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NATURAL RESOURCE ABUNDANCE: IS IT A BLESSING OR IS IT A CURSE

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The entire subject of what creates a curse rather than a blessing and how to bring about the second and avoid the earlier is a particularly complex area for discussion. It is conspicuous that countries with natural resource wealth have experienced inferior economic growth in comparison to those devoid of such gifts. We advance the following propositions: i) there is evidence that natural resource abundance is associated with negative development outcomes; ii) current explanations of the resource curse do not sufficiently account for the role of the socio-economic background; iii) counteractive policy measures in alleviating/ preventing the resource curse are feasible.

Keywords: Economic Growth, Resource Curse, Prebisch-Singer Thesis (PST), Salter-Swan Model, Dutch Disease
JEL Classification: C22, F31, O11, O13, P17, O43, Q32, Q43

1. INTRODUCTION

There exists a vast literature on why countries might suffer resource curse. We identify four different channels or transmission mechanisms (with various combinations and variations) which endeavour to account for the inverse statistical relationship between resource abundance and economic growth: i) Decline in terms of trade; ii) Volatility of revenues; iii) Quality of Governance; and, iv) Dutch disease.

Representative empirical works on the impact of natural resources on growth include Sachs and Warner (1995 and 2001) and Isham, Woolcock et al. (2005). These authors arrived at the conclusion that countries with a high ratio of resource exports to GDP have relatively lower rates of GDP growth. The result – of negative and significant impact – remaining robust after introduction of controls for quality of governance; initial level of per capita income; level of investment; inequality; and, trade policies. A recent study based on detailed, disaggregated sectoral data for manufacturing finds that the overall effect of a lasting oil extra payments shocks is substantial, whereas a 10 per cent rise in pay-outs is related to a 3.6 per cent decrease in manufacturing output (Ismail, 2010). Another current paper providing evidence for 135 countries for the period 1975-2007, estimates that the reaction to an increase of resource revenue by one unit is a

decline of non-resource exports by 0.5, increase in savings by 0.35 and rise imports by 0.15 units (Harding and Venables, 2010). Other studies finding negative effects of resource abundance/oil wealth on economic performance include Sala-i-Martin and Subramanian (2003). However, the conclusions of Sala-i-Martin and Subramanian are qualified by stating that when there is a control established for the quality of institutions the effect of resource abundance on economic growth would be trivially negative or can be positive. Furthermore, their results advocate that natural resources' effect is nonlinear. Kaldor et al. (2007) extend this nexus plausibly, whereby oil generally tends to weaken state institutions turning them eventually to failed states and ultimately causing violence and wars. "Even in the best cases, where oil rents appear to be successful in propping up some form of centralised authority, rents tend over time to exacerbate state weakness, risking the creation of state failure and threat of further 'new oil wars'. Oil wars are rentier wars." Finally, in a topical work Konte (2012) models the unobserved heterogeneity of the relevant different growth regimes, testing if the natural resources turn to a curse or a blessing depending on the regime they belong to. The findings of this study support the view that for the 36-year period of 1970 to 2005 the data generation process is best modelled by two regimes whereas in the first case the natural resources abundance positively affect growth, but in the second one does not boost growth; the deterring factor being the state of democracy, while level of education and institutional structure turn out to be insignificant. Simultaneously there are statistical studies, e.g., Herb (2005) which are rather undecided as they are not finding reliable support for the hypothesis that rent-seeking has a detrimental effect on democracy. Furthermore, Alexeev and Conrad (2009) criticise the conclusions that abundance of resources negatively affects economic growth, and that this negative effect works through the structure and quality of political institutions; stating: "We believe there is little or no evidence that the large endowments of oil or minerals slow long-term economic growth. In fact, the data available so far suggest that natural resources enhance long-term growth. We have demonstrated this result by focusing on the levels of per capita GDP rather than on the rates of growth over any given period of time." In the same vein Papyrakis and Gerlagh (2004) affirm: "In the twentieth century, resource abundant countries such as Norway and Iceland experienced remarkable and sustained growth rates. Hence, natural resource wealth may stimulate growth but only under certain conditions. A natural resource economy that suffers from corruption, low investment, protectionist measures, deteriorating terms of trade and low educational standards will probably not benefit from its natural wealth due to adverse indirect effects. Our empirical analysis indicates that natural resource wealth increases growth, if negative indirect effects are excluded." However, it should be pointed out that this development (sustained economic growth) did not take place in a vacuum; thus, the most probable explanation of the success stories of Norway and Iceland is the pre-existence of trustworthy institutional and political structures in both countries. Similarly, Polterovich et al. (2010) conclude: "Nevertheless, it does not appear that resource rich countries grow less rapidly due to their resource wealth. This is explained by the fact that they pursue good policies in

some areas and enjoy the advantages of having resource rent. In particular, resource abundant economies have lower budget deficits and inflation, higher investment/GDP ratios, higher inflows of FDI as compared to GDP, and more equitable distribution of income." One possible rationalization of why different studies may have come to different results is the time-span of the dataset used, and the proxy for natural resource concentration applied (resource reserves vs. resource exports). "Treating resource dependence as endogenous, we find it to be insignificant in growth regressions, with no effect on institutional quality. While we find resource abundance to be significantly associated with both growth and institutional quality, the association runs contrary to the resource curse hypothesis: greater abundance leads to better institutions and more rapid growth. These concepts are possibly correlated – countries with large resource stocks may derive high incomes from extraction and because of Dutch-disease arguments or otherwise, may specialise in primary exports and become dependent on resources. But some resource-abundant countries are not dependent on resources, and some relatively resource-scarce countries are. We find countries should not turn their back on resources wealth to lower resource dependence (Brunnschweiler and Bulte, 2007)." The argument being that commodity exports are vastly endogenous. Concurrently fundamental trade theory readily expects that a country may prove to have a high mineral share in exports which does not translates automatically into a higher endowment of resources than other countries, i.e., absolute advantage but because it does not have capacity to export manufacturing goods, i.e., comparative advantage. This provides a clear account for the inverse statistical correlations between mineral exports and economic development. The conclusion so far, is that there is no straightforward, generally accepted interpretation of the factors that generate a curse, or produce a blessing, neither is such a theoretical nexus existent. This state of affairs provides support for following a particular line of investigation rather than aiming to bring about some sort of a universal wrapping up of this theme at the cost of oversimplifications.

2. METHODOLOGY OF THE RESEARCH

Firstly, potential transmission mechanisms between resource wealth and poor economic performance are presented, including: terms of trade divergence, i.e., Prebisch-Singer thesis – Prebisch (1950) and Singer (1950), revenue volatility, and quality of governance. Then these are plainly analysed utilising a version of the Salter-Swan model (Salter, 195; Swan, 1960) of a two-sector economy with resource abundance (abstracting from capital accumulation, international investment and financial assets). It helps our aim to facilitate the understanding of the functions and relations of the key factors bringing about macro-economic imbalances; and, provide a framework within which the underlying principles and the expected outcomes of policy interventions can be analysed. In what follows we review the literature on the possible channels through which natural resource abundance may impact economic growth. In

doing so, we are conscious that many of the ideas and the concepts involved have come to imply so much that if not carefully examined and disentangled would lose their content.

