Chapter 11

The Governance of Natural Resource Wealth: Some Political Economy Considerations on Enhancing Social Investment[1]

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1. Introduction

The presence of non-renewable natural resource revenues (oil, mineral and gas) represents both an opportunity and a challenge to provide the funds necessary to lift poor countries out of the poverty trap. When adequately invested, revenues accrued from taxation of the extractive industries (EI), royalties, contracts and licensing fees have tremendous potential to boost economic activity, increase employment and improve investment on development sensitive sectors (education, nutrition, health). But the extraction and allocation of natural resource revenues can also make countries more vulnerable to prevailing problems associated with resource curse, including Dutch disease, slower economic growth, triggering of violent conflict, corruption, rent seeking and political instability (Ahmad and Singh 2003; Auty 2004; Bauer 2013; Karl 1997; Ross 2007).

It has been well argued that the strength and quality institutional arrangements can play an important role in mitigating the resource curse (Ross 2007). Institutions can safeguard the effectiveness and impact of social investments by increasing, for example, the accountability and transparency in the use of natural resource revenues, allocating revenues into high return investments, allowing for greater voice and participation in decision making and imposing sanctions on corrupt behavior (Mejía Acosta 2012).

The governance of natural resource revenues can be improved (at least) at three different levels. At the extraction stage, governments make

1. This paper builds on previous work done by the author on "*Extractive Industries, revenue allocation and local politics*" (co-authored with Javier Arellano Yanguas) (UNRISD 2014).

strategic decisions regarding when and how to obtain taxes and rents from extractive companies, whether this is done through concessions or negotiating licensing fees, the share of state participation in the extraction, production and distribution, and whether revenues are independently managed by state owned companies or whether they accrue directly to the country's budget. Secondly, governments decide whether to save, spend or further invest these revenues. Revenues could be put into stabilization funds to protect the economy from the volatility of commodity prices, ensure a smooth flow of revenues and avoid macroeconomic mismanagement. Natural resource revenues could also be saved for future consumption, or redistributed according to budgetary allocations, specific territories where the extractive industry is located, transferred to local governments or devolved directly to citizens. Thirdly, governments can strategically decide how to spend these resources by prioritizing specific types of high return investments, infrastructure or enhancing human capital through skills formation.

This paper argues that political institutions, and in particular the choice of fiscal rules governing the allocation of natural resource revenues, can have a significant impact on the quality of growth. So far, the policy and scholarly debates about revenue allocation have not necessarily linked revenues to types of investments, partly because of the availability and reliability of data but also due to difficulty of measuring impact at the expenditure level. This paper offers a contribution to that debate by discussing in greater detail and, with the help of some selected countries for which data is available, the political decisions governing the allocation of natural resource revenues at the subnational level. This paper does not venture into an evaluation or review of the development impact of different spending modalities. Rather, it discusses the political choice behind distribution modalities, between central and subnational governments and across subnational governments, to illustrate some of the inherent distributive trade-offs and some of their consequences for government spending.

The paper proceeds as follows. The first section explores some political economy considerations to explain how different actors and specific intraregional bargains can be instrumental in the adoption of different allocation formulas. The next section briefly discusses the potential impact of allocation modalities to enhance the impact of social spending and maximize the quality of growth. The last part provides a conclusion and develops an agenda for future research, including some of the remaining empirical and methodological challenges necessary to provide an understanding of the meaning and measurement of social investment and its relationship to the quality of growth.

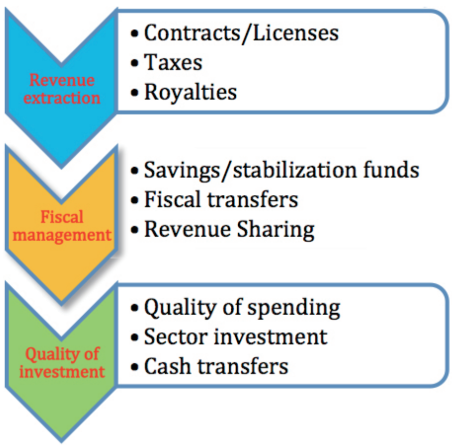
2. Managing natural resource revenues effectively

The commodities boom of the last decade, has given countries that are rich in non-renewable natural resources a windfall of revenues that has exceeded all fiscal expectations and has made a significant contribution to boosting growth. But the pressing question for governments, policymakers and scholars is how to turn the commodity bonanza into a stable source of growth that delivers on socially desirable outcomes. In other words, how can the commodities boom contribute to enhancing the quality of growth? From the perspective of managing public finances, it is key to establish, *ex ante*, what is the main expectation for managing natural resource revenues, whether in the creation of long term savings, investment or direct spending, fairness in the allocation of funds, macroeconomic stability, strong local ownership, or other factors. To that extent, there are multiple instruments that could help to smooth future revenues from volatile fluctuations, maximize the accrual of fiscal revenues, generate savings and investment mechanisms, guarantee the transparency and accountability of management, and the design of distribution or allocation mechanisms that privilege social investment to benefit the population. In practice, these mechanisms can be combined with –and sometimes contradict- one another: for example, accumulating revenues into a well-protected stabilization or savings fund may fuel citizen concerns about the need for immediate spending; similarly, deciding to invest current revenues in education will trigger debates about the long term benefits of investment on infrastructure or human capital.

