

[DOI: 10.20472/IAC.2019.052.069](https://doi.org/10.20472/IAC.2019.052.069)

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## **THE IMPORTANCE OF EXCHANGE RATE STABILITY FOR EXPORT GROWTH**

### **Abstract:**

Exchange rates movements can have significant effects on different economic variables, affecting the overall macroeconomic stability of the country. Consequently, economic policymakers and researchers continuously monitor and analyze the diverse effects that exchange rate fluctuations can cause. Given that exchange rates have one of the key roles in the country's trade activities, and having in mind the importance of international trade for market economies, the effect of exchange rates on trade has become a highly relevant issue (especially after the collapse of the Bretton Woods system), both in the theory of international economics and for economic policymakers. Usually, the analysis of the effects of exchange rate movements on trade implies the analysis of exchange rate volatility. However, another important aspect of the influence of exchange rates on trade should not be ignored. In addition to the standard interest in examining the impact of the exchange rate volatility on trade, in recent literature increasing importance is given to the analysis of the effects of the exchange rate misalignment. As Bleaney (1992) points out, short-term volatility measures have to be complemented by longer-run measures that better account for persistence and mean-reversion, which can characterize exchange rate changes. In this respect, compared to volatility, a greater source of uncertainty for participants in international trade can be the exchange rate misalignment (Côté, 1994). In addition, the global external imbalances at the beginning of the 2000s, as well as the global economic crisis, have raised the issue of the effects of undervalued currencies on trade partners.

Bearing previously in mind, the analysis of misalignment is of great importance. Given that, unlike volatility, the literature dealing with the examination of this aspect of the influence of exchange rates on trade is limited so far, the aim of this paper is to shed light on the importance of the equilibrium exchange rate for export growth, analyzing the theoretical and empirical literature dealing with this issue.

### **Keywords:**

exchange rates, international trade, export, exchange rate misalignment

**JEL Classification:** F31, F40, O24

## 1. Introduction

As exchange rates reflect the value of the domestic currency, their impact on the economy of a country is multiple. Changes in exchange rates can have significant effects on different economic variables, consequently affecting the achievement of economic policy objectives and overall macroeconomic stability of the country. Bearing in mind the diversity of the effects that exchange rate fluctuations can cause, economic policy makers continuously monitor and analyze exchange rates. In addition, the importance of the macroeconomic effects of the exchange rate movements has resulted in the great interest of researchers in the field of international economics theory, which sought to explain the multiple influences of exchange rates by developing various models that were subsequently empirically tested. Given that exchange rates have one of the key roles in the country's trade activities, and having in mind the importance of international trade for market economies, much of the theoretical and empirical literature deals with precisely analyzing the impact of exchange rates on trade.

Great interest for relationship between exchange rates and international trade took even greater intensity after the collapse of the Bretton Woods system, when a period of large fluctuations in both nominal and real exchange rates followed. The liberalization of capital flows that intensified international financial transactions contributed to changes in exchange rates, which were believed to have a negative impact on trade, and thus the overall negative impact especially on the economies of countries with insufficiently developed capital markets and unstable economic policies. Thus, starting from the 1970s, the effect of exchange rates on trade has become a highly relevant issue both in the theory of international economic relations and for economic policy makers.

Following the breakdown of the Bretton Woods system, the transition from fixed to flexible exchange rates resulted not only in increased exchange rate volatility, which has often been discussed in both theoretical and empirical literature, but also in the frequent deviation of the exchange rates from their long-run equilibrium level. As pointed out in a study published by the IMF (IMF, 1984), a deviation of the exchange rate from a level that reflects differences in inflation or costs has multiple implications for the country's economy, and it is of great importance to analyze the effects of this aspect of exchange rate movements on international trade.

Bearing previously in mind, the aim of this paper is to emphasize the importance of exchange rate stability (in terms of its adherence to the equilibrium level) for international trade, and more specifically for exports, by analyzing the theoretical and empirical literature dealing with this issue. The second part of this paper will analyze the theoretical underpinnings of the impact of exchange rate misalignment on international trade, while the third section will review the empirical literature dealing with this issue in order to highlight the potential effects of misalignment on export by analyzing the empirical researches conducted so far.