3. TRANSMISSION MECHANISM BETWEEN RESOURCE WEALTH AND POOR ECONOMIC PERFORMANCE

3.1. Terms of Trade Divergence

This thesis accepts the claim that in a long-run, there is some tendency for the prices of primary products to decline in relation to manufactured products. It has become known as the Prebisch-Singer thesis (PST) after the names of the two economists who independently developed it – Prebisch (1950) and Singer (1950). Singer (1998) describes the PST as follows: "The PST, taken by itself, (and leaving aside the case of rich oil exporters), would create a presumption (although no certainty) of divergence within the world economy. Other things being equal, falling terms of trade for poorer countries and improving terms of trade for richer countries would mean greater international inequality between countries." In short, this is to say that productivity in manufacturing is generally higher in comparison to agriculture, oil and mineral extracting industries. Hence, in net barter terms of trade (as well as in income terms of trade) expression manufacturing is exchanging smaller share of their output for the produce of the latter sectors of production. In considering this outcome one need to bear in mind the assumption that the sectors of agriculture, oil and mineral extraction must be rather competitive, whereas manufacturing ought to be rather characterised by monopolistic competition. Furthermore, the declining trend of primary commodity prices to manufactured goods is supported by the small income elasticity of demand for primary goods plus the more efficient (reduced) utilisation of primary goods due to the technical progress. The practical basis of the argument has been challenged by several writers, including; Viner (1952) Haberler, (1959), Cuddington, (1992), Cuddington et al. (2007), and Persson and Terasvirta (2003). There are numerous supporting empirical studies corroborating the continuing decline in primary product prices, e.g., Grill and Yang (1988), Brohman, (1996), Leon and Soto (1997), Harvey, et al. (2008) and Erten and Ocampo (2012). For example, Grill and Yang (1988) present evidence "That the prices of all primary commodities (including fuels) relative to those of traded manufactures declined by about 36 percent over the 1900-86 period, at an average annual rate of 0.5 percent." More recently, on the basis of a dataset containing data since 1650 Harvey et al. (2008) show that eleven major commodities exhibit a long-term decline in their relative prices. In their opinion "This provides much more robust support that the Prebisch-Singer hypothesis is a relevant phenomenon for commodity prices." This finding is supported by Erten and Ocampo (2012). They apply super-cycles methodology – identifying the cycles by band-pass filter – and report that "For non-oil

commodities, the mean of each super cycle has a tendency to be lower than that of the previous cycle, suggesting a step-wise deterioration over the entire period in support of the Prebisch-Singer hypothesis." Finally, a recent influential study, Baffes and Etienne (2014) maintain that they have been able to reconcile the PST with Engel's law and Kindleberger's thesis, thus, in fact, strongly supporting the Prebisch-Singer thesis. The authors observe: "The paper employed a reduced-form price determination model and applied it to 1960-2013 annual data for five commodities. It concluded that income has a negative and highly significant effect on real agricultural commodity prices. This finding is consistent with the Engel's Law and Kindleberger's thesis, the predecessor of the Prebisch-Singer hypothesis. Moreover, it is shown that income's negative impact on real prices operates through the manufacturing price channel (the deflator). Other key drivers include (in order of importance) the role of energy costs, physical stocks, and monetary conditions." There is, as well, a very substantial group of researchers which find the evidence limited and remain uncertain (or marginally in favour or against the PST), e.g., Pindyck, (1999) observes: "I have argued that the theory of depletable resource production and pricing, and the actual behaviour of real prices over the past century, both imply that non-structural forecasting models should incorporate mean reversion to a stochastically fluctuating trend line. These models seem promising as a forecasting tool, even though the results in this paper were mixed." as well, Kellar and Wohar (2006) find "modest support" for the PST. In the same vein Meng et al. (2012) conclude: "The main findings of this study reveal that 21 out of the 24 commodity prices are found to be stationary around a broken trend, implying that shocks to these commodities tend to be transitory. Only three relative commodity price series are found to be difference stationary. There are only 7 series in which the relative commodity prices display negative trend more than 50% of the time period examined; Compared with past studies, our findings provide even weaker evidence to support PSH." Given that comparative commodity prices over manufacturing prices change constantly in the world markets, it seems logical that the magnitude of the effect from a gradual decay in prices would not be adequate to describe the significant economic decline ascribed to the resource curse. Hence, the respective economies must not be in a position to apply counteractive measures due to lack of sophisticated technological and macroeconomic policy capacities. In general, this state of affairs would tend to bring about not a world of economic convergence but rather one of increased divergence. While it is acknowledged that, on occasions, primary goods prices have been falling considerably and in rather short interval of time, still, for oil the view of declining trend in real prices over time does not seems to have empirical support. Thus, taking a five-year moving average of oil prices from 1955 in 2013 US Dollars the price in 1973 was 13.23 per barrel rising steadily to a peak of 89.27 in 1983, followed by a relentless decline to 25.54 by 1999. Since 2000 the prices rose steadily but gradually up to 2003 reaching 32.95 and then ascended sharply again, until attaining 97.13 in 2012 and remained virtually unchanged during 2013. Certainly, given these rapidly fluctuating oil revenues during the last forty years or so, where swift ascend in prices is followed by a period of fast deterioration,

and then again by rising prices; provides a reason for the resultant apparent poor or high-quality economic performance (of a given oil exporting country) depending on the end point of the respective analysis.

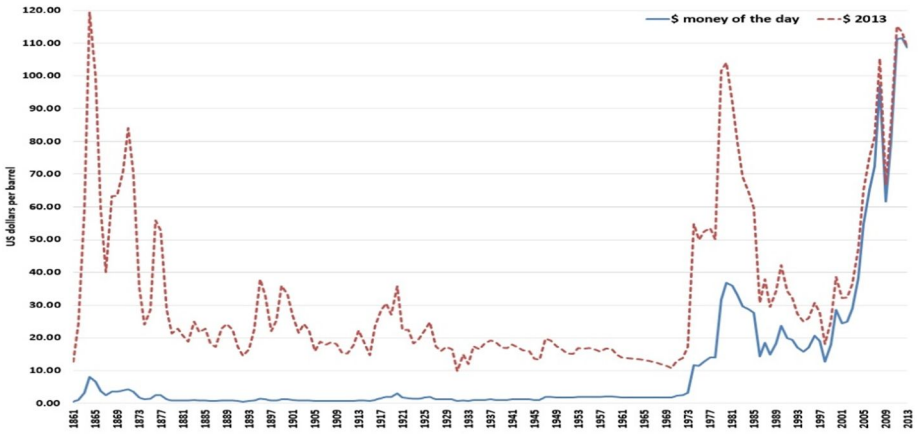
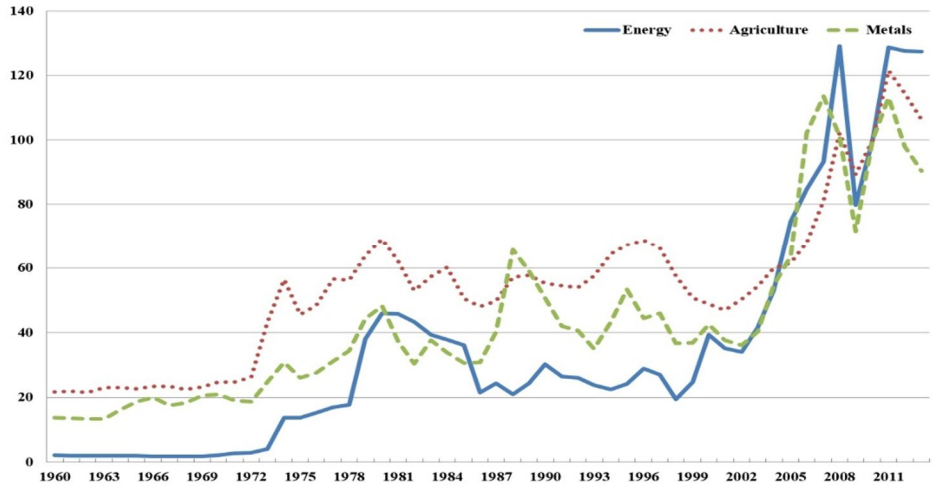


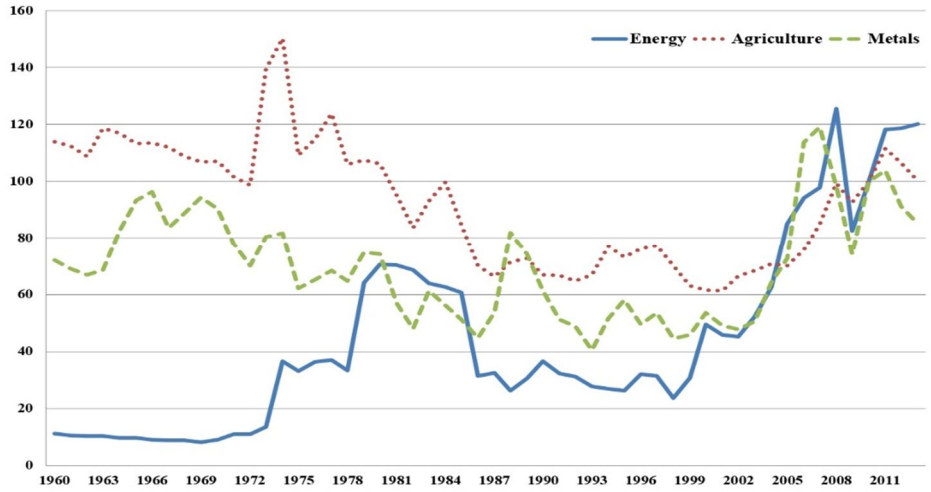
Figure 1. Crude Oil Prices 1861 to 2013

The next figure (Figure 2, below) shows the effect not only of time but as well of income on terms of trade of primary commodity prices over manufactures prices.