From a political economy perspective, these critical questions represent dilemmas of redistribution and therefore pose more fundamental questions of political cooperation, feasibility and commitment towards adopting, implementing and sustaining one or more mechanisms. For example, the increased volume of investment for the provision of public services such as health and education may not be a sufficient condition for success if social investment lacks transparency in the administration of such funds or there is no strategic vision that is linked with development objectives (Mejía Acosta 2012, Bennett 2002).

The following chart illustrates how there are three interlinked stages in the processes of translating natural resource wealth into long-term social investment. The design, implementation and sustainability of each mechanism will depend less on the technical features of each allocation formula and more on the political bargains and distribution agreed between the main stakeholders.

Figure 1. Translating natural resource wealth into quality growth



This paper will mostly focus on the intermediate stage of the process, the fiscal management, and will discuss some of empirical and methodological challenges to understanding the quality of investment. Exploring these stages requires addressing two related questions. The first issue is to determine who has a claim over ownership of the resources or, put in other terms, to what extent do political actors outside the central government have the leverage to demand a share or benefit from the wealth accruing from the extractives sector. In most cases, the executive at the national level has the primacy over decision-making, but the degree to which other actors have a credible claim and the distributional mechanisms can vary a great deal (Arellano and Mejía Acosta 2014). In some cases, the shared "ownership" may be embedded in specific constitutional rules, but in other cases, ownership and allocation is subject to a continuous and repeated political bargaining between different stakeholders.

The second question refers to the mechanisms set in place to promote a transparent and accountable management of extractives revenues. The main concern is that extracting and allocating natural resource revenues almost inevitably leads to enhanced opportunities for rent seeking and political capture (Auty 2004; Haysom and Kane 2009). In general, the space for mismanagement of funds is inversely proportional to the presence of legal frameworks, independent judiciaries and the existence of effective checks and balances. Transparency and accountability mechanisms, including the reporting, auditing and monitoring the management of revenues will enhance legitimacy and could contribute to an effective investment of natural resource rents (Bennett 2002). In practice however, most of the transparency and accountability initiatives are located and strengthened at the national level, but there is significant variation regarding the extend and effectiveness to which these initiatives can encourage better governance at the local level (Mejía Acosta 2013).

In this section we examine four different instruments used to manage revenues from the extractive industries (to spend, save or invest): stabilization funds, saving funds, revenue sharing formulas and direct cash transfers. We explore how these instruments work, what the main arguments for the adoption of such mechanisms are, who the main stakeholders supporting such instruments are, and what are the main expectations in terms of performance.

Stabilization funds

Sovereign wealth funds (SWF) are government-owned resources accrued from pensions, privatization income, investment revenue of state owned enterprises, natural resource revenues, and so on. A common feature in the case of the extractives sector is that revenues tend to fluctuate widely depending on international commodity prices thus creating the potential to destabilize the country's macroeconomic goals. Stabilization funds are one of the instruments designed to manage these fiscal flows. Stabilization SWFs are created to build up fiscal reserves when commodity prices are high and draw reserves down when prices are low. The adoption of stabilization funds is the most classic mechanism adopted by resource rich countries to dampen the fiscal and economic impact of boom and bust cycles while restoring countercyclical spending. Stabilization funds can effectively contribute to long term fiscal planning if there are clear and enforceable rules to ensure contributions into the fund during boom times and constraint over the conditions under which these funds can be withdrawn or used during bust periods. Stabilization funds such as Chile's Economic and Social Stabilization Fund (ESSF) are usually considered most effective for managing mining revenues (Havro and Santiso 2011).[2]

The case of Chile illustrates that the effective adoption and management of a stabilization fund needs to be developed in the context of a sound fiscal policy with an overall budget strategy and clear fund targets. The formulation can be aided by a MTEF to help limit the expenditure of short run expenditure responses to rapidly changing resource revenue (Davis et al. 2003). From a political perspective, a well-managed stabilization fund tends to work better in a context of consolidated state institutions, preferably where there are greater constrains on the discretionary use of executive power (Bagattini 2011). Greater political party competition, an independent civil service and a well-educated civil society are other factors contributing to the success of such stabilization funds. Citizens can be actively involved in the monitoring and enforcement of transparency and accountability mechanisms including regular reporting, auditing and press releases. Conversely, stabilization funds are most likely to be undermined in a context of increased fiscal uncertainty, in a context where the executive power concentrates discretionary decision-making power, or when existing rules may change depending on political circumstances.

Savings funds

Savings funds constitute an alternative mechanism for dampening the fiscal and economic impact of volatile commodity prices, with a focus on saving those revenues for future generations. According to Dumas (2011), there are three factors that are critical for the success of saving funds: a) to disassociate the decision on how much should be saved from what to be saved, b) to create a separate account to directly deposit all natural resources revenues and to ensure proper transparency and governance principles to account for those deposits, c) to control and minimize the discretion for determining the level of transfers and disbursements out of the fund.

2. The ESSF receives fiscal surpluses, which are above 1% of GDP. Its investment strategy is intended to diversify assets in the fund, putting 15% of the portfolio into variable income assets, 20% in corporate fixed income papers and gradually adjust liquid assets (SWF Institute 2014).

