Rent sharing in mining in Sub Saharan Africa theory, instruments, proxies, determinants and political economy

Olav Lundstøl

Phd Candidate- African Tax Institute- University of Pretoria

Counsellor- Economy and Energy- Royal Norwegian Embassy in Brazil

ICTD Annual Conference

Addis Ababa, 11 February 2016

Content

1. Why the importance of resource rent sharing
2. Theory of resource rent
3. Fiscal instruments and government take
4. Empirical proxies and determinants of government take
5. Political economy of rent seeking and corruption
6. Political economy of privatization and renegotiation
7. Preliminary lessons for resource rich poor developing countries

1. Why the importance of resource rent sharing

- Natural wealth (led by sub-soil assets) often have dominating role in national wealth (> 50%) in RRPCs (resource rich poor countries) (WB 2010)
- Extraction of sub-soil assets must not only raise economic output, but also the adjusted wealth in order to support sustainable development (Hartwick rule)
- Very few empirical studies based on longer time and cross sectional detailed data on actual benefit sharing measured through government take especially in RRPCs but also overall
- Clausing&Durst (2015): « no literature today comparing the administrative success of different kinds of fiscal regimes in practice» in the area of EI including mining

1. Why the importance of resource rent sharing

- Africa so far still the least explored continent in the world with regards to sub soil and sub sea mineral resources (Collier, 2010)
- Super cycles in mineral prices, and from 2002-3 real price increase in gold and copper respectively of 240 and 200% (Cuddington et al, 2008 and Cochilco, 2015)
- Top 40 global mining companies in 2011 alone increased net profit levels by 156 percent reaching 110 billion USD and confirmed assets of 1 trillion (PWC, 2011)
- Global mining sector income increased by a factor of 4.6 while the resource tax collected increased by only 1.15 from 2002-2010 (Laporte et al, 2015)

2. Theory of resource rent

Natural resource theories of rent	**Rent components**	**Theory driver**
Ricardian Rent- Differential Rent	Quasi Rent Other Rent Pure Rent	Different natural resource quality, no focus on non-renewable character-scarcity of the resource
Hotelling Rent- Scarcity Rent	User Cost	Focus on the non-renewable character-scarcity of the resource
Schumpeterian Rent- Entrepreneurial Rent- Technology Rent	Innovation Rent	Focus on dynamic interaction between geology, technology, innovation and supply-demand

2. Theory of resource rent

- Majority of literature following Gray (1914) and Hotelling (1931) has been on scarcity and attempts to measure user cost style rent
- Theoretical elaboration particularly in 1970-80s (Solow, Dasgupta, Stiglitz, Nordhaus, Heal, Pindyck), but so far the empirics of the Hotelling-Scarcity rent seem elusive and limited (Hart-Spiro, 2011)
- Due to a reliance however of average cost and revenue data all/most tests so far however are not able to calculate gross margins and rents (Solow, 1993), or even to distinguish Ricardian and Hotelling rent (Bjerkholt, 2004)
- Little doubt however that technological change, continous discoveries of reserves and market structural shifts have strongly influenced the revenue, profit and rents (Livernois, 2009 and Gelb et al, 2012)
- Nevertheless considering Solow (1993), as well as a large literature (Gelb et al, 2010, Collier, 2011 and Barma et al, 2012), there still would seem to be a strong case that there can be and has been, both at the mine-field level as well as overall significant rent in during prolonged periods

3. Fiscal instruments and government take

- Most fiscal regimes in mining tend to have combination of at least three of the following instrument sub-groups: direct tax (CIT, PAYE, WHT, other rent taxes), indirect tax (VAT), non tax (Royalty, Customs and Excise) and ownership interest
- Fiscal instruments are typically a mix of gross and net income or value related so as to balance the risk sharing and revenue collection profile overall
- Fiscal regimes need to accomodate for large differences regarding low-high price and low-high costs, and net versus gross tax and non tax instruments are more or less efficient in adjusting to this complexity (Årsnes and Lundstøl, 2013)
- In extractive industry including mining fiscal regimes, the bulk of the government take from different instruments over time is normally designed and expected to come from direct taxes and in particular corporate direct taxes(including here profit sharing types)
- In principle any fiscal framework should be designed so as to optimize- not maximize- simultaneously over the life of the resource, the levels of investment, production and benefit sharing, and ideally perhaps the net present value of social benefits (Tilton, 2004)

