP).



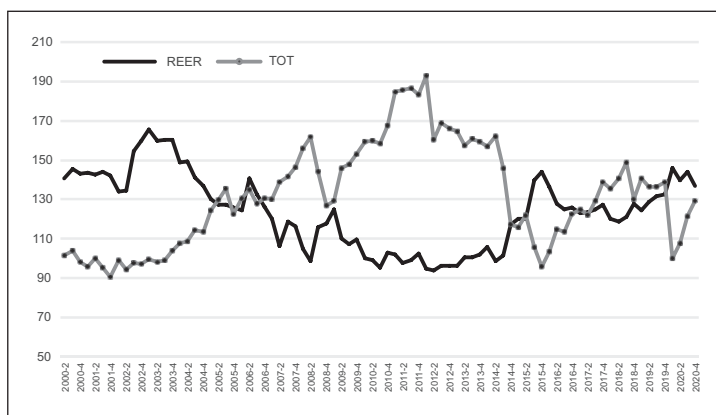
Source: Banco de la República de Colombia, Bresser-Pereira et al. (2021) and author's calculations.

3. COMMODITY PRICE CYCLE, TERMS OF TRADE AND THE MISALIGNMENT OF THE REAL EXCHANGE RATE

The Colombian economy seems to resemble the assumptions of an open-small economy with flexible exchange rate and a high degree of exposure to its terms of trade. As mentioned before, the export structure of this country is characterized by a high dependence on commodities. Around 50% of the Colombian exports correspond to four main products: oil, coal, coffee, and nickel. Prices of these export commodities and import goods are determined with negligible Colombia's market power. Therefore, terms of trade may be an important exogenous variable driving the macroeconomic performance of the Colombian economy. Hernández (2013), for example, estimated that 1/3 of the variation of the output fluctuations in Colombia is explained by the variation of the terms of trade, in particular due to oil prices.

In regard to the exchange rate, as shown in Figure 4, data suggests a highly negative correlation between terms of trade (TOT) and the real exchange rate (REER). The period 2003-2014, with relatively high terms of trade, was accompanied by a relatively low level of the real exchange rate. In fact, for the full period (2000-2020), the U-shape of the real exchange rate curve goes along with an inverted U-shape curve for the terms of trade.

Figure 4: Real Exchange Rate (REER) and Terms of Trade (TOT)



Source: Banco de la República de Colombia.

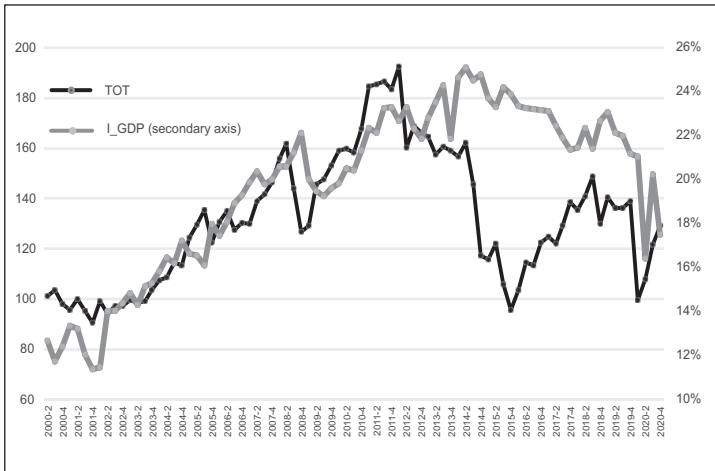
These trends provide evidence that can be useful to solve the puzzle about a phase of a relatively high real exchange rate and a negative misalignment in comparison to the current account equilibrium exchange rate (Section 2). The sustained low level of the terms of trade after the end of the last super cycle of the commodity boom (2013) seems to have led to a depreciation of the exchange rate and, simultaneously, to a deterioration of the current account deficit (Figures 1 and 3). Close to year 2013, the current account equilibrium exchange rate starts increasing, since the exchange rate necessary to keep the current account balance in zero must be higher when the economy is facing the negative external terms of trade shock. Regardless the depreciation of the real exchange rate (as a correcting mechanism of the shock), the exchange rate is relatively appreciated in comparison to the current account equilibrium exchange rate. The role of the terms of trade is therefore consistent at explaining the deterioration of the current account deficit, starting in 2014, and the deeper misalignment of REER and REER_CA.