Source: World Bank Commodity Price Data (The Pink Sheet)

Figure 2a. Commodity Prices Annual Indices (Nominal, 2010=100)



Source: World Bank Commodity Price Data (The Pink Sheet)

Figure 2b. Commodity Prices Annual Indices (Real, 2010=100)

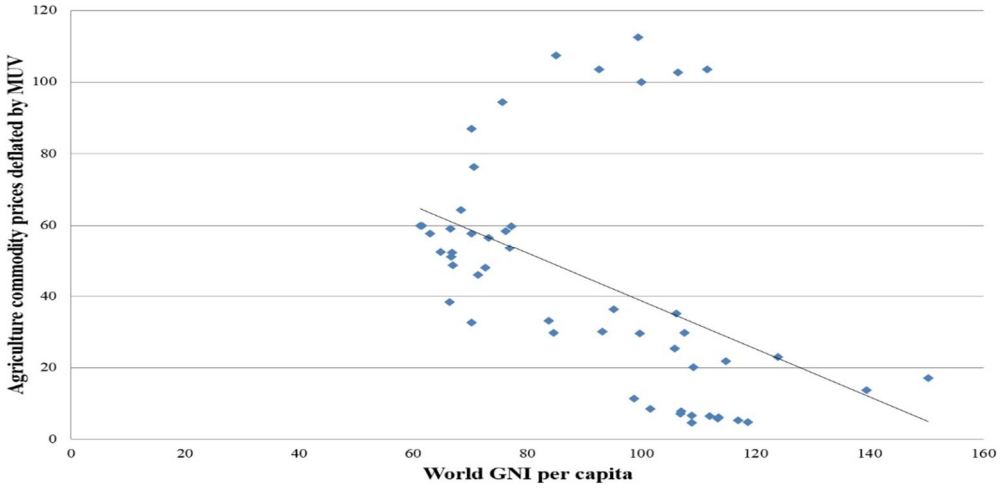


Figure 2c. Interrelations between World GNI per Capita and the Ratio of Agriculture to Manufacture Prices

3.2. Revenue Volatility

Natural resource abundance is, as a rule, accompanied by booms and busts – the prices of primary commodities and quantities supplied fluctuations are significant. In particular the market for oil and gas is ruled not only by real-economic business cycles,

but more notably by investment cycles and financial markets speculation. The resulting fluctuations in export earnings cause real exchange rate volatility and subsequent uncertainty that tends to impair exports and foreign investment. The main sources of revenue volatility could be summarised as: i) variation in rates of extraction; ii) variability in the timing of payments by oil companies to the respective governments; and, iii) fluctuations in the price of the natural resource.

Mikesell, (1997), Auty, (1998), Hausmann and Rigobon (2003), Blattman et al. (2007), and van der Ploeg, (2008) put forward revenue volatility as one of the most important explanations of the resource curse. The basic argument is that "The resource curse is foremost a problem of volatility. The high volatility of world prices of natural resources causes severe volatility of output per capita growth in countries that depend heavily on them. The resulting volatility of unanticipated output growth has a robust negative effect on long-run growth itself and is a curse. This is not limited to oil-exporters, but also applies to exporters of copper, coffee, foods, etc. which include many of the world's worst performing countries. Also, ethnic tensions, which are often fuelled by resource wealth, and current account restrictions increase volatility. The latter effect is especially strong in resource-rich countries. Government spending bonanzas after windfall resource revenues also increase volatility to the detriment of growth, because revenue drops inevitably follow (van der Ploeg, 2008)." Another account of the effect of the volatility on the economy is provided by Hausmann and Rigobon (2003). The transmission mechanism works its way through the interrelations between non-tradables, in which the oil abundant economy is specialising, non-resource tradables and the resource tradebles (oil). Given that the oil economy specialisation in the non-tradables sector grows with time, the real exchange rate movements will show greater volatility as a response to demand shocks (triggered by revenue volatility), as these have to be accommodated by expenditure-switching rather than reallocation of labour and capital. Such adjustments would require much more significant changes in relative prices including interest rates. Noting that in this setting the volatility of profits in the non-resource tradable sector is higher that the volatility in the non-tradables sector, brings one to the conclusion that: "As volatility increases, sector-specific interest rates rise causing a decline in the output that is larger for the non-resource tradable sector. A multiplier process is set in motion where an initial rise in interest rates causes the tradable sector to contract, further raising volatility and interest rates until the sector disappears (Hausmann and Rigobon, 2003)." The empirical support for the existence of such volatility is beyond doubt (e.g., Mikesell, 1997 and Blattman et al., 2007). It creates serious problems by making it unworkable for governments to pursue sound fiscal policy. Equally important, thus generated uncertainty produces strong obstructive effect for the long-term investments. Gylfason et al. (1997) and Gylfason and Zoega (2006) provide evidence that domestic investments exhibit inverse relation to natural resources exports dependence. Following this line of reflection, it would be then natural to compare the savings rates across resource abundant countries and see if they have a particular association with their respective economic development. However, for making

a meaningful comparison the savings rates indicator should be taking into consideration the depletion of the non-renewable resources. "In constructing that, we take as a starting point the traditional savings rates from national accounts, and then subtract net extraction of oil, gas, minerals, and timber. We term these savings rates 'resource-adjusted savings rates' (Torvik, 2009)." Table 1, below, depicts selected countries that have escaped the "resource curse" and those that have fallen prey to it, together with their respective resource-adjusted saving rates. On inspection, this table reviles a tendency of the countries who have escaped the resource curse to have higher resource-adjusted savings rates than those which have not. The countries listed as success stories, have predominantly positive resource-adjusted savings rates. In contrast, the countries that have not escaped the curse, have mostly negative resource-adjusted savings over the period. This indicates that blessed and cursed among resource-abundant countries differ in savings. "Note, however, that the table says nothing about causality - we cannot know if overspending of resource income has resulted in bad economic development, or if bad economic development has resulted in overspending of resource income. Thus, all we are left with from this is a correlation, albeit an interesting one (Torvik 2009)."

Table 1. Resource-adjusted Savings Rates as percentage of GNI, Average 1972–2000

Countries claimed to have escaped the resource curse		Countries claimed not to have escaped the resource curse	
Australia	18.0	Algeria	6.11
Botswana	33.0	Congo	−11.9
Canada	15.7	Mexico	10.80
Chile	7.4	Nigeria	−22.0
Ireland	22.0	Saudi Arabia	−21.5
Malaysia	19.9	Sierra Leone	−1.8
New Zealand	18.4	Trinidad and Tobago	−3.9
Norway	17.0	Venezuela	−1.8
Oman	−26.6	Zambia	−5.8
Thailand	20.0	Ecuador	n.a.
USA	15.1		

Source: Matsen and Torvik (2005).

3.3. Quality of Governance

Given that the quality of governance is an important factor in the determination of the long-term economic growth and general economic performance, obvious questions arise: "Are resource-abundant countries perhaps "cursed" because they do not possess the right set of institutions? Given that in most legal regimes, oil, gas and minerals are the property of the state, the revenues in the first instance accrue to the government. This inevitably attracts greater government intervention. Hence, it appears that weak institutions are endogenous to mineral wealth (Stevens, 2003)." Many papers on the

resource curse find the most important part of the explanation of the phenomenon as effectively political, determined by the quality of government, e.g., Mikesell, (1997) Sarraf and Jiwanji (2001), Isham et al. (2005), Ulfelder (2007), Ross (2001, 2006, 2014), and Wright et al. (2014). This is to say that "Countries dependent on point source natural resources (those extracted from a narrow geographic or economic base, such as oil and minerals) and plantation crops are predisposed to heightened economic and social divisions and weakened institutional capacity (Isham et al., 2005)."

