Dutch Disease: digging deeper

Assessing different sources of the Dutch Disease and its effects on the intensive and extensive margin in the manufacturing industry

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Abstract

Natural resources and remittances have both been designated and researched as sources of Dutch Disease effects. This has always been in separation, without comparing the two based on a similar dataset. This paper's scope is twofold. Firstly, it uses panel data analysis to show that remittances and rents on natural resources have a strong adverse effect on the real effective exchange rate (REER) in particular, which is even stronger for countries relatively more exposed to remittances and exports of natural resources. Secondly, it researches the firm dynamics within the manufacturing industry, in the intensive and extensive margin. We find that remittances and rents on natural resources cause exporters to increase the amount of products and the number of destination countries. We also find a greater degree of concentration among the largest exporters as a result of Dutch Disease effects.

Keywords: Dutch Disease; Remittances; Natural Resources; Intensive Margin; Extensive Margin.

JEL codes: F14; F24.

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I. Introduction

Observing the downturn in share of the manufacturing industry after Dutch Disease effects have occurred, has always been done in aggregate form. However, analyzing what happens *within* the manufacturing industry following the adverse effects of the Dutch Disease, aids policy-makers in devising policies tailored to face the new realities. Knowing which firms have a viable chance of surviving the harmful Dutch Disease effects and which strategies they (need to) employ to remain afloat, carries value to warrant the manufacturing industry's long-term prosperity.

Furthermore, analyzing the impact of designated sources of the Dutch Disease has so far been done in isolation. After the naissance of the field investigating the dynamics between energy windfalls and a shrinking tradables sector with the pioneering work of Corden & Neary (1982), the Dutch Disease in relation to the *natural resource curse* has been researched rather extensively (e.g. Mikesell (1997); Sachs & Warner (2001); Sala-i-Martin (2008); Van der Ploeg & Poelhekke (2009); Palma (2014)). However, not only energy windfalls have been studied as sources capable of causing Dutch Disease effects. Corden & Neary's theoretical groundwork on the discovery of natural resources and the subsequent implosion of the tradables sector, has been applied to research other forms of windfalls as well.

Especially remittances provide for an interesting subject of study, given the boom in remittance flows since the start of the 21st century. Compared to 2001 figures, remittances to developing countries have increased at an average rate of 10.7% to over 441 $ billion in 2016, outnumbering official aid flows in threefold. For over 25 developing countries, these flows represent more than 10% of their GDP (World Bank, 2016). As a consequence, remittances have been subject to several studied on Dutch Disease effects: e.g. Dorantes et al. (2004); Lopez et al. (2007); Lartey et al. (2008); Abdih et al. (2012).

Different from aforementioned previous studies, this research aims to compare both sources of the Dutch Disease by estimating similar equations using the same data set for both natural resources and remittances. Moreover, both the manufacturing industry alone (measured in terms of value added to total value added in the economy) and the tradables/non-tradables ratio are regressed on both sources of the Dutch Disease.

Furthermore, the extensiveness of the number of countries in our data set and the novelty of the data adds to previous research on Dutch Disease effects of remittances, building upon studies that consider one region (Latin-America: Dorantes et al.(2004); Lopez et al. (2007)) and those that utilize older data (the period 1995-2003: Lartey et al. (2008)). This research dichotomizes between low- and high-level countries with respect to remittances and natural resources, assessing whether differences exist in responses to changes in intensity of Dutch Disease effects depending on the pervasiveness of remittances and natural resources in the economy.

The results suggest that remittances as a % of GDP and rents on natural resources increase the real effective exchange rate and that these effects are stronger for countries that are exposed to higher levels of inflows of remittances and rents on natural resources. The effects of these variables on the value added of the manufacturing industry and the T/NT ratio appear less strong in our analysis. An additional contribution of this thesis is that it analyzes the impact of both sources on the real effective exchange rate (REER), given its central role in baseline theory on the Dutch Disease. Further setting it apart from previous estimations, this research analyzes nine variables of industry dynamics within the manufacturing industry following changes in natural resources and remittances. Instead of analyzing the sector as a whole, this research identifies changes *within* the group of exporting manufacturers.

Our analysis shows that Dutch Disease effects cause exporters in the manufacturing industry to decrease in number, increase the number of products exported and the number of destination countries exported to, as well as higher levels of concentration among top exporters. These findings are in line with Melitz' theory on firm heterogeneity.

Part II will consider the main literature on the Dutch Disease and explain the fundamental mechanisms behind it, then linking those mechanisms to dynamics within industries drawing upon Melitz' model (building upon Krugman's New Trade Theory) on heterogeneous firms within international trade. Part III will discuss the data used, highlighting how essential variables have been constructed. Building upon the theory of Part II, Part IV elaborates upon the regressions employed in this research and formulates hypotheses. Part V discusses the results, offering possible explanations for findings if needed. Several suggestions will be made for policy-makers to implement in light of the main findings. Part VI concludes with the main takeaways and suggestions for further research.

II. Literature

Dutch Disease, natural resources and remittances

The Dutch Disease has been subject to a number of applications ever since its occurrence through the work of Corden & Neary (1982). In its original theoretical configuration, the central claim is that a boom in natural resources causes the tradables sector (i.e. outputs of sectors that can be exported to other countries) to shrink and the non-tradables sector (i.e. outputs of sectors that cannot be traded; most prominently services) to expand.

Corden & Neary found that the Netherlands experienced a decline in the manufacturing industry after it had found significant gas fields in the 1960s. The Netherlands, being a small open economy, was a price-taker for tradables in international trade. The significant increase in revenue following the discovery of the gas, caused relatively large inflows of capital. What followed was an increase in disposable income, causing the real exchange rate to appreciate. The subsequent disparity in development of manufacturing and services prices follows from the fact that the former are traded internationally, whereas the latter are not. Given that manufactured goods denoted in foreign currencies are now more expensive outside the national economy, the sector loses its competitiveness, and shall inevitably shrink. The services sector however, does not face competition in an international setting, thus not facing the exchange rate disadvantage the manufacturing industry is confronted with.

Although the two effects are related, the Dutch Disease entails two separately distinguishable effects: the *resource movement effect* and the *spending effect*. They can be dichotomized in the following manner: the *spending effect* refers to the relative increase of the prices of non-tradables vis-à-vis tradables; the *resource-movement effect* refers to the reallocation of resources from manufacturing to services, in response to the increase in profitability of non-tradables compared to tradables. Apart from designating a non-neutral technological boom as a potential other source of Dutch Disease effects, Corden & Neary limit their further suggestions on sources to energy-related developments.

Since its naissance, the Dutch Disease paradigm has expanded its theoretical framework to include within its scope all adverse macroeconomic developments related to the 'Resource Curse' (Palma, 2014). Isham et al. (2001), for example, find that a natural resource windfall not only adversely affects the terms of trade of an economy, but also its quality of governance.

In line with Isham et al.'s work, Sala-i-Martin & Subramanian (2003) find that the detrimental state of the Nigerian economy following the large-scale extraction of oil since the mid-1960s was mainly due to poor institutional performance rather than Dutch Disease effects. Corruption and institutional inefficiencies were more harmful to the Nigerian economy than terms of trade effects because of the Dutch Disease.

Sala-i-Martin & Subramanian identify three channels through which natural resource abundance leads to worsening institutional quality: rapacious rent-seeking, volatility due to the considerable share of commodities in GDP and Dutch Disease effects. Abdih et al. (2012) provide evidence for a similar effect coming from remittances to the quality of domestic governance in particular. They posit that remittances make it less costly for households to bear the adverse effects of corruption. They are now provided with a buffer; they can now rely on their own financial means to purchase certain public goods, whereas before they had nowhere else to turn to, except for towards the government for the provision of public goods. Remittances cause a *moral hazard* problem on the side of the government as well.

Remittances, where nationals of a country work abroad and send back money to their home country, form another possible source of dynamics associated with the Dutch Disease.
Funkhouser (1992) finds for Nicaraguan emigration that remittances lower labor force participation, due to the *income effect*. Furthermore, he finds that emigrants are disproportionately of working age, better educated, from higher-income households and more often white-collar workers than non-emigrants. Lopez et al. (2007) add to this finding that remittances exacerbate Dutch Disease effects once the consumption of leisure is included in the model. The income effect will increase real wages, lowering labor supply, thus rendering the effects of the real exchange appreciation even more damaging to the competitiveness of import-competing sectors.

Acosta et al. (2009) employ a Bayesian estimation technique on El Salvadorian micro-data, finding that the type of remittances are irrelevant for the fact that Dutch Disease effects will follow. Whether remittances are exogenously determined, counter-cyclical or acting as regular capital inflows, household income will rise, leading to an increase in consumption that is skewed towards non-tradables. In line with Funkhouser, they also find evidence for the fact that consumption of leisure increases, i.e. labor supply decreases.

This increases wages, putting further upward pressure on prices of non-tradables, since these are more labor-intensive. However, since wages increase for the tradables sector as well (albeit to a lesser degree than those in the non-tradables sector) this causes a further contraction of the tradables sector.

Durdu et al. (2010) expand on this research by finding a discrepancy between the effects of remittances on the Mexican and Turkish economy. The crux is the cyclicality of the remittances: the procyclical remittances to Turkey hurt the economy in the short run, whereas the anticyclical remittances to Mexico helped to dampen shocks. Therefore, on the eve of a financial crisis, 'it could indeed pour, when it rains in the case of procyclical remittances,' according to Durdu et al. (2010, p.323).

Dorantes et al. (2004) designate remittances as a 'paradox of gifts', finding a significant effect of remittances on the real exchange rate for a panel of 13 Latin-American and Caribbean countries. In contrast to 'private' gifts in the form of remittances, they do not find a significant impact of 'public' gifts in the form of foreign aid.

Having discussed the main findings on the Dutch Disease, we now assess the main findings in the literature on the second part of our analysis: dynamics within industries in international trade.

Changes in intensive and extensive margins due to the Dutch Disease

At the center of the research within the field of international economics with regard to intensive and extensive margins, has been the work of Melitz. Central to his work on effects of trade agreements on the intensive and extensive margin of trade patterns, is the notion of firm heterogeneity. New Trade models, most prominently advanced by Krugman (1980), as opposed to classical trade models such as Heckscher-Ohlin and Ricardian ones, introduced the importance of scale economies to exporters' productivity.

Whereas the aforementioned 'old' trade theories consider comparative advantage as the pivotal source of gains of trade, New Trade Theory designates the 'love-of-variety-effect' (LOVE) as the main source of gains of trade. An essential drawback of New Trade Theory models is that firms in it are homogenous.

Melitz' (2003) seminal paper on firm characteristics and how industries and firms react to opening up to trade, introduced the fundamental element of firm heterogeneity. Melitz' model hinges upon the notion that among firms, large productivity differences exist. From this assertion it logically follows that exporting is not for everyone.

He introduces two cutoff points: a lower bound discerning the productivity border between not producing and solely serving the domestic market, and a higher bound, indicating the cutoff point between firms that serve the domestic market only and those that are productive enough to export to other countries too, besides serving the home market[1]. Based on an alteration on the Melitz model of firm heterogeneity by Chaney (2008), Figure 1 shows the effect of trade liberalization on the productivity cutoff points. On the vertical axis we measure profits (both for domestically operating firms and exporters), where we assume that firms will only produce if profits are non-negative. Assuming country *i* as the home country and *j* as the foreign market, the horizontal axis shows the measure of firm productivity by$\varphi^{\sigma-1}$.

Fixed costs for domestic and export production are depicted, respectively, by F_{ii} and F_{ij}. Fixed costs for the latter are assumed to be larger for the latter than for the former due to 'market knowledge' the exporter has to acquire about the foreign market, which incumbent foreign firms already possess about their local market. This poses an export barrier to potential exporters, making only the most productive firms able to export. Furthermore, the slope of the exporter is supposed to be steeper, due to higher trade costs compared to selling products domestically (these can be related to physical transport costs or administrative ones). As we can see, the least efficient firms are forced to leave the domestic market, due to heavier competition from more productive foreign firms that now have gained access to the domestic market due to the trade liberalization. Vice versa, domestic firms that were not productive enough to export before, are now able to do so due to the trade liberalization, which lowers the barrier to export.

Thus, the Melitz model indicates a new source of gains of trade if trade liberalization occurs: an (overall) increase in industry productivity. This reallocation of resources from less productive firms to more productive firms increases welfare as well.

[1] For a specification of the mathematical model to determine demand, supply, productivity distribution, prices, price index and number of firms, see Chaney (2008).

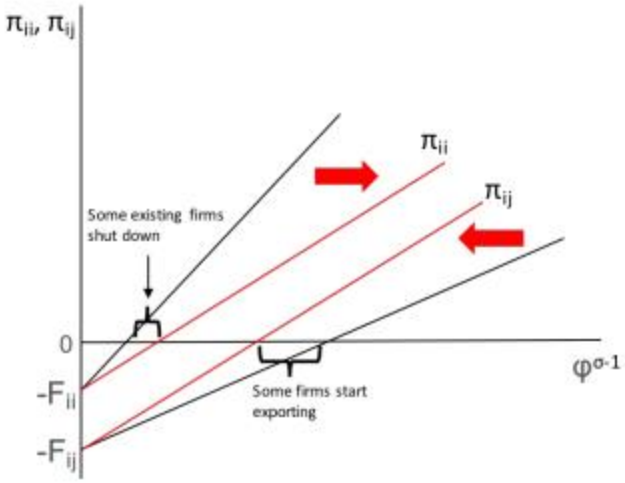

Figure 1: Melitz productivity cutoff points and effect of trade liberalization. Credit: A. Erbahar (2017).

Melitz' model provided a theoretical framework to explain significant differences between firms, more specifically between non-exporters and exporters, and an increase in industry productivity as a result of trade liberalization.

Empirical studies underline Melitz' theoretical model. Bernard et al. (2007) find that exporters significantly outperform non-exporters alongside every metric: exporters are larger, more profitable, more capital-intensive, more productive and pay higher salaries to their employees. These differences are even larger when contrasting FDI-makers compared to firms solely active on the domestic market. The notion that exporters are special vis-à-vis their solely domestically operating counterparts, is reinforced by Bernard et al. (2007)'s finding that in 2000 only 4% of American firms exported, and of these exporters, the top 10% accounted for 96% of all exports. Thus, not only in the extensive margin (number of firms that exports), but also in the intensive margin (exports per exporter), we find a highly skewed distribution: the upper part of the distribution contains almost all mass. Mayer & Ottaviano (2007) examined intensive and extensive margins for European firms and found that the top 1% (10%) of firms account for 40% (80%) of exports.

Zooming into the manufacturing sector specifically, we find that large diversity exists with regard to the share of exporting firms per sub-sector. Bernard et al. (2012) find that for US manufacturers in 2002 the percentage of firms that export, ranges from 1.6% (miscellaneous manufacturing) to 38.3% (computer electronic products).

Furthermore, Bernard et al. (2012) find evidence for the fact that concentration of exports is not only concentrated alongside measures of export value, but also by product and destination country portfolio. Although 1-destination, 1-product firms make up 40% of exporting manufacturers, in terms of export value, they represent 0.2% of total exports. Conversely, 11.9% of firms exports five or more products to five or more destinations. In terms of export value, they represent 92.2% of total exports. Moreover, these 'export specialists' account for 68.8% of total employment for exporting manufacturers, adding substance to the claim that multi-product, multi-destination exporters are the biggest employers, compared to domestically operating firms and exporters that have a less extensive destination and product portfolio.

Freund and Pierola (2015) explore the influence of top export firms within an industry on the comparative advantage of the industry as a whole. They find that it is sometimes because of a single firm that a country has a relative comparative advantage in a certain sector. Dropping the sales of the largest exporting firm out causes the Balassa-index to fall below unity for 60% of the 32 countries in their sample for the chemicals industry, 50% of electrical equipment and 25% in the plastic and rubber industry. The Balassa index is calculated as follows:

$$\frac{X_{ik}/X_i}{X_{wk}/X_w}$$

where *X* stands for exports, *i* for country and *k* for sector (X_{ik} thus implies exports of country i in sector k). The subscript *w* refers to total world exports (X_{wk} refers to total world exports in sector k). The Balassa-index is larger than 1 if a country exports relatively more in a sector than happens on average in the world; its value is less than 1 if a country exports relatively less in sector k than happens on average in the world. Given the results found by Friend & Pierola, a single firm can make a country attain a relative compared advantage, due to its preponderance in the exports of the sector it is active in.

Melitz' original model focused on the positive effects of trade liberalization for both countries, in terms of industry productivity and subsequently welfare. However, what if a country were to experience a one-sided downfall in competitiveness? What would happen to the intensive and extensive margins? Such a downfall is best captured by looking at the trade costs τ_{ij} to export a good from country *i* to country *j*.