The Government Pension Fund of Norway is an example of a savings fund. Originally created in the late sixties, it had two components: The Government Pension Fund - Global (formerly known as The Government Petroleum Fund) was established as a fiscal tool to encourage counter cyclical spending in the nineties. The Government Pension Fund - Norway was initially established as The National Insurance Scheme Fund in 1967. While the GPF Global derives its financial backing from strategic investments from the surplus wealth produced by Norwegian oil income, the GPF derives its income from pension contributions. It is calculated that the total value of the GPF Global is around $893bn USD, making it the biggest sovereign wealth fund worldwide today.[3]

The GPF Global aims to smooth the path of spending out of volatile oil revenues whereas the GPF Norway seeks to accumulate long-term savings from the oil revenues to cope with rising pensions and related expenditures on an aging population. All revenues accrue to central government and the funds are integrated into the budget process that is controlled by the Ministry of Finance (Havro and Santiso). The centralized control of the fund allows the government to absorb fiscal fluctuations and ensure a better distribution of funds to minimize inter-regional disparities. Another element of success is the well-developed structure of its institutions, capable of adopting and implementing good fiscal policies, coupled with a professionalized and independent staff to manage these policies.

Despite the existence of good governance principles, the Norwegian government has not been exempt from considerable political pressure to spend. Although the Norwegian parliament has the authority to allocate oil revenues into the budget within an estimated 4% of the petroleum earnings, Norwegian MPs have been under increasing public pressure to increase government spending beyond the 4% action rule (Havro and Santiso 2011).

Revenue sharing formulas

The adoption of revenue sharing formulas is predominantly driven by the need to distribute natural resource wealth between the central government and resource rich territories. This formula emerges as a convenient way to transfer fiscal resources to sub-national governments

3. Sovereign Wealth Fund Institute. http://www.swfinstitute.org/fund-rankings/

to promote a more equal redistribution of wealth. While the principle of redistribution is generally uncontested, the actual form of the distribution has been subject to intense debate. Some of the pressing questions regarding the allocation of intergovernmental transfers debate over the exact location of extraction points, the territorial ownership of such resources, and the merits of potential beneficiaries. At the end of the day, central governments centralize tax collection activities and they retain considerable decision-making capacity over the share of revenues, allocation criteria and other conditionalities imposed on potential beneficiaries. Thus, central governments are key actors in the rents allocation game. Some of the distributional criteria include:

Fairness: In this scenario, the central government ensures that resources are allocated according to the districts' own levels of production. This criterion suggests that many non-producing districts would not receive allocations or may be seriously marginalized from distribution. There are several difficulties stemming from this direct type of distribution. One problem is that it highlights and deepens horizontal inequalities across districts and regions: those districts that generate more revenue will continue to receive greater transfers, potentially creating a problem of "regional resource curse." An associated problem can emerge if larger transfers from the central government reduce the need to extract non-oil taxation, thus creating greater dependency from the national government and potentially volatile natural resource revenues. One last pitfall, in cases where revenues are transferred directly to autonomous territorial units, is that this reduces the incentives to ensure transparent expenditure management. If regional or local governments feel they are "entitled" to receiving specific allocations, they would feel less compelled to account for those transfers back to the central government.

Equality: Under this distribution criterion, central governments would favor a compensation formula to address existing inequalities. Revenue sharing formulas can be adapted to allocate rents proportional to the existing population, to equalize and improve the provision of public services between provinces, to proportionally reduce poverty rates or any other socioeconomic indicators, or to balance expenditure patterns between the national and regional levels. Another potential use for revenue sharing formulas is to compensate provinces, districts and indigenous people for the exploitation of natural resources and associated environmental damage (Haysom and Kane 2009). An immediate problem associated with this type of revenue sharing is that it is difficult to determine the relevant jurisdiction entitled to receive the resources. If a particular local district or municipality is home for a mine, should the neighboring districts also benefit or should the region in which the district is located?

Revenue sharing formulas increase the sense of ownership for the recipient localities, but this does not necessarily translate into stronger regional and local governments. Regions are more likely to claim autonomy where political parties or regional movements are stronger. They are more likely to be accountable to the needs and demands of their own population rather than the conditionalities imposed by the central government.

Direct Cash Transfers

The mechanism of a cash transfer involves a direct transaction of natural resource revenues from the central government to individual citizens in the form of direct regular payments. The underlying assumption is that natural resource wealth increases the available fiscal space to finance development goals, it encourages greater levels of social expenditure and enables new social policy initiatives (Hinojosa 2012). The underlying logic behind the “oil to cash” argument is that a direct transfer will enhance the “social contract” between individuals and oil rich states. The resource revenues would have a direct income benefit for the poorest segments of society as it increases individual purchasing power (Moss 2011). Direct cash transfers can also increase individuals’ capacity to pay taxes and thus enhance incentives for greater government accountability. With a personal stake in the government’s budget, the citizens could hold governments accountable for the provision of goods and services (Gillies 2010). Cash transfers it is argued, would also create a demand for increased budget transparency and accountability in the management of public finances (Tsalik 2003).

