



# An empirical inquiry into the role of sectoral diversification in exchange rate regime choice <sup>☆</sup>



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## ABSTRACT

Whether sectoral diversification affects the exchange rate regime choice and the mechanisms through which this effect might work are largely unknown. This study identifies two mechanisms through which sectoral diversification and exchange rate regime choice may be related, namely the external shock absorption and rent-seeking mechanisms. A direct effect of diversification on regime choice is also hypothesized. Using a panel dataset covering 91 countries over the period 1985–2006, the paper runs a ‘horse race’ among these potential channels. The results show that diversification is associated with flexible regimes in countries experiencing greater external shocks. Additionally, countries characterized by higher levels of corruption and lower levels of diversification opt for fixed regimes, suggesting that a fixed regime may shield the powerful elites from international competition. There is also weak evidence of the direct effect of diversification in adopting flexible regimes.

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## 1. Introduction

There is considerable debate surrounding the possible determinants of exchange rate regimes across countries. A corpus of literature has offered no unified theory or empirical model that encapsulates all possible determinants of exchange rate regimes. Given that the factors significant for regime choices are not known *a priori*, studies have investigated a myriad of variables in their quest for the determinants (see, *inter alia*, Juhn and Mauro, 2002; Von Hagen and Zhou, 2007; Carmignani et al., 2008).

This paper focuses on sectoral diversification as one of the key determinants of exchange rate regimes. The core idea in this paper is that production patterns in the real sector are likely to shape some central macroeconomic policy choices, such as exchange rate arrangements. Despite this intuitive point, the role of sectoral diversification in exchange rate regime

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determination has not been subjected to any empirical scrutiny. Our principal objective is to fill this gap.<sup>1</sup> We also recognize that sectoral diversification, in addition to its direct effect, might influence the exchange rate regimes through different channels. This line of reasoning leads us to investigate the interactions of diversification with external shocks and rent-seeking as the mechanisms through which diversification might be related with the exchange rate regimes. Our approach differs from the extant empirical work, which assumes that the exchange rate regime is determined in a linear fashion, i.e., only through a direct effect, by the hypothesized variable(s).

Patterns in and the policy impacts on the real economy can be investigated through sectoral diversification. Sectoral diversification refers to the production activities in various sectors, in contrast to only a few, and is often measured using metrics capturing the relative disparities among sectoral shares. It has been demonstrated that sectoral diversification is non-monotonically related to the level of development in that economies initially experience rising levels of diversification and then tend to re-concentrate after reaching a certain level of income (Imbs and Wacziarg, 2003; Koren and Tenreyro, 2007). This finding suggests that diversification follows an inverted U-shaped pattern with respect to per capita income.

Another important feature of diversification is that it is at the center of one of the long-standing debates in economics. On the one hand, some celebrated theories, such as the Ricardian and Heckscher-Ohlin theories of international trade, promote specialization to reap the benefits of comparative advantage and productivity gains. On the other hand, another strand of literature, motivated mainly by the portfolio approach, emphasizes the risks associated with specialization. For instance, Burns (1960) considers the sectoral composition of the economy as one of the predictors of output volatility because some activities, such as agriculture, tend to be riskier than others, such as services. Thus, sectoral diversification is seen as a means of spreading production risks over a number of activities and, consequently, as a remedy for output and employment fluctuations (Kenen, 1969; Imbs and Wacziarg, 2003).<sup>2</sup>

As implicit in the above discussions, sectoral diversification is considered one of the key factors in exchange rate regime determination for its shock absorbing role in the economy. For instance, the output cost of exchange rate volatility, as discussed by Lahiri and Végh (2001), can be mitigated through diversification because a diversified economy is characterized by less volatile terms-of-trade and real exchange rates. On the other hand, Kenen (1969), in one of the early contributions on optimum currency areas, argues that sectoral diversification enables countries to adopt fixed regimes because it ensures a stable external sector and terms-of-trade and thus obviates the need for frequent changes in nominal exchange rates. Notwithstanding the compelling theoretical discourse, the shock absorbing effect of diversification on exchange rate regimes has not been put to an explicit empirical test in the literature.

Furthermore, other possible mechanisms through which sectoral diversification may affect exchange rate regime choice have been overlooked in the literature. This paper identifies rent-seeking as a likely additional mechanism, which, to the best of our knowledge, has also not been explored in previous work. Both the external shock and rent-seeking channels may have their own independent effects on exchange rate regimes (Von Hagen and Zhou, 2007; Alesina and Wagner, 2006); however, depending on their magnitudes, they may also facilitate or inhibit the impact of diversification and/or may differ in their degree of influence at different levels of diversification. The direct effect of sectoral diversification, on the other hand, is independent of the two mechanisms but can still exert a significant impact on exchange rate regimes. We provide theoretical underpinnings for the two mechanisms and the direct effect. Thus, taken together, this study fills two major gaps in the literature. First, it provides the empirical investigation of the impact of sectoral diversification on the *de facto* exchange rate regimes. Second, it explores whether the effects on the exchange rate regimes are independent of, and/or conditional on, external shock absorption and rent-seeking associated with diversification. We run a 'horse race' among these two identified channels and the direct effect to evaluate their relative merits. In summary, the main contribution of this paper is that it sheds light on the way in which changing production patterns in the real sector shape core macroeconomic policies such as the choice of exchange rate regimes.

The empirical analysis utilizes an annual panel dataset covering 91 countries over the period 1985–2006. We adopt the widely used *de facto*<sup>3</sup> exchange rate regime classification of Reinhart and Rogoff (2004) and Ilzetzi et al. (2008).<sup>4</sup> The categories range from 1 to 14, representing the most fixed and the most flexible regimes, respectively. Our analysis is based on the Theil index of sectoral diversification. We use two alternate constructions of the Theil index using sectoral value added and sectoral employment shares as the sectoral size measures. An advantage of the Theil index is that it enables us to decompose diversification into 'within' and 'between' components; the former is due to the reallocation of value added or employment within the existing sectors, and the latter is due to the introduction of new or the phasing out of older sectors.<sup>5</sup>

<sup>1</sup> Trade diversification has been considered in the literature for exploring different questions such as economic growth, productivity, and natural resources (see Michaely, 1958 as a pioneering work and Cadot et al., 2013 for a recent comprehensive review).

<sup>2</sup> Cameron (1978) argues that industrial concentration can be risk-reducing. A higher level of industrial concentration (in terms of a larger share of production and employment in a few firms) facilitates higher unionization and provides a wider scope for collective bargaining. This creates stronger labor confederations, ensuring larger income supplements in the form of social security schemes, health insurance, unemployment benefits, job training, and employment subsidies from the government. These income supplements help mitigate the external risks.

<sup>3</sup> The IMF classification of exchange rate regimes is based on member countries' announcements and is therefore termed as the *de jure* classification. Because countries often deviate from their announcements (Calvo and Reinhart, 2002), the *de facto* classification is used to reflect the actual exchange rates in practice.

<sup>4</sup> The original Reinhart and Rogoff data covered the period 1940–2001. Ilzetzi et al. (2008) extended it up to 2007.

<sup>5</sup> An innovative application of the Theil index in this vein is Cadot et al. (2011), who decompose export diversification into two components, one relating to the intensive and another to the extensive margin of trade.

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