We assume trade costs to increase when Dutch Disease effects occur, effectively making it more expensive for a manufacturer from *i* to export to *j* due to lower competitiveness. In the econometric specification we shall consider the changes in Chaney's specification of the production cutoff point more specifically.

Given the lacuna in the literature on dynamics within the manufacturing industry following Dutch Disease effects, a useful starting point is looking at research into marginal changes following REER changes.

Cheung & Sengupta (2013) find that smaller firms react stronger to a change in REER than bigger ones. They find that a 1% increase in REER reduces exports by 11% for companies that are below the median export share, and just by 5% for those that are above the median level export share. Thus, appreciation adversely affects firms that export relatively less more than those that export relatively more. Moreover, they also find that REER effects work almost exclusively when there is an appreciation; depreciations do not show strong effects on firm export shares.

Campa (2004) finds that most of the decrease in exports of Spanish firms in the period 1990-1997, due to a real appreciation of the peseta, were due to the intensive margin, not the extensive. He also finds that appreciations of equal size as a depreciation, exhibit higher shares of extensive margin decreases, implying that sunk entry costs outweigh exit costs.

Berman et al. (2012) find that higher market share firms (i.e. the more productive firms) face a lower demand elasticity with exports than the less productive firms. Although their paper focuses on the effects of a depreciation, applying this finding on an appreciation implies that more productive firms would suffer less from an appreciation of the REER. This implies that an increase in a country's REER induces higher levels of concentration of manufacturing exports among the top firms.

Building upon Berman's research, Zhang & Ouyang (2017) use survey data on Chinese exporters to show that a home currency appreciation decreases overall exports, but increases exporters' productivity. Two channels increase productivity following an increase in the REER: imports costs reduction and export structure upgrading. The latter has the strongest effect; it is mainly through improving technology in new products, rather than changing products already in existence, that export structure upgrading improves exporters' productivity.

Fung (2008) uses Taiwanese firm data to analyze industry dynamics following large REER movements, confirming an increase in firm productivity. In line with Krugman's New Trade Theory, she stresses the importance of scale economies used by top productivity firms to increase their productivity following the appreciation of the REER.

Liu et al. (2013) argue that both intensive- and extensive-margin effects occur with an appreciation of the home currency, although the extensive margin is more affected by an appreciation than the intensive one.

III. Data

The data analysis in this paper consists of two data sets. The first data set assesses the effect of remittances and natural resources on the REER, the manufacturing industry and tradables/non-tradables ratio (T/NT). This data set covers the years 2004-2015, for an unbalanced panel data set of 111 countries. Table 20 in the Appendix gives an overview of these countries. Countries have been selected on data availability; for each variable more than 50% of years have to contain data points and there has to be at least one streak of three consecutive years.

Following López et al. (2007), we consider the change in the log of the real effective exchange rate (REER) in our sample. The nominal effective exchange rate (NEER) calculates the value of a country's currency as a ratio against a basket of 'weighted geometric average of exchange rates for the currencies of selected countries, weighted by each country's trade in both manufactured goods and primary products with its partner countries'(Lartey et al., 2008). The REER adjust for relative changes in consumer prices, a proxy of cost indicators of the home country. Given its denomination of the relative price of domestic to foreign goods, an increase in the REER implies a real exchange rate appreciation. The basket of trade partners have been chosen since we consider effects of exports, implying that REER changes relative to trade partners are relevant for changes to trade patterns. The data on the REER have been obtained from the Bruegel Institute.

In line with Lartey et al. (2008), we define the tradables/non-tradables ratio (T/NT) as the ratio of value added of the manufacturing plus the agricultural sector divided by value added in the services sector, as is customary. Remittances data has been obtained from the World Bank's Migration and Remittances Databank. All other data has been obtained from the World Development Indicators of the World Bank

The second data set is concerned with the changes in margins within the manufacturing industry. A relatively new and unprecedentedly detailed data set on exporter dynamics has been published under the auspices of the World Bank by Fernandes et al. (2016). The database named Exporter Dynamics Database (EDD) comprises detailed data on dynamics within exporters' industries of over 70 countries across all income levels, based on representative surveys conducted on exporters of all firm sizes and types.

Containing over 100 measures on basic and specific exporter characteristics, it offers vast possibilities with regard to researching sector dynamics in exporting industries.

Within its novelty and groundbreaking nature, also lies the EDD's shortcoming. The data spans along a limited time horizon. As with the first data set, countries included in the second data set, have to meet the double standard: for each variable at least 50% of the data points have to be available and there has to be at least a streak of three consecutive data points. The second data set consists of 43 countries, listed in Table 21 in the Appendix. Similarly as for the first data set, the time horizon spans the period 2004-2015 and all other variables have been obtained from the World Development Indicators of the World Bank.
Table 1 provides for an encompassing overview of the variables used in both data sets, including a brief description and the source.

Table 1: Variable Description List

Variable Specification	Source
Real Effective Exchange Rate - the log of the development of the real value of a country's currency against the basket of the trading partners of the country.	Real Effective Exchange Rate Database (Bruegel)
Remittances (% of GDP) - formally documented employees' remittances and migrant transfers as % of GDP (constant 2010 USD).	Migration and Remittances Data (World Bank)
Remittances ('000 USD per capita) - formally documented employees' remittances and migrant transfers (constant 2010 USD) over total population.	Migration and Remittances Data (World Bank)
Natural Resources Exports (% of GDP) - combined value of ores & minerals (SITC 27, 28 & 68) and fuels (SITC 3) exports over total exports (constant USD 2010).	World Development Indicators (World Bank)
Natural Resources Rents (% of GDP) - sum of rents on oil, natural gas, coal (hard and soft), minerals and forest as % of GDP.	World Development Indicators (World Bank)
Manufacturing Value Added (% of GDP) - industries belonging to ISIC divisions 15-37. Value added is the net output after adding up all outputs and subtracting intermediate inputs.	World Development Indicators (World Bank)
Tradables / Non-Tradables (T/NT) - ratio of tradables sector (manufacturing + agriculture) over non-tradables (services) in terms of value added to GDP.	World Development Indicators (World Bank)

Variable Specification	Source
GDP per capita - constant USD 2010 GDP over population.	World Development Indicators (World Bank)
GDP growth - annual percentage growth rate of constant GDP.	World Development Indicators (World Bank)
M2 - broad money as % of GDP.	World Development Indicators (World Bank)
Terms of Trade - percentage ratio of the export unit value indexes of goods and services to the import value indexes. Base year = 2000.	World Development Indicators (World Bank)
Trade Openness - sum of exports and imports as % of GDP.	World Development Indicators (World Bank)
Government Expenditure – the log of all government expenditures for purchases of goods and services in constant 2010 USD (including compensation of employees, excluding military expenditures aimed at government capital formation)	World Development Indicators (World Bank)
Number of Exporters - total amount of exporters.	Exporters Dynamics Database (World Bank)
Entry Rate of Exporters - new exporters over total number of exporters.	Exporters Dynamics Database (World Bank)
Exit Rate of Exporters - firms ceasing exports over total number of exporters.	Exporters Dynamics Database (World Bank)
Export value per Exporter – total exports over total number of exporters (constant 2010 USD).	Exporters Dynamics Database (World Bank)
Number of Products per Exporter – total number of products over total number of producers.	Exporters Dynamics Database (World Bank)
Destinations per Exporter - number of destination countries exported to by separate exporters over total number of exporters	Exporters Dynamics Database (World Bank)
Market Share Top 1% - value exports of top 1% largest firms over total value exports.	Exporters Dynamics Database (World Bank)
Market Share Top 5% - value exports of top 5% largest firms over total value exports.	Exporters Dynamics Database (World Bank)
Market Share Top 25% - value exports of top 25% largest firms over total value exports.	Exporters Dynamics Database (World Bank)

IV. Methodology

Econometric Specification for the REER, the Manufacturing Industry and the T/NT ratio

Before considering the results of the panel data regressions, it should be noted that all analysis has been performed using both random and fixed effects models. Given the result of the Hausman tests for all regressions, indicating persistent fixed effects being present within the data, only fixed effects regressions are reported in this research. Fixed effects models allow to control for both time-invariant country and year-specific characteristics, preventing them from biasing regression results. Furthermore, robust standard errors are reported, to prevent forms of bias related to heteroscedasticity. Contrary to Dorantes et al. (2004) or Lopez et al. (2007), who utilized level values without including lagged values of dependent or independent variables, we employ an error correction model (ECM). ECM allows regressions to control for serial correlation and unit root within the data. Furthermore, given the same order of serial correlation (first order) within dependent and independent variables, the ECM resolves in filtering out these long-run stochastic trends (Engle & Granger, 1987). The ECM allows differences in the independent variable to explain the departure of the dependent variable from its long-run path, whereas the lagged values of both dependent and independent variables to capture the long-run trends within the data.

To test for the hypothesized effect of remittances on the real effective exchange rate (REER), we employ the following regression equation (1):

$$\Delta lnREER_{it} = \alpha + \beta lnREER_{it-1} + \gamma \Delta Remittances_{it} + \delta Remittances_{it-1} + \vartheta \Delta control_{it} + \theta control_{it-1} + (\rho_i + \tau_t + \varepsilon_{it})$$

where $\Delta lnREER_{it}$ refers to the log change of the real effective exchange rate[2] for country *i* in year *t*; $\Delta Remittances_{it}$ refers to the change in inflow of remittances as a percentage of GDP in country *i* in year *t*. Following Lopez et al. (2007), we employ the log value of the REER. Whereas Lartey et al. (2008) employ per capita remittances (’000 constant USD) and Lopez et al. (2007) uses remittances relative to GDP, we employ both to compare both measures. We expect increases in remittances to have an upward pressing effect on the exchange rate.

[2] *(Real) Exchange rate* and *REER* will be used interchangeably henceforth; both refer to the measure of the exchange rate used in this analysis: real effective exchange rate (REER).

Also included is ρ_i to account for unobserved time-invariant country-specific effects and τ_t for time-specific effects. Lastly, ε_{it} is a disturbance term that is hypothesized to be serially uncorrelated and independent across individuals and α is a constant.

Since we employ an ECM model, we differentiate between short-run and long-run effects. The latter explains the long-run gravitation towards the equilibrium relationship between the variables. The former however, explains the dependent variable's immediate reaction to a shock in the independent variable. The short-run effect is simply the estimate of the change in REER (for Tables 2-4 the dependent variable we consider) as a result of a change in one of our Dutch Disease variables (i.e. the independent variables we consider throughout our research: remittances as % of GDP or in constant '000 USD on the one hand, and exports of natural resources as % of total exports and rents on natural resources as % of GDP). The long-run estimate is calculated using a rewritten form of the initial equation.

We start from the generic ECM equation to exemplify our *modus operandi*:

$$\Delta y_{it} = \beta \Delta x_{it} + \alpha + \delta y_{it-1} + \theta x_{it-1} + (\rho_i + \tau_t + \varepsilon_{it})$$

where y_{it} refers to the dependent variable, x_{it} tot he independent variable of interest, α is a constant and the last three terms in brackets refer to the same terms as in the previous equation. Rewriting the equation allows us to separate short- and long-run effects more clearly. The new formula is:

$$\Delta y_{it} = \beta \Delta x_{it} - (-\delta)(y_{it-1} - \frac{\alpha}{-\delta} - \frac{\theta}{-\delta} x_{it-1}) + \varepsilon.$$

This rewritten form makes it easier to differentiate between short-run effects of the independent variable x_{it}, i.e. the estimate of β, and long-run effects on the dependent variable y_{it}, captured by $\frac{\theta}{-\delta}$. The estimate in the long-run section in our regressions has been calculated as such. Furthermore, the standard deviation of this combined estmate has been calculated as the sum of the standard deviations of both estimates, and the covariance between the two.

Although the ECM model, in combination with the fixed effects of both countries and years included in all regressions, mitigates most problems related to autocorrelation, serial correlation and unit root, it is not fully exempt from all endogeneity bias.

Even though we have reported robust standard errors in all of our regressions, if there is unobserved heterogeneity, implying that there is overlap in the set of unobservables that affect outcomes, this could slightly bias our results. Nonetheless, we deem the precautions taken in our econometric approach to be sufficiently able to generate useful results. One way to tackle these issues is by employing a generalized-method-of-moments (GMM) technique, which we have included in our suggestions on further research.

To control for relevant measures of macroeconomic and monetary measures and developments, we included $\Delta control_{it}$; we will now assess these control variables, their expected signs and the related dynamics.

The control variables included in equation (1) have been largely based on Lartey et al. (2008), however with the addition of government expenditure, as has been done by Dorantes et al. (2004) and Lopez et al. (2007). Given the size of these government expenditures, their log values are regressed on the REER in equation (1). GDP per capita measures the disposable income per capita, implying higher demand for non-tradables. This hypothesis is known as the Harrod-Balassa-Samuelson theorem (Lartey et al., 2008). This higher demand for non-tradables is assumed to make the REER rise.

The terms of trade variable reflects the prices of exports relative to imports multiplied by a 100. Logically, it follows that as this term decreases in value, imports become more expensive than similar exports, causing the REER to fall. Conversely, when export prices increase, the REER will increase. Therefore, we hypothesize a positive sign.

The effect of GDP growth is ambiguous. On the one hand, booming economies often experience an increase in investments to accommodate the surge. This causes demand for foreign funds to flow into the country to increase, thus putting upward pressure on the REER. On the other hand, booming economies typically experience a rapid expansion of demand for imports and sizable trade deficits. To correct for these trade deficits, we expect the REER to fall.

Higher levels of trade openness are associated with a decrease in the REER. Having trade openness as a proxy for an inverse measure of the degree of trade restrictions allows us to assess how related policies affect the REER by their impact on the prices of non-tradables.

Two effects determine the sign of the level of trade openness: the *income effect* and the *substitution effect*. The former effect stipulates that as restrictions intensify, and thus trade openness decreases, prices of imports will increase, thus decreasing demand for all goods and services. The subsequent fall in prices of non-tradables will cause the REER to decline as well. This implies a positive sign of trade openness' estimate. The latter effect however, rests on an opposite dynamic with regard to prices of non-tradables. Given higher prices of imports in case of a decrease in trade openness, consumers will transfer part of their demand to non-tradables goods, thus causing those prices to rise. This in turn will put upward pressure on the real exchange rate (Edwards, 1989). This implies a negative sign of the estimate.

With regard to M2, its expected sign is ambiguous. On the one hand, expansionary monetary policies lead to an increase in non-tradables prices and inflatory pressures, putting upward pressure on the REER. On the other hand, expansionary policies lead to lower interest rates, making it less attractive to hold investments denoted in the local currency, thus putting downward pressure on the real exchange rate (Lartey et al., 2008).

Lastly, the sign of the log in government expenditure (measured in constant 2010 USD) is expected to be positive. Although showing large variance per country, government expenditure is an important domestic demand factor. Pivotal for its sign is the share of tradables versus non-tradables expenditure by the government. When mainly directed towards non-tradables (Froot & Rogoff, 1995), its sign will be positive, thus causing an appreciation of the REER. Conversely, expenditures relatively more aimed at tradables will cause the REER to fall (Montiel, 1999).

Furthermore, we dichotomize for threshold levels of natural resources exports (20% of total exports) and remittances (5% of total GDP). These values have been chosen to roughly divide country groups in half, allowing us to research whether Dutch Disease effects show significantly different effects when adjusted for the degree to which countries are exposed to sources potentially causing Dutch Disease effects. Figure 3 and Figure 4, to be found in the Appendix, show the distribution of averages in natural resources exports and remittances, respectively. The threshold levels of remittances and natural resources export share we utilize in our research, have been designated by a black line.

In the same vein as equation (1), we test for the effect of natural resources on the REER using the following specification (2):

$$\Delta lnREER_{it} = \alpha + \beta lnREER_{it-1} + \gamma \Delta Natural\ Resources_{it} + \delta Natural\ Resources_{it-1} + \vartheta \Delta control_{it} + \theta control_{it-1} + (\rho_i + \tau_t + \varepsilon_{it})$$

where we use changes in two measures of natural resources, namely exports of natural resources (sum of fuels, ores and metals exports) as a ratio of total exports, and rents of natural resources as a ratio of total GDP. All other terms refer to the same variables as in equation (1).