The evidence supporting this argument is mixed. Evaluating the only case in which this mechanism has been adopted, Michael Ross argues that Alaska is a prime example of inefficient spending: “the distribution of petrodollars to individuals has substituted for a broad based tax system, a personal income tax, and even a sales tax” (Ross 2007, 273). The results are fairly negative, including chronic budget deficits, unfinished public works projects, lower productivity and spending patterns that privilege consumption over investment (Ross 2007). In the context of dire public finances, Alaska has also threatened to abandon the administration of other public services like school systems or health care. Ross argues that the Alaska example raises additional concerns for the applicability or desirability of direct cash transfers in countries where there is less rule of law, less educated populations and less citizen engagement (Ross 2007). The main concern is that, in the absence of credible democratic institutions, direct cash transfers further fueled rent seeking and clientelisic behavior that existed prior to the organized transfer of resources.

Inevitably, any cash transfer mechanism will have to be implemented alongside centrally-controlled revenue smoothing mechanisms and significant central government investment on to improve the service delivery infrastructure (schools, hospitals). Other relevant factors in ensuring effective distribution include whether these funds are centrally administered or not, whether subnational districts have the bureaucratic and technical capacity to spend wisely, or whether local authorities are politically aligned with the government coalition in the capital city, to mention a few factors (Gonzales 2014).

The next section offers a comparative perspective to understand institutional variation in the design of revenue sharing formulas across several countries.

3. The politics of redistributing extractive revenues across different regions

This chapter claims that the choice of distributional formulas, the actual share of natural resource revenues distributed and the political affinities between central and subnational governments are contributing factors that enhance (or undermine) the quality of government investment. Further, it is plausible to assume, although not explicitly tested, that the efficiency, transparency and targeting of government spending should have a direct impact on the quality of growth triggered by the extractives sector.

The existing literature on intergovernmental transfers from center to the periphery identifies a basic trade-off between fairness and equity (Bird and Smart 2002; Schroeder and Smoke 2002). The notion of fairness should tend to privilege a distribution that rewards each region's fiscal efforts in generating their own revenues, financing their own expenditure and responsibly managing their own debt commitments. This principle however, may go against a (re)distributive logic, that demands greater government investment in more depressed areas where revenue collection is insufficient, spending needs are high and growth rates are stagnating. Thus, the key challenge for policymakers is to ensure a basic level of subsidiarity while minimizing rewards for poor performers or fiscal laziness.

Following the work by Arellano and Mejia Acosta (2014), the next section discusses some of the existing criteria used to transfer natural resource revenues from the central to subnational governments (vertical distribution) as well as the formulas used to redistribute wealth between producing and non producing territories (horizontal distribution).

3.1 Vertical distribution of revenues from the EI

From a technical perspective, the purpose of (vertical) fiscal transfers is to ensure that the revenues and expenditures assigned to each territorial level are approximately balanced and match their administrative responsibilities (Bird and Smart 2002, 900). According to this criterion, the share of fiscal transfers plus local level revenues should match the revenue needed by subnational governments to fund the public services they are responsible for (Schoeder and Smoke 2002).

From a political perspective, national executives (presidents or prime ministers) are likely to prefer to centralize revenues to maintain fiscal discipline, to centralize policy planning and to minimize liabilities (such as the growth of subnational debt). National executives are likely to agree to decentralize if they need to secure the support of regional/ local elites in their governing coalition, if they need to build up legislative majorities, and/or if they need to build a broader base of electoral support with citizens (Gonzalez 2014).

The presence of a commodities bonanza is likely to exacerbate this distributive dilemma. Voters and local governments are likely to demand a larger share of fiscal transfers from the national government, especially if the government benefits from windfall rents without the corresponding fiscal effort to generate those revenues. The rents obtained from the extraction of mineral or oil exports, may also generate a sense of entitlement among the population if citizens feel this is part of their national wealth, and in some cases, this "right" has been enshrined in the constitutions of the countries (Ahmad and Mottu 2003; Ross 2007)

The decentralization literature acknowledges that greater fiscal transfers are likely to happen when the money follows pre-existing levels of administrative and political decentralization (Falleti 2010, O'Neil 2005). In other words, the relative strength of regional and local opposition political groups is likely to increase the pressure for effective fiscal decentralization. These groups in turn may choose to bargain with the central government regarding the "appropriate" level of public services as well as the "matching revenues" needed to sustain them.

Table 1 illustrates some of the findings reported by Arellano Yanguas and Mejia Acosta (2014) regarding the vertical and horizontal distribution of revenues in ten resource rich countries (oil and mining). The Table summarizes the distribution of EI-revenues for countries for which we found reliable and comparative data. The chosen sample is by no means representative of regional or income distribution patterns. Nevertheless it offers a rich variation of institutional mechanisms, showing how revenues have been distributed to regional, state and local government levels, the type of revenue exploited and the date of the last reform (Arellano and Mejia Acosta 2014). The selected countries are Bolivia, Brazil, Colombia, Ghana, Ecuador, Indonesia, Mexico, Nigeria, Papua New Guinea and Peru. The data shows significant variations between a) countries with low levels of decentralization if subnational governments receive less than 10% of state revenues (Ecuador, Ghana and Papua New Guinea); b) *medium* if subnational governments receive between 10% and 50% (Colombia, Mexico and Indonesia); and c) *high* if subnational governments receive more than 50% of EI-revenues (Bolivia, Brazil, Peru and Nigeria).[4]

4. These data do not include reports on the distribution of profits from state-owned oil and mining companies, generally managed by national governments, which may further reinforce a centralist bias.