It is worth mentioning, in order to provide a more complete explanation, that two effects might theoretically be operating at the same time: the direct negative effect of the terms of trade on the current account deficit, and the indirect effect of the terms of trade on the current account deficit through a Dutch Disease type effect. However, since the period 2013 to 2020 showed a depreciation trend, the prevalence of a Dutch Disease mechanism seems to be less likely. Indeed, it is more likely that both the misalignment of the exchange rate and the deterioration of the current account deficit have the terms of trade declining trend as a common factor.

4. TERMS OF TRADE, THE REAL EXCHANGE RATE MISALIGNMENT, INVESTMENT AND GROWTH

Estimates from the econometric strategy in Hernández (2013) suggest that investment is the main channel through which terms of trade variation drives output fluctuations in the Colombian economy. Figure 5, for the period 2000-2020, displays a positive high correlation between terms of trade and investment as a percentage of GDP. Although this correlation is stronger during the terms of trade boom, the declining trend of the terms of trade, starting in 2013, is accompanied by a following stagnation and then by a reduction of the investment as a percentage of the GDP. The relatively less strong correlation is consistent with a potential lag effect on the investment share.

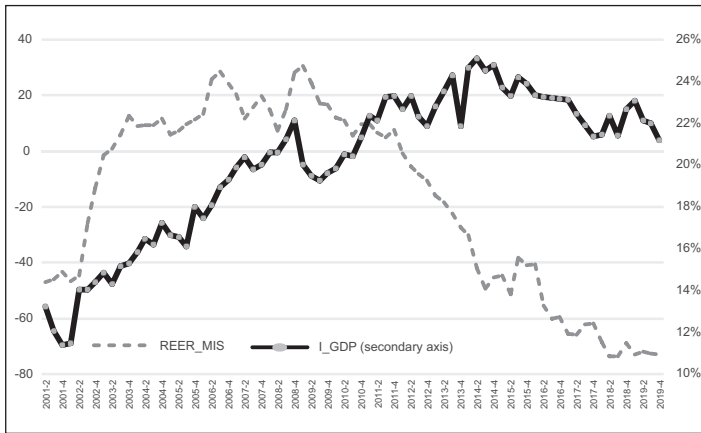
Figure 5: Terms of Trade (TOT) and Investment as a percentage of GDP (I_GDP)



Source: Banco de la República de Colombia, Departamento Administrativo Nacional de Estadística (Dane) and author's calculations.

Following the explanation provided in Section 3, the misalignment between REER and REER_CA is correlated with the investment share the same way terms of trade are correlated with the investment share (Figure 6). From 2003 to 2012, when the misalignment of REER and REER_CA is positive or above -20 index points, the investment share shows a positive trend. Once the misalignment falls from -20 to almost -80 index points, the investment share stagnates and then plummets.

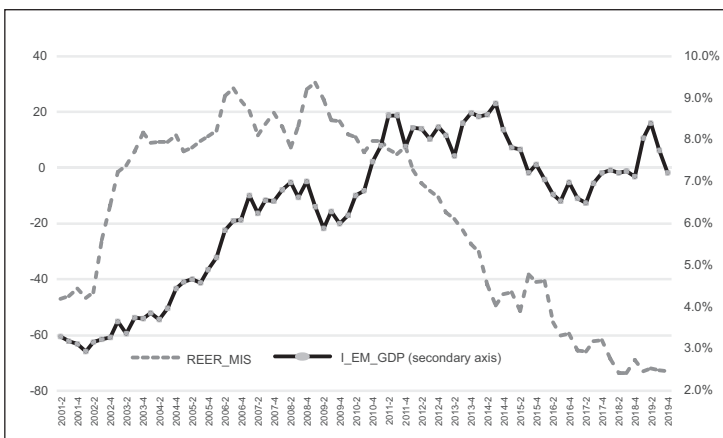
Figure 6: Real Exchange Rate Misalignment (REER_MIS) and Investment as a percentage of GDP (I_GDP)



Source: Bresser-Pereira et al. (2021), Departamento Nacional de Estadística (Dane) and author's calculations.