Having assessed the effect on the real exchange rate, we look at remittances' and natural resources' effects on the manufacturing industry directly. To assess manufacturing's true contribution to the economy, we regress the same group of independent variables on value added in the manufacturing industry (MVA) as % of GDP. The specification looks as follows (3):

$$\Delta\, MVA_{it} = \alpha + \beta\, MVA_{it-1} + \gamma \Delta Dutch\ Disease_{it} + \delta Dutch\ Disease_{it-1} + \vartheta \Delta control_{it} + \theta control_{it-1} + (\rho_i + \tau_t + \varepsilon_{it})$$

where $\Delta\, MVA_{it}$ refers to the change in value added of the manufacturing industry and $\Delta Dutch\ Disease_{it}$ indicates the change in the relevant source of the Dutch Disease (one of the aforementioned measures of either remittances or natural resources). The aforementioned control variables, fixed effects and disturbance terms are represented by $control_{it}$, ρ_i, τ_t, and ε_{it}, respectively. With regard to the signs of the control variables, our expectations are in line with those on the exchange rate. Higher level income and higher GDP growth rates lead to a larger contribution of manufacturing. Fiscal and monetary stimulus lead to lower levels, due to the spending being prone towards non-tradables. Lastly, more expensive exports hurt the manufacturing industry, whereas countries that are more open to trade, are more likely to have a larger manufacturing industry, being more capable to compete with foreign manufacturers.

With regard to the value added of manufacturing, we see an interesting trend within our 111-country data set. Over the period considered, the average shows a clear and steady decline, as can be seen in Figure 2. Changing from 15.77% in 2004 to 13.74% in 2015, our dataset shows an average yearly decline of 1.24%.

Szirmai & Verspagen (2015) find that manufacturing has become less of a 'natural driver' of economic growth, especially since the 1990s. They argue that this is mainly caused by even higher levels of human capital being needed to achieve the same marginal positive effects of expanding the manufacturing sector, presumably due to increased complexity of manufacturing production processes. Another result of this is that countries at intermediate levels of development can no longer rely on manufacturing to act as a propellant towards growth as was the case in the period 1950-1990.

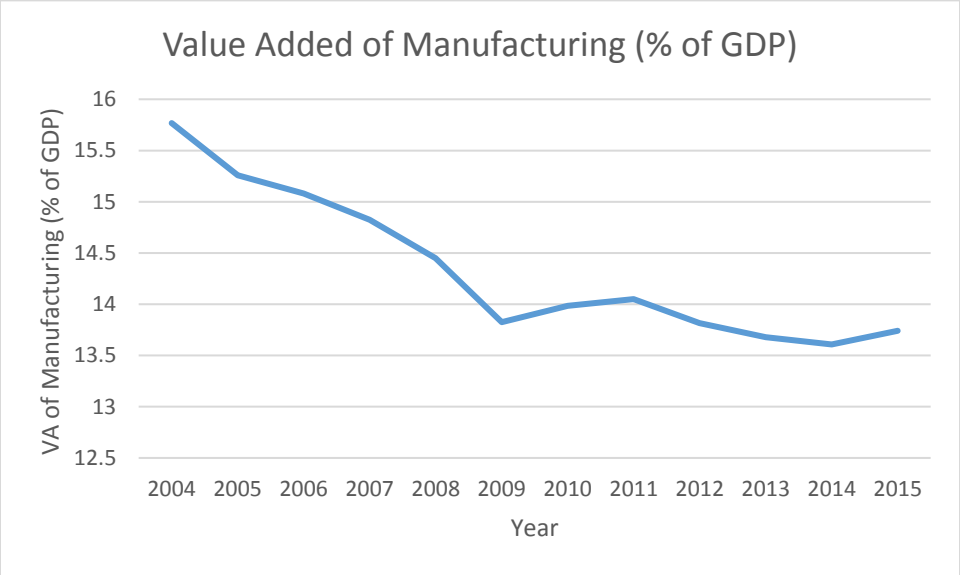

Figure 2: Average Value Added of Manufacturing (% of GDP) of countries in data set.

Haraguchi et al. (2017) provide for another dynamic possibly driving the downfall in global value added of manufacturing. They argue that cases of non-industrialization or premature de-industrialization in developing countries have not been caused by the diminished development potential of the manufacturing industry, but rather by the relative concentration of manufacturing production in populous countries (most notably: China). These countries' vast labor potential combined with significant decreases in transport costs, rendering production concentration more profitable, have partly prevented smaller developing countries to reap the benefits of manufacturing to foster economic growth. As an example, Haraguchi et al. mention the fact that China had a value added of manufacturing of around 30% in recent years, compared to 11-14% for developing countries. Their suggestion based on their research is that other developing countries are best advised to wait for these populous to follow the path of high-income countries, leaving more room for other developing countries to fill this gap.

We still hypothesize Dutch Disease effects to lower the MVA, however, we are mindful of these developments in our explanation of our results.

Thirdly, we consider the tradables/non-tradables ratio (T/NT), which measures the share of goods that can be traded internationally as a part of the entire economy. The regression equation (4) follows the format of the preceding ones:

$$\Delta\, TNT_{it} = \alpha + \beta \Delta\, TNT_{it-1} + \gamma \Delta Dutch\ Disease_{it} + \delta Dutch\ Disease_{it-1} + \vartheta \Delta control_{it} + \theta control_{it-1} + (\rho_i + \tau_t + \varepsilon_{it})$$

where $\Delta\, TNT$ measures the change in the tradables / non-tradables ratio in country *i* in year *t*. All other variables and our expectations of their signs are equivalent to those in equation (3).

Econometric Specification for the Intensive and Extensive Margins

In the second part of the econometric analysis, we dive into the dynamics within the manufacturing industry following Dutch Disease effects.

To grasp the changes we utilize several measures of industry dynamics. Intensive (export value per exporter), extensive (number of exporters, entry and exit rates), product-intensive (number of products per exporter), industry concentration (market share of the top 1, 5, and 25%) and lastly, the number of destination countries per exporter. Following Chaney (2008) we find that the productivity cutoff point for a firm to export (if $\bar{\varphi} > \varphi_i$: $X_i = 0$), is determined by the following formula:

$$\bar{\varphi} = \left(\frac{\gamma}{\gamma - (\sigma - 1)} \frac{\sigma}{\mu} F \frac{L}{L + \Pi} \right)^{\frac{1}{\gamma}}$$

where

γ = firm homogeneity (if higher, there is more output by smallest and least productive firms)

σ = elasticity of substitution between two varieties (if higher, price changes make consumers switch easier from one variety to another)

μ = fraction spent on tradables good[3]

[3] In the original Chaney model, μ refers to the share of consumer expenditure on the differentiated good, the residual demand after expenditure on the constant returns to scale sector has been subtracted. We assume here however that the dichotomy focuses on tradables versus non-tradables sector. This does not alter the results, since all analysis focuses on margins and interactions within the differentiated good sector in the Chaney model.

F = fixed cost of exporting

Π = profits of exporting companies

Dutch Disease effects cause a lower fraction of income to be spent on tradables, due to the *spending effect.* Moreover, we expect profits of exporters to drop and fixed costs of exporting to increase due to a lower degree of competitiveness vis-à-vis foreign competitors. Therefore, the productivity cutoff point is expected to increase, since we have that:

$$\frac{\partial \bar{\varphi}}{\partial \mu} > 0$$

$$\frac{\partial \bar{\varphi}}{\partial F} > 0$$

$$\frac{\partial \bar{\varphi}}{\partial \boldsymbol{\Pi}} > 0$$

Melitz' model draws upon the gravity equation to showcase his findings on intensive and extensive margins with regard to international trade flows. Fundamental to Melitz' use of the altered gravity equation to describe total bilateral trade flows, is the notion of the aforementioned Pareto distributed firm productivity curve.

Essential to determining elasticities of trade flows with respect to changes in variable trade costs is the Pareto distribution of firm productivity, not the elasticity between firm varieties (Bernard et al., 2012). The latter is the distinguishing feature of Krugman's New Trade Theory, which emphasizes the importance of consumers' love-of-variety as the pivotal determinant of international trade flows. Melitz' model of firm heterogeneity however, emphasizes the importance of alterations in composition of exporters when faced with changes in trade costs.

The intuition behind Melitz' gravity equation is that all bilateral trade flows between countries *i* and *j* (X_{ij}) can be dichotomized between the extensive margin of the total number of firms exporting between *i* and *j* (M_{ij}) and the intensive margin of average export value of firms, on the condition that they export (X_{ij}/M_{ij}):

$$X_{ij} = M_{ij} \frac{X_{ij}}{M_{ij}}$$

As mentioned in the preceding discussion of the productivity equation, we assume higher levels of remittances and natural resources in our analysis to increase variable trade costs. The consequences of such an increase has two counterbalancing repercussions.

On the one hand, higher variable trade costs lower the value of exports of any exporting firm, lowering an average exporter's exports ($\frac{X_{ij}}{M_{ij}} \downarrow$). Offsetting this decrease is the change in composition of the exporters. Given the lower value of exports, those firms that barely made a profit beforehand, are now no longer able to recoup their costs for exporting, forcing them to exit. Since these exiting firms had below-average export volumes and profits from exports, thus raising average firm exports because of a change in composition of exporters (ΔM_{ij} & $\frac{X_{ij}}{M_{ij}} \uparrow$).

As a result of Melitz' assumption of the Pareto distribution of firm productivity, these effects offset one another, implying that variable trade costs only affect bilateral trade flows via the extensive margin. The elasticity of the extensive margin depends on the shape of the Pareto distribution of firm productivity: the steeper (the flatter), the more heterogeneous (homogenous), thus the larger (the smaller) the changes in composition of exporters in case of an increase of variable trade costs.

On the other hand, Dutch Disease effects generate changes within the economy that do not solely extend to the degree of competitiveness of domestic firms that export in the trade realm. The production process and associated costs are also affected domestically, due to the *resource movement effect*, which stipulates that given the lower profitability of tradables, resources (capital and labor) are moved away from the tradables sector to the non-tradables sector. This lowers the profitability of the manufacturing sector as a whole, it does not solely alter the composition of its group of exporters. Therefore, apart from the increased difficulty to export associated with upward pressure on the exchange rate, exporting manufacturers face higher costs of production as well. Thus, the *resource movement effect* poses an effect that could lower the entire exporting manufacturing sector, implying that the sector as a whole could shrink, and not just face a compositional change of its group of exporters.

Whereas Melitz' model assumes a larger variety of products and destinations after an increase in variable trade costs, since the firms that are profitable enough to remain exporters are more productive and have larger product- and destination portfolios, the downward pressure exerted by the *resource movement effect* causes firms to scale down on these portfolios given the fixed costs associated with expanding exports adding new products or destinations to its portfolio.

Given these two effects, the signs of the estimates of the Dutch Disease variables with respect to number of products and destinations, are uncertain. If the compositional change is dominant over the *resource movement effect*, it is positive. Contrary to that, given a predominance of the *resource movement effect* over the change in composition of exporters, it is negative. In a situation where neither of the two effects significantly outweighs the other, the estimate will show no significance.

Less ambiguous is the hypothesized effect on the number of exporters, where both effects work in the same direction. The change in composition in Melitz' model and the *resource movement effect* of the Dutch Disease framework both hypothesize the amount of exporters to decrease as Dutch Disease variables increase. Similar patterns hold for the exit and entry rates: both effect imply that more firms will exit and fewer will enter.

With regard to the export market shares of the top 1%, 5%, and 25%, we expect those to increase as Dutch Disease variables rise. However, we assume the concentration effect to weaken as we increase the top share as the dependent variable: strongest for the top 1%, weakest for the top 25%.

We specify our regression equations in the following manner (5):

$$\Delta Margin_{it} = \alpha + \beta Margin_{it-1} + \gamma \Delta Dutch\ Disease_{it} + \delta Dutch\ Disease_{it-1} + \vartheta \Delta control_{it} + \theta control_{it-1} + (\rho_i + \tau_t + \varepsilon_{it})$$

where $Margin_{it}$ refers to change in the aforementioned measures of industry characteristics, $Dutch\ Disease_{it}$ to the change in the source of the Dutch Disease, $control_{it}$ to the control variables, α to a constant value and the latter terms to the fixed effects and the disturbance term, respectively. Unfortunately the data set is not extensive enough to differentiate for a dichotomization based on OECD-membership, levels of natural resources exports and inbound remittances, as we did for the first data set.

With regard to the expected signs of the control variables in the regression equation, we expect countries with higher disposable income per capita (GDP per capita in constant 2010 USD) to have more exporters in the manufacturing industry. Richer countries have more productive firms, increasing the chance that companies export. Following this line of logic, we expect entry rates to increase as disposable income increases. Exit rates will be lower, given the higher productivity associated with higher levels of income. Given the link between income and productivity levels we hypothesize firms to export more products and to more destinations as GDP per capita rises. Regarding market shares, the effect of changes in GDP per capita are ambiguous. On the one hand, high-income countries often harbor large multinational firms that capture significant parts of exports. On the other hand, its average higher productivity allows smaller firms to make a profit on exports too, lowering the concentration of market share among the top firms.

GDP growth increases domestic demand, which could imply that firms are less interested in entering foreign markets, given the higher fixed and variable costs associated with doing so. On the other hand an increase in domestic demand increases firms' profitability, inducing them to accept the costs implied with exporting, causing entry rates to increase and the number of exporters to increase. The total effect is ambiguous, depending on which consideration carries more value for manufacturers. Exit rates are expected to decrease as domestic economic growth rises.

As discussed with respect to the first data set, M2 has two possible opposite effects. On the one hand, excessive money growth causes spending on non-tradables to increase, inflatory pressures and an appreciation of the REER. However, a simultaneous effect of rapid money supply is a fall in investments denominated in the local currency. The lower interest rates make holding assets in the local currency less profitable. Albeit not grounded in fundamentals, the nominal depreciation that follows turns into a real depreciation due to price stickiness. This phenomenon is known as carry-trade intermediation. Apart from a possible temporary REER depreciation, all other possible consequences of a money supply shock adversely affect the manufacturing industry.

We therefore hypothesize M2 increases to be associated with a fall in the number of exporters, lower entry rates and higher exit rates. Following Melitz' theory on compositional change biased towards larger, multi-product and multi-destination firms following adverse circumstances for exporters, we expect positive M2 shocks to cause a rise in export value per exporter, number of products exported and number of destination countries. With regard to concentration, we assume market share of the top firms to increase; the effect being the strongest for the top 1% and the weakest for the top 25%.

With regard to Terms of Trade (prices of exports relative to imports), we assume increases to have an adverse effect on the group of exporting manufacturers as a whole. Price increases will lower demand for manufactures abroad, causing fewer firms to export, entry rates to decrease and exit rates to increase. Following Melitz' model, the composition change in remaining exporters should lead to firms exporting more products, to more destinations, and a higher level of concentration of exports among the top firms.

The effect of government expenditures depends on its distribution. If those are mainly directed towards services, they are likely to have an adverse effect on exporting manufacturers. This would cause the number of exporters and entry rates to decrease and exit rates to increase. Furthermore, if government expenditures are directed towards non-tradables, and thus adversely affect manufacturing, Melitz' model predicts that the firms that remain exporters will export more in terms of value, number of products an destinations. In the same vein, market shares of the top exporters would increase.

Lastly, more firms are expected to export as trade openness increases. The effect on entry and exit rates is more ambiguous. On the one hand, having more trade with other countries opens up more possibilities to export for manufacturers. On the other hand, being more open to trade simultaneously implies experiencing more competition from foreign firms exporting to the home country. Pivotal for the sign of the estimates is thus the relative strength of domestic exporters versus foreign firms exporting to the home country. Opening up to trade forces firms that do export to be more productive, implying that we expect a positive estimate for the number of products, destinations and export value. Market shares of top firms will increase as well, reaping the benefits of scale economies, enabling them to handle the foreign competition.

V. Results

The exchange rate

As discussed in our methodology, we use the ECM model, where we differentiate between short-run and long-run effects. The first column indicates which time-span we consider. As for the long-run part, when we refer to *Dutch Disease variable*, we imply the estimate of the long-run effect of the variable that was regressed on the dependent variable (the REER in this case). For example, *Dutch Disease variable* in column 2 of Table 2 refers to the long-run effect of remittances measured in '000 constant USD on the REER. Similarly, when we dichotomize based on levels of remittances or natural resources, we refer to the long-run effect of the relevant measure of that variable. For instance, in Table 3, *Remittances variable* in column 3 refers to the long-run effect of remittances as % of GDP on the REER for countries that are relatively less exposed to inflows of remittances. With regard to the short-run estimates: those simply measure what happens to the REER in this case if the relevant Dutch Disease variable (i.e. either remittances or natural resources) experiences a shock. In other words, it measures the immediate effect.

As mentioned in our methodology, all regressions contain fixed effects for both countries and years. All tables can be found in full in the Appendix. These do not only show all control variables' estimates, but also the Durbin-Watson test and the F-test. Since the latter indicates that all groups of independent variables indeed influence the dependent variable, we have not included it in the tables we discuss in the results section. Furthermore, since the Durbin-Watson tests do not show prohibitively deviant measures of autocorrelation, we shall not discuss it further in this part.