Table 1. Models of decentralisation of EI revenues in a group of selected countries*

			Bolivia (oil and gas)	Brazil** (oil and gas)	Peru (mining and gas)	Nigeria (oil)	Colombia (oil since 2011)	Mexico (oil)	Indonesia (oil)	Ecuador (oil)	Ghana (mining)	Papua New Guinea (oil and gas)
Type of revenue transferred			Royalties and IDH	Royalties and participation	Royalties and income taxes	Total oil revenue	Royalties	Total oil revenue	Total oil revenue	Total oil revenue	Royalties	Royalties
Date of the last reform			2007	1989	2004	1999	2011	1978	2004	2010	1992-1999	1998
Degree of decentralisation			High	High	High	High	Medium	Medium	Medium	Low	Low	Low
Vertical Distribution		National government and centralised funds	37%	31%	45%	46%	52%	83%	85%	98%	91%	93%
		Regional/state governments	37%	45%	12%	36%	48%	17%	3%	1%	5%	3%
		Local governments	26%	21%	43%	18%		—	12%	1%	2%	2%
		Private landlords		3%	—	—		—	—	—	2%	2%
Horizontal distribution	Devolution	Producing region/state	28%	45%	12%	13%	10%	—	3%	1%	5%	3%
		Producing localities	13%	17%	5%	—		—	6%	1%	2%	2%
		Localities in producing regions	—	4%	38%	—	—	—	6%	—	—	—
		Total devolution	41%	66%	55%	13%	10%	—	15%	2%	7%	5%
	Formula based	Region/state	9%	—	—	23%	38%	17%	—	—	—	—
		Localities	13%	—	—	18%		—	—	—	—	—
		Total formula-based	22%	—	—	41%	38%	17%	—	—	—	—

Taken from: Arellano Yanguas, Javier and Andrés Mejía Acosta. 2014. *"Extractive Industries, Revenue Allocation and Local Politics"* (UNRISD 2014).
*Some data on percentages reflect quantities for some specific years.
** In March 2013 the Brazilian parliament approved the reform of the criteria to distribute oil royalties more evenly across the country; however, the law is currently under revision by the Constitutional Court.
Sources: Agustina, Dian, Ahmad, Nugroho and Siagianl (2012), Banful (2011), Departamento Nacional de Planeación-Colombia (2012), Energy Sector Management Assistance Programme (2005), Illedare & Suberu (2012), Morgandi (2008).

The data does not support the premise that greater fiscal decentralization follows pre-existing administrative or political decentralization. Federal countries, with existing administrative mandates towards decentralization of responsibilities, do not necessarily transfer greater resources. Although Brazil and Nigeria nominally allocate more EI wealth to their regions, other federations like Mexico transfer less than 20% of revenues. Conversely, unitary countries (countries with formally centralized governments) like Bolivia or Peru redistribute up to 55% of revenues to subnational units (Ahmad and Singh 2003, Miranda 2009, Arellano and Mejia Acosta 2014). A closer look reveals that federal states like Brazil, Nigeria and Mexico tend to channel most transfers to the state level government; state governments receive more than twice the share of revenues than local or municipal governments (45% to 21% in Brazil and 36%% to 18% in Nigeria). The opposite is true in unitary countries like Peru and Indonesia, where decentralization tends to benefit local level governments at the expense of state level units. In Peru, 43% goes to municipalities compared to 12% to regions and in Indonesia, the ratio is 12% to 3% (Arellano and Mejia Acosta 2014).

While the formal territorial organization may not be a decisive factor in the allocation, federal states would arguably be better equipped to effectively process the administrative and fiscal demands of managing natural resource revenues at the local level. These ratios suggest that "if confronted with the need to decentralize, the national executive prefers to favor the local level as the targeted group, since mayors pose less of an electoral and financial threat than governors" (Falleti 2010, 47). Even in Bolivia where there was a more equitable revenue distribution across the three tiers (37%, 37% and 26% respectively), the government introduced changes to gradually shift transfers *away* from regional *prefecturas* and towards financing cash transfer schemes formally administered by municipal governments as a way to defuse the growing political opposition and increase their political leverage over local governments (Arellano and Mejia Acosta 2014; Miranda 2009).

3.2 Horizontal distribution of revenues from the EI

A second relevant dimension is the nature of horizontal or interregional distribution of EI revenues. As discussed earlier, the main policy challenge from the central government is to reconcile a fair allocation of transfers according to regions' own fiscal efforts and more egalitarian criteria to compensate those regions that need greater government investment. Consequently, the design of interregional transfers could promote a more progressive distribution if richer districts tend to subsidize poor ones or they could reinforce existing income inequalities between districts (Rodden 2006). In the case of the distribution of extractive industry revenues, the main dichotomy is whether to allocate EI revenues solely to territories that host extractive activities or promote a wider redistribution.