## 2. The impact of exchange rate misalignment on international trade

As pointed out in a study published by the IMF (IMF, 1984), there are multiple channels of the impact of the exchange rate deviation from the equilibrium level on the country's economy. Specifically, this exchange rate misalignment sends incorrect price signals that can destabilize international trade flows. Furthermore, if it results in changes in investment decisions and reallocation of resources between sectors, misalignment can cause the costs of adjustment and inadequate allocation of resources. In addition, a deviation of the exchange rate from the

equilibrium level can destabilize the level of protection against foreign competition if trade restrictions are price-based, creating pressure to offset trade restrictions in order to protect existing supply patterns. The aforementioned interrelated influences stimulate both economic policy makers and researchers to continually examine the consequences of exchange rate deviations from the equilibrium level. In the economic debate, this issue becomes even more significant since the 1990s, when it was assumed that exchange rate deviations from the equilibrium level were the cause of global current account imbalances (Auboin & Ruta, 2011). The imbalances that followed in the early 2000s, as well as the emerging economic crisis, intensified the debate about the effects of exchange rate misalignment and raised questions about the effects of undervalued currencies on trading partners. For these reasons, in the focus of recent political and academic debate is the exchange rate misalignment, with the issue of volatility not being neglected, which has made the examination of the effects of exchange rates on trade even more complex (Auboin & Ruta, 2011).

There are different explanations of the causes of the exchange rate misalignment. In the early 1980s, explanations for the divergence of the dollar from the equilibrium level ranged from the tight monetary policy established after Paul Volker became president of the FED in 1979, through the expansive fiscal policy of the Reagan administration, to the greater interest of investors in investing in dollar securities, both for security and for speculative reasons. Thus, misalignment may be related to monetary policy changes or financial shocks, which alter the real exchange rate due to price and earnings rigidity in the short term. In addition, misalignment can be linked to changes in fiscal policy, which can cause changes in real exchange rates even when prices and wages are flexible, if these changes are not sustainable in the long run, which many have highlighted as a feature of the Reagan administration's fiscal policy (Marston, 1988).

More recent literature highlights two reasons for the deviation of exchange rates from their equilibrium level. According to the first, which can be said to include the above explanations from the early 1980s, the misalignment may be a side effect of macroeconomic measures aimed at achieving domestic goals, or the result of distortions in the international financial environment or domestic structural conditions. On the other hand, according to the second explanation, exchange rate misalignment is caused by the interventions of economic policy makers, whose aim is to change the real exchange rate (the so-called currency manipulation). Specifically, the government and/or the central bank have a number of instruments that can influence the real value of the currency, including the capital control measures or targeted interventions in foreign exchange markets. One of the main topics of political and academic debate when it comes to exchange rate misalignment is the extent to which economic policy makers can really influence the real exchange rate (Eichengreen, 2007; Rodrik, 2008). The view is that the real exchange rate is not under the direct control of economic policy makers. However, economic policy measures can affect its level in the short and medium term. As an illustrative example, Eichengreen (2007) highlights Korea's experience of the 1960s, when nominal devaluation was linked to fiscal consolidation in order to maintain an undervalued level of the real exchange rate. Another issue to be debated in determining the root cause of the misalignment is the determination, or the measurement of the equilibrium real exchange rate as a starting point, which is a controversial issue in the literature, given that the exchange rate is an endogenous variable, which is determined by the whole set of macroeconomic, financial and trade factors. Hence, estimates of exchange rate misalignment can vary greatly. The discussion that follows will not address the causes of the exchange rate misalignment, but rather its effects on trade in the short and long term (Auboin & Ruta, 2011).

Standard economic theory defines long term as the period in which all prices are completely flexible. In other words, in the long run prices have time to adjust to any policy change or other kind of shock. "In this context, money is like a veil to the real economy, an intuition that dates back at least to David Hume's essays on money and the balance of trade" (Auboin & Ruta, 2011, p.10). Consequently, according to this view, when there are no market imperfections, the exchange rate misalignment has no long-term effects on trade flows or on real economic activity, since there is no change in relative prices. However, in the short term, in situations where some prices take time to adjust to changes, changes in nominal exchange rates lead to changes in relative prices, affecting both the allocation of resources between the tradable and non-tradable sectors and international trade flows. As Staiger and Sykes state, understanding the short-term effects of currency devaluation is much more complex than one might initially conclude (Staiger & Sykes, 2010). For example, the effects will depend, among other things, on the currency in which the prices are invoiced. Thus, if prices are set in local currency, an unexpected devaluation lowers the price of domestic goods relative to foreign ones. However, the trading effects of the devaluation would be different if the prices were set in the currency of the importing country or in one of the leading world currencies.

