



# Economic diversification in resource rich countries: History, state of knowledge and research agenda<sup>☆</sup>



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## ARTICLE INFO

JEL classification:

D72

O11

Keywords:

Resource wealth

Economic diversification

## ABSTRACT

Is economic diversification desirable for a resource rich country? Our knowledge on this issue is at best partial. This paper revisits the literature on diversification in resource rich states. It maps the history of diversification, identifies gaps in the literature and documents some trends in the data. In particular, it exposes limitations in the data and catalogues trends in non-oil exports and non-oil private sector employment. It concludes with an agenda for research.

## 1. Introduction

Diversification is perceived as a priority by many resource rich countries. Yet our knowledge of its merit remains at best partial mainly due to the lack of data and challenges associated with causal interpretation (Wiig and Kolstad, 2012; Ahmadov, 2014). The scarcity of data is very much apparent in Figs. 1 and 2 which plot the number of missing values per country in datasets frequently used by studies of diversification against that countries log resource rent per capita.<sup>1</sup> A positive pattern is apparent from the plots in both the oil sample and the full sample indicating that countries with high levels of resource rent are those with more missing values.

Very close association of diversification measures with commodity price also confounds causal interpretation in econometric studies. For example, Fig. 3 demonstrates that oil export shares in petroleum rich countries move with international price of oil. This pattern is hardly reversed when measures of “economic complexity” developed by Hausmann et al. (2014) and Hidalgo et al. (2007) are considered in Fig. 4. Resource rich states typically witness an increase in complexity during price collapse but the opposite follows during boom time.

In this paper we revisit the topic of diversification in resource rich countries. We engage with the literature and present several case studies documenting diversification history in commodity exporters during three distinct epochs. We also review diversification challenges and opportunities in the Gulf Cooperation Council (GCC).<sup>2</sup> Our data

analysis opens by mapping diversification trends of 35 petroleum exporting countries. We map changes in their non-oil export shares over the period 1962–2012 sourced from the World Integrated Trade Solutions (WITS) of the World Bank and UN Comtrade database of the United Nations. Fluctuations in the non-oil export price relative to the price of all other exports could contaminate the time series variation of these shares. Therefore, in order to remove the effects of oil price fluctuations we express both non-oil and total exports in year 2000 constant prices US dollars. In addition, we also map changes in non-oil private sector employment as a share of total employment. The latter is sourced from the International Labor Organization (ILO) and covers the period 1969–2008. Diversification could be associated with sustained epochs of economic progress (Hausmann et al., 2005; Freund and Pierola, 2012). Therefore, we analyze diversification spells over a decade. The shares fail to provide a holistic picture of the nature of diversification across the entire economy. Therefore, Gini coefficient based measures of diversification which takes account of the diversity across multiple sectors within the economy could be relevant here (Cadot et al., 2011; Alsharif and Bhattacharyya, 2016). Finally, we correlate non-oil exports share with several macroeconomic policy and institutions variables using bivariate plots. We present regression results linking non-oil exports and employment with resource rent and geography.

We find diverse patterns in the data when it comes to diversification. The Middle East and North African (MENA) countries register a

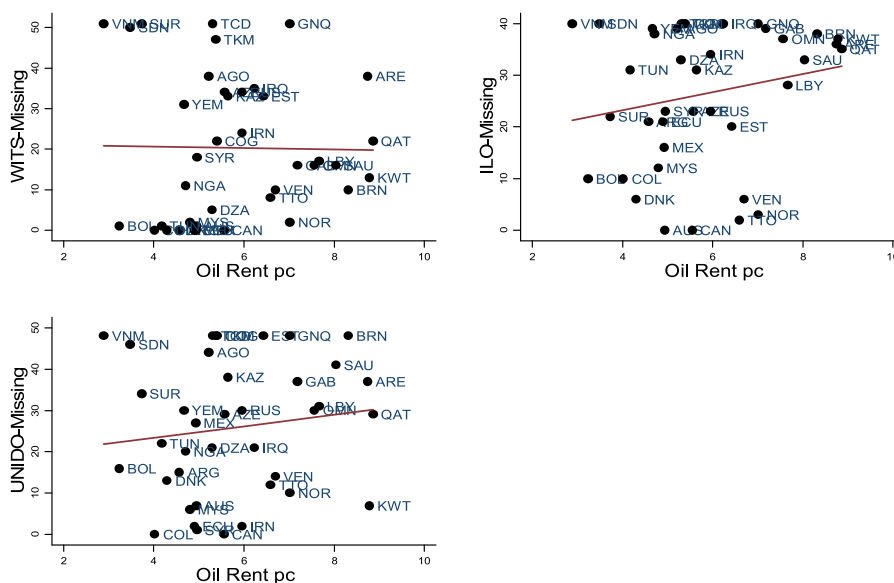
<sup>☆</sup> We gratefully acknowledge comments by the editor, an anonymous referee, and Ingo Borchert. The usual disclaimer applies.