Table 2: Change in Log of the Real Effective Exchange Rate & Dutch Disease variables

Time Horizon	Independent Variable	(1)	(2)	(3)	(4)
Short Run	Δ Remittances (% of GDP)	0.004***			
		(0.002)			
	Δ Remittances ('000 USD per capita)		0.001		
			(0.005)		
	Δ Natural Resource Exports (% of Total)			0.000	
				(0.001)	
	Δ Natural Resource Rents (% of GDP)				0.006***
					(0.002)
Long Run	Dutch Disease Variable	0.007	0.027	0.002	0.006
		(0.027)	(0.026)	(0.025)	(0.025)
	Number of Countries	111	111	110	111
	Observations	1,272	1,244	1,179	1,283
	R^2	0.53	0.53	0.54	0.55

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.

Table 2 depicts equation (1) and (2); regressing remittances and natural resources on the change of log of the REER. Column (1) shows that an increase in remittances as a % of GDP of 1% increases the REER by 0.4%[4]. The difference with the estimate of remittances per capita is remarkable. This could be related to the fact that an increase in remittances as % of GDP reflects a relative surge, whereas an increase denominated in '000 constant USD per capita could be the result of a wider economic upturn, causing a wide array of economic indicators to increase, thus not significantly affecting the REER in isolation. This is in line with the rationale put forward by Lopez et al. (2007), who argue that remittances as a % of GDP provide for a better measure of the influence of remittances, since the pivotal point of research should be the influence of remittances on the economy in its entirety and not the level of remittances donated per inhabitant. Rents on natural resources show an even stronger effect: a 1% increase causes the REER to rise by 0.6%.

A possible explanation for the discrepancy in terms of significance and power of the effect is that fluctuations in the share of natural resources in total exports depends on world demand too. Furthermore, adverse events affecting other industries could increase natural resources' share in total exports, without significant alterations occurring in the natural resources sector itself.

[4] As mentioned earlier on, given the fact that the dependent variable REER is measured in logs here, we calculate the percentage change in REER as $\Delta REER = 100 * (e^{\beta} - 1)$. Government expenditure forms the only exception in this regression, since those are measured in logs as well.

In brief, fluctuations in natural resources share in total exports do not necessarily imply fluctuations in Dutch Disease effects within the economy. Rents on natural resources measured as a % of total GDP however, measure directly how much extra freely disposable income has been made available. In this sense, rents on natural resources show more resemblance with remittances, revealing how much extra disposable income has been made available to cause Dutch Disease effects within the economy. This line of reasoning offers a possible explanation for the lack of significance of natural resources exports in column (3). We observe no significant long-run effects.

Table 3: Change in Log of REER - High & Low Remittances countries

Time Horizon	Independent Variable	High	High	Low	Low
Short Run	Δ Remittances (% of GDP)	0.005**		0.006	
		(0.002)		(0.006)	
	Δ Remittances ('000 USD per capita)		0.070*		-0.002
			(0.042)		(0.004)
Long Run	Remittances Variable	0.005	0.186	0.006	0.004
		(0.058)	(0.120)	(0.034)	(0.030)
	Number of Countries	39	139	72	72
	Observations	447	443	825	801
	R^2	0.64	0.65	0.64	0.65

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.

Table 3 dichotomizes equation (1) between low- and high-level remittance countries. As mentioned in the part on the methodological approach, the watershed level is at 5% of GDP for remittances. The estimate for countries rich in remittances is even greater than the one in Table 2: a 1% increase in remittances increases the REER by 0.5%. Furthermore, contrary to the general regression, increases in absolute values of remittances also show a significant estimate at the 10% level: a 1,000 USD increase in remittances increases the REER by 7.26%. This shows a strong contrast with the countries relatively less endowed with incoming remittances, for which no significant estimates appear. Although the long-run effect of especially absolute values of remittances show a greater value for countries rich in remittances, we see no significant long-run effect.

Table 4: Change in Log of REER - High & Low Natural Resources countries

Time Horizon	Independent Variable	High	High	Low	Low
Short Run	Δ Natural Resource Exports (% of Total)	-0.000		-0.001	
		(0.001)		(0.001)	
	Δ Natural Resource Rents (% of GDP)		0.008***		-0.001
			(0.005)		(0.001)
Long Run	Natural Resources Variable	-0.002	0.014	-0.001	0.000
		(0.040)	(0.041)	(0.030)	(0.031)
	Number of Countries	43	43	67	68
	Observations	446	487	733	796
	R^2	0.57	0.58	0.53	0.54

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.

In Table 4 we consider the dichotomy between countries based on the share of natural resources in total exports. As noted in the discussion of the econometric specification, the threshold level is at an average of 20% over the period 2004-2015. The effect of rents on natural resources is particularly striking, outmatching the estimate we found for all countries: the REER rises by 0.8% as rents increase by 1%. Countries with a low dependence on natural resources for their exports do not experience this strong effect: both of the estimates do not show a significant sign. As with the general and remittance-specific regressions in Tables 2 and 3, we see no significant long-run effect.

Value Added of Manufacturing (MVA)

Although all Dutch Disease variables in Table 5 show the expected signs, only the long-run estimate of rents on natural resources shows a significant value: a 1% increase in rents on natural resources causes the value added of manufacturing (MVA) to fall by 0.165%. As discussed in our methodology, there are other factors that have not been included in our analysis that could drive the changes within the manufacturing industry. The steady decline in MVA in our data set could either be explained by the higher human capital needed to reap the benefits of manufacturing, or by the fact that manufacturing has seen an increase in concentration of production in more populous countries (most prominently, in China).

Table 5: Change in Value Added (VA) of Manufacturing & Dutch Disease variables

Time Horizon	Independent Variable	(1)	(2)	(3)	(4)
Short Run	Δ Remittances (% of GDP)	-0.013			
		(0.037)			
	Δ Remittances (’000 USD per capita)		-0.158		
			(0.180)		
	Δ Natural Resource Exports (% of Total)			-0.002	
				(0.007)	
	Δ Natural Resource Rents (% of GDP)				-0.030
					(0.031)
Long Run	Dutch Disease Variable	-0.054	-0.999	-0.032	-0.165**
		(0.059)	(0.768)	(0.049)	(0.076)
	Number of Countries	111	111	110	111
	Observations	1,266	1,238	1,175	1,277
	R^2	0.53	0.54	0.55	0.54

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.

When we differentiate for levels of remittance inflows in Table 6, we do not see significant differences between *high-* and *low-level* countries in terms of Dutch Disease effects. Striking however, is the discrepancy between the two groups in terms of the effect of opening up to trade. Whereas countries that do not receive relatively large sums of remittances from abroad react by a significant expansion of their manufacturing industry, *high-level* recipients do not see any significant benefit for their manufacturing industry of increasing its openness to trade.

Table 6: Change in VA of Manufacturing - High and Low Remittances countries

Time Horizon	Independent Variable	High	High	Low	Low
Short Run	Δ Remittances (% of GDP)	-0.086		-0.085	
		(0.046)		(0.088)	
	Δ Remittances (’000 USD per capita)		-0.685		-0.162
			(1.183)		(0.179)
Long Run	Remittances Variable	-0.046	-0.301	-0.428	-0.439
		(0.084)	(0.884)	(0.292)	(0.350)
	Number of Countries	39	139	72	72
	Observations	445	441	821	797
	R^2	0.63	0.64	0.53	0.53

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.

Table 7: Change in VA of Manufacturing - High and Low Natural Resources countries

Time Horizon	Independent Variable	High	High	Low	Low
Short Run	Δ Natural Resource Exports (% of Total)	0.002		-0.018	
		(0.007)		(0.019)	
	Δ Natural Resource Rents (% of GDP)		-0.063		-0.069**
			(0.045)		(0.030)
Long Run	Natural Resources Variable	-0.038	-0.167*	-0.045	-0.188
		(0.061)	(0.086)	(0.084)	(0.129)
	Number of Countries	43	43	67	68
	Observations	442	483	733	794
	R^2	0.48	0.49	0.48	0.48

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.

Having split up countries up based on the share of natural resources, as has been done in Table 7, we establish that rents on natural resources lower value added of manufacturing in countries that are relatively less dependent on natural resources. Long-run effects of rents on natural resources however, we observe for countries that are relatively well-endowed with natural resources.

Tradables and Non-Tradables

Assessing the Tradables/Non-Tradables (TNT) ratio in Table 8 we see that first difference values of Dutch Disease variables do not show a significant effect, despite having the hypothesized negative sign. We have included in all three Tables (8-10) on the TNT ratio the estimates of GDP growth, to showcase significant differences between the subgroups, divided by the aforementioned threshold levels of incoming remittances and export dependency on natural resources. For the entire data set, we see that economic growth favors the tradables sector, given the significantly positive sign in all four columns.

Table 8: Change in Tradables / Non-tradables Ratio (T/NT) & Dutch Disease variables

Time Horizon	Independent Variable	(1)	(2)	(3)	(4)
Short Run	Δ Remittances (% of GDP)	-0.000			
		(0.002)			
	Δ Remittances ('000 USD per capita)		-0.005		
			(0.004)		
	Δ Natural Resource Exports (% of Total)			-0.000	
				(0.000)	
	Δ Natural Resource Rents (% of GDP)				-0.001
					(0.001)
Long Run	Dutch Disease Variable	-0.006	-0.003	-0.001	-0.000
		(0.061)	(0.059)	(0.049)	(0.050)
	Δ GDP growth (%)	0.002**	0.002**	0.002**	0.002**
		(0.001)	(0.001)	(0.001)	(0.001)
	Number of Countries	111	111	111	111
	Observations	1,260	1,232	1,170	1,271
	R^2	0.59	0.58	0.58	0.58

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.

Table 9 allows us to consider the effects when we differentiate for countries with high and low values of remittances. As in the general regression in Table 8, we see no significant effect of remittances for either group of countries. Striking however, is the difference between the two groups of countries with regard to the estimates of GDP growth. Whereas higher economic growth is associated with higher shares of tradables in *remittance-poor* countries, growth does not lead to higher levels of tradables in countries rich in remittances. A possible explanation for this dichotomy between the two groups of countries is that Dutch Disease effects hinder tradables and favor non-tradables to develop, implying that the path to attaining a higher level of income is only to be achieved by an expansion of non-tradables.

When we consider differences between countries rich versus poor natural resources in Table 10, we establish that there are no significant differences between high- and low-level countries. However, to a large extent the estimates on first differences of GDP growth adhere to the result from the results of Table 9, suggesting that countries for which natural resources play a more significant role in their economy, are set on a different trajectory towards growth.

Table 9: Change in T/NT Ratio - High and Low Remittances countries

Time Horizon	Independent Variable	High	High	Low	Low
Short Run	Δ Remittances (% of GDP)	-0.002		-0.010	
		(0.002)		(0.007)	
	Δ Remittances (’000 USD per capita)		-0.015		-0.004
			(0.027)		(0.003)
Long Run	Remittances Variable	-0.007	-0.073	-0.014	0.007
		(0.117)	(0.130)	(0.054)	(0.050)
	Δ GDP growth (%)	0.000	-0.000	0.003**	0.003**
		(0.001)	(0.001)	(0.001)	(0.001)
	Number of Countries	39	39	72	72
	Observations	443	439	817	793
	R^2	0.82	0.76	0.71	0.71

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.

Table 10: Change in T/NT Ratio - High and Low Natural Resources countries

Time Horizon	Independent Variable	High	High	Low	Low
Short Run	Δ Natural Resource Exports (% of Total)	-0.000		-0.000	
		(0.000)		(0.001)	
	Δ Natural Resource Rents (% of GDP)		-0.001		-0.001
			(0.001)		(0.003)
Long Run	Natural Resources Variable	-0.000	-0.001	-0.002	-0.002
		(0.047)	(0.054)	(0.064)	(0.063)
	Δ GDP growth (%)	0.002	0.001	0.002*	0.001
		(0.001)	(0.001)	(0.001)	(0.001)
	Number of Countries	43	43	67	68
	Observations	440	481	730	790
	R^2	0.82	0.80	0.70	0.70

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.

Intensive and Extensive Margins of the Manufacturing Industry

Having assessed the interactions with regard to the real effective exchange rate, the manufacturing industry and the tradables/non-tradables ratio, we now consider what happens *within* the manufacturing industry. Instead of solely concluding whether or not the manufacturing industry has been hurt by Dutch Disease effects, assessing the dynamics within the sector allows policymakers to act accordingly, if needed aiding manufacturers in ways that are most beneficial to their survival or the survival of the industry as a whole. Furthermore, it should be noted that the margin analysis utilizes a different data set, comprising of 43 countries. The data set spans the same period as the previous: 2004-2015. As mentioned in the data description, detailed data on exporter dynamics of the Exporter Dynamics Database of the World Bank is relatively new and therefore the data set is of a more modest size than the previous one. When relevant, we have included certain control variables to discuss a relevant development linking that variable and the margin dicussed in the tables. We shall start our analysis with the firm-extensive margin.

Firm-Extensive Margin

Table 11 shows all short and long-run variables values have the expected negative sign, only an increase in rents on natural resources leads to a significant fall in exporters in the manufacturing industry: a 1% increase leads to 29 firms less that export.

Table 11: Change in Number of Exporters in the Manufacturing Industry

Time Horizon	Independent Variable	(1)	(2)	(3)	(4)
Short Run	Δ Remittances (% of GDP)	-23.704			
		(30.035)			
	Δ Remittances (’000 USD per capita)		-1.384		
			(2.941)		
	Δ Natural Resource Exports (% of Total)			-2.653	
				(2.755)	
	Δ Natural Resource Rents (% of GDP)				-29.391*
					(16.067)
Long Run	Dutch Disease Variable	-91.056	-7.217	-33.533	-135.913
		(64.463)	(4.974)	(50.579)	(200.906)
	Number of Countries	39	39	39	39
	Observations	329	320	316	331
	R^2	0.57	0.58	0.58	0.57

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.

Table 12: Change in Entry Rate for Exporting Manufacturers

Time Horizon	Independent Variable	(1)	(2)	(3)	(4)
Short Run	Δ Remittances (% of GDP)	-0.132			
		(0.319)			
	Δ Remittances (’000 USD per capita)		-0.005		
			(0.019)		
	Δ Natural Resource Exports (% of Total)			-0.045	
				(0.081)	
	Δ Natural Resource Rents (% of GDP)				-0.036
					(0.261)
Long Run	Dutch Disease Variable	-0.420	-0.005	-0.297	-0.735
		(0.586)	(0.019)	(0.318)	(0.498)
	Number of Countries	39	39	39	39
	Observations	297	288	287	299
	R^2	0.68	0.69	0.64	0.69

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.

When we consider the entry rate in Table 12, signs of the Dutch Disease variables follow the hypothesized pattern, but they fail to be significant. Considering the exit rate regressed in Table 13, we see the same lack of significance. Moreover, we have included trade openness to show that being more open to trade increases the competitiveness of those firms that export due to the increased exposure to foreign competitors domestically.

Table 13: Change in Exit Rate for Exporting Manufacturers

Time Horizon	Independent Variable	(1)	(2)	(3)	(4)
Short Run	Δ Remittances (% of GDP)	0.407			
		(0.274)			
	Δ Remittances (’000 USD per capita)		0.012		
			(0.014)		
	Δ Natural Resource Exports (% of Total)			0.089	
				(0.065)	
	Δ Natural Resource Rents (% of GDP)				0.306
					(0.194)
Long Run	Dutch Disease Variable	0.064	0.004	0.049	0.326
		(0.376)	(0.298)	(0.270)	(0.358)
	Δ Trade Openness	-0.095***	-0.094**	-0.093**	-0.076**
		(0.033)	(0.039)	(0.037)	(0.034)
	Number of Countries	39	39	39	39
	Observations	293	284	284	295
	R^2	0.73	0.72	0.71	0.73

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.

Table 14: Change in Exports per Exporter in Manufacturing (constant 2010 USD)

Time Horizon	Independent Variable	(1)	(2)	(3)	(4)
Short Run	Δ Remittances (% of GDP)	913.80 (31754.98)			
	Δ Remittances ('000 USD per capita)		1813.84 (1605.58)		
	Δ Natural Resource Exports (% of Total)			3167.94 (3791.53)	
	Δ Natural Resource Rents (% of GDP)				22291.4 (23966.8)
Long Run	Dutch Disease Variable	9285.34 (18402.75)	534.24 (753.04)	6319.35 (5846.73)	16733.06 (25.573.97)
	Δ GDP per capita (Constant '000s USD)	47.75*** (17.04)	48.24** (19.39)	50.22*** (15.02)	42.02** (16.97)
	Δ Terms of Trade (Goods & Services)	12332.7** (5794.1)	12404.7** (6126.2)	12170.4** (5639.8)	10236.8** (5633.0)
	Number of Countries	39	39	39	39
	Observations	329	320	316	331
	R^2	0.78	0.79	0.79	0.79

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.