The foregoing discussion does not take into account the possibility of market imperfections. Thus, incomplete information can result in an inefficiently low level of exports (e.g. if foreign consumers are not familiar with the quality of exported products). Furthermore, the presence of the sunk costs of entering a foreign market may influence the effects of exchange rate misalignment on trade. This issue was addressed, among others, by Baldwin (1988) and Baldwin and Krugman (1989), showing that, in this case, undervaluation can have long-term effects on trade if it allows exporters to enter foreign markets, thus overcoming initial inefficiency. In this context, currency depreciation drives the expansion of markets and product lines (the so-called extensive margin of trade), which is not (or at least not completely) offset by price adjustments in the long run. Given that market imperfections are more pronounced in developing countries than in developed countries, these long-term effects are expected to be more pronounced in developing countries.

The effects of exchange rate misalignment on trade can also be analyzed from the perspective of political economy theory. According to this approach, deviation of the exchange rate from the equilibrium level causes problems of adjustment and has real effects on the economy. Namely, sectors that produce tradable goods gain benefits in countries whose currency is undervalued. The opposite happens in the tradable sectors of countries whose currency is overvalued, leading to a decrease in output and employment, which, in the short term, cannot be easily offset by the activity of other sectors. According to political economy theory, individuals affected by the loss of output and the decline in employment are organized in order to exert pressure for the introduction of protectionist measures. As a result, the market becomes protected, which negatively affects international trade.

In recent literature, the effects of exchange rate misalignment on exports are analyzed in the context of its impact of exchange rate misalignment on economic growth. In the common opinion, in order to achieve good economic performance, it is necessary to avoid overvaluation of the currency (Rodrik, 2008). Nevertheless, most models do not formalize the link between overvaluation and slow growth, but link currency overvaluation to overall macroeconomic instability (Fischer, 1993; Easterly, 2005). Given that recent literature focuses on export-led growth, the question of the impact of misalignment on the country's overall performance is raised in the context of its impact on export performance, or whether the misalignment can improve the overall macroeconomic performance of the economy by

improving its export performances. Several recent papers (Hausman et al, 2005; Eichengreen, 2007; Rodrik, 2008; Korinek & Serven, 2010) outline the various mechanisms through which devaluation can play an important role in the growth process, especially in the case of developing countries. These models start from the imperfection of the market, assuming that they are more pronounced in the tradable sector. Consequently, the undervaluation of the currency has a positive effect on growth since it reduces the economic costs of market imperfections by promoting the expansion of trading activities. In other words, according to these models, export growth driven by devalued currency stimulates economic growth.

Contrary to the previous view, Berg and Miao (Berg & Miao, 2010) point out that any deviation of the real exchange rate from its equilibrium level causes some form of macroeconomic imbalance, which adversely affects economic growth. For example, as Haddad and Pancaro (Haddad & Pancaro, 2010) state, the undervaluation or overvaluation of the currency may impede growth by sending incorrect signals to economic agents, which may lead to inadequate resources allocation. Therefore, while the conventional view, embedded in the Washington consensus, supports the view that currency undervaluation can be an effective instrument for promoting export growth, the question is about the long-term effects of undervalued currency on economic growth.

It can be argued that the manifestation of long-term effects will depend on the empirical significance of the market imperfections previously discussed. Economic theory suggests two points. First, according to the so-called "targeting principle", economic policy measures that directly target market imperfections are the best solution. Thus, changes in exchange rates that treat distortions only indirectly may, at best, be the second best solution (Rodrik, 2008). In particular, real undervaluation can cause distortions that would not be manifested if instead a consumption tax on tradable goods were introduced. Second, the undervaluation of the currency is likely to have negative effects on other exporters, given that changes in the exchange rate in one country affect its competitors in other markets.<sup>1</sup> Related to this, the extent to which currency undervaluation is expected to have an impact on trade (and growth) depends on the actions of other countries. Even when the undervaluation of the currency is claimed to have positive long-term effects on trade and growth, this will not be the case if all countries simultaneously devalue their currencies. Nevertheless, the consequences of exchange rate misalignment on trade in the short and long term are an empirical question, which will be discussed further in the section that follows.