In a previous work, Arellano and Mejia Acosta (2014), we discussed three types of mechanisms depending on their potential beneficiaries: a) devolution b) formula-based participation, and c) direct allocation from the central government. In practice, countries combine two or more criteria when adopting reallocation formulas.

a) Devolution

The purpose of devolution is to transfer revenue, or a proportion of it, to jurisdictions associated with the extractive activity, either because these are producing regions where the extractive income is generated in the first place or because they host some infrastructure for exploitation (mainly ports).[5]

This mechanism aims to compensate the producing regions for the extracted benefit or the negative externalities (e.g. environmental) linked to the extractive activity. The criterion of origin compensates for the mineral extraction per se, and fiscal transfers seek to develop in principle other types of capital (human, physical, etc.) to enhance the developmental potential of those territories. The second criterion seeks to compensate the negative externalities associated with extraction in the producing or neighboring districts. In this sense, transfers take into account environmental damage as well as the need to improve physical infrastructure (roads, the electrical grid, etc.) and to increase public services in order to respond to the likely increase in population (Brosio 2003).

The allocation of transfers to producing regions may further increase the inequality between producing and non-producing regions, may translate problems of revenue volatility to producing regions, and could undermine the region's own fiscal efforts to collect taxes given the abundance of central transfers.

5. According to Ahmad and Mottu (2003, 228), this mechanism is known as "derivation" but we prefer to use the term "devolution".

b) Allocation from the central government

This is an intermediate scenario where central governments consolidate the management to promote a more strategic investment of resources and to minimize the fiscal liability of uncontrolled subnational expenditure. These transfers could take the form of research and development or regional investment funds that are allocated on an annual basis from a central budgetary account, or revenues could be allocated through competitive investment grants aimed at supporting specific types of projects.

There are two potential problems with centrally managed allocations. First, competitive grants have the potential of reinforcing pre-existing economic inequalities and power asymmetries between subnational governments, especially if districts with greater technical or bureaucratic capabilities have a better chance to apply for and win competitive grants. The other problem is that they may allow space for discretionary spending and protracted negotiations around the allocation and adequate purpose of such transfers (Arellano and Mejia Acosta 2014).

c) Formula-based participation

The use of a pre-determined formula to distribute the revenue raised nationally can bring certainty and equality in the redistribution of natural resource revenues between producing and non-producing jurisdictions. The adopted formulas can take into account the different needs and characteristics of each jurisdiction, the size of the population and territory, pre-existing social and economic inequalities, and in some cases fiscal effort.

The adoption of distribution formulas underlines a basic paradox of fiscal decentralization and interregional transfers. A redistribution of revenues that compensates territories for the lack of infrastructure, weak tax collection or high indebtedness levels may in fact reward poor fiscal management and further undermine fiscal efforts. Conversely, the formula may compromise central government transfers to relatively affluent and fiscally prudent districts (Bird and Smart 2002). Finally, formula based redistributions tend to generate entitlements, which are fairly difficult to reverse or amend in the long run once a practice has been set in motion.

Elsewhere, we have shown significant variation in the existing modalities for horizontal or interregional distribution (Arellano and

Mejia Acosta 2014). Table 1 illustrates that highly decentralized countries like Bolivia and Nigeria tend to benefit both producing and non-producing districts through devolution and formula based mechanisms. Nigeria prioritizes the participation of all the subnational governments through formula-based participation (41% of revenues) and devolves a smaller proportion (13%) to the producing states (Kâ Diongue, Giraud, and Renouard 2011). Bolivia by contrast, has privileged devolution to producing districts (41% of revenues) but has also allowed redistribution to non producing states (22%) (Arellano and Mejia Acosta 2014).

In contrast, Brazil and Peru tend to only privilege devolution of revenues to the producing region or states and localities in producing regions (66% and 55% of revenues respectively). In more recent times, Brazil has moved towards the provision of essential infrastructure to support extractive activities in neighboring jurisdictions: the ports from where oil, gas and minerals are exported, and the territories crossed by roads, pipelines, and railways. The Brazilian Congress even adopted legislation in 2013 to redistribute oil revenues among all federal states and has initiated legislation to allow the use of oil-related revenues for the education sector. The initiative however has been blocked through an appeal to the constitutional court by the three producing states that would benefit most from direct devolution of such revenues.

Colombia, a moderately decentralized country, has also adopted a combination of devolution and formula-based mechanisms to distribute oil royalties (and some mining revenue) across all subnational jurisdictions (Rausch 2009). In Indonesia, oil-related transfers go exclusively to the producing areas (provinces and districts), although the central government discounts 50% of the value of these transfers from ordinary fiscal transfers (Morgandi 2008, 23-24) as an indirect way to reallocate revenues to other needs. More recently, a percentage of the EI-revenue has been given to the jurisdictions adjacent to the producing ones but such transfers remain highly controversial because the benefits and negative externalities do not always coincide with official legal and political boundaries. In Mexico, EI-revenues are proportionally distributed across the entire country through an allocation formula (Arellano and Mejia Acosta 2014). Finally, countries that are highly centralized like Ecuador, Ghana and Papua New Guinea, tend to devolve the small share of transfers to producing regions only.

4. The politics of distributing EI revenues and their development consequences

The distribution of EI revenues across subnational governments needs to address two policy challenges. The first challenge is to determine the optimal level of subnational transfers that allows sufficient subnational autonomy to manage revenues without undermining centralized planning. The second dilemma is to identify who benefits from those transfers so that not only the producers of EI wealth are properly compensated but so are their neighboring and less wealthy jurisdictions. The previous sections discussing existing vertical and horizontal distribution formulas illustrate great variation in the choice of distribution formulas. The sections suggest that variation is not always consistent with the amount or nature of resources but they rather reflect the outcomes of specific political negotiations between national and subnational actors over time. This section explores the factors influencing these political bargains.