Firm-Intensive

Table 14 describes what happens to average exports per exporter when remittances and natural resources change. In line with Krugman's New Trade model and Melitz theory on heterogeneous firms, all sources show a positive sign. Given adverse Dutch Disease effects the least efficient exporters will exit the export market, leaving behind on average more productive exporters, which trade in larger volumes. The estimates however, do not show significance. A possible explanation for this could be the relatively modest size of the data set. Unfortunately, its size does not allow for separate analysis on high-level remittance and/or natural resources countries, for which effects could be larger and thus significant.

Relevant for this margin is the income level of the economy. Higher income level countries show larger values of average export value by manufacturers, which is in line with the conventional finding that high-value exporters more often originate from higher-income countries. Terms of Trade shows a significantly positive sign as well, following from the fact that as prices of exports increase, exporters that continue exporting have to increase their volumes and export values to offset the negative effect of being less competitive due to the relative price increase of their products vis-à-vis foreign counterparts.

Table 15: Change in Number of Different Products Exported in the Manufacturing

Time Horizon	Independent Variable	(1)	(2)	(3)	(4)
Short Run	Δ Remittances (% of GDP)	0.014**			
		(0.007)			
	Δ Remittances (’000 USD per capita)		0.001		
			(0.001)		
	Δ Natural Resource Exports (% of Total)			0.004	
				(0.003)	
	Δ Natural Resource Rents (% of GDP)				0.020**
					(0.009)
Long Run	Dutch Disease Variable	0.056	0.002	0.018	0.012
		(0.116)	(0.113)	(0.113)	(0.120)
	Number of Countries	39	39	39	39
	Observations	323	314	310	325
	R^2	0.66	0.68	0.67	0.66

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.

Product-Intensive

Table 15 depicts the symbiosis of Krugman’s notion of Love-of-Variety and Bernard et al.’s (2007) finding that the most productive exporters are multi-product firms in combination with Melitz’ theory on heterogeneous firms. LOVE stipulates that by offering more products abroad, the producer makes itself less redeemable when it is faced with the negative consequences of the Dutch Disease. Moreover, in line with Melitz’ theory, experiencing Dutch Disease effects causes a compositional change within the group of exporting manufacturers, forcing the least efficient firms to exit the export market. Since a defining characteristic of more productive firms is that they export more products, this shift increases the average number of products exported. Increases in remittances as % of GDP and the level of rents on natural resources as % of GDP lead to an increase in number of products exported by manufacturers. Despite being of a modest size, it is important to realize that the estimate covers an average, meaning that some firms will actually increase their product portfolio in response to Dutch Disease effects.

Table 16: Change in Number of Different Destinations for Exporting Manufacturers

Time Horizon	Independent Variable	(1)	(2)	(3)	(4)
Short Run	Δ Remittances (% of GDP)	0.007**			
		(0.004)			
	Δ Remittances (’000 USD per capita)		0.000		
			(0.000)		
	Δ Natural Resource Exports (% of Total)			0.000	
				(0.002)	
	Δ Natural Resource Rents (% of GDP)				0.004**
					(0.002)
Long Run	Dutch Disease Variable	0.011	0.001	0.004	0.006
		(0.065)	(0.060)	(0.056)	(0.066)
	Number of Countries	39	39	39	39
	Observations	329	320	316	331
	R^2	0.26	0.26	0.26	0.26

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.

Destination-Intensive

Moving onto the destination metric assessed in Table 16, we notice a similar effect of increases of Dutch Disease variables that confirms Melitz’ hypothesis on composition changes within the group of exporters: increases in remittances and rents on natural resources (both as % of GDP) lead to exporters shipping manufactured goods to more destination countries. In the same vein as for the number of products, a loss in competitiveness causes the least productive firms to exit the export market. Since the remaining more productive firms export to more destinations, the average number of destination countries will increase. Similar to the number of products exported, the estimate applies to the average, meaning that not all firms will export more destinations, but the effect does hold for part of the exporting manufacturers.

Table 17: Change in Market Share of Top 1% for Exporting Manufacturers

Time Horizon	Independent Variable	(1)	(2)	(3)	(4)
Short Run	Δ Remittances (% of GDP)	0.344**			
		(0.168)			
	Δ Remittances ('000 USD per capita)		0.008		
			(0.012)		
	Δ Natural Resource Exports (% of Total)			0.037	
				(0.036)	
	Δ Natural Resource Rents (% of GDP)				0.987***
					(0.006)
Long Run	Dutch Disease Variable	0.254	0.023	0.050	0.701**
		(0.312)	(0.065)	(0.123)	(0.341)
	Number of Countries	39	39	39	39
	Observations	329	320	316	331
	R^2	0.77	0.77	0.77	0.82

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.

Industry Concentration

Table 17 shows that remittances (% of GDP) and rents on natural resources lead to a larger market share among exporters for the top 1% firms for all exporting manufacturers; a 1% increase leads to an increase of 0.35% and 0.99% in market share of the top 1% firms, respectively. As with the number of products and destination countries, adverse conditions such as those caused by Dutch Disease variables lead to a higher concentration of market share, since these firms are best equipped to deal with this adversity.

As assessed in the discussion on Melitz' model on firm heterogeneity, we expect this effect to weaken as we assess market shares of a larger portion at the top. Table 18 confirms our hypothesis, showing that a similar 1% increase of remittances and rents on natural resources as in Table 17, leads to an increase of 0.09% and 0.51% in market share of exports of the top 5% firms, respectively. Furthermore, rents on natural resources have an additional long-run effect, albeit less strong than the immediate effect. We see that this effect causes market share concentration among the top 5 % exporters by 0.34% with a long-term increase of 1% of rents on natural resources.

Table 18: Change in Market Share of Top 5% for Exporting Manufacturers

Time Horizon	Independent Variable	(1)	(2)	(3)	(4)
Short Run	Δ Remittances (% of GDP)	0.092**			
		(0.044)			
	Δ Remittances ('000 USD per capita)		0.001		
			(0.001)		
	Δ Natural Resource Exports (% of Total)			0.010	
				(0.028)	
	Δ Natural Resource Rents (% of GDP)				0.509***
					(0.159)
Long Run	Dutch Disease Variable	0.119	0.005	0.038	0.339*
		(0.286)	(0.132)	(0.138)	(0.201)
	Number of Countries	38	38	38	38
	Observations	321	312	308	323
	R^2	0.78	0.79	0.78	0.83

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.

Lastly, we consider what happens to the top quartile when facing changes in remittances and natural resources exports/rents in Table 19. Broadening the top part considered, does indeed lead to lower values of changes in the market share of the top 25% of exporting manufacturing firms caused by remittances and rents on natural resources, although the effects are still significantly positive. Rents on natural resources no longer show a significant long-run effect.

Table 19: Change in Market Share of Top 25% for Exporting Manufacturers

Time Horizon	Independent Variable	(1)	(2)	(3)	(4)
Short Run	Δ Remittances (% of GDP)	0.003**			
		(0.001)			
	Δ Remittances ('000 USD per capita)		0.000		
			(0.002)		
	Δ Natural Resource Exports (% of Total)			0.003	
				(0.005)	
	Δ Natural Resource Rents (% of GDP)				0.031***
					(0.012)
Long Run	Dutch Disease Variable	0.055	0.001	0.008	0.018
		(0.211)	(0.192)	(0.162)	(0.234)
	Number of Countries	39	39	39	39
	Observations	329	320	316	331
	R^2	0.74	0.74	0.76	0.76

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.

Policy Recommendations

Having observed the significant alterations within the group of exporting manufacturers in response to Dutch Disease effects, we now discuss a number of policy recommendations based on our analysis. We observe in particular that in response to relative increases in remittances and rents on natural resources (measured in % of GDP), those manufacturers that continue their exports, increase the number of products and destination countries they export to. Furthermore, exports are increasingly concentrated among the largest (and most productive) firms. These responses conform to Melitz' theory on firm heterogeneity, which stresses extensive margin changes of the exporters' group.

Recognizant of the dynamics behind the Dutch Disease and the shifts and responses within the manufacturing industry, suggestions for governments intending to aid the manufacturing industry in face of Dutch Disease effects are to take these findings into account. Most prominently, simplifying the administrative process related to exporting to new destinations, provides for a feasible solution in light of the decrease of competitiveness within the international realm. Furthermore, lobbying for easier access to existing markets for new products for exporters that are already active in those markets, also contributes to ways exporters can survive despite negative consequences of the Dutch Disease.

These recommendations build upon Lopez et al. (2007), who propose a number of policy suggestions to cope with a downward pressure on domestic labor supply given an increase in remittances. They advocate lower payroll taxes, offset by higher VAT and sales taxes. Important though is the recognition of the fact that remittances show less volatility than non-private capital flows, exports, FDI and official aid. Essential thus, is to assess to what extent remittance flows are expected to be permanent. If they are, governments are best advised to accept the new realities associated with damaging effects on the manufacturing industry and its exports.

With regard to the rents on natural resources, the more they are allowed into the economy, the stronger these effects will be. Norway, the primary example of how to cope with Dutch Disease effects following the discovery of oil in the 20th century, has successfully kept these rents outside of its economy to prevent its manufacturing industry to suffer from the Dutch Disease. Their approach however, is far from an easily copied blueprint for countries whose economies experience inflows of rents on natural resources.

In particular, political pressure to invest the fruits of natural resource windfalls are immense and will be significantly stronger in lower income countries. Governments that can withstand this type of pressure are rare and will at best be able to keep part of the rents out of the economy.

To preserve the viability of the manufacturing industry in the long-run, the least productive manufacturers have to be allowed to exit the export market, focusing on the domestic market instead. Helping firms to lower costs on introducing new products and exporting to new destination countries should be at the heart of trade negotiations with counterparts, when it comes to the manufacturing industry in face of Dutch Disease effects.

Subsidizing exports of less productive manufacturers will not bolster their competitiveness if the effects of remittances and natural resources are expected to be relatively permanent. Keeping in mind the adagio *fighting waves could work, fighting the current does not*, we suggest governments to aid its relatively stronger members of the manufacturing industry, but not to indefinitely protect firms that are outcompeted due to Dutch Disease effects, purely for the sake of maintaining the manufacturing industry. In the same vein as the policy suggestions advocated by Lopez et al., our recommendations take into account the fact that policies aimed at aiding the manufacturing industry, should be based on workable solutions within the domestic economy, not on endeavors to alter trade patterns completely.

VI. Conclusion

Using a new and unprecedentedly encompassing data set with regard to the number of countries included, this study has shown that remittances flows as % of GDP and rents on natural resources increase the real effective exchange rate. Contrary to earlier research on a single area (Latin-America: Lopet et al. (2007); Dorantes et al. (2004)), a single country (El Salvador: Acosta et al. (2009)), our analysis shows that real effective exchange rate increases due to increases in remittances and rents on natural resources are truly global.

Moreover, analyzing the Dutch Disease has always been done by focusing on one source. Our research however, studies both sources using the same data set, allowing for a comparison, indicating that rents on natural resources provide for the strongest source of the Dutch Disease, followed by remittances as % of GDP.

Further setting our analysis apart from all earlier studies is the difference in the power of Dutch Disease effects on the real effective exchange rate when we dichotomize between countries according to their level of exposure to the Dutch Disease variables considered in our research, remittances and natural resources. Our analysis shows that countries that are relatively more exposed, suffer more from Dutch Disease effects. This effect holds for both remittances and natural resources. Countries that are relatively less exposed, do not experience a significant upward pressure on their real effective exchange rate when faced with an upward shock in remittances.

The biggest contribution of our study however, is our analysis of dynamics within the manufacturing industry following Dutch Disease effects. Whereas all previous research focused solely on one source of the Dutch Disease and its effects on aggregate measures as the tradables / non-tradables ratio, the exchange rate or fluctuations in sectors as a whole, we have assessed what happens *within* the manufacturing industry following the Dutch Disease. By solely pointing out that the Dutch Disease poses an adverse effect to the manufacturing industry, policy-makers are still not equipped with suggestions as to which actions could benefit a struggling manufacturing industry most. This research has shown that exporting manufacturers react to the adverse effects of the Dutch Disease by altering their behavior in a number of ways.

In line with Melitz' theory on firm heterogeneity, we observe an increase in scope in terms of products and destinations. This implies that following Dutch Disease effects, the least productive firms will exit the export market, which leaves behind a group of exporters that is more productive, exports more products and to more destination countries.

Furthermore, manufacturing export share tends to concentrate in the top firms in response to increases in remittances and natural resources. Recognizing these industry dynamics provides for useful insights for governments faced with Dutch Disease effects, since they are now better equipped with research that can aid them in devising policies that actually help the manufacturing industry most efficiently. Suggestions on alleviating part of the administrative burden associated with exporting new products and to new destinations, caters to the need of policy-makers for workable and practical solutions in their dealings with the Dutch Disease. Aware of these fundamental changes within the manufacturing industry following Dutch Disease effects, governments are more able to act upon a loss in competitiveness of the manufacturing industry. Both domestically, by stimulating the development of new manufacturing products, and internationally, by aiming at the alleviation of trade costs (both physical and administrative) associated with exporting new products and to new destination countries of their manufacturing industry when negotiating on new trade agreements.

Given the relative novelty of the detailed data on industry dynamics, many challenges remain for research combining macroeconomic developments to microeconomic behavior within the manufacturing industry. Zooming into the scope of this analysis; further expanding the data sets, both in terms of countries and years, employed to combine macro- and micro-developments, could lead to useful expansions of our understanding of firms' responses and the role governments can play in aiding and guiding sectors through adverse events. Furthermore, employing more sophisticated econometric techniques (such as GMM estimation) could prove useful in combining micro- and macro- level dynamics related to the Dutch Disease.

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Appendix

Table 20: List of countries included in first data set

Albania	Dominican Republic	Kyrgyz Republic	Romania
Antigua and Barbuda	Ecuador	Latvia	Russian Federation
Argentina	Egypt, Arab Rep.	Lebanon	Rwanda
Armenia	El Salvador	Lithuania	Saudi Arabia
Australia	Estonia	Luxembourg	Senegal
Austria	Finland	Macedonia, FYR	Serbia
Azerbaijan	France	Malawi	Slovak Republic
Bangladesh	Gambia, The	Malaysia	Slovenia
Belarus	Germany	Mauritius	South Africa
Belgium	Ghana	Mexico	Spain
Belize	Greece	Moldova	Sudan
Benin	Guatemala	Mongolia	Suriname
Bhutan	Guinea	Morocco	Sweden
Bolivia	Honduras	Mozambique	Switzerland
Bosnia and Herzegovina	Hong Kong SAR, China	Namibia	Tanzania
Botswana	Hungary	Nepal	Thailand
Brazil	Iceland	Netherlands	Togo
Burkina Faso	India	New Zealand	Trinidad and Tobago
Burundi	Indonesia	Nicaragua	Tunisia
Cambodia	Iran, Islamic Rep.	Niger	Turkey
Cameroon	Ireland	Nigeria	Uganda
Chile	Italy	Norway	Ukraine
Colombia	Jamaica	Pakistan	United Kingdom
Costa Rica	Japan	Paraguay	United States
Croatia	Jordan	Peru	Uruguay
Cyprus	Kazakhstan	Philippines	Vanuatu
Czech Republic	Kenya	Poland	Venezuela, RB
Denmark	Korea, Rep.	Portugal	

Table 21: List of countries included in second data set

Albania	Kyrgyz Republic
Bangladesh	Macedonia, FYR
Bolivia	Malawi
Botswana	Mauritius
Brazil	Mexico
Burkina Faso	Morocco
Cambodia	Nicaragua
Cameroon	Norway
Chile	Pakistan
Colombia	Peru
Costa Rica	Portugal
Denmark	Romania
Dominican Republic	Rwanda
Ecuador	Senegal
Egypt, Arab Rep.	Slovenia
El Salvador	South Africa
Estonia	Spain
Georgia	Turkey
Guatemala	Uganda
Jordan	Uruguay
Kenya	

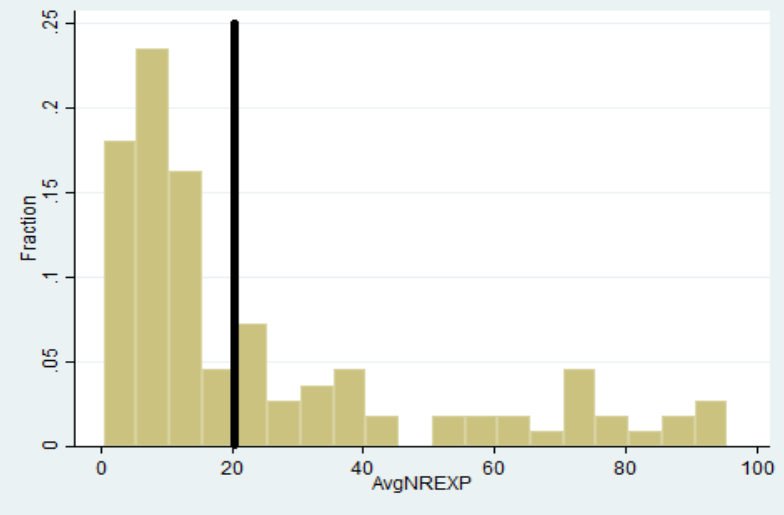

Figure 3: Frequency of occurrence and average exports of natural resources (% of total exports)