3. Fiscal instruments and government take

- In 2011 the fiscal contributions from the major MNCs in mining showed: 55% from people taxes (employees), 27% from profit taxes (mainly CIT) and 18% from production taxes (Royalty and VAT) (TTC report by PWC, 2011)
- Studies of Zambia and Tanzania have shown similar trends in terms of mining fiscal contributions dominated by PAYE with 30-50% and Royalty with 15-30% (Lundstøl and Raballand, 2013)
- Comparisons of legislated total tax rates including CIT and Royalty (calculated into CIT equivalent) in the period from 1994-2013 for 7 major mining countries, showed a variation from 26.5 to 57% (Lundstøl, 2016)
- Considering that minerals are non renewable resources and that there likely is considerable rent in particular during super-cycles, the above collection pattern of tax represent a paradox and potentially a lost development opportunity
- But to what extent? Conrad (2012) argues that «mineral revenues should be a greater share of total revenue relative to the sector value added» because of rent that represent a factor payment that is distinct from many other activities

4. Empirical proxies and determinants of government take
Averages for the period 1994-2013

	MGDP/TGDP	ME/TGDP	MGT/TR	MGT/TR: MGDP/TGDP	MGT/TR: ME/TGDP
Ghana	2,80	8,60	3,10	1,33	0,34
South Africa	7,30	7,20	2,70	0,35	0,37
Zambia	10,50	24,40	11,50	1,10	0,39
Australia	11,20	11,40	5,50	0,53	0,47
Tanzania	2,83	4,60	4,50	1,47	0,78
Chile	10,70	13,16	14,90	1,44	1,21
Botswana	27,60	29,70	51,90	1,94	1,80
Average	10,42	14,15	13,44	1,17	0,77

4. Empirical proxies and determinants of government take
Adjusted simulation for the period 1994-2013

	(A-O)/GDP	(C-O)/GDP	(H-O)/GDP	(A-O)/TR	(C-O)/TR	(H-O)/TR
Zambia	3,2 %	5,6 %	13,0 %	13,7 %	23,7 %	54,8 %
Ghana	1,3 %	2,0 %	4,4 %	6,1 %	9,4 %	20,8 %
Australia	0,8 %	0,6 %	2,2 %	2,6 %	4,5 %	11,3 %
South Africa	1,7 %	1,3 %	3,3 %	4,6 %	3,7 %	9,0 %
Tanzania	0,0 %	0,2 %	2,0 %	-0,1 %	2,0 %	9,1 %
Chile	-1,3 %	-0,6 %	3,0 %	-6,3 %	-3,0 %	8,5 %
Botswana	-8,7 %	-6,8 %	0,0 %	-23,0 %	-17,8 %	0,0 %

4. Empirical proxies and determinants of government take
Panel regression results- determinants of MGT

	All	A-B-C-SA-T
ln (Price)	1.494***	0,98***
	(0.158)	(0,24)
ln (Production)	0,581***	2,63***
	(0.134)	(0,58)
ln (Investment)	0.105	0,51***
	(0.107)	(0,12)
ln (Cash cost)		-0,06
		(0,11)
ln (Tax)	4.632***	6,1***
	(0.691)	(1,27)
Observations	136	60
Countries	7	5
Time period	1994-2013	2001-2012
Fixed or Random	Fixed	Random
R-Sq-adj	0.88	0.85
***p or z <0,01 ** p or z<0,05 * p or Z<0,1		
prob>chi2 (Hausman)	0.004	

5. Political economy of rent seeking and corruption

- Rent seeking is the process whereby interests (public and private) are acted upon normally in illegal and/or illicit ways to gain access to rights over assets with associated values in a market
- Corruption can be the outcome-result of the rent seeking activities-methods within a specific regulatory framework of both political and economic aspects and consequences (Svensson, 2005)
- Key methods-activities of rent seeking are; bribe, collusion, embezzlement-theft, fraud, extortion and abuse of discretion (Vargas et al, 2009)
- An increasing recognition that methods-activities of rent seeking and resulting corrupt outcomes may be described as legal or rather illicit or against the «spirit» or intention of the moral-normative fundament of the relevant laws and regulations (Eriksen, 2012)
- According to Ndikumana (2013) corruption by MNCs rob Africa twice, first by evading and avoiding tax and secondly through illegally and/or illicitly securing tax exemptions and incentives that result in unfair rent sharing in the economy