### **3. The review of the empirical literature dealing with the impact of exchange rate misalignment on international trade**

Starting from the variety of exchange rate misalignment effects, one part of the empirical literature seeks to examine the impact of exchange rate deviations from the equilibrium level on trade. Namely, as explained above, deviation of the exchange rate from its equilibrium level sends wrong signals that can destabilize international trade and the level of protection against foreign competition, lead to inadequate allocation of resources, influence changes in investment decisions, etc. In this sense, a greater source of uncertainty for participants in international trade may be the exchange rate misalignment (Côté, 1994), so the short-term

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<sup>1</sup> Mattoo et al. (2012) provide empirical evidence to this view by analyzing the effects in developing countries that compete with China in export markets.

volatility measures need to be supplemented by long-term measures that take into account the persistence and mean-reversion tendency, which may characterize changes in the exchange rate and which represent important factors in the medium to long term (Bleaney, 1992).

In the early literature, Bailey & Tavlas (1988), following Williamson (1985), distinguish between two concepts of exchange rate variability - short-term volatility and long-term misalignment, in order to consider their effects on trade and investment. The empirical results on the impact of these two types of exchange rate variability on the volume of US exports from 1975 to 1986 show that neither volatility nor exchange rate misalignment have a significant impact. Perée & Steinherr (1989) start by finding the right way to measure the long-term exchange rate uncertainty by constructing two measures - the first combines a measure of uncertainty based on the largest exchange rate change over a 10-year period and misalignment, while the second measure uses an integral of misalignment over the last 10-year period, reflecting the assumption that uncertainty increases when both the degree and duration of misalignment increase. The authors then, using these criteria, estimated the equations for the volume of exports of five industrial countries from 1960 to 1985. For the US, the variables relating to uncertainty are not significant, while in the case of other countries their impact is negative and significant. The authors explained the differences in the results by the fact that a large part of US exports is invoiced in US dollars and that US companies are more diversified, realizing the advantages of a large domestic market, which allows them to offset the exchange rate uncertainty. The survey also covered bilateral exports to the US, where the results show that, except in the case of Japan's bilateral exports to the US, increased uncertainty reduces trade (Côté, 1994). De Grauwe & Verfaillie (1988) seek to explain the causes of weaker growth in trade within the European Monetary System (EMS) relative to trade between other industrialized countries, although exchange rates within the EMS were less volatile and less prone to large deviations from the equilibrium level relative to exchange rates outside the EMS. Volume of bilateral exports of 15 industrial countries in the period 1979-85 was viewed as a function of supply and demand factors (i.e. domestic and foreign income), trade arrangements, changes in bilateral real exchange rates, measures of exchange rate volatility and exchange rate misalignment as an indicators of protectionist pressures. The results of the econometric analysis show that, separately, both volatility and exchange rate misalignment have a significant negative impact. However, when these two variables are simultaneously included, the misalignment becomes insignificant. The authors cite a high correlation between the two observed aspects of the exchange rate change as a potential explanation for this result. Further, the authors also analyze the contribution of individual variables in explaining the phenomenon of slower trade growth within the EMS, although the formation of the EMS has contributed to the reduced exchange rate variability. Looking at the effects of different explanatory variables on the export growth rate, the results show that income and exchange rate volatility are the most significant factors in explaining export growth. Exchange rate misalignment and relative price changes play a secondary role. In order to examine the extent to which the movements of these variables can contribute to explaining differences in export growth rates within EMS and other export flows, the authors conduct a simulation experiments, highlighting two basic conclusions. First, slow GDP growth in EMS is an important explanatory variable, but it should be borne in mind that this factor contributes less than 50% in explaining slow trade growth within EMS, while the other, unexplained part, is interpreted as reflection of a slowdown in the process of trade integration of EMS countries. Second, the low level of exchange rate variability contributed to trade within the EMS. In other words, in a different (i.e. more volatile) exchange rate regime, EMS

countries were likely to experience an even greater slowdown in internal trade than that observed between 1979 and 1985. However, this positive effect of the relative stability of exchange rates within the EMS was not strong enough to compensate for the combined negative growth effect and the negative effect resulting from the slowdown in the process of trade integration in these countries.