4.1 Vertical distribution of EI revenues

From a political economy perspective, one of the main determinants of variation is the degree of political organization and mobilization that subnational governments have had vis-à-vis the central governments over time. In countries where local elites have been traditionally strong (Bolivia, Brazil) and have achieved considerable political and administrative autonomy, the central government has had to compromise and allow for greater distribution of rents with subnational governments. In Bolivia, the local exporting and mining elites organized along regional lines have played a significant role in the export economy (Laserna 2009). With the advent of the commodities boom, local demands have put pressure on the central government to adopt a direct hydrocarbons tax (IDH) in 2005 that distributes over 50% of mining rents to subnational governments. In Brazil, state governors have long been a critical part of the governing coalition in the center, and even after the 1998 constitution reduced the direct influence of state governors a good level of decentralization was maintained. In both cases, the strong presence of subnational politics explains a high degree of fiscal decentralization that also included the distribution of EI revenues during the commodities boom.

By contrast, the absence of an active political pressure from subnational governments explains why dissimilar countries like federal Mexico and Unitary Ecuador are not very decentralized. In the case of Mexico, the subnational pressures have been traditionally contained or managed by the party in government for many decades. This is particularly true for the management of EI rents that were maintained by the centrally-controlled oil company PEMEX. The more recent political liberalization of Mexican democracy since the late nineties has not been sufficient to push for greater decentralization in the management of oil revenues most of which remain under control of the central government. In Ecuador, subnational governments (provinces and municipalities) demanded greater fiscal decentralization in the mid-nineties, but without a solid base of political support, they obtained a mild response from the central government allowing a transfer of 15% of central government spending to be invested in regional governments (Mejia Acosta and Albornoz 2010). Furthermore, this mild allocation did not include the specific transfer of EI revenues, so local governments could not benefit from the advent of the commodities after 2004. Instead, the Correa administration, inaugurated in 2006, found mechanisms to further centralize the management of fiscal and EI revenues (Basabe et al. 2010).

4.2 Horizontal distribution of EI revenues

The puzzle of distributing revenues across different jurisdictions is usually addressed through political bargaining between resource rich districts, resource poor and central governments. All things being equal, resource rich elites would have a preference to maximize direct devolution of EI revenues to compensate for the value of resources extracted or the negative externalities associated with extraction. A greater share of revenues would also allow local elites greater independence from central government influence on spending policies. Resource poor districts however, would have a preference and demand for greater (re)distribution of EI revenues considering that these districts indirectly support extractive activities (and need better ports and road infrastructure for example) or making a claim for improved redistribution to address pre-existing socio economic inequalities (Arellano Yanguas and Mejia Acosta 2014). From the perspective of the central government however, a broader redistribution (across all districts) would be preferred if that contributes to consolidating its bases of electoral support (Gonzalez 2014). Likewise, a more targeted devolution to producing districts only would be preferred if this helps to consolidate the governing coalition at the center.

The cases of Colombia, Peru and Brazil illustrate different scenarios of political bargaining. In the case of Peru, the local elite with the support of mining companies has strongly bargained for a direct devolution of revenues from the central government in the form of a *mining canon*. These transfers are distributed to producing regions, provinces and municipalities but not outside extractive jurisdictions (Orihuela 2012). Benefiting regions have also resisted further government attempts to generate saving funds or compensation funds that are transferred to other regions (Arellano Yanguas and Mejia Acosta 2014). Brazil provides a similar illustrative case, where producing regions have resisted further attempts by the central government to distribute the extractive wealth to non-producing regions. As discussed, the government passed legislation to distribute potential oil revenues to benefit education but the redistribution has been challenged through a constitutional appeal by three resource rich states.

Colombia provides an interesting example where the central government defused some potential opposition of resource rich *departments*. It launched a legislative proposal aimed at "spreading the jam across the whole toast" when it came to distributing the wealth from the EI sector (Garcia Tapia 2011; Garcia Villegas and Espinosa Restrepo 2011). The government obtained support from the majority of legislators who in turn, sought greater government investment on projects that would further their chances of re-election. Not only were the representatives from producing districts in a relative minority but they were also interested in direct government investment, so the new legislation was approved in July 2011 (Arellano Yanguas and Mejia Acosta 2014). The reform dramatically reduced the share of royalties received by subnational governments (from 80% to 10%) but it also centralized the governments' decision-making ability, thereby giving the central government greater say in the way Regional Compensation and Development funds were invested (Arellano Yanguas and Mejia Acosta 2014).

4.3 Distributional consequences for enhancing the quality of growth

One of the key arguments advanced by this chapter is that the different mechanisms of intergovernmental transfers and the underlying political bargains that sustain them are key to understanding the effectiveness of government spending. It is through these institutional configurations that any windfall of natural resource revenues will have a positive impact on the quality of growth. While the link between the choice of distributional mechanisms and the underlying shape of the political bargain was illustrated in the previous section, there is insufficient or inconsistent empirical evidence to test the second claim. Little is known about the actual impact of those transfers on fostering sustainable development outcomes such as social spending or developing human capital.