Studies rejecting the resource abundance - weak quality of governance connection, e.g., Lederman and Maloney (2003), Wright and Czelusta (2007), Mehlun and Torvik (2006), Haber and Menado (2011) tend to maintain that the negative outcomes from huge export of primary commodities are not an automatic result from a "natural" economic mechanism, but are due to a bad quality of governance. In their view institutions are exogenous, rather than endogenous to resource-abundance. "We have shown that the quality of institutions determines whether countries avoid the resource curse or not. The combination of grabber friendly institutions and resource abundance leads to low growth.Producer friendly institutions, however, help countries to take full advantage of their natural resources (Mehlum and Torvik 2006)." This strand of the literature acknowledges that the foundations of the few success stories are competent, strong government structures and sound macroeconomic policies. The best example is Botswana (Sarraf and Jiwanji, 2001; Iimi, 2006; and Lewin, 2010). Furthermore, some studies claim that "At very least we should probably abandon the stylized fact that natural resource abundance is somehow bad for growth and even perhaps consider a research agenda on the channels through which they may have a positive effect, possibly, through inducing higher productivity growth (Lederman and Maloney, 2003)." Finally, Acemoglu et al., (2001) transcend (in time) the exogenous and endogenous analysis of the quality of institutions finding that while important difference in economic development can be attributed to the effectiveness of given institutions, these are, per sea legacy of colonialism and have little to do with any resource abundance effect. Overall, there seems to be emerging a broad agreement between both proponents and critics of the quality of government explanation of the "resource curse" that institutions in resource-rich countries are generally inept, slow-moving and inefficient. Consequently, all-inclusive, sustainable economic development will only be possible in such countries where proficient institutions have already been incumbent before the natural resource discovery or where social structures and domestic forces are conductive to the emergence of such type of governance. Based on the various causal mechanisms linking natural resource abundance curse with the quality of governance we present the following classification:

3.3.1. Inappropriate and Unsustainable Decision Making

Why such flawed decision-making procedures are bound to take place? The most important reasons include: i) the huge resource revenue received by the government is

intensifying "great expectations" among the general public. Hence, to keep the public more or less content government disbursements need to go up promptly. However, given the characteristically low absorption capacity of the resource dependent economy and lack of a feasible long-term strategy (by definition this is a windfall) the spending is unlikely to be efficient, nothing to say about sustainable (Auty, 2001); ii) another related factor is that this (spending) response is likely to overrule/ignore normal "due diligence (Stevens, 2003)." procedure and disregard prudence (given the immense windfall of money almost any mistake "is possible to fix", Sarraf and Jiwanji, 2001); and, iii) the decision-making is privilege of a very small number of people; these few high-ranking officials who constantly and mainly engage in redistribution of huge funds are in a real danger to start believing that the windfalls are earned by them and they can allocate these as they see fit without any public dialogue. Of course, this fixation absorbs all government energy away from establishing competitive industries and creation of broad-based wealth. However, these diverse rent beneficiaries develop in time an insatiable demand, which surpass (and simultaneously undermine) the capacity of the resource sector.

3.3.2. Unsuitable Investments Choices

Following on the previous section it should not come as a surprise that resource-abundant countries generally fail to successfully "Develop the productive base of their economy (Stevens, 2003)." It is not easy to find a productive outlet for public investments and most of the investments go to the non-tradable sector of the economy and for cosmetic infrastructure projects, whereby employment opportunities – needed to keep social cohesion – are provided in an inefficient way. Furthermore, even if more reasonable investments were to be attempted in the non-oil tradable sector, they unavoidably meet the constraint of the limited absorptive capacity of the resource dependent economic system. As well, there is a strong bias towards new capital investment; building it once and for all without any planning for the necessary maintenance of the finished projects. This comes as a result of the nature of these investments even if they are put into supposedly manufacturing enterprises; these undertakings are by design not expected to be competitive and autonomous, they are just artificial structures providing opportunity for recycling and redistributing oil-revenues (Cherif and Hasanov, 2012; Richmond et al., 2013).

3.3.3. Imaginary Industrialization

This area concerns the industrial policies adopted following the resource revenue windfall. Resource dependent countries have not been successful in promoting a competitive manufacturing sector, e.g., Mikesell (1997), Sachs and Warner (2001), and Kronenberg (2002). Many such countries have tried to implement industrial policy based upon import substitution (Stevens, 2003). Primarily this course of action came into

existence as a mechanism to supposedly help to escape from the group of underdeveloped countries characterised by slow economic growth and high poverty (Auty and Kiiski, 2001; and Davis and Tilton, 2005).[1] Interestingly the policy of closed trade regime (protectionism) initiated by many resource dependent countries' governments have been seen as a counteraction against one of the familiar Dutch disease symptoms – declining employment; thus, perpetuating the vicious cycle of further increased resource dependence, additional economic imbalances, falling productivity, and finally a contraction in non-oil (tradable) sector output. Such policies typically introduce subsidy and establish strong protectionism (trade barriers). The problem with this approach is that is costly and generally ineffective, turning out to be an incubator for a vested interest groups, proving detrimental to other sectors and consumers alike. Though, in some instances provisional subsidies can have positive effects; subsidies were important for Malaysia in reinforcing its production base and consequently, thriving economic development (Usui, 1998, and Rasiah and Shari, 2001), as well as, for prevention of the Dutch disease contagion for Norway (Larsen, 2003). Furthermore, given that manufacturing through its specific learning-by-doing and spillover effects is identified as the most important dynamic source of technological progress, any source (e.g., an easy resource income) that hinders competition, creativity and diversification will considerably deter economic development (Verdoorn 1949, Kaldor, 1967, Krugman, 1987 and Matsuyama, 1992). Finally, a recent prominent study finds that the more advanced is the specific manufacturing knowledge and capabilities of a given country, the more complex and advanced goods it produces, resulting in higher economic growth and income (Hausmann et al. 2013). Torvik (2001) disagree on this important issue claiming that "learning by doing" is not peculiar to the manufacturing sector only.

3.3.4. Society and Its Collective Standards

It is important to note that all macroeconomic policy decisions, including investment policy, social protection, industrialisation strategies, and fiscal redistribution do not come about in a vacuum – these are all a result of a complex interaction among various social groups, endorsing diverse strategies, and making important political choices. However, the reality is too often very different from the perceived expectations. Then, different social groups and different individuals would react or take on a new initiative on their own way. Depending on their driving motives, being they based on potential incentives or on a perception for a mission or on a mixture of both factors, the "best" may use their talent and energy and de facto propel the country to a new, higher level of development, promoting fairness and reward for high efforts and increased productivity. However, it is quite possible that the most influential people in the country have little in

[1] "Many developing countries, believing that specializing in primary product production led to low level of economic development and slow growth, resorted to autarkic policies that protected inefficient domestic manufacturers. These policies had, what are now widely considered, disappointing consequences."

common with the most enlightened ones; in some cases, they may be mediocre or even outright criminals. Such cohort of people will inevitably be predisposed to separate benefits from responsibilities that should be evenly related to their high positions in the structures of government, and concentrate on the former. Being incompetent and incapable of creating any new value or even not having any notion of such a prospect, they will automatically concentrate on rent-seeking activities. This behaviour would predictably damage the economy, by reducing economic growth, by brain drain (the best leave the country), and by endangering the social fabric, i.e., for the privileged there is no need (in the so created primitive economic structure) for highly intelligent and capable managers, but for a loyal one, hence such individuals are then established as the most influential leaders. In theory, one may imagine that the vast rents thus acquired may be used for domestic investments (rather than finding its way to foreign accounts), hence eventually turning the bad thing (curse) into potentially good one (blessing). Such an event is very unlikely to materialise as by its nature it would be the foundation of the demise of the illusory elite. "There is no predictability in the behaviour of some princes, no recourse for stolen proposals, no framework for development, and no assurance that investors will maintain control over their investments. These conditions are not attributable to rent per se, but rather to uncertainty in the investment environment which largely reflects the personal nature of the state. Any preference for trade reflects the political reality of insecurity (Okruhlik, 1999)." Finally, we should note that "Democracy does not insure good government, nor are all oligarchies poorly governed" (Mikesell, 1997). The proof of the democratic nature of the governments of Chile, Indonesia, Malaysia, and Oman, is rather questionable; all the same they somehow circumvented the dangers of the "resource curse" and have become known as good examples for this achievement.