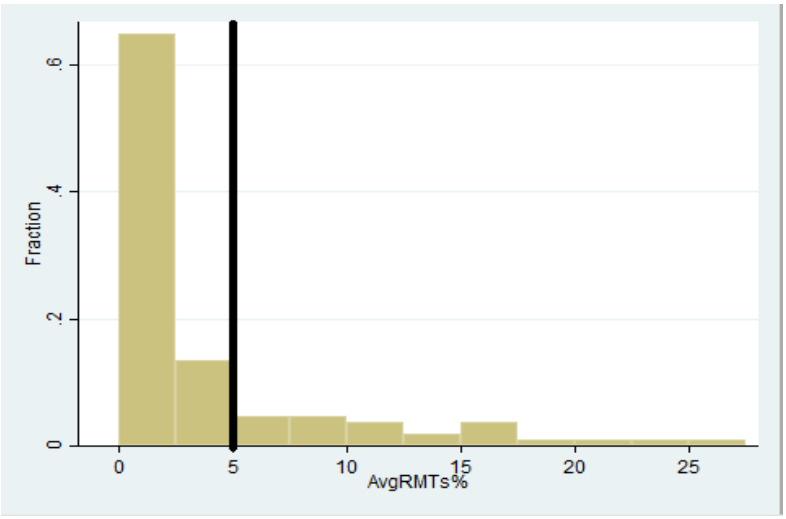

Figure 4: Frequency of occurrence and average remittances received (% of total GDP)

Table 22: Change in Log of the Real Effective Exchange Rate & Dutch Disease variables

Independent Variable	(1)	(2)	(3)	(4)
Δ Remittances (% of GDP)	0.004***			
	(0.002)			
Δ Remittances (’000 USD per capita)		0.001		
		(0.005)		
Δ Natural Resource Exports (% of Total)			0.000	
			(0.001)	
Δ Natural Resource Rents (% of GDP)				0.006***
				(0.002)
$LNREER_{t-1}$	-0.208***	-0.222***	-0.213***	-0.207***
	(0.026)	(0.026)	(0.025)	(0.024)
Remittances / Natural Resource $variable_{t-1}$	0.002	0.006	0.000	0.001
	(0.001)	(0.007)	(0.000)	(0.001)
Δ GDP per capita (Constant ’000s USD)	0.001	0.001	0.002	0.000
	(0.001)	(0.002)	(0.002)	(0.001)
Δ GDP growth (%)	0.002**	0.002**	0.002**	0.002**
	(0.001)	(0.001)	(0.001)	(0.001)
Δ M2 (% of GDP)	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Δ Terms of Trade (Goods & Services)	0.000	0.000	0.000	0.001
	(0.000)	(0.000)	(0.000)	(0.000)
Δ Log Government Expenditure	0.019	0.008	0.015	0.005
	(0.030)	(0.033)	(0.042)	(0.030)
Δ Trade Openness	-0.003***	-0.003***	-0.003***	-0.002***
	(0.000)	(0.000)	(0.000)	(0.000)
GDP per capita (Constant ’000s $USD)_{t-1}$	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
GDP $growth\ (\%)_{t-1}$	0.002**	0.002**	0.002**	0.002**
	(0.001)	(0.001)	(0.001)	(0.001)
M2 $(\%\ of\ GDP)_{t-1}$	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Terms of Trade $(Goods\ \&\ Services)_{t-1}$	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Log $Government\ Expenditure_{t-1}$	0.037**	0.040**	0.052***	0.034**
	(0.015)	(0.016)	(0.015)	(0.014)
$Trade\ Openness_{t-1}$	-0.000**	-0.000**	-0.000	-0.000*
	(0.000)	(0.000)	(0.000)	(0.000)
Number of Countries	111	111	110	111
Observations	1,272	1,244	1,179	1,283
R^2	0.53	0.53	0.54	0.55
Durbin-Watson	2.17	2.18	2.11	2.15
F-test	15.33	16.68	14.52	16.94
	(0.00)	(0.00)	(0.00)	(0.00)

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.
All regressions include a constant. P-values of the F-test are specified in parentheses.

Table 23: Change in Log of REER - High & Low Remittances countries

Independent Variable	High	High	Low	Low
Δ Remittances (% of GDP)	0.005**		0.006	
	(0.002)		(0.006)	
Δ Remittances (’000 USD per capita)		0.070*		-0.002
		(0.042)		(0.004)
$LNREER_{t-1}$	-0.160***	-0.178***	-0.230***	-0.250***
	(0.057)	(0.047)	(0.027)	(0.030)
Remittances (% of $GDP)_{t-1}$	0.001	0.033	-0.001	0.001
	(0.001)	(0.039)	(0.007)	(0.005)
Δ GDP per capita (Constant ’000s USD)	0.004**	0.003	0.001	0.001
	(0.001)	(0.003)	(0.007)	(0.002)
Δ GDP growth (%)	0.003*	0.003*	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Δ M2 (% of GDP)	0.001	0.001	-0.000	-0.000
	(0.000)	(0.001)	(0.000)	(0.000)
Δ Terms of Trade (Goods & Services)	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Δ Log Government Expenditure	-0.015	-0.005	-0.030	0.000
	(0.045)	(0.045)	(0.058)	(0.054)
Δ Trade Openness	-0.002***	-0.002***	-0.003***	-0.003***
	(0.000)	(0.001)	(0.001)	(0.001)
GDP per capita (Constant ’000s $USD)_{t-1}$	0.004	0.001	0.000	-0.000
	(0.004)	(0.004)	(0.000)	(0.000)
GDP growth $(\%)_{t-1}$	0.002	0.002	0.002	0.002
	(0.001)	(0.002)	(0.001)	(0.001)
M2 (% of $GDP)_{t-1}$	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Terms of Trade (Goods & Services)$_{t-1}$	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Log Government $Expenditure_{t-1}$	0.039	0.051	0.030	0.025
	(0.030)	(0.030)	(0.017)	(0.020)
Trade $Openness_{t-1}$	-0.000	-0.000	-0.001**	-0.001**
	(0.000)	(0.000)	(0.000)	(0.000)
Number of Countries	39	139	72	72
Observations	447	443	825	801
R^2	0.64	0.65	0.64	0.65
Durbin-Watson	2.08	2.10	2.17	2.16
F-test	18.76	23.04	16.46	24.48

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.
All regressions include a constant. P-values of the F-test are specified in parentheses.

Table 24: Change in Log of REER - High and Low Natural Resources countries

Independent Variable	High	High	Low	Low
Δ Natural Resource Exports (% of Total)	-0.000		-0.001	
	(0.001)		(0.001)	
Δ Natural Resource Rents (% of GDP)		0.008***		-0.001
		(0.005)		(0.001)
$LNREER_{t-1}$	-0.248***	-0.228***	-0.197***	-0.189***
	(0.039)	(0.040)	(0.030)	(0.031)
Natural Resource $variable_{t-1}$	-0.001	0.003*	-0.000	-0.000
	(0.001)	(0.002)	(0.001)	(0.001)
Δ GDP per capita (Constant '000s USD)	0.003**	0.001	-0.003	-0.004
	(0.001)	(0.001)	(0.004)	(0.004)
Δ GDP growth (%)	0.002	0.002*	0.002*	0.002
	(0.001)	(0.001)	(0.001)	(0.001)
Δ M2 (% of GDP)	0.000	0.000	-0.000	0.000
	(0.001)	(0.001)	(0.000)	(0.000)
Δ Terms of Trade (Goods & Services)	0.000	0.001***	0.001*	0.001
	(0.000)	(0.000)	(0.001)	(0.001)
Δ Log Government Expenditure	0.001	-0.028	0.011	0.018
	(0.058)	(0.041)	(0.057)	(0.046)
Δ Trade Openness	-0.003***	-0.002***	-0.002***	-0.002***
	(0.001)	(0.001)	(0.001)	(0.001)
GDP per capita (Constant '000s $USD)_{t-1}$	-0.000	-0.000	-0.001	-0.000
	(0.000)	(0.000)	(0.002)	(0.002)
GDP $growth\ (\%)_{t-1}$	0.001	0.002**	0.003*	0.002**
	(0.001)	(0.001)	(0.001)	(0.001)
M2 $(\%\ of\ GDP)_{t-1}$	-0.000	-0.000	0.000	0.000
	(0.001)	(0.001)	(0.000)	(0.000)
Terms of Trade $(Goods\ \&\ Services)_{t-1}$	0.000	0.000	-0.001	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Log Government $Expenditure_{t-1}$	0.072***	0.026	0.052***	0.047**
	(0.030)	(0.025)	(0.019)	(0.022)
Trade $Openness_{t-1}$	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.001)	(0.000)	(0.000)
Number of Countries	43	43	67	68
Observations	446	487	733	796
R^2	0.57	0.58	0.53	0.54
Durbin-Watson	2.15	2.17	2.14	2.14
F-test	9.04	8.62	8.35	7.91
	(0.00)	(0.00)	(0.00)	(0.00)

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.
All regressions include a constant. P-values of the F-test are specified in parentheses.

Table 25: Change in Value Added (VA) of Manufacturing & Dutch Disease variables

Independent Variable	(1)	(2)	(3)	(4)
Δ Remittances (% of GDP)	-0.013			
	(0.037)			
Δ Remittances (’000 USD per capita)		-0.158		
		(0.180)		
Δ Natural Resource Exports (% of Total)			-0.002	
			(0.007)	
Δ Natural Resource Rents (% of GDP)				-0.030
				(0.031)
VA of Manufacturing (% of GDP)$_{t-1}$	-0.329***	-0.328***	-0.323***	-0.337***
	(0.045)	(0.045)	(0.041)	(0.042)
Remittances / Natural Resource variable$_{t-1}$	-0.018	-0.328	-0.010	-0.056**
	(0.014)	(0.287)	(0.008)	(0.022)
Δ GDP per capita (Constant ’000s USD)	0.051	0.096	0.094	0.051
	(0.041)	(0.106)	(0.118)	(0.071)
Δ GDP growth (%)	0.049	0.048	0.044	0.052
	(0.032)	(0.030)	(0.031)	(0.032)
Δ M2 (% of GDP)	-0.001	-0.001	-0.001	-0.001*
	(0.000)	(0.000)	(0.000)	(0.000)
Δ Terms of Trade (Goods & Services)	-0.000	-0.011**	-0.011	-0.008
	(0.000)	(0.005)	(0.015)	(0.005)
Δ Log Government Expenditure	-1.653**	-1.573**	-1.783*	-1.365**
	(0.766)	(0.740)	(0.917)	(0.718)
Δ Trade Openness	0.014	0.013	0.015*	0.015*
	(0.008)	(0.008)	(0.009)	(0.008)
GDP per capita (Constant ’000s USD)$_{t-1}$	0.009	0.009	0.014	0.009
	(0.008)	(0.007)	(0.013)	(0.007)
GDP growth (%)$_{t-1}$	0.015	0.015	0.012	0.021
	(0.033)	(0.031)	(0.034)	(0.033)
M2 (% of GDP)$_{t-1}$	-0.001***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
Terms of Trade (Goods & Services)$_{t-1}$	-0.003	-0.004	-0.003	-0.001
	(0.003)	(0.003)	(0.003)	(0.003)
Log Government Expenditure$_{t-1}$	0.167	0.251	0.215	0.138
	(0.408)	(0.413)	(0.500)	(0.401)
Trade Openness$_{t-1}$	0.011**	0.012**	0.014**	0.014**
	(0.005)	(0.005)	(0.005)	(0.006)
Number of Countries	111	111	110	111
Observations	1,266	1,238	1,175	1,277
R^2	0.53	0.54	0.55	0.54
Durbin-Watson	2.17	2.18	2.18	2.17
F-test	40.52	48.26	38.56	44.38
	(0.00)	(0.00)	(0.00)	(0.00)

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.
All regressions include a constant. P-values of the F-test are specified in parentheses.

Table 26: Change in VA of Manufacturing - High and Low Remittances countries

Independent Variable	High	High	Low	Low
Δ Remittances (% of GDP)	-0.086		-0.085	
	(0.046)		(0.088)	
Δ Remittances (’000 USD per capita)		-0.685		-0.162
		(1.183)		(0.179)
VA of Manufacturing (% of GDP)$_{t-1}$	-0.325***	-0.320***	-0.369***	-0.379***
	(0.066)	(0.064)	(0.065)	(0.070)
Remittances (% of GDP)$_{t-1}$	-0.015	-0.247	-0.158	-0.166
	(0.018)	(0.820)	(0.159)	(0.280)
Δ GDP per capita (Constant ’000s USD)	0.226	0.231	0.032	0.065
	(0.168)	(0.176)	(0.054)	(0.050)
Δ GDP growth (%)	0.025	0.029	0.058	0.059
	(0.028)	(0.028)	(0.054)	(0.050)
Δ M2 (% of GDP)	-0.017	-0.017	0.000	0.000*
	(0.014)	(0.014)	(0.000)	(0.000)
Δ Terms of Trade (Goods & Services)	-0.007	-0.007	-0.012	-0.013
	(0.006)	(0.006)	(0.016)	(0.016)
Δ Log Government Expenditure	-1.378*	-1.364	-1.367	-1.187
	(0.795)	(0.855)	(0.888)	(0.899)
Δ Trade Openness	-0.010	-0.011	0.030**	0.030**
	(0.010)	(0.009)	(0.013)	(0.013)
GDP per capita (Constant ’000s USD)$_{t-1}$	0.069	0.051	0.008	0.010
	(0.078)	(0.081)	(0.007)	(0.007)
GDP growth (%)$_{t-1}$	-0.021	-0.017	0.037	0.040
	(0.028)	(0.028)	(0.058)	(0.056)
M2 (% of GDP)$_{t-1}$	0.002	0.002	-0.001	-0.001
	(0.009)	(0.009)	(0.000)	(0.000)
Terms of Trade (Goods & Services)$_{t-1}$	0.001	-0.000	-0.003	-0.005
	(0.001)	(0.005)	(0.004)	(0.004)
Log Government Expenditure$_{t-1}$	0.331	0.417	-0.063	-0.099
	(0.520)	(0.547)	(0.598)	(0.559)
Trade Openness$_{t-1}$	0.005	0.004	0.019**	0.019**
	(0.008)	(0.008)	(0.008)	(0.008)
Number of Countries	39	139	72	72
Observations	445	441	821	797
R^2	0.23	0.24	0.13	0.13
Durbin-Watson	2.08	2.09	2.15	2.15
F-test	32.58	29.86	32.08	28.60
	(0.00)	(0.00)	(0.00)	(0.00)

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.
All regressions include a constant. P-values of the F-test are specified in parentheses.

Table 27: Change in VA of Manufacturing - High and Low Natural Resources countries

Independent Variable	High	High	Low	Low
Δ Natural Resource Exports (% of Total)	0.002		-0.018	
	(0.007)		(0.019)	
Δ Natural Resource Rents (% of GDP)		-0.063		-0.069**
		(0.045)		(0.030)
VA of Manufacturing (% of GDP)$_{t-1}$	-0.293***	-0.302***	-0.359***	-0.366***
	(0.052)	(0.050)	(0.061)	(0.063)
Natural Resource variable$_{t-1}$	-0.011	-0.051	-0.016	-0.069
	(0.009)	(0.032)	(0.023)	(0.063)
Δ GDP per capita (Constant '000s USD)	-0.028	-0.010	0.520**	0.515**
	(0.020)	(0.010)	(0.222)	(0.215)
Δ GDP growth (%)	0.000	0.003	0.024	0.031
	(0.031)	(0.027)	(0.030)	(0.031)
Δ M2 (% of GDP)	0.008	0.011	0.001	0.001
	(0.018)	(0.015)	(0.001)	(0.000)
Δ Terms of Trade (Goods & Services)	-0.014*	-0.007	-0.003	-0.006
	(0.008)	(0.008)	(0.012)	(0.009)
Δ Log Government Expenditure	-0.387	-0.260	-2.163**	-1.881**
	(1.337)	(0.782)	(1.034)	(0.838)
Δ Trade Openness	0.002	0.003	0.011	0.008
	(0.022)	(0.019)	(0.084)	(0.008)
GDP per capita (Constant '000s USD)$_{t-1}$	0.000	0.002	0.021	0.026
	(0.003)	(0.002)	(0.078)	(0.078)
GDP growth (%)$_{t-1}$	-0.029	-0.021	-0.016	-0.020
	(0.033)	(0.032)	(0.035)	(0.032)
M2 (% of GDP)$_{t-1}$	0.015	0.014	-0.001**	-0.006**
	(0.014)	(0.013)	(0.000)	(0.003)
Terms of Trade (Goods & Services)$_{t-1}$	-0.004	-0.002	-0.003	-0.005
	(0.005)	(0.005)	(0.005)	(0.006)
Log Government Expenditure$_{t-1}$	0.510	0.426	-0.008	0.017
	(0.494)	(0.341)	(0.690)	(0.634)
Trade Openness$_{t-1}$	-0.002	0.001	0.019***	0.018***
	(0.009)	(0.008)	(0.007)	(0.006)
Number of Countries	43	43	67	68
Observations	442	483	733	794
R^2	0.48	0.49	0.48	0.48
Durbin-Watson	2.12	2.12	2.11	2.10
F-test	28.53	25.44	13.00	18.85
	(0.00)	(0.00)	(0.00)	(0.00)

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.
All regressions include a constant. P-values of the F-test are specified in parentheses.

