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Exchange rate misalignment and export diversification in developing countries

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ABSTRACT

The impact of exchange rate misalignment on export diversification in developing countries is highly debated and the empirical evidence is conflicting. However, no deep investigation of such an impact has been provided so far. This paper uses the different explanations to this lack of consensus to investigate the conditions under which misalignment could affect export diversification. While we found some support to the effect of undervaluation on the share of manufactures in total exports, no support is found for an impact of misalignment (neither over nor under valuation) on exports diversification within manufactures. The conclusion resists numerous robustness checks.

1. Introduction

Diversification of production is an integral part of the development process. In a series of influential contributions, Chenery and his coauthors (see e.g. Chenery, 1960; Chenery & Taylor, 1968; Chenery, Shishido, & Watanabe, 1962) showed that the rise in a country's income followed a "uniform pattern of change in the structure of production". In particular, they observed that early stages of development were associated with a rise in the share of industrial output, which subsequently contracted during later stages. More recently, Imbs and Wacziarg (2003) supplemented Chenery's findings by showing a robust relation between the diversity of a country's production and its per capita output. They observed that the diversity of output tended to increase with income for low initial levels of income per capita, and that the trend reversed for high incomes[1].

Interestingly, exports seem to play an important role in the dynamic of diversification. Hummels and Klenow (2005) find that richer countries export a broader variety of goods and at slightly higher prices than do poorer countries. Cadot, Carrère, and Strauss-Kahn (2011) even show that the relation between income and export diversification maps the relation between income and the diversification of output reported by Imbs and Wacziarg (2003). These findings can be related to those of Hausmann, Hwang, and Rodrik (2007), who find a positive relationship between a country's growth and the income of the countries that import its products. Moreover, using IV estimations they show that causality runs from the destination of imports to the income of the exporting country. Taken together with the previous two findings, Hausmann et al. (2007) suggest that a country could increase its growth by diversifying exports, in particular by exporting more to richer countries. Moreover, Hidalgo and Hausmann (2009) directly observe that the complexity of a country's exports is predictive of its future growth, while Felipe, Kumar, Abdon, and Bacate (2012) report a positive correlation between the complexity of a country's exports and its per capita income.

In addition to its correlation with per capita income, export diversification has specific advantages, especially for a developing country. The once-famed contributions by Singer (1950) and Prebischb (1959) were early warnings against export specialization. Their line of reasoning was that the comparative advantage of countries at an early stage of development could lock them into a vicious circle. By specializing in exporting food and raw materials, they would reinforce the initial international division of labor, remain confined to low-growth sectors, and contribute to the deterioration of their terms of trade. They would thus diverge from

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[1] While specialization has the advantage of exploiting scale economies and benefiting from learning by doing, it leads to the risk of a heavy dependence on shocks to the demand for a specific good. This is detrimental to factor accumulation and growth (see e.g. Fischer, 1993).

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the "core" of the world economy, and be shifted inexorably to its "periphery", in Prebisch's (1959) terms. Note that diversification is an issue not only for natural- resource rich countries; it also concerns many countries that are poor in natural resources and have low or very low shares of sophisticated manufactures in total exports. Even countries with "fair" shares of manufactures in total exports still have a diversification problem since many of them are highly specialized in a few "traditional" manufacturing industries such as textiles, apparel and food. This also makes them vulnerable to external shocks.

Exchange rate is at the heart of the concerns about diversification in developing countries. While mainstream economics recommend keeping the actual exchange rate as close as possible to its equilibrium level, a number of economists (e.g. Rodrik, 2008; Freund & Pierola, 2012; Rajan & Subramanian, 2011) suggest that a disequilibrium situation, generally referred to as misalignment (i.e. letting the actual exchange rate move away from its equilibrium level), might be a second best approach in countries facing other distortions which is the case of many developing countries[2].

After their independence, many developing countries pursued an overvalued exchange rate strategy with the aim of fostering the diversification of their production. The export-oriented agricultural sector would be indirectly taxed while the industry would benefit from cheap imports of machinery and other inputs. In the early 1980s, empirical analysis started casting doubt on such view (e.g. Cottani, Cavallo, & Khan, 1990; Ghura & Grennes, 1993). In particular, Grobar (1993) and Sekkat and Varoudakis (2000), among others, showed that exchange rate overvaluation decreases the ratio of manufactured exports to GDP; which can reduce exports diversification[3].