3.3.5. Bad Rent Seeking Driving Good Entrepreneurs Out

There is a very close relation between poor governance, resource dependency and rent-seeking. However, these are different phenomena. While the degree of resource dependence of a given country is generally measured by the share of this resource in relation to the relevant GDP or the applicable total export, the magnitude of rent-seeking is measured by the fraction of rent in the government revenue obtained. The concept of rent is characterised by its autonomy from the efforts put in generating it; by its source; and, its role in the process of production. In short, the rent emerges as a side-effect of (resource) export, immaterial part of the available labour resources is involved in acquiring it, and it is largely a subject of redistribution, Okruhlik, (1999), Herb, (2005), Congleton et al. (2008), Svensson (2000) and Auty[2] (2007). Such a disruptive process is

[2] The emerging theory of rent cycling focuses on the often-neglected interaction between politics and the economy in developing countries. It grows out of observations about the three principal forms of rent: natural resource rents, geopolitical (foreign aid) rents, and rents contrived by government intervention to change

likely to commence when both politicians and entrepreneurs in a given resource-abundant country recognize that profitability of any potentially viable project is diminutive in comparison to the rent potentially available from natural resources. The result is an explosion of rent-seeking; the substantial proceeds to those who are capable to capture it are coming at the expense of the potentially good entrepreneurs and destabilisation of the normal functions of the entire economic system.

Table 2. Total Natural Resources Rent, per cent of GDP

	2004	2005	2006	2007	2008	2009	2010	2011	2012
Azerbaijan	48.4	65.1	68.2	62.9	63.8	42.8	46.1	44.0	39.8
Kazakhstan	45.4	50.2	46.5	40.8	48.5	33.1	35.2	37.0	32.1
Kyrgyz Republic	5.1	4.7	5.0	4.4	7.2	8.3	12.0	12.9	15.0
Russian Federation	32.3	38.8	33.9	28.3	31.8	20.1	21.1	21.9	18.7
Norway	16.6	20.5	19.7	17.8	21.9	13.2	13.3	13.6	12.0
Mongolia	17.3	19.6	33.7	31.9	31.7	26.0	41.6	44.9	28.7
Romania	4.6	4.9	4.2	3.1	3.7	2.3	2.5	2.8	2.8
Serbia	2.1	2.2	2.1	1.9	2.6	1.7	3.4	4.4	4.3
Bulgaria	1.6	1.9	3.1	2.6	2.5	1.7	2.6	3.1	2.8
Kuwait	51.7	61.8	60.3	57.1	63.7	44.5	51.7	58.8	55.1

Source: World Development Indicators, World Bank

In such (resource-abundant) institutional settings, the benefit from unproductive activities prevails over the benefit from entrepreneurial and productive activities. According to Larsen (2004), rent-seeking is based on pecuniary interest cliques that "Preys on victimized weaker groups in a non-transparent way, affecting the countries' production, labour effort, trust and investment process. Such groups may for example be a ruling class or elite of powerful allies. But it could also be larger segments of society that come together in large coalitions, such as unions, and threaten major strikes, thereby initiating a rush to relatively higher compensation and conflicts of relative position." In the same vein Gylfason (2006) emphasizes that excessive rent-seeking leads to concentrating economic and political strength in the hands of privileged groups fostering corruption, thus reducing both economic efficiency and social equity. Consequently, in resource-rich countries (such as Mexico and Nigeria), competitive rent-seeking is widespread, political and economic institutions are weak and lack of transparency and accountability is the norm. As a result, economic activity is absorbed into taking complete advantage of the potentially accessible rent at the expense of disregarding the long-run economic growth objective. Such, rent-seeking will inevitably reduce national income and thus trend output growth of the country.

relative prices.

4. DUTCH DISEASE OR DUTCH HEALTH, EMPIRICAL INVESTIGATION

The term "Dutch disease" has been initially used in 1977 by The Economist[3] to articulate manufacturing shrink in the Netherlands following the discovery of gas during the 1960s. The consequence of such an infection is that sectors such as agriculture and manufacturing become less competitive in world markets. This creates a vicious circle of increased reliance on resource revenues and manufacturing is hard to restore if the resource sector or its revenues fail. The most evident symptom of Dutch disease is the rapid appreciation of the real exchange rate that is often connected with natural resource booms. When on the base of strongly rising income from natural resource exports a country's total exports and demand for its currency are increasing rapidly, its real exchange rate will have a tendency to appreciate. This appreciation will increase competitive pressure on domestic exporters in other sectors. The real appreciation of the domestic currency will also increase the purchasing power of domestic consumers in terms of foreign goods, further increasing the pressure on domestic manufacturers through the channel of import competition. Even if factor markets are highly flexible and impediments to adjustment are minimal, the speed of appreciation may be such as to increase the cost of adjustment to the new terms of trade.

There are various channels by which conventional tradable sectors may be crowded out by a booming resource sector and the non-tradable sector including: i) increased productivity in the resource sector drives wages up, bidding labour out of the production of the manufacturing sector, additionally, since natural resource sectors are likely to offer higher returns on investment (by exploiting the resource rent), investment and thus economic growth would tend to be biased towards the resource sector; ii) amplified incomes shift demand from the lagging tradable sectors to non-tradable, where wages will also be pushed up. This spending effect will further drain factors of production out of the non-resource tradable sector. Some researchers may argue that these changes shouldn't be called a disease. They would claim that as long as the net effect on output and employment is positive, this should be seen as an economic adjustment mechanism, adaptation to a new economic structure and newly acquired wealth. In any case, identifying a case of Dutch disease is not straightforward as: i) the reallocation of employment from manufacturing to services constitute a general structural trend. It is particularly well-defined in transition economies due to the (former) centrally-planned systems propensity to neglect services and concentrate on industry; and, ii) some real appreciation is characteristic of the catching-up process, as productivity gains in manufacturing are by and large higher in transition economies than in developed ones i.e., the Balassa-Samuelson effect.

[3] "The Dutch Disease," 1977, The Economist, November 26, 82-83,

5. MODELLING THE DUTCH DISEASE: SALTER-SWAN MODEL

The term Dutch disease – proper – is used to designate the appreciation of the real exchange rate of a given (usually resource abundant) country due to inflation arising from resource revenue disbursements, followed-on by over-heating of the economy, high demand for the home currency and appreciation of the nominal exchange rate. One important effect of this chain of events is a contraction in the non-resource traded sector – there is a decline of the production of the traded non-resource sector compared to its original position. Currently the phrase is not unambiguous – the meaning has evolved and changed. In some cases, it has taken on a much wider connotation to include all of the detrimental macroeconomic effects associated with the "resource curse". In other cases, the meaning has become much narrower. For example, Sarraf and Jiwanji, (2001) describe it as a "Failure of resource abundant economies to promote a competitive manufacturing sector". Corden and Neary, (1982) catalogue the different Dutch disease methodological insights, dividing the effect of a resource led economic expansion to resource movement effect and a spending effect. The resource movement effect pulls factors of production out of other productive areas, consequently resulting in increased wages and contraction in the other sectors. The spending effect materialise as the extra spending moves demand up in both sectors of the economy. As prices of tradables are determined at the international market, higher demand results in increased imports; conversely, prices of non-tradables have to rise relative to tradables; thus, shifting resources from the tradable to the non-tradable sector. We note that the resource movement effect as a feature of the Dutch disease is highly relevant for the transition economies in general and those which are resource-abundant in particular. As the process of transition has effectively destroyed the old productive base and a new and private tradable sector is still in a process of establishment. Little empirical work has been done in this important area.