Table 28: Change in Tradables / Non-tradables Ratio (T/NT) & Dutch Disease variables

Independent Variable	(1)	(2)	(3)	(4)
Δ Remittances (% of GDP)	-0.000			
	(0.002)			
Δ Remittances (’000 USD per capita)		-0.005		
		(0.004)		
Δ Natural Resource Exports (% of Total)			-0.000	
			(0.000)	
Δ Natural Resource Rents (% of GDP)				-0.001
				(0.001)
Tradables / Non-Tradables Ratio$_{t-1}$	-0.359***	-0.331***	-0.346***	-0.327***
	(0.052)	(0.054)	(0.049)	(0.050)
Remittances / Natural Resource variable$_{t-1}$	-0.002**	-0.001	-0.000	-0.000
	(0.001)	(0.005)	(0.000)	(0.001)
Δ GDP per capita (Constant ’000s USD)	0.000	0.001	0.001	0.000
	(0.002)	(0.002)	(0.002)	(0.002)
Δ GDP growth (%)	0.002**	0.002**	0.002**	0.002**
	(0.001)	(0.001)	(0.001)	(0.001)
Δ M2 (% of GDP)	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Δ Terms of Trade (Goods & Services)	-0.000***	-0.000***	-0.000**	-0.000**
	(0.000)	(0.000)	(0.000)	(0.000)
Δ Log Government Expenditure	-0.079**	-0.075**	-0.063**	-0.078**
	(0.033)	(0.034)	(0.043)	(0.033)
Δ Trade Openness	0.000	0.001	0.000	0.001*
	(0.000)	(0.000)	(0.000)	(0.000)
GDP per capita (Constant ’000s USD)$_{t-1}$	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
GDP growth (%)$_{t-1}$	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
M2 (% of GDP)$_{t-1}$	-0.000**	-0.000***	-0.000**	-0.000**
	(0.000)	(0.000)	(0.000)	(0.000)
Terms of Trade (Goods & Services)$_{t-1}$	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Log Government Expenditure$_{t-1}$	-0.027**	-0.022*	-0.038***	-0.028**
	(0.011)	(0.012)	(0.012)	(0.012)
Trade Openness$_{t-1}$	-0.000	-0.000	-0.000*	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Number of Countries	111	111	111	111
Observations	1,260	1,232	1,170	1,271
R^2	0.29	0.28	0.29	0.28
Durbin-Watson	2.15	2.15	2.17	2.15
F-test	40.85	68.17	82.94	56.72
	(0.00)	(0.00)	(0.00)	(0.00)

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.
All regressions include a constant. P-values of the F-test are specified in parentheses.

Table 29: Change in T/NT Ratio - High and Low Remittances countries

Independent Variable	High	High	Low	Low
Δ Remittances (% of GDP)	-0.002		-0.010	
	(0.002)		(0.007)	
Δ Remittances (’000 USD per capita)		-0.015		-0.004
		(0.027)		(0.003)
Tradables / Non-Tradables Ratio$_{t-1}$	-0.429***	-0.371***	-0.326***	-0.329***
	(0.115)	(0.103)	(0.048)	(0.044)
Remittances Variable$_{t-1}$	-0.003*	-0.027	-0.005	0.002
	(0.002)	(0.027)	(0.006)	(0.006)
Δ GDP per capita (Constant ’000s USD)	0.001	0.001	-0.000	0.000
	(0.002)	(0.002)	(0.001)	(0.002)
Δ GDP growth (%)	0.000	-0.000	0.003**	0.003**
	(0.001)	(0.001)	(0.001)	(0.001)
Δ M2 (% of GDP)	-0.000	-0.000	0.000	0.000
	(0.001)	(0.001)	(0.000)	(0.000)
Δ Terms of Trade (Goods & Services)	-0.001***	-0.001***	-0.000	-0.000*
	(0.000)	(0.000)	(0.000)	(0.000)
Δ Log Government Expenditure	-0.018	-0.013	-0.084**	-0.089**
	(0.056)	(0.060)	(0.037)	(0.038)
Δ Trade Openness	0.000	-0.000	0.001	0.001
	(0.000)	(0.000)	(0.000)	(0.000)
GDP per capita (Constant ’000s USD)$_{t-1}$	-0.002	0.001	0.000	0.000
	(0.003)	(0.003)	(0.000)	(0.000)
GDP growth (%)$_{t-1}$	-0.001	-0.001	0.002	0.002
	(0.001)	(0.001)	(0.001)	(0.001)
M2 (% of GDP)$_{t-1}$	0.000	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Terms of Trade (Goods & Services)$_{t-1}$	-0.001	-0.000	0.000	-0.000
	(0.002)	(0.000)	(0.000)	(0.000)
Log Government Expenditure$_{t-1}$	0.008	0.017	-0.012	0.016
	(0.023)	(0.026)	(0.012)	(0.014)
Trade Openness$_{t-1}$	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Number of Countries	39	39	72	72
Observations	443	439	817	793
R^2	0.42	0.36	0.31	0.31
Durbin-Watson	2.12	2.10	2.14	2.14
F-test	36.02	42.52	46.00	50.64
	(0.00)	(0.00)	(0.00)	(0.00)

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.
All regressions include a constant. P-values of the F-test are specified in parentheses.

Table 30: Change in T/NT Ratio - High and Low Natural Resources countries

Independent Variable	High	High	Low	Low
Δ Natural Resource Exports (% of Total)	-0.000		-0.000	
	(0.000)		(0.001)	
Δ Natural Resource Rents (% of GDP)		-0.001		-0.001
		(0.001)		(0.003)
Tradables / Non-Tradables Ratio$_{t-1}$	-0.368***	-0.332***	-0.37***	-0.348***
	(0.046)	(0.053)	(0.063)	(0.061)
Natural Resource variable$_{t-1}$	-0.000	-0.000	-0.001	-0.001
	(0.000)	(0.001)	(0.001)	(0.003)
Δ GDP per capita (Constant '000s USD)	-0.002	-0.001***	0.010**	0.010**
	(0.000)	(0.000)	(0.004)	(0.004)
Δ GDP growth (%)	0.002	0.001	0.002*	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Δ M2 (% of GDP)	0.001	0.001	0.000*	0.000*
	(0.001)	(0.001)	(0.000)	(0.000)
Δ Terms of Trade (Goods & Services)	-0.000**	-0.000	0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.001)
Δ Log Government Expenditure	-0.045	-0.101***	-0.074	-0.043
	(0.039)	(0.027)	(0.056)	(0.043)
Δ Trade Openness	0.001	0.001	0.000	0.000
	(0.000)	(0.001)	(0.000)	(0.000)
GDP per capita (Constant '000s USD)$_{t-1}$	-0.000	0.000	0.002	0.002
	(0.000)	(0.000)	(0.002)	(0.002)
GDP growth (%)$_{t-1}$	0.000	0.001	-0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)
M2 (% of GDP)$_{t-1}$	0.001	0.001	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Terms of Trade (Goods & Services)$_{t-1}$	0.000	0.000	-0.000*	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Log Government Expenditure$_{t-1}$	-0.032*	-0.029**	-0.037***	-0.029***
	(0.018)	(0.014)	(0.011)	(0.010)
Trade Openness$_{t-1}$	-0.000	0.000	0.000**	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)
Number of Countries	43	43	67	68
Observations	440	481	730	790
R^2	0.82	0.80	0.70	0.70
Durbin-Watson	2.14	2.14	2.10	2.09
F-test	29.65	21.42	28.78	17.62
	(0.00)	(0.00)	(0.00)	(0.00)

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.
All regressions include a constant. P-values of the F-test are specified in parentheses.

Table 31: Change in Number of Exporters in the Manufacturing Industry

Independent Variable	(1)	(2)	(3)	(4)
Δ Remittances (% of GDP)	-23.704			
	(30.035)			
Δ Remittances (’000 USD per capita)		-1.384		
		(2.941)		
Δ Natural Resource Exports (% of Total)			-2.653	
			(2.755)	
Δ Natural Resource Rents (% of GDP)				-29.391*
				(16.067)
Number of Exporters$_{t-1}$	-0.104**	-0.108**	-0.103**	-0.104**
	(0.039)	(0.041)	(0.043)	(0.039)
Remittances / Natural Resource variable$_{t-1}$	-9.461	-0.776	-3.441	-14.094
	(21.571)	(1.297)	(4.961)	(21.453)
Δ GDP per capita (Constant ’000s USD)	0.003	-0.002	0.007	-0.003
	(0.125)	(0.123)	(0.121)	(0.125)
Δ GDP growth (%)	-24.343	-23.407	-22.538	-20.301
	(17.471)	(19.657)	(15.827)	(15.364)
Δ M2 (% of GDP)	-4.526***	-4.484***	-4.503***	-4.561***
	(0.278)	(0.272)	(0.317)	(0.288)
Δ Terms of Trade (Goods & Services)	-0.737***	1.453	1.831	-1.927
	(3.356)	(3.976)	(3.825)	(3.303)
Δ Log Government Expenditure	-732.885**	-691.010	-1536.467	-703.723
	(1105.778)	(1118.734)	(1872.575)	(1075.929)
Δ Trade Openness	5.226	6.579	5.469	3.595
	(6.276)	(7.006)	(7.328)	(6.470)
GDP per capita (Constant ’000s USD)$_{t-1}$	0.032	0.028	0.033	0.033
	(0.033)	(0.036)	(0.033)	(0.032)
GDP growth (%)$_{t-1}$	-50.058	-48.671	-48.623	-45.466
	(33.455)	(35.754)	(30.362)	(32.044)
M2 (% of GDP)$_{t-1}$	-3.437***	-3.594***	-3.361***	-3.467***
	(0.468)	(0.483)	(0.529)	(0.458)
Terms of Trade (Goods & Services)$_{t-1}$	-5.116	-6.363	-4.840	-5.812
	(3.646)	(4.069)	(3.519)	(3.496)
Log Government Expenditure$_{t-1}$	184.765	228.513	247.062	219.415
	(546.268)	(568.321)	(701.130)	(528.159)
Trade Openness$_{t-1}$	8.340	9.040	10.653*	7.840
	(5.010)	(5.373)	(5.670)	(5.394)
Number of Countries	39	39	39	39
Observations	329	320	316	331
R^2	0.57	0.58	0.58	0.57
Durbin-Watson	2.09	2.08	2.08	2.09
F-test	82.88	92.94	83.76	84.60
	(0.00)	(0.00)	(0.00)	(0.00)

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.
All regressions include a constant. P-values of the F-test are specified in parentheses.

Table 32: Change in Entry Rate for Exporting Manufacturers

Independent Variable	(1)	(2)	(3)	(4)
Δ Remittances (% of GDP)	-0.132			
	(0.319)			
Δ Remittances (’000 USD per capita)		-0.005		
		(0.019)		
Δ Natural Resource Exports (% of Total)			-0.045	
			(0.081)	
Δ Natural Resource Rents (% of GDP)				-0.036
				(0.261)
Entry Rate$_{t-1}$	-0.132**	-0.754**	-0.683***	-0.750***
	(0.319)	(0.173)	(0.127)	(0.164)
Remittances / Natural Resource variable$_{t-1}$	-0.055	-0.004	-0.203	-0.551
	(0.177)	(0.016)	(0.175)	(0.335)
Δ GDP per capita (Constant ’000s USD)	0.000	0.001	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.001)
Δ GDP growth (%)	-0.351	-0.374	-0.431*	-0.304
	(0.240)	(0.268)	(0.226)	(0.215)
Δ M2 (% of GDP)	-0.027***	-0.027***	-0.026***	-0.027***
	(0.004)	(0.004)	(0.003)	(0.003)
Δ Terms of Trade (Goods & Services)	-0.078	-0.076	-0.060	-0.091
	(0.056)	(0.064)	(0.050)	(0.069)
Δ Log Government Expenditure	-31.368**	-33.214**	-18.930**	-31.952**
	(13.168)	(13.395)	(7.916)	(13.558)
Δ Trade Openness	-0.115	-0.134	-0.067	-0.117*
	(0.075)	(0.081)	(0.075)	(0.067)
GDP per capita (Constant ’000s USD)$_{t-1}$	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
GDP growth (%)$_{t-1}$	-0.569*	-0.587*	-0.657**	-0.584*
	(0.309)	(0.350)	(0.298)	(0.294)
M2 (% of GDP)$_{t-1}$	-0.008**	-0.008*	-0.006	-0.009**
	(0.004)	(0.005)	(0.004)	(0.004)
Terms of Trade (Goods & Services)$_{t-1}$	-0.035	-0.039	-0.006	-0.020
	(0.028)	(0.029)	(0.028)	(0.029)
Log Government Expenditure$_{t-1}$	-0.027	-1.443	-2.887	-0.010
	(4.579)	(4.094)	(3.618)	(4.614)
Trade Openness$_{t-1}$	-0.110	-0.119	-0.074	-0.075
	(0.070)	(0.075)	(0.070)	(0.067)
Number of Countries	39	39	39	39
Observations	297	288	287	299
R^2	0.68	0.69	0.64	0.69
Durbin-Watson	2.05	2.07	2.06	2.07
F-test	48.10	80.71	55.36	62.76
	(0.00)	(0.00)	(0.00)	(0.00)

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.
All regressions include a constant. P-values of the F-test are specified in parentheses.

Table 33: Change in Exit Rate for Exporting Manufacturers

Independent Variable	(1)	(2)	(3)	(4)
Δ Remittances (% of GDP)	0.407			
	(0.274)			
Δ Remittances (’000 USD per capita)		0.012		
		(0.014)		
Δ Natural Resource Exports (% of Total)			0.089	
			(0.065)	
Δ Natural Resource Rents (% of GDP)				0.306
				(0.194)
Exit Rate$_{t-1}$	-0.751***	-0.752***	-0.752***	-0.757***
	(0.210)	(0.211)	(0.206)	(0.199)
Remittances / Natural Resource variable$_{t-1}$	0.048	0.003	0.037	0.247*
	(0.139)	(0.009)	(0.065)	(0.126)
Δ GDP per capita (Constant ’000s USD)	-0.001***	-0.000**	-0.001***	-0.000**
	(0.000)	(0.000)	(0.000)	(0.000)
Δ GDP growth (%)	-0.056	-0.056	-0.053	-0.074
	(0.226)	(0.247)	(0.215)	(0.205)
Δ M2 (% of GDP)	0.003**	0.003**	0.003**	0.004**
	(0.002)	(0.001)	(0.002)	(0.002)
Δ Terms of Trade (Goods & Services)	-0.072	-0.067	-0.058	-0.042
	(0.044)	(0.050)	(0.040)	(0.049)
Δ Log Government Expenditure	-13.445	-14.068	-13.895	-14.650
	(11.603)	(12.084)	(12.694)	(11.704)
Δ Trade Openness	-0.095***	-0.094**	-0.093**	-0.076**
	(0.033)	(0.039)	(0.037)	(0.034)
GDP per capita (Constant ’000s USD)$_{t-1}$	-0.000***	-0.000***	-0.000***	-0.000**
	(0.000)	(0.000)	(0.000)	(0.000)
GDP growth (%)$_{t-1}$	-0.114	-0.112	-0.109	-0.131
	(0.246)	(0.273)	(0.229)	(0.226)
M2 (% of GDP)$_{t-1}$	-0.008*	0.008	0.009*	0.009*
	(0.005)	(0.006)	(0.005)	(0.005)
Terms of Trade (Goods & Services)$_{t-1}$	-0.028	-0.023	-0.026	-0.019
	(0.021)	(0.024)	(0.021)	(0.021)
Log Government Expenditure$_{t-1}$	-1.666	-1.797	-0.618	-1.333
	(4.186)	(4.508)	(4.086)	(4.210)
Trade Openness$_{t-1}$	-0.072*	-0.068	-0.066	-0.055
	(0.042)	(0.053)	(0.045)	(0.048)
Number of Countries	39	39	39	39
Observations	293	284	284	295
R^2	0.73	0.72	0.71	0.73
Durbin-Watson	2.12	2.13	2.14	2.15
F-test	40.68	44.19	37.14	50.33
	(0.00)	(0.00)	(0.00)	(0.00)

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.
All regressions include a constant. P-values of the F-test are specified in parentheses.