The issue of the impact of exchange rate misalignment on trade becomes even more important in the 2000s, when the widening of global external imbalances and the global economic crisis actualized the issue of using undervalued currencies to stimulate exports and justification of the implementation of export-led growth strategies. Specifically, in the past, many developing countries have used currency undervaluation to encourage exports. However, due to the global financial crisis, economic circumstances have changed, resulting in a high degree of uncertainty about the ability of developed countries to absorb the exports of developing countries in these changed conditions. In addition, the implementation of an export-led growth strategy, combined with an undervalued currency, can cause costs if the exchange rate is maintained at a level that stimulates exports for a long time. In this regard, the question arises of the success and sustainability of a real devaluation policy in order to stimulate exports and growth. Bearing previously in mind, in the focus of recent political and academic debate are the effects of exchange rate misalignment, that is, the effects of undervalued and overvalued currencies, without neglecting the issue of volatility, which has made the examination of the effects of exchange rates on trade even more complex. The literature aimed at simultaneously addressing both of these aspects of the impact of exchange rates on trade is emerging and will be analyzed below.

Considering that exports are affected by both depreciation and exchange rate variability, Fang et al. (2009) seek to examine the net effect of these two, potentially neutralizing effects of exchange rate fluctuations, by analyzing the bilateral exports of eight Asian countries<sup>2</sup> to the United States between 1979 and 2003. According to the conventional view, depreciation stimulates exports. However, the associated exchange rate variability, equated by the authors with foreign exchange risk, can counteract this positive impact, leading to a negative net effect. In this respect, the question is whether in order to stimulate exports, the currency should be depressed or fluctuations of exchange rates reduced. Assuming a positive correlation between depreciation and foreign exchange risk, a positive net effect supports a depreciation policy, while a negative net effect indicates the need to reduce exchange rate fluctuations in order to stimulate exports. The results of the survey show that, in line with expectations, depreciation encourages the export of almost all countries in the sample.<sup>3</sup> However, its contribution to export growth is weak. On the other hand, foreign exchange risk, i.e. exchange rate variability, contributes to the growth of exports in the case of Malaysia and the Philippines, thus amplifying the impact of depreciation, leading to a positive net effect. In the case of the six observed countries, a negative impact of foreign exchange risk was observed. A negative net effect was registered in the case of Indonesia, Japan, Singapore and Taiwan, providing justification for conducting interventions to reduce exchange rate fluctuations. Zero net effect was observed in the case of Korea and Thailand, suggesting the measures to stabilize the foreign exchange market, since depreciation does not have the expected effects on exports. The authors point out that these results suggest several conclusions regarding the use of exchange rate depreciation to stimulate exports. Generally

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<sup>2</sup> Indonesia, Japan, Korea, Malaysia, Philippines, Singapore, Taiwan and Thailand.

<sup>3</sup> The exception is Singapore.

speaking, it cannot be said that foreign exchange market interventions are successful with certainty, as exporters react differently to foreign exchange risk. In addition, conditions vary between countries, so it is necessary to assess the impact in each particular case. Currency depreciation usually encourages exports but its contribution is generally small. In this regard, economic policy makers should consider with great care the interventions in the foreign exchange market, since the associated change in the exchange rate, i.e. the foreign exchange risk, can counteract the positive effects of depreciation.

Freund & Pierola (2008) also seek to explore ways to stimulate and sustain strong export growth. In this regard, the authors analyze 92 cases of export expansion, defined as significant increases in manufacturing export growth, which last for at least seven years. The authors find that export expansion in developing countries was usually preceded by large real depressions (which made the currency undervalued) and a decrease in exchange rate volatility. On the contrary, in developed countries, the role of the exchange rate in export growth is less pronounced. Based on these results, the authors examined the reasons for the importance of the exchange rate in developing countries, concluding that depreciation leads to a significant reallocation of resources in the export sector. Namely, depression stimulates the introduction of new export products and entry into new export markets, with the percentage of failure of these new entries decreasing. New products and new markets are significant given the results which show that a quarter of export growth during the period of export expansion in developing countries is explained by these factors. Based on the foregoing, the authors argue that maintaining a competitive currency stimulates companies to expand their export range and export market, leading to a reorientation in the tradable sector.