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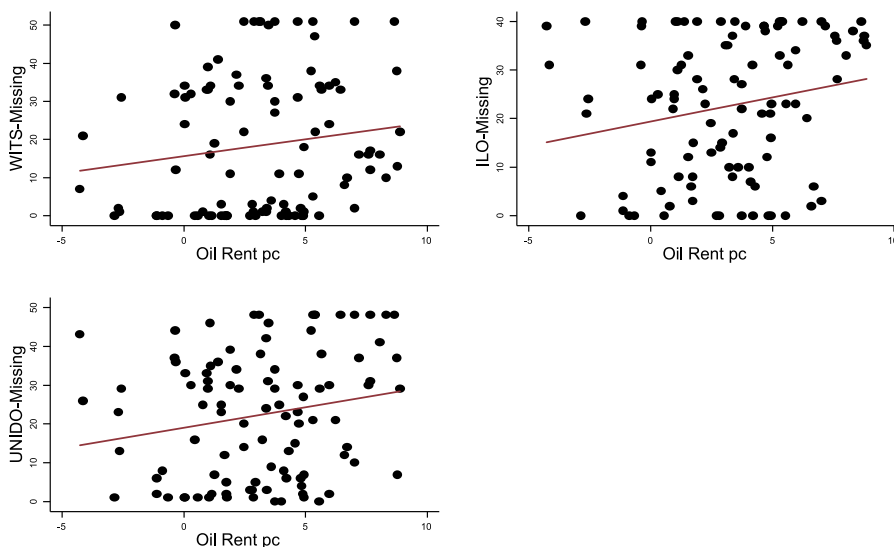
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<sup>1</sup> Majority of studies on economic diversification use data from the WTO or the ILO or the United Nations Industrial Development Organization (UNIDO). Data from the WTO is used to compute measures of export diversification whereas the other two sources provide data on overall employment, manufacturing value added, and manufacturing employment.

<sup>2</sup> The GCC countries are Saudi Arabia, Kuwait, Bahrain, United Arab Emirates (UAE), Oman, and Qatar.



**Fig. 1.** Missing values in oil countries. Note: The figure plots the number of missing values for oil countries against log oil rents per capita in the WITS, UNIDO and ILO datasets over the period 1962–2012. Source: WITS, UNIDO, and ILO.



**Fig. 2.** Missing values in all countries. Note: The figure plots the number of missing values for all countries against log oil rents per capita in the WITS, UNIDO and ILO datasets over the period 1962–2012. Source: WITS, UNIDO, and ILO.

steady increase in the share of non-oil exports post globalization whereas former USSR countries witness a decline in industrial capacity. The post globalization experience of the majority of the oil exporting high income countries does not appear to be positive in terms of non-oil exports share. Same applies to Sub-Saharan Africa. However, the trend in East Asia and Central America appears to be positive. According to our data on the relative size of non-oil employment in the private sector, larger countries exhibit more internally diversified (in terms of employment) structure than their export share data show. Finally, we find strong negative correlation between change in non-oil export share and oil rent per capita but weak correlation between the former and variables such as real exchange rate and political institutions over the period 2000–2012. In a regression model, we also find strong negative correlation between oil rent and diversification after controlling for country specific unobserved heterogeneity such as geography, country specific trends such as culture and demographic factors, time varying global shocks, and cross-sectional dependence.

The rest of the paper is organized as follows. The next section

revisits the three epochs of economic diversification in resource rich countries. It also introduces the literature on diversification in the GCC. Section 3 presents diversification trends in petroleum rich countries, and Section 4 sets up a research agenda for the future. Section 5 concludes.

## 2. Three epochs of economic diversification: a review

Nation states diversified their economies under different paradigms of global trade and commerce. These paradigms were underpinned by sophisticated networks of markets and source of raw materials. In this section, we revisit this literature to explore any lessons from history that today's resource rich aspiring nations could learn.

### 2.1. Diversification before 1870

Needless to say that before 1870 we do not have reliable sectoral data on employment and exports. However, we do have data on terms of trade and share of exports which allows us to draw indirect inference

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