Table 34: Change in Exports per Exporter in Manufacturing (constant 2010 USD)

Independent Variable	(1)	(2)	(3)	(4)
Δ Remittances (% of GDP)	913.80			
	(31754.98)			
Δ Remittances (’000 USD per capita)		1813.84		
		(1605.58)		
Δ Natural Resource Exports (% of Total)			3167.94	
			(3791.53)	
Δ Natural Resource Rents (% of GDP)				22291.4
				(23966.8)
Exports per Exporter$_{t-1}$	-0.298***	-0.294***	-0.296***	-0.293***
	(0.054)	(0.058)	(0.053)	(0.056)
Remittances / Natural Resource variable$_{t-1}$	2767.03	157.28	1871.16	4904.46
	(12101.07)	(753.04)	(5606.83)	(24573.97)
Δ GDP per capita (Constant ’000s USD)	47.75***	48.24**	50.22***	42.02**
	(17.04)	(19.39)	(15.02)	(16.97)
Δ GDP growth (%)	24033.4*	26223.9*	19794.1	26832.0**
	(11997.7)	(14867.6)	(12187.6)	(12953.1)
Δ M2 (% of GDP)	947.88***	976.46***	886.88***	931.81***
	(216.09)	(242.85)	(183.09)	(206.99)
Δ Terms of Trade (Goods & Services)	12332.7**	12404.7**	12170.4**	10236.8**
	(5794.1)	(6126.2)	(5639.8)	(5633.0)
Δ Log Government Expenditure	-220500.5	-266489.6	120094.8	-195400.0
	(293662.0)	(309648.4)	(437228.9)	(301400.0)
Δ Trade Openness	9366.98	8914.53	6833.63	8119.24
	(6260.08)	(7211.99)	(5609.48)	(6317.30)
GDP per capita (Constant ’000s USD)$_{t-1}$	9.27	7.70	8.21	9.20
	(6.47)	(7.17)	(6.30)	(7.15)
GDP growth (%)$_{t-1}$	30821.9**	33087.4*	25716.7*	32984.7**
	(14736.0)	(17448.5)	(14566.9)	(15191.3)
M2 (% of GDP)$_{t-1}$	1018.94***	1158.43***	4803.69	977.15***
	(276.77)	(301.58)	(3378.30)	(284.50)
Terms of Trade (Goods & Services)$_{t-1}$	4644.97	4747.67	4803.69	4520.30
	(3293.73)	(3574.40)	(3378.30)	(3429.15)
Log Government Expenditure$_{t-1}$	-98224.6	-85711.2	-190056.0	-93286.2
	(349049.1)	(368739.7)	(371025.7)	(331824.7)
Trade Openness$_{t-1}$	10827.4**	10695.8**	9058.89**	10643.5**
	(4215.3)	(4577.0)	(4055.84)	(4261.3)
Number of Countries	39	39	39	39
Observations	329	320	316	331
R^2	0.78	0.79	0.79	0.79
Durbin-Watson	2.14	2.14	2.13	2.13
F-test	47.12	48.57	44.18	83.69
	(0.00)	(0.00)	(0.00)	(0.00)

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.
All regressions include a constant. P-values of the F-test are specified in parentheses.

Table 35: Change in Number of Different Products Exported in the Manufacturing

Independent Variable	(1)	(2)	(3)	(4)
Δ Remittances (% of GDP)	0.014**			
	(0.007)			
Δ Remittances (’000 USD per capita)		0.001		
		(0.001)		
Δ Natural Resource Exports (% of Total)			0.004	
			(0.003)	
Δ Natural Resource Rents (% of GDP)				0.020**
				(0.009)
Number of Products$_{t-1}$	-0.256**	-0.276***	-0.243**	-0.256**
	(0.099)	(0.101)	(0.110)	(0.100)
Remittances / Natural Resource variable$_{t-1}$	0.014	0.001	0.005	0.003
	(0.015)	(0.001)	(0.003)	(0.020)
Δ GDP per capita (Constant ’000s USD)	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Δ GDP growth (%)	0.005	0.010	0.006	0.007
	(0.007)	(0.007)	(0.007)	(0.007)
Δ M2 (% of GDP)	0.004***	0.004***	0.004***	0.004***
	(0.000)	(0.000)	(0.000)	(0.000)
Δ Terms of Trade (Goods & Services)	0.002	0.002	0.000	0.003
	(0.002)	(0.002)	(0.002)	(0.002)
Δ Log Government Expenditure	-0.219	-0.317	-1.164**	-0.193
	(0.725)	(0.733)	(0.576)	(0.697)
Δ Trade Openness	0.002***	0.003	0.001	0.003
	(0.005)	(0.005)	(0.005)	(0.005)
GDP per capita (Constant ’000s USD)$_{t-1}$	-0.000	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
GDP growth (%)$_{t-1}$	0.025*	0.030**	0.026*	0.026*
	(0.014)	(0.014)	(0.015)	(0.014)
M2 (% of GDP)$_{t-1}$	0.004***	0.004***	0.004***	0.004***
	(0.000)	(0.000)	(0.000)	(0.000)
Terms of Trade (Goods & Services)$_{t-1}$	0.004	0.005**	0.003	0.004
	(0.002)	(0.002)	(0.003)	(0.003)
Log Government Expenditure$_{t-1}$	-1.377***	-1.507***	-1.087**	-1.366***
	(0.428)	(0.430)	(0.503)	(0.424)
Trade Openness$_{t-1}$	0.007	0.009	0.008	0.007
	(0.005)	(0.005)	(0.005)	(0.006)
Number of Countries	39	39	39	39
Observations	323	314	310	325
R^2	0.66	0.68	0.67	0.66
Durbin-Watson	2.06	2.06	2.05	2.06
F-test	53.55	85.35	46.98	70.25
	(0.00)	(0.00)	(0.00)	(0.00)

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.
All regressions include a constant. P-values of the F-test are specified in parentheses.

Table 36: Change in Number of Different Destinations for Exporting Manufacturers

Independent Variable	(1)	(2)	(3)	(4)
Δ Remittances (% of GDP)	0.007**			
	(0.004)			
Δ Remittances (’000 USD per capita)		0.000		
		(0.000)		
Δ Natural Resource Exports (% of Total)			0.000	
			(0.002)	
Δ Natural Resource Rents (% of GDP)				0.004**
				(0.002)
Number of Destinations$_{t-1}$	-0.386***	-0.399***	-0.397***	-0.385***
	(0.055)	(0.060)	(0.052)	(0.056)
Remittances / Natural Resource variable$_{t-1}$	0.004	0.000	0.002	0.003
	(0.010)	(0.001)	(0.004)	(0.006)
Δ GDP per capita (Constant ’000s USD)	-0.000	0.000	0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Δ GDP growth (%)	-0.005	-0.006	-0.005	-0.004
	(0.007)	(0.005)	(0.004)	(0.004)
Δ M2 (% of GDP)	0.001***	0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
Δ Terms of Trade (Goods & Services)	-0.001	-0.001	0.000	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Δ Log Government Expenditure	0.141	0.137	-0.066	0.119
	(0.173)	(0.177)	(0.220)	(0.163)
Δ Trade Openness	-0.002	-0.001	-0.001	-0.002
	(0.002)	(0.002)	(0.002)	(0.003)
GDP per capita (Constant ’000s USD)$_{t-1}$	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
GDP growth (%)$_{t-1}$	-0.006	-0.007	-0.005	-0.005
	(0.006)	(0.006)	(0.007)	(0.005)
M2 (% of GDP)$_{t-1}$	0.001***	0.001***	0.001***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Terms of Trade (Goods & Services)$_{t-1}$	0.002**	0.002**	0.001	0.002*
	(0.001)	(0.001)	(0.001)	(0.001)
Log Government Expenditure$_{t-1}$	0.027	0.030	-0.164	0.020
	(0.204)	(0.216)	(0.152)	(0.199)
Trade Openness$_{t-1}$	-0.000	-0.000	-0.001	0.000
	(0.003)	(0.002)	(0.003)	(0.003)
Number of Countries	39	39	39	39
Observations	329	320	316	331
R^2	0.26	0.26	0.26	0.26
Durbin-Watson	2.14	2.14	2.15	2.14
F-test	32.80	46.92	52.37	36.16
	(0.00)	(0.00)	(0.00)	(0.00)

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.
All regressions include a constant. P-values of the F-test are specified in parentheses.

Table 37: Change in Market Share of Top 1% for Exporting Manufacturers

Independent Variable	(1)	(2)	(3)	(4)
Δ Remittances (% of GDP)	0.344**			
	(0.168)			
Δ Remittances (’000 USD per capita)		0.008		
		(0.012)		
Δ Natural Resource Exports (% of Total)			0.037	
			(0.036)	
Δ Natural Resource Rents (% of GDP)				0.987***
				(0.006)
Export Share of Top $1\%_{t-1}$	-0.600***	-0.626***	-0.629***	-0.577***
	(0.061)	(0.059)	(0.074)	(0.056)
Remittances / Natural Resource $variable_{t-1}$	0.153	0.014	0.031	0.404**
	(0.244)	(0.009)	(0.054)	(0.188)
Δ GDP per capita (Constant ’000s USD)	0.000	0.000	0.000*	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Δ GDP growth (%)	-0.051	0.006	-0.035	0.072
	(0.097)	(0.081)	(0.087)	(0.134)
Δ M2 (% of GDP)	0.009***	0.010***	0.010***	0.007***
	(0.003)	(0.003)	(0.003)	(0.002)
Δ Terms of Trade (Goods & Services)	0.024	0.021	0.012	0.119
	(0.061)	(0.064)	(0.058)	(0.073)
Δ Log Government Expenditure	4.072	4.224	3.373	4.911
	(5.061)	(5.137)	(7.168)	(5.425)
Δ Trade Openness	0.139**	0.126*	0.137**	0.078
	(0.062)	(0.069)	(0.062)	(0.053)
GDP per capita (Constant ’000s $USD)_{t-1}$	-0.000**	-0.000**	-0.000**	-0.000**
	(0.000)	(0.000)	(0.000)	(0.000)
GDP growth $(\%)_{t-1}$	-0.032	-0.062	-0.014	0.091
	(0.154)	(0.143)	(0.153)	(0.178)
M2 (% of $GDP)_{t-1}$	0.002	0.002	0.003	0.001
	(0.003)	(0.003)	(0.003)	(0.003)
Terms of Trade (Goods & $Services)_{t-1}$	0.006	0.015	0.012	-0.025
	(0.022)	(0.027)	(0.027)	(0.021)
Log $Government\ Expenditure_{t-1}$	1.815	2.667	1.860	2.475
	(3.725)	(3.800)	(4.501)	(3.686)
$Trade\ Openness_{t-1}$	-0.006	0.004	0.035	-0.015
	(0.035)	(0.038)	(0.048)	(0.036)
Number of Countries	39	39	39	39
Observations	329	320	316	331
R^2	0.77	0.77	0.77	0.82
Durbin-Watson	2.05	2.05	2.04	2.04
F-test	99.34	91.64	40.02	67.72
	(0.00)	(0.00)	(0.00)	(0.00)

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.
All regressions include a constant. P-values of the F-test are specified in parentheses.

Table 38: Change in Market Share of Top 5% for Exporting Manufacturers

Independent Variable	(1)	(2)	(3)	(4)
Δ Remittances (% of GDP)	0.092**			
	(0.044)			
Δ Remittances (’000 USD per capita)		0.001		
		(0.001)		
Δ Natural Resource Exports (% of Total)			0.010	
			(0.028)	
Δ Natural Resource Rents (% of GDP)				0.509***
				(0.159)
Export Share of Top 5%$_{t-1}$	-0.684***	-0.710***	-0.671***	-0.678***
	(0.134)	(0.124)	(0.134)	(0.111)
Remittances / Natural Resource variable$_{t-1}$	0.081	0.004	0.026	0.230**
	(0.159)	(0.006)	(0.042)	(0.106)
Δ GDP per capita (Constant ’000s USD)	0.000*	0.000*	0.000**	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Δ GDP growth (%)	0.002	0.004	-0.012	0.060
	(0.045)	(0.042)	(0.042)	(0.056)
Δ M2 (% of GDP)	-0.072	-0.071	-0.097	-0.070
	(0.052)	(0.060)	(0.071)	(0.058)
Δ Terms of Trade (Goods & Services)	-0.013	-0.015	-0.015	-0.061
	(0.032)	(0.035)	(0.032)	(0.039)
Δ Log Government Expenditure	-0.137	-0.066	0.597	0.193
	(2.180)	(2.352)	(2.866)	(2.100)
Δ Trade Openness	0.068*	0.064	0.057**	0.035
	(0.034)	(0.040)	(0.034)	(0.022)
GDP per capita (Constant ’000s USD)$_{t-1}$	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
GDP growth (%)$_{t-1}$	-0.034	-0.014	-0.038	0.025
	(0.074)	(0.076)	(0.069)	(0.080)
M2 (% of GDP)$_{t-1}$	-0.029	-0.028	-0.039	-0.034
	(0.026)	(0.028)	(0.024)	(0.024)
Terms of Trade (Goods & Services)$_{t-1}$	0.016	0.016	0.013	-0.002
	(0.016)	(0.019)	(0.015)	(0.015)
Log Government Expenditure$_{t-1}$	-0.154	0.081	-0.935	0.157
	(1.937)	(2.051)	(2.067)	(1.559)
Trade Openness$_{t-1}$	0.037	0.044	0.049*	0.032
	(0.025)	(0.026)	(0.024)	(0.025)
Number of Countries	38	38	38	38
Observations	321	312	308	323
R^2	0.78	0.79	0.78	0.83
Durbin-Watson	2.03	2.04	2.03	2.04
F-test	52.50	45.94	44.35	42.38
	(0.00)	(0.00)	(0.00)	(0.00)

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.
All regressions include a constant. P-values of the F-test are specified in parentheses.

Table 39: Change in Market Share of Top 25% for Exporting Manufacturers

Independent Variable	(1)	(2)	(3)	(4)
Δ Remittances (% of GDP)	0.003**			
	(0.001)			
Δ Remittances (’000 USD per capita)		0.000		
		(0.002)		
Δ Natural Resource Exports (% of Total)			0.003	
			(0.005)	
Δ Natural Resource Rents (% of GDP)				0.031***
				(0.012)
Export Share of Top 25%$_{t-1}$	-0.620***	-0.619***	-0.613***	-0.602***
	(0.185)	(0.191)	(0.154)	(0.187)
Remittances / Natural Resource variable$_{t-1}$	0.034	0.001	0.005	0.011
	(0.044)	(0.001)	(0.007)	(0.044)
Δ GDP per capita (Constant ’000s USD)	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Δ GDP growth (%)	0.001	-0.002	0.005	0.009
	(0.010)	(0.009)	(0.010)	(0.012)
Δ M2 (% of GDP)	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Δ Terms of Trade (Goods & Services)	0.001	0.001	0.001	0.006*
	(0.002)	(0.003)	(0.002)	(0.003)
Δ Log Government Expenditure	0.415	0.463	-0.495	0.429
	(0.479)	(0.467)	(0.390)	(0.396)
Δ Trade Openness	0.009	0.009	0.012**	0.003
	(0.007)	(0.008)	(0.005)	(0.006)
GDP per capita (Constant ’000s USD)$_{t-1}$	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
GDP growth (%)$_{t-1}$	-0.013	-0.014	-0.003	-0.007
	(0.017)	(0.015)	(0.016)	(0.016)
M2 (% of GDP)$_{t-1}$	-0.002	-0.002	-0.002	-0.002
	(0.001)	(0.001)	(0.001)	(0.002)
Terms of Trade (Goods & Services)$_{t-1}$	0.002	0.002	0.003	0.000
	(0.004)	(0.004)	(0.003)	(0.004)
Log Government Expenditure$_{t-1}$	0.424	0.445	-0.027	0.424
	(0.433)	(0.435)	(0.399)	(0.370)
Trade Openness$_{t-1}$	0.010*	0.011*	0.013**	0.010
	(0.006)	(0.006)	(0.006)	(0.006)
Number of Countries	39	39	39	39
Observations	329	320	316	331
R^2	0.74	0.74	0.76	0.76
Durbin-Watson	2.08	2.09	2.08	2.09
F-test	24.60	27.40	55.19	45.32
	(0.00)	(0.00)	(0.00)	(0.00)

Robust standard errors in parentheses. *, **, *** refer to P-values of 0.1, 0.05, and 0.01, respectively.
All regressions include a constant. P-values of the F-test are specified in parentheses.