As an exercise to check the robustness of this finding on the investment share, it is worth examining the investment share corresponding only to the investment of equipment and machinery (excluding housing, which may respond to other fundamentals, even financially speculative). The correlation between REER_MIS and I_EM_GDP holds, as shown in Figure 7, and suggests that the investment might be channeling a medium or long-run effect of the misalignment on growth.

Figure 7: Real Exchange Rate Misalignment (REER_MIS) and Investment (equipment and machinery) as a percentage of GDP (I_EM_GDP)



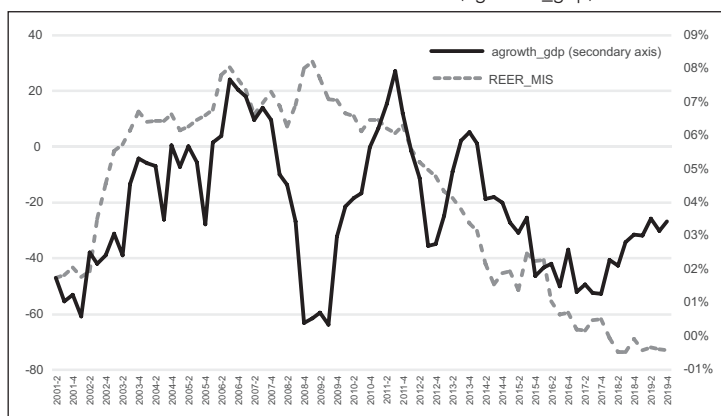
Source: Bresser-Pereira et al. (2021), Departamento Nacional de Estadística (Dane) and author's calculations.

In fact, as shown in Figure 8, the misalignment between the real exchange rate and the current account equilibrium exchange rate is correlated with the annual growth rates. The only significant decoupling occurs in 2009, when the Colombian

economy was hit by the Great Recession, as a consequence of the financial crisis in the United States (2007-2008). In 2009, the main shock for the Colombian economy was originated in the contraction of the external demand. However, in spite of the temporary decline of the terms of trade that year, the recovery of the Colombian export prices was quite rapid. In 2010, the terms of trade returned to the positive trend of the commodity price boom that started in 2003. Hernández (2019), which studies the co-movement of output fluctuations between Latin American countries and the United States, found that a higher co-movement of output fluctuations is mediated by the share of manufacturing exports. The income demand elasticity for these products is higher than for commodities, thus, a GDP contraction in the United States translates into a higher decline in output in economies with a higher share of manufacturing exports. In regard of the high concentration of commodities in the Colombian export basket, it might be said that “all the eggs in the same basket” might be a bad idea for long-run performance (natural resource curse) and stability but it might have allowed the Colombian economy to face a less severe effect of the Great Recession than in more diversified countries (with a higher share of manufacturing exports). Of course, the short run vulnerability of an external crisis depends on the nature of the crisis. The other period of decoupling is after 2017. This last decoupling period might be explained by a temporary recovery of the terms of trade that is not captured by the misalignment of REER and REER_CA.

To sum up, this analysis for the Colombian economy, based on the misalignment of the exchange rate and the current account, suggests that the misalignment matters in the medium and long run in terms of growth rates. A sustained negative misalignment leads to a reduction of the average annual growth rates. It is important to recall that depreciation or appreciation by itself is only part of the explanation; the misalignment in comparison to the current account equilibrium exchange rate is what really matters.