This section will offer a brief discussion of pathways and factors that may contribute to enhancing the positive impact of government spending on social outcomes. While the empirical discussion here features some Latin American cases for which there is detailed knowledge on the quality of expenditure, generalizations to other contexts must be made with caution. The selected countries all are not low-income countries; they all display established democratic institutions and fiscal rules, and allow for an active participation of political parties and organized civil society.

All things being equal, the allocation of EI revenues should promote quality investments of funds when these are: a) fairly distributed across different constituents without privileging a particularly powerful or well organized group; b) allocated in consistent and predictable patterns without being excessively vulnerable to economic or political cycles; c) efficiently allocated so that they prioritize investment in high return sectors or have a demonstrable long term impact; and d) are managed in a transparent and accountable manner (Hallerberg et al. 2009).

The scarce existing evidence seems to suggest that the promise of decentralized social spending does not necessarily ensure improved outcomes; rather, it is the centralized planning, management and administration of these funds that is more likely to create coordination, monitoring and strategic investment. Empirical studies suggest that despite the extraordinary amount of transfers to mining regions over the last decade, social indicators have not improved by a comparable proportion (Arellano Yanguas 2011, 2012, Loayza, Mier y Teran and Rigolini 2013). This is partly due to the lack of managerial capacity at the subnational level, the reduced political horizons that encourage short-term investments and the lack of effective checks and balances that allow for widespread rent seeking (Arellano Yanguas 2011, 2012).

At the other end of the spectrum we find a country like Ecuador that has centralized the planning, management and allocation of EI rents in the hands of the executive and has produced visible improvement in the range of social indicators (Mejia Acosta and Albornoz 2010). The improvements are most likely associated with the centralized management of revenues from the commodities bonanza. Paradoxically, this increased fiscal (re)centralization has come at the price of reducing the political and administrative autonomy of local governments as well, in a way that local mayors would only increase their ability to gain re-election if and when they can show a clear association to the executive branch. Further analysis is also needed to evaluate the transparency and sustainability of this type of investment when it is heavily centralized in the hands of the executive branch. Far from making sweeping generalizations, this paper argues that the formation of stable, transparent and inclusive coalitions should contribute to improving the quality of spending of natural resource revenues.

5. Conclusions

This chapter has offered a partial explanation and a testable claim about the link between natural resource revenues and the quality of growth. The partial explanation looks at the different nature of existing revenue allocation mechanisms and the underlying political and institutional configurations that sustain these policy choices. The chapter relies on evidence from a selected range of cases to illustrate some of the policy dilemmas and political trade-offs for allocating windfall revenues between central and subnational governments. The testable claim is that these distributional mechanisms and the political bargains sustaining them, should have an impact on the type and quality of government investments over time. The preliminary and incomplete evidence in this regard suggests that this is a promising agenda for future research.

The section below summarizes the most salient conclusions and pending themes.

1. The sole presence of political institutions or fiscal rules is not a sufficient predictor of actual distribution patterns. The review confirms the notion that fiscal decentralization alone is not a good predictor of increased devolution. Some of the countries with formally centralized (unitary) governments may actually concede equal or greater fiscal autonomy to subnational territories than to those with formal decentralized or federal structures. However, the

review suggests that the existing strength and political leverage of local elites is a stronger predictor of greater decentralization. In contrast, where local elites have limited political or economic influence, the central government is more likely to recentralize the allocation of funds regardless of the fiscal formula.

2. The allocation of rents across producing and non-producing districts (horizontal association) is mildly associated with levels of decentralization. Highly centralized systems tend to adopt devolution formulas benefiting producing districts only, whereas formally decentralized systems tend to benefit both producing and non-producing territories. Central governments are able to promote a more distributive (inclusive) allocation of natural resource revenues when they can effectively mobilize non-producing districts and/or defuse the power of producing districts (as illustrated in Colombia). When elites in producing districts are strong and mobilized, it is likely that distribution formulas will continue to block a broader distribution of wealth (as in the case of Peru).

3. In both cases of vertical and horizontal distribution, the chapter shows a consistent pattern of path dependency that is consistent with the existing literature: once distributional reforms have been adopted, these become very hard to change over time unless there is a dramatic realignment of the relevant political actors. These major political shifts can be produced after elections or as a response to nationwide mobilizations for greater redistribution.

4. There is inconclusive evidence to claim which allocation formula is more likely to enhance the efficiency of government investments. Preliminary evidence discussed in this paper suggests that it is the centralized management and allocation of funds that appears to be associated with improved social outcome indicators and conversely, an extreme devolution to weak subnational units may in fact reinforce rent seeking practices. In principle, this idea should challenge the proposed benefits of fiscal decentralization established in the literature. Looking ahead, more work is needed to explore the mediating variables through which a more (de) centralized allocation and revenue management is likely to improve government investment. Some pending themes include the analysis of discretionary management of funds, the

effectiveness of transparency and accountability initiatives, and the capacity of local governments to effectively administer central government funding.

5. Finally, much more work is needed to systematically measure, analyze and compare the impact of natural resource revenues on social spending and how this links to quality of growth. One way of approaching the question is to compare multiple cases based on the funding modalities adopted at sector level (education, health, nutrition) and measure these against specific social indicators (e.g. improved school enrolment or reduced stunting rates) over time. This would be an empirical way to assess the contribution of the commodity revenues on enhancing the quality of growth across the developing world.

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