6. SALTER-SWAN MODEL

We illustrate the Dutch Disease transmission mechanism by utilising a version of the Salter-Swan model (Salter, 1959; and Swan, 1960) of a two-sector economy with resource abundance, abstracting from capital accumulation, international investment and financial assets. The model can be considered as an expansion of PST and the Rybczynski theorem. Its function is twofold – first, it facilitates the understanding of the functions and relations of the key factors bringing about macro-economic imbalances; and, second it makes available a structure within which the underlying principles and the expected outcomes of policy interventions can be analysed. The model draws a distinction between tradable and non-tradable goods and services. Tradables are composed of all goods and services produced in an economy subject to import, export, or would-be so. Non-tradables are these goods and services that do not leave the country,

because of their practically non-tradable nature, e.g. haircuts, public services, construction, highly perishable products; or due to prohibitive transport costs. Tradables and non-tradables differ most-importantly by its price formation. The resource / oil economy is treated as a small open economy; prices of tradables are assumed to be determined by the respective world market price converted by the exchange rate into home market prices. The prices of non-tradables are supposed to be created by local forces of demand and supply. Practically, a large group of commodities cannot be clearly consigned to one of the divisions but are characterised by various levels of "tradability". The same merchandise, even in the same country, may be a tradable at one location and non-tradable at another. Many goods find their position in between the precise tradables and non-tradables classification, affecting the process of price formation. The resource/oil revenues are integrated in the model as net transfers from abroad and the oil sector being enclave in nature does not feature separately in the model. This model provides a framework for analyses of important aspects of price formation and production side reaction, based on the following assumptions: i) The economic system produces three categories of goods: exportables (x), importables (m), and a non-tradables (n); ii) Px and Pm designate the prices of exportables and importables respectively; prices of exportables and importables are formed on the international market whereas price determination of non-tradables Pn is subject to interaction of home supply and demand; iii) The ratio (P/xPm) represent terms of tradeand they are fixed, hence, exportables and importables can be pooled into a one amalgamated traded good (t) with price Pt; Consumption is either directly related to locally produced importables, or not directly by manufacture of exportables then exchanged for imported consumer goods of the same price; iv) Exportables are not used internally; importables and non-tradables are just for final consumption; and, v) Markets (factor and product) are characterised by perfect competition with the economy producingat the production frontier. It is assumed that labour is fully mobile in the short run – reallocates between sectors depending on the state of the market, whereas capital has sector-specific properties in the short run and alterable in the long-run. Figure 3, below, depicts at equilibrium position as a preparatory point of the analysis. Horizontal and vertical axes show the quantity of tradable (t) and non-tradable goods (n) produced and consumed in a given economic system. The BC curve corresponds to the production transformation curve; representing locus of points of all potential mixtures of tradable and non-tradable goods that could be produced in a given economic system, subject to resources, factors of production and technologies available. It portrays, as well the production frontier, i.e., the line tracing the combination of maximum production output at full employment and full utilisation of productive resources.

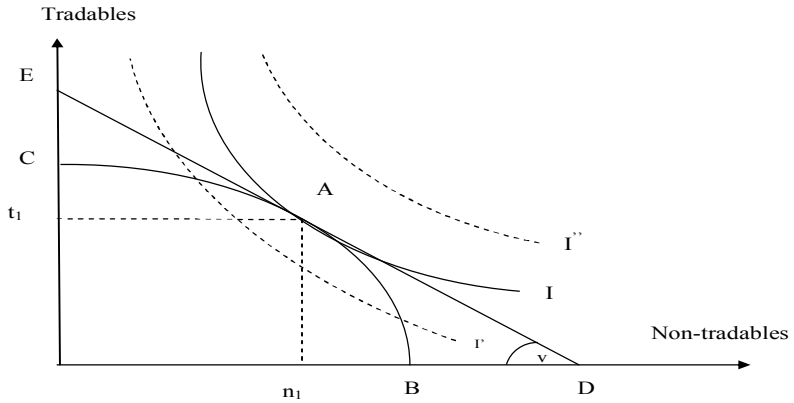


Figure 3. Macroeconomic Equilibrium in the Salter-Swan Model

If the entire productive resources were committed to producing non-tradables, the economy would end up with output of quantity B; if only tradables were to be produced, the output C can be reached. If resources are committed to producing both types of goods, then any mixture given by n and t as shown on the arc BC, (e.g., the combination of t_1 and n_1, determining point A) can be attained. In the cases where the point lays within the curve BC – the production resources are underutilised and the economy is producing below its potential. In the short-run the curve is fixed, whereas in the long run it can shift in both directions due to changes in technology or endowments of resources. All notations are in real terms. The diagram contains a sample of indefinite number of indifference curves – from I to In though for presentational purposes we do not go beyond I". Here the indifference curve depicts consumer's preferences among tradables and non-tradables at invariable degree of utility. I" indicate superior satisfaction level than I, and I' indicate a lower level of utility. The indifference curves are convex based on the concept of diminishing marginal utility. Rational economic behaviour entails that consumers will try to achieve the uppermost potential level of utility within the budget constraint (DE); DE line stands for the mixture of both goods – tradable and non-tradable obtainable, and its slope is given by the relative price of traded goods in terms of non-traded goods v, i.e. $v = Pt/Pn$. If the entire expenditure were committed to non-tradables, the magnitude D could be bought at the given price, i.e., quantity E, if the entire income is spent on tradables. This is not possible, as the maximum quantity of non-tradables produced is given by the point B, and the maximum amount of tradables is given by the point C. Only at a single point (A) the budget line has a contact to the production possibility frontier, determining the n1 quantity of non-tradable goods and t1 quantity of tradables, whereby realising the maximum level of welfare with the given level of income. In short, point A represents a theoretical optimum, where: i) demand for tradables (t) and non-tradables (n) equals supply; ii) welfare is maximised for a given

income; iii) the factors of production are fully employed; iv) foreign exchange rate is in equilibrium; v) demand for tradables equals output, and imports equal exports; and, vi) the demand for non-tradables equals their supply.

Macroeconomic imbalances and adjustment to equilibrium: Presume that an increase in government spending brings about a budget deficit, financed by monetary expansion, extending aggregate demand to point F (see Figure 4, below). Hence, demand exceeds output of both $(t_2 - t_1)$, i.e., tradables and $(n_2 - n_1)$, i.e., non-tradables. Thus, the line GH is the relevant new expenditure line, drawn parallel to the DE line. At each point to the right of point A there would be excess demand for non-tradables; at each point to the left of A an excess demand for tradables will exist. As a result of this domestic prices tend to go up. Surplus demand would drive prices of non-tradables and tradables up albeit trough a different transmission mechanism (direct demand-pull effect and indirect effect working through the increased demand for foreign currency in a floating exchange rate settings). New equilibrium would be re-established through increase in nominal demand and nominal income, while total output remains the same. In terms of the chart the expenditure curve reverses to its initial location. If the composition of demand for tradables and non-tradables is altered due to, say expansionary fiscal/monetary policy, comparative prices would change (inflation rates of tradables and non-tradables would be different) and bring about an evolution in the structure of production in the direction to the commodities with relatively higher prices. If excess demand for non-tradables materialises, the budget line would revolve clockwise at point H until IH line is depicted, with the new equilibrium point at A', where extra non-tradables and fewer tradables are produced in comparison to point A. If excess demand for tradables is experienced, the budget line would rotate counter clockwise in point G to line JG, establishing equilibrium point at A'', changing production activities from non-tradables to tradables.

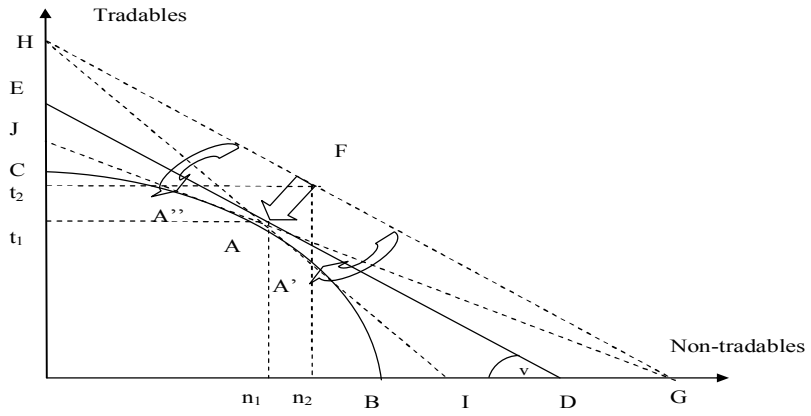


Figure 4. Macroeconomic Changes due to Excess Demand

Macroeconomic disequilibrium due to large transfers of resources from abroad

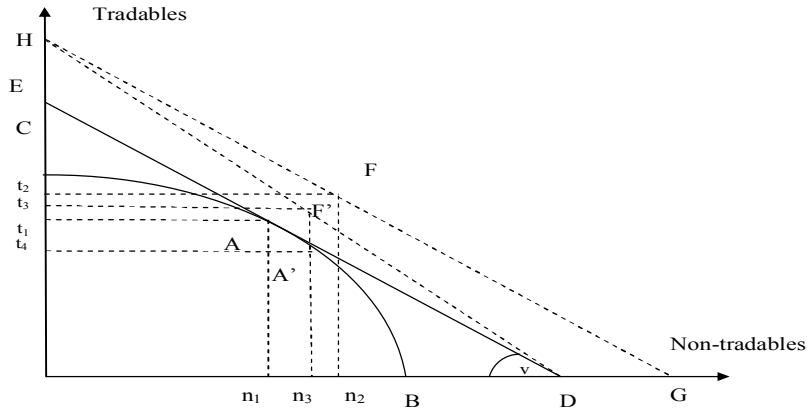


Figure 5. Departing from macroeconomic equilibrium – the Dutch disease

Next, we present the case of a disturbance in the external balance due to a large transfer of resources from abroad in combination with fixed exchange rate system in place. Higher natural resource revenue boosts national income and demand. A rise in real spending would raise both demands for tradable and non-tradable goods (assuming both type of goods are normal). The equilibrium price of non-tradables increase as a result of an increase in demand from A to F, but domestic prices of tradables remain unchanged due to the fixed exchange rate policy. Owing to the price increase of non-tradables the expenditure line H revolve to the location DH. The aggregate demand is at the equilibrium point F' where certain quantity of non-tradables (n_3) and tradables (t_3) are sold.