Figure 8: Real Exchange Rate Misalignment (REER_MIS) and Annual Growth Rate of GDP (agrowth_gdp)



Source: Bresser-Pereira et al. (2021), Departamento Nacional de Estadística (Dane) and author's calculations.

5. CONCLUSION

There are both long-run and short-run economic arguments behind concerns when a country is running a sustained current account deficit. Current account deficits are important not only because they reflect a country's loss of international competitiveness but also because they might lead to balance of payments constraints and eventually balance of payments crisis.

Some economists disagree with this approach. By using the accounting of the balance of payments, they imply that financial resources through the capital/financial account are perfect substitutes of resources in the current account.

However, the nature of access to foreign resources still matters, especially for developing economies (Latin American countries among them) and, in particular, for Colombia, which displays relatively high exposure to external factors (i.e., terms and trade). For example, Hernández and Razmi (2014) show the existence of a predominant role of current account surpluses as part of an export-led growth strategy in Latin America. Furthermore, a recent study by Garrido-Tejada et al. (2021) suggests that current account deficits may be the source of fiscal deficits in Colombia, not the other way around.

The importance of the current account as dominant macroeconomic variable motivates Bresser-Pereira et al. (2021) to develop a methodology to estimate the real exchange rate that would prevent a balance of payments crisis. This paper based on the estimation of the current account equilibrium exchange rate by Bresser-Pereira et al. (2021) analyses the relevant Colombian macroeconomic context to understand the misalignment between the real exchange rate and the current account equilibrium exchange rate. Given the Colombian financial configuration, consisting of central bank independence, inflation targeting, a passive policy on international reserves, and a flexible exchange rate, and given the low degree of export diversification and high degree of vulnerability to external shocks, this paper suggests that the recent deterioration of the current account deficit and the misalignment of the exchange rate have a common factor: the deterioration of the terms of trade. Furthermore, these trends seem to be correlated with a lower investment share and a lower average of the annual growth rates of the Colombian economy. This result, consistent with the New Developmentalism Theory, suggests, as a policy implication, the importance of reorienting the perspective of macroeconomic development in Colombia toward one, abandoned by the mainstream, in which it is recognized the macroeconomic dominance of the current account. As mentioned in the introduction, there might not be trade-off between macroeconomic long-run development and macroeconomic stability, in the sense that a more diversified economy, less exposed to terms of trade shocks, and more competitive in international market, might lead to stability as well.

REFERENCES

- Bresser-Pereira, L., Marconi, N., Araujo, E., Porto, T. and Leao, R., (2021). "Current Account Equilibrium Exchange Rate: Methodology and estimations for Latin American countries" (preliminary version).
- Edwards, S., (1989). *Real exchange rates, devaluation, and adjustment: exchange rate policy in developing countries* (pp. 16-25). Cambridge, MA: MIT press.
- Garrido-Tejada, D., Restrepo-Ángel, S. and Rincón-Castro, H., (2021). "Déficit gemelos en Colombia: ¿existen? ¿Qué causa qué? ¿Cuál es el grado de impacto?". *Borradores de Economía*; No. 1186.
- Hernández, G., (2013). "Terms of trade and output fluctuations in Colombia". *CEPAL Review*, (110).
- Hernández, G. and Razmi, A., (2014). "Latin America after the global crisis: the role of export-led and tradable-led growth regimes". *International Review of Applied Economics*, 28(6), pp.713-741.
- Hernández, G., (2019). "Output co-movement between Latin America and the United States: the export structure matters". *International Review of Applied Economics*, 33(3), pp.402-425.
- Nassif, A., Feijó, C. and Araujo, E., (2011). "The long-term" optimal" real exchange rate and the currency overvaluation trend in open emerging economies: The case of Brazil." United Nations Conference on Trade and Development.
- Ocampo, J. A., (2009). *Latin America and the global financial crisis*. Cambridge Journal of Economics, 33(4), 703-724.



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