Recently, a new view suggested that an undervalued currency can foster exports diversification when the country has a weak institutional framework (Rodrik, 2008). There are two reasons for this. First, sophisticated goods are, in general, more contracts-intensive and more relationship-intensive (Nunn, 2007) than primary products'. Second, the weak institutional framework in a country "tax" exports of contracts-intensive and relationship-intensive more than exports of primary products'; a results empirically supported by Méon and Sekkat (2008). Hence, undervaluation will compensate for the "tax" and facilitates manufactured and sophisticated exports. However, the empirical evidence has, so far, failed to establish a clear causal effect of exchange rate misalignment on export diversification. Agosin, Alvarez, and Bravo-Ortega (2012) and Levy-Yeyati, Sturzenegger, and Gluzmann (2013) didn't support the existence of such an effect while Freund and Pierola (2012) and Rajan and Subramanian (2011) did.

A mix of conceptual and empirical considerations might explain this lack of consensus. From a conceptual point of view, undervaluation would increase the costs of importing some inputs (e.g. machinery, intermediates inputs) that are keys to the production of sophisticated goods in particular. In this context, an opposite conclusion to Rodrik's emerges: overvalued national currency will reduce the costs of production and could facilitate exports diversification. Moreover, the argument based on weak institutions can be turned the other way because the evidence suggests that international entrepreneurs pay more corruption the more they export (Svensson, 2003; Brach & Naudé, 2012). Hence, the expected increase in trade of sophisticated goods stemming from undervaluation might be cancelled by the weakness of domestic institutions itself.

From and empirical point of view, Henry (2008) pointed to the issue of causality versus correlation. The author argued that selecting outcomes (diversification) and linking them to the preceding exchange rate behavior, as in of the above presented studies, doesn't allow concluding that undervaluation causes more diversified exports. The right approach should select undervaluation episodes and see whether they are followed by more exports and greater diversity.

Besides, the measures of misalignment used in all the above studies are based on price comparisons (PPP-based measure) and differ substantially from the alternative definition that emphasizes macroeconomic disequilibrium (e.g. Cottani et al., 1990; Ghura & Grennes, 1993) and, hence, a cost to the economy as a whole. The resulting undervaluation indicator mainly reflects the potential positive impact on exporters leaving aside the potential negative impact on the rest of the economy; in particular the costs of some important inputs for exporters such as imported machinery and intermediate goods (e.g. Coe, Helpman, & Hoffmaister, 1997; Keller, 2004; Kasahara & Rodrigue, 2008). Should one use indicator(s) taking account of both the positive and the negative effects of undervaluation on the whole economy, the net impact on export diversification might be negative. This is in line with Berg and Miao (2010) who showed that misalignment based on PPP might emerge while there is no disequilibrium. Hence, undervaluation based on PPP might not reflect disequilibrium and, hence, neglects the cost to the rest of the economy.

Another possible explanation concerns the distinction between over and under valuation. While we have used, so far, the general term "misalignment", the above cited papers talk about either under or over valuation (not both); which reflects a concern with an asymmetry in the effects of under and over valuation[4]. The existence of such an asymmetry is supported by Bussiere (2013). However, all the paper cited above used one series of misalignment which contain observations of both over and under valuation; hence imposing symmetry.

A last possible explanation is that misalignment might not have the same effects across countries. While the papers provide, in general, results for developed and developing countries separately, this might not be enough because the literature suggests other characteristics of the country which can influence the impact of misalignment. As mentioned before, Rodrik (2008) emphasized the quality institutions of the country. In contrast, Aghion, Bacchetta, Ranciere, and Rogoff (2009) and Elbadawi, Kaltani, and Soto (2012) pointed to the level of financial development.

The present paper seeks to clarify the impact of misalignment on export diversification by addressing each of the empirical issues discussed above. The purpose is to investigate the conditions under which misalignment could affect export diversification. We, therefore, explicitly consider the roles of the quality institutions and the degree of financial development and distinguish between the effects of under and over valuation. Furthermore, we pay attention to the econometric and measurement issues discussed above. To assess the degree of misalignment, we follow the model-based approach of Edwards (1994). For comparison, we also use the PPP-based measure adopted in the other papers. Exports diversification is assessed through four indicators: the Gini index, the Theil index, the Herfindahl index (each is based on 1345 manufactured products

[2] Another strand of the literature has focused on exchange rate volatility defined as highly frequent but non-persistent fluctuations of exchange rate. Most empirical researches have provided little support to the impact of volatility. Such a weak support might be due to the availability of hedging instruments against exchange rate volatility or the adaptability of multinationals (Frenkel & Goldstein, 1989).

[3] Note that the status of the real exchange rate as a policy instrument remains highly debated among economists (Woodford, 2008; Henry, 2008; Bhalla, 2008). The present paper doesn't tackle this issue. It rather takes an agnostic position in this respect. See Nouira and Sekkat (2012) for a discussion.

[4] This is even put explicitly in Rodrik (2008): "Just as overvaluation hurts growth, so undervaluation facilitates it" (page 366).