As a result of the relative prices correction, up for non-tradables in relative terms, output of non-tradables expands from n_1 to n_3 and reaches equilibrium with demand for non-tradables. Regarding tradables, demand moves from t_1 to t_3, although production experience reduction from t_1 to t_4. At such state the demand for tradables (F') is beyond production by (t_3-t_4) followed by subsequent corresponding deficit in the current account. Hence, the short-run effects of high resource income are subsequent appreciation of the real exchange rate – a higher relative price of non-traded goods (Pn) in relation to traded goods (Pt) – decline of the tradables and simultaneous extension of the non-tradables segments. A higher relative price of non-traded goods Pn sets in upward motion the price of the marginal product of labour in the non-traded sector; thus, employment in the traded sector must go down in order to drive up the marginal product of labour in the traded sector. Labour shifts from the exposed to the sheltered sectors. This increases consumption expenditure and output growth of non-traded goods. F' can

only be supported and possibly sustained – only in a short run – by provision of foreign exchange reserves.

7. HOW TO AVOID THE RESOURCE CURSE – THEORY AND PRACTICE

Attaining sustainable resource-led economic growth is not an easy task and inevitably involves competent industrial and trade policies. Collier and Goderis (2007) find that although resource dependent economies tend to suffer from a decline in production in the non-resource sector, it is avoidable. Trade and well developed financial and institutional governance can help dissolve the potential 'resource curse" impact on growth. "We find strong evidence of a resource curse. Commodity booms have positive short-term effects on output, but adverse long-term effects. The long-term effects are confined to "high-rent", non-agricultural commodities. Within this group, we find that the resource curse is avoided by countries with sufficiently good institutions." "These findings are consistent with recent theory that point at inefficient redistribution in return for political support as the root of the curse but also lend some support to the large Dutch disease literature. In addition, the results support the more general idea that commodity booms lead countries away from productive activities and provide incentives for non-productive activities, such as rent-seeking, lobbying, or public sector employment." Lewin (2011), illustrates the case of resource rich Botswana, where as a result of good governance its resource rents were invested into modern infrastructure and human capital, therefore preparing the ground for diversifying its economy and turning the potential curse into a prospective blessing – demonstrating that resource dependence is having a negative impact on economic growth only when the quality of institutions is worse than a given critical level. John (2011) "Identifies some decisive factors that help determine the blessing threshold-below which the risk of a resource curse may be very high-in mineral and fuel abundant developing countries. "In fact, "Countries rich in natural resources constitute both growth losers and growth winners. We have shown that the quality of institutions determines whether countries avoid the resource curse or not. The combination of grabber friendly institutions and resource abundance leads to low growth. Producer friendly institutions, however, help countries to take full advantage of their natural resources (Mehlum et al., 2006)." Arezki et al. (2007) claim that countries where open and liberal policies are pursued can reduce the shock of the resource curse: "We do find that trade policies directed toward more openness can make the resource curse less severe and may even turn it into a blessing. Our results are robust to the use of various indicators of institutional quality such as the risk of expropriation or the degree of corruption. If we use natural resource abundance rather than dependence, we also find evidence of a natural resource curse after controlling for geography, institutions, and openness. Furthermore, we find that this resource curse is attenuated if countries pursue more liberal trade policies." Moreover, Ploeg and Poelhekke (2008) put forward the argument that "The key to a turn-around for

many resource-rich countries is financial development, ensuring openness and mitigating the effect of being landlocked, because the indirect negative effect of resource dependence on growth, via volatility, is much larger than any direct positive effect." This is to say that a well-developed financial system can also help to accomplish the identical result. Avendano et al. (2008) investigating the macro management of resource exporting countries in Africa and Latin America assert: "Commodity-exporting countries have realised clear benefits from the current boom. It has raised net export receipts and broadened exporters' client bases, enabling them to retire costly debt, improve their credit profiles, increase foreign exchange reserves to reduce vulnerability to future speculative attacks, finance infrastructure for future growth and build nest eggs abroad and at home for leaner times." However, it should be borne in mind that this was a result of a rather peculiar situation – the top of the boom prior to the beginning of the Great Depression Mark II, starting in autumn 2008. Next, we compile a classification of various policy measures available as a tool of the policy makers who wish to stop the potential pressure of a given resource impact turning into a "curse".

7.1. Industrial Policy/Diversification

In general, an important issue related to economic diversification and restructuring of the economy is the extent to which it should be left to the free market; whereas, diversification may be an obvious solution it is proven to be an extremely elusive one to achieve. Since the early 1970s oil-exporting countries have given formal approval to the diversification of their economies away from dependence on crude oil exports. Despite this, the absolute record is very adverse with a vast amount of public funds being wasted on inefficient and uncompetitive industries (Stevens, 2003). This is at least partly due to the following two factors: i) as a result of the Dutch disease not only does the current traded resource sector experience severe contraction, but also the potential growth of new tradable sectors is excluded; and, ii) in most cases, the diversification strategy consists of government attempts to pick winners. However, it is accepted the governments may be ineffective in picking winners. This is not just because most selected companies are usually in the public sector, but because they do not face competition requirements. In addition, since they are government projects, it is likely that they will be subsidized and protected, which ultimately limits their development. The only really effective diversification comes from private sector investment, although governments can play an important facilitating role in this process, a point made clear from the experience of the Asian tigers. This suggests that one of the solutions to the problem of diversification is to maximize the resource revenue flow to the private rather than the public sector. Of course, this then raises the important issues of income distribution (efficiency versus equity) and private economic power leading to concentration of political power (stability versus social conflict). In this regard Di John (2011) makes an important contribution, suggesting the implementation of a dual-track

growth-strategy as the most practicable transition policy. He notes: "In this context, the introduction of a dual-track growth strategy may be promising. The basic idea of this strategy is to promote an emerging dynamic sector (Track 1) where competition and risk taking are promoted while continuing to protect and subsidize a vast array of politically powerful but uncompetitive/inefficient producers in manufacturing and agriculture with the aim of reducing social tensions and maintaining political stability (Track 2). Examples of Track 1 strategies are export processing zones and industrial parks. Such a dual-track strategy postpones confrontation with established rent seekers while the dynamic sector drives competitive diversification of the economy and also builds a pro-reform political constituency. The main challenge of this strategy is to insulate or ring-fence the Track 1 sector from political and clientelist predation and capture. In general, this strategy can be seen as a transitional path to more growth-enhancing institutional reforms." Admittedly, as pointed out by Rodrik (2008): "The debate on industrial policy remains in an impoverished state – still hung up on the question "should we or should we not? The way to move forward is to understand that industrial policy is not that special: it is just another government task that can vary from routine to urgent depending on the nature of growth constraints a country faces. Once this point is grasped, it becomes easier to contemplate the institutional experimentation that its successful implementation will necessarily entail."