Byrne et al. (2008) examine the impact of exchange rate volatility and misalignment on sectoral bilateral trade between the US and six European countries<sup>4</sup> from 1989 to 2001. Considering first the impact of selected determinants on total trade, that is, on trade of all sectors viewed together, the authors conclude that exchange rate volatility has a significant negative impact, with the effect on exports being greater than the effect of exchange rate volatility on imports, given that exports are more susceptible to company decisions and thus more vulnerable to volatility. The estimated regression coefficient with the variable related to the exchange rate misalignment has a positive sign both in the case of export and in the case of imports, which is in line with the author's expectations, given that the depreciation of the currency of the exporting country that is greater than that suggested by the purchasing power parity theory has significant and positive effect on trade. Analyzing, subsequently, trade at a disaggregated level, the authors conclude that exchange rate effects differ between sectors, which is consistent with the findings of previous research. Looking at the trade in differentiated and homogeneous products, the authors find that exchange rate volatility has a significant negative impact on trade in differentiated products, which accounts for much of international trade, while the impact on trade in homogeneous products is not significant. Exchange rate misalignment also exert a significant impact on trade in differentiated products. The former suggests the existence of sectoral differences and provides an explanation of the failure of many previously conducted studies to find clear empirical evidence of the relationship between exchange rate changes and trade when the analysis is based on aggregated data. The authors conclude by pointing out that further disaggregation, at the level of individual sectors, product groups and enterprises, could yield findings worthy of attention.

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<sup>4</sup> UK, Germany, France, Italy, Netherlands and Spain.



Haddad & Pancaro (2010) seek to examine the possibilities of currency undervaluation in stimulating exports and economic growth in developing countries. The authors start from the case of East Asian countries, where the implementation of undervalued currency policies could have been an important factor in the success of the export growth model that these countries applied. However, discussions following the global financial crisis about the value of the Chinese currency point to controversies that such a policy can cause. Namely, while a policy of real undervaluation of the currency may improve domestic competitiveness, it is difficult to maintain it in a post-crisis environment, both economically and politically. With this in mind, Haddad and Pancaro seek to provide further evidence of the link between real exchange rates, economic growth and export expansion in the case of developing countries from 1950 to 2004, using Rodrik's (2008) currency undervaluation index.<sup>5</sup> The results showed that the undervaluation of the currency has a positive effect on economic growth and export expansion, but that this impact is significant only for countries with low income per capita. In developing countries whose income per capita is below \$ 2,500, a 50% increase in undervaluation leads to 1.7% annualized export growth and 1.8% annualized GDP growth. In the long run, the effect of undervaluation on economic growth becomes negative and the effect on exports loses significance. Extending the model specification by including the lagged effect of undervaluation, results show that in the case of developing countries with a per capita income less than \$ 2,500, undervaluation has a positive effect on growth, but the lagged effect of undervaluation is negative. In developing countries with a per capita income between \$ 2,500 and \$ 6,000, the undervaluation does not have a significant impact on growth, while the lagged effect of undervaluation is negative. When analyzing the effect on exports, the undervaluation has a positive effect on exports, while the lagged effect is not significant at any of the income levels analyzed.

In addition to considering the level of the real exchange rate, Haddad and Pancaro also seek to examine the effect of volatility on the basis that a stable exchange rate is a necessary condition for achieving sustainable economic growth in developing countries. The results of the analysis, which included countries with per capita incomes below 6,000, from 1980 to 2004, indicate that there is a significant negative relationship between exchange rate volatility and real GDP per capita growth, where the findings do not change when observations with extreme high volatility are excluded. The results also confirm the existence of a significant negative relationship between exchange rate variability and export / GDP ratio. However, this relationship loses significance when observations with extreme volatility are excluded, suggesting that only large variations in the real exchange rate have an effect on exports.

Similar to previous authors, Agosin et al. (2012) consider the economic growth of developing countries, but from the perspective of the role that export diversification plays in stimulating the growth of these countries. Given the central role that export diversification plays in new debates about ways to improve economic performance and achieve higher levels of income for developing countries, the authors seek to identify the factors that influence it. Using data for 79 countries from 1962 to 2000, the authors analyze the role of several potential determinants, including exchange rate volatility and currency overvaluation, on export diversification, using three different export diversification and concentration indicators.<sup>6</sup> Starting from the theoretical literature, the authors expect that both exchange rate volatility and currency overvaluation will have a negative impact on export diversification. However, the

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<sup>5</sup> See Rodrik (2008) for more.

<sup>6</sup> Herfindahl-Hirschman index (HHI), Gini coefficient and Theil index.

results do not indicate a significant role for these variables. Regardless of the export concentration indicator used, the overvaluation of the currency does not have a significant negative impact on export diversification. Regarding volatility, only when HHI is used as a concentration indicator, there is a relationship between exchange rate volatility and a higher level of export concentration. The authors state that such results do not suggest the insignificance of the exchange rate policy for the development of the export sector, but that it is more likely that other structural factors, which they analyzed, namely human capital and remoteness, outweighed the potential negative effects of exchange rate volatility and overvaluation. In this regard, it is concluded that avoiding exchange rate volatility may be useful for achieving greater export diversification.