7.1. Investment

The investment policy implemented by the government of any resource-abundant country is destined to play a crucial role both in helping to avoid many of the macroeconomic pitfalls characteristic for such socio-economic systems and in encouraging the process of economic diversification by generating different sources of – non-rent based – value added sectors of the economy. While in any particular case a specific, suitable solution needs to be found and implemented in a skilful way, serious considerations always should be taken first regarding the absorptive capacity of the economy, including available factors of production and their quality, existing infrastructure, and markets development. "Gradual scaling-up strikes a balance between promoting growth through investment and ensuring economic stability through a stabilization buffer. By scaling-up public investment slowly at first, this approach could allow a country with low capacity and limited buffers to shore up its stabilization fund and also mitigate any Dutch disease impact on traded goods production (Richmond et. al., 2013)." The simple version of the Dutch Disease model, takes technology as predetermined; hence supplementary foreign exchange reserves are of no importance from the point of view of economic growth. Still, when a lagging behind developing country faces a technological gap, extra export revenues, when channelled by a suitable industrial policy, can play an important part in accelerating the process of utilising advanced technology. If such a policy promotes learning, additional revenues can accelerate further the growth process. The government could promote industrialisation

through protection, subsidies, financial incentives and investments in infrastructure.

7.2. Sterilisation Policy and Currency Devaluation

There is general agreement that trying to stabilize spending to ensure steady and reasonable growth is an important part of proper macroeconomic management. Sterilisation is a policy tool that has been usually used for avoiding the expansionary effects of capital inflows and export revenue booms on the monetary base, and thus on the exchange rate and inflation. One common factor in the case of those countries which have avoided the "curse" – Botswana, Chile, Indonesia and Malaysia – is that all four experienced significant depreciation of the real exchange rate as a result of explicit policy choices (Usui, 1997). In fact, the successful management of resource wealth in Botswana has been partly attributed to recurrent currency devaluation in order to maintain external competitiveness and offset, to the extent possible, the appreciation of its currency towards its main trading partner South Africa. However, if the devaluation is perceived as a necessary adjustment due to balance of payment difficulties, instead of as a strategic policy choice undertaken in the presence of a strong balance of payment position, it could affect the expectations of the economic agents in a negative way thereby triggering capital flight. Still, the effect of such a "Policy action would be to prevent a significant appreciation of the real exchange rate. The central bank could require the export revenue windfall to be sold directly to the central bank, or the central bank could purchase foreign exchange on the exchange market to prevent an increase in the nominal exchange value of the domestic currency (Mikesell, 1997)."

7.3. Sovereign Wealth Funds

Another possible intervention is through the mechanism of some form of Sovereign Wealth Fund. Many resource-rich countries have established special funds for depositing the revenues accrued from natural resources extraction. The potential usage of such funds includes: stabilising revenue streams by offsetting commodity price volatility; providing an intergenerational saving mechanism; avoiding Dutch disease effects by sterilizing the impact of foreign exchange inflows; and, ensuring transparency. The positive role of such funds is not straightforward. In fact, the causality may rather run the other way around – a representative, prudent, and transparent government is likely to institute such a fund; however, the establishment of a sovereign wealth fund is very unlikely to change the way an autocratic government works. The (inconclusive) empirical evidence includes Devlin and Lewin, (2002) using a panel data for 71 countries, for the 1970 to 2000 period; they illustrate that the existence of wealth funds is correlated with reduced government spending and a higher share of investments. Another empirical study, comparing countries with and without wealth funds, implies that the interrelation between government expenditure and changes in non-resource exports is weaker in the group of countries having funds. Another finding is that the formation of a fund had no effect on spending by the government; Davis et al. (2001).

Wealth funds are no warranty for a proper fiscal stance and in reality, cannot act as a replacement for sound fiscal and macroeconomic management. "The credibility and transparency of the fiscal policy framework can be supported by a well-designed resource fund, but the latter cannot be a substitute for an appropriate policy framework nor a panacea that obviates the need to strengthen overall fiscal management capacity. Funds need to be fully integrated with the budget and the fiscal framework (Baunsgaard, et al., 2012)."

7.4. Political Reforms

Why do some resource-rich countries continually follow wise policies while others don't? This question has to deal with the political economy of economic policy in resource-abundant countries. As briefly discussed above, the political dimension of the Dutch disease is what makes the therapeutic process such a complex task that can barely be achieved using only standard economic tools. The political aspect is the principal force behind economic policy making. One obvious solution is to develop democracy. However, as previously discussed, while this may well be highly advantageous for many reasons, it appears not to be a necessary condition for successful economic performance. Another one is to remove corruption and contain rent seeking. It is in this context that new international initiatives on the management of resource wealth have emphasised transparency and responsibility of mineral revenues management. Most notably such initiatives include the IMF's Guide on Resource Revenue Transparency; the Open Society Initiative's (OSI) Follow the Money: a Guide to Monitoring Budgets and Oil and Gas Revenue, OECD Anti-Corruption Network for Eastern Europe and Central Asia (ACN) and the British Government's initiative on Extractive Industries Transparency Initiative (EITI). More practically, the legitimacy of government derives from its ability to deliver development simply defined as achieving better standards of living for the entire society. A greedy government by contrast lacks the linkages into the population or any other constraint that prevents the elite from plundering the economy. Securing an alignment of interests is crucial. The real problem is that the dominant establishment has typically very narrow inner circle interest that does not outspread to national economic development and social awareness. As a contrary example, Indonesia, succeeded as its government was "Able to insulate themselves from pressures from powerful vested interests and pursue policies which have given top priority to the achievement of rapid rates of growth (Booth, 1995)" Furthermore, attaining a better political structure and sustaining genuine economic growth and development, rather than being absorbed in rent-seeking activities, would benefit the oil exporting countries by possibly promoting trust and dependability among themselves. Such potential real cooperation between the oil-exporting countries would allow them not to fall victims to the prisoner's dilemma game's worst possible outcome.

In introducing the prisoner's – oil producer's – dilemma we draw heavily on Bratvold and Koch (2011). One of the key basic and best-known game theoretic approaches, where two players alone choose between two potential options and the

reward for each participant depends on the decision made by both of them is the prisoner's dilemma. Here we cast the dynamics of the game as an oil producer's dilemma by introducing two countries producing oil of the amount which each participant trusts will result in maximising their respective oil income. Assuming that the relevant countries supply a major proportion of the world's total production, thus determining the international price of oil, we move to illustrate the possible price and revenue outcomes.

Table 3. Oil Production Stability – A Game Theoretic Approach

Potential outputs, prices and profits		Country B	
		10bbl	20bbl
Country A	10bbl	USD 1,400 USD 1,400	USD 1,500 USD 750
	20bbl	USD 750 USD 1,500	USD 800 USD 800

Source: Bratvold and Koch, 2011.

We assume that each of the two countries can choose to produce either 10 or 20 barrels of oil. If both countries agree to extract only 10 barrels each (and maintain the oil price high) both would be motivated to breach the contract by extracting 20 barrels. The judgment goes as follows: each country realizes that the other country can break their contract. Country A discern that if country B respects the contract and limits its production to 10 barrels, country A would gain USD 1,500 by extracting 20 barrels, i.e., 20 barrels×USD 75. If instead country A sticks to the agreement and restrict its production to 10 barrels, the upper limit of its earnings is USD 1,400 subject to country B respecting their contract. However, in case of country B breaking the deal, country A would get just USD 750 by acting in accordance with the agreement, while it would obtain USD 800 by breaking the agreement. The equivalent logic applies for country B.Each country protects its own interest, and irrespective of what the other country chooses (to stick to the deal or to break it) the best option is to break the deal. This brings into "life" the dilemma. If the countries stick to the deal they would earn revenue of USD 1,400 and be at an advantage, rather than if both break the contract. The complexity is that neither one benefits from taking the risk, knowing that it is, at all times, in the other country's interest not to follow the terms of the contract. Therefore, despite the mutual contract, neither of the countries can expect the other to respect its commitment (to extract no more than 10 barrels) without some supplementary contractual or enforcement process.

8. CONCLUDING REMARKS

Our analysis supports the following standpoints: i) natural resource abundance is associated generally with a range of negative development outcomes, though this evidence is not without exceptions; ii) current explanations of the resource curse do not sufficiently account for the role of the internal socio-economic forces and the external political and economic background; iii) recommendations for counteractive policy measures in alleviating/preventing the resource curse can only be based on a firm political feasibility. Furthermore, we identify four different channels or transmission mechanisms (with various combinations and variations) which mostly account for the inverse statistical relationship between resource abundance and economic growth: i) Decline in terms of trade; ii) Volatility of revenues; iii) Quality of Governance; and, iv) Dutch disease. We provide recommendations for counteractive policy measures in alleviating/preventing the resource curse taking into account the concern of political feasibility and avoiding mechanistic approaches to the resource curse issues focusing attention on understanding the subtleties and specificities related to the variety of resource abundant countries and the connected policy lessons.

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