Nicita (2013) goes a step further by analyzing not only the impact of exchange rate volatility and misalignment on international trade, but also the impact of exchange rate misalignment on economic policy makers' decisions when formulating trade policy measures, starting from the view that the level of the exchange rate can indirectly affect decisions concerning other policies, especially those affecting international trade.<sup>7</sup> Most studies addressing this topic indicate that long periods of misaligned exchange rates have often been linked to increased use of protectionist trade policies, especially anti-dumping measures (Knetter and Prusa, 2003; Irwin, 2005; Oatley, 2010). Specifically, trade policy can be used to offset some of the effects of an overvalued currency. For example, domestic firms that lose competitiveness due to appreciation may lobby for restrictive trade policies. With this in mind, there is a possibility that misunderstanding between trading partners over the implementation of exchange rate policies may encourage an increase in domestic political pressures and the implementation of unilateral trade measures (Copelovitch & Pevehouse, 2010). Based on the previous, and using data for about 100 countries over a 10-year period (2000-2009), Nicita obtained results that indicate the importance of exchange rate misalignment<sup>8</sup>, while the volatility effect is negligible. In addition, the results provide evidence to support the argument that trade policy is being used to offset some of the effects of currency overvaluation. However, the political response seems to be largely confined to anti-dumping measures, since it cannot be observed that there is a slower tariff liberalization in periods of currency overvaluation. The author states that this link should be better explored. If confirmed, this could have implications for the process of multilateral trade liberalization, given that large exchange rate misalignments can diminish the incentives to remove existing trade barriers. More importantly, such results suggest that persistent exchange rates misalignments can increase the incentives to pursue protectionist trade policies.

Nicita points out that the findings of this research have three policy-implications. First, it is important for economic policy makers to monitor the exchange rate deviation from the equilibrium level, regardless of whether the deviation was due to external shocks or as a result of political measures, given that the effect of exchange rate misalignment on international trade is significant. In this regard, it is necessary to monitor exchange rates not only with trading partners but also with competitors. Second, only a small part of global trade imbalances can be explained by exchange rate misalignment. With that in mind, adjusting exchange rates can only be part of a global rebalancing solution and must be accompanied by other economic policy measures. Third, strategies to avoid the resurgence of protectionist

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<sup>7</sup> For example, Eichengreen & Irwin (Eichengreen & Irwin, 2009) state that protectionism in the early 1930s was not only the result of reduction in aggregate demand, but also the consequence of governments' exchange rate policies.

<sup>8</sup> Results show that undervaluation promotes exports and opposite in the case of overvaluation.

measures should include multilateral cooperation in order to stabilize exchange rates around their equilibrium levels.

#### 4. Conclusion

The considerations presented in this paper aim to highlight the importance of analyzing the impact of exchange rate misalignment on exports, given that more recent political and academic debate has paid more attention to this type of exchange rate instability. Unlike volatility, which has been widely researched, the analysis of exchange rate misalignment is far less represented in the literature so far, although, by discussing the implications of exchange rate misalignment in section 2 of this paper, it can be concluded that its consequences can be as significant. The review of the variety of effects that a deviation of the exchange rate from the equilibrium level can cause on international trade, and especially on exports, aimed to point out the importance of monitoring this type of exchange rate changes. In other words, in addition to the volatility that has been widely examined in both theoretical and empirical literature, when discussing the importance of exchange rate stability for export growth, it is necessary to consider the effects of the exchange rate deviation from the equilibrium level.

The lack of a universally accepted way of defining the equilibrium exchange rate, as a starting point in measuring the misalignment in order to examine its effects, consequently affects a significantly smaller volume of papers dealing with the impact of this form of exchange rate movements, relative to volatility. However, the review of the results of the empirical researches conducted so far leads to the same conclusion as the empirical papers dealing with the effects of exchange rate volatility - the unambiguous impact of exchange rate misalignment on exports cannot be determined. Specifically, exporters respond differently to changes in exchange rates, and in addition, differences in macroeconomic conditions between countries determine the way in which exports respond to this type of exchange rate instability.

The numerous implications of exchange rate misalignment discussed in the section 2 of this paper, as well as the results of the empirical studies discussed in the section 3, clearly indicate the importance and relevance of examining this type of exchange rate instability in each particular case.

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