6. Political economy of privatization

- Sequence throughout most of the SSA from late 1980s-1990s with stabilization, liberalization, privatization, debt forgiveness and aid funding and TA programs
- In many countries and sectors such as mining, including our case countries Zambia and Tanzania, some emerging agreement on necessity for reforms as investment, production, export levels low and fiscal drain growing
- Conditionality approach linking debt relief to reforms to TA roll out in mining by the WB including an entire regulatory approach with associated legislation, regulation and contractual model
- Main purpose to attract private foreign investment to turn around industry. High level of political involvement and extensive negotiations of development agreements by teams consiting of trusted close allies of the Presidents with close industry alliances and interests
- Resulting in fiscal-tax regimes with varying levels of extensive exemptions and incentives beyond and overruling legislation and regulation and stability clauses in both 1st and 2nd and 3rd round privatization deals, and for the latter two in particular in some cases huge carry forward losses, debt absorption by government and in some cases low entry prices
- Following the onset of the fourth super cycle from from 2003-4 until recent years, it became obvious in many countries in SSA and other RRPCs including in Tanzania and Zambia that the fiscal regimes in MDAs were not effective in securing a robust rent sharing with higher nor in fact low prices before

6. After privatization

- Large increases in investment, export and sub contracted employment in large scale mining in both countries. Slow but gradual rise in tax payments up to 2006-7.
- Effective tax rates (CIT and Royalty) in large scale mining low in both countries with 26.5% in Zambia and 31.4% in Tanzania, significantly below the range for the other countries in our sample above that varied between 37-48%
- The majority of mines with complex related party structures where sales, input and financing were/are managed through entities registered in tax havens (e.g. Isle of Man, Cayman, Barbados, British Virgin Islands, Irland)
- In Zambia major issues both on revenue and cost side, linked to quantities, quality, price, cash costs, financing and hedging losses, and in addition some major mines especially with 2nd or 3rd round owners (some of which were-are not mining houses) with enormous carry forward losses from earlier owners, no debt and low buying price, in reality recovering full long term investment costs in 3-4 years but operating with tax account losses
- Most have extensive use of project finance and derivatives managed through the same or related tax haven registered related companies, with continous one sided losses and a lack of consistent accounting of derivative contracts
- In period from 2000-2006 the contributions ratios in particular of Zambia with 0.02-0.15 and Tanzania less so with 0.45-0.85, were overall significantly below relevant benchmarks considering the real prices and actual costs likely incurred

6. Political economy of renegotiation

- External reports by the IMF, WB, CSO and academics, as well as internal commissioned domestic work, indicated in both countries that the fiscal regimes were below comparators
- Ratios showed that the contribution of mining to revenue relative to its contribution to value added was particularly low in Zambia at 0.02-0.15, and somewhat higher in Tanzania with 0.45-0.85 from 2000-2006. Overall tax rates and extensive incentives still dominated (both in direct and indirect tax as well as with regards to capital allowances including uplift in Tanzania)
- In both countries renegotiation committees were formed, somewhat earlier in Zambia, and analysis and external advice and experiences accessed from different sources. Civil society campaigning with analysis and disclosure efforts, mixed with political-presidential election preparations and an overall emerging regional awareness and momentum, led to radical changes through first an attempt of negotiations and then unilateral and legislative process in Zambia in 2008, whereas in Tanzania more piece-meal adjustments were made from 2008-2010
- Although some of the changes in Zambia were shortlived due to the global financial crisis-price crash mixed with a political change, still the actual fiscal regime maintained and evolving after 2009 was one that brought signficantly higher government take, and in Tanzania as well the levels of collection increased signficantly due to various efforts including a major production, price and cost audit drive led by the TMAA together with the TRA
- In both countries a package of support efforts particularly in the areas of evidence based tax policy through internal modelling with audited data, together with specialized tax administration focussing on audits and enforcement, proved to be highly effective in increasing tax revenue collected

6. After renegotiations

- Continued strong increases in both investment, export and more rapidly in tax payments from 2008 onwards following renegotiations. Regressions shown on earlier slides indicate a particuarly strong influence by tax rate increases
- As important however were most likely increased efforts to audit the mines and enforce tax rules and regulations through specialized capacities (both in ZRA and TMAA-TRA), as this lead to increased recovery and some important reversals of deductions
- Contribution ratios from mining (to revenue relative to value added) jumped markedly from 2007-8 in Zambia (from 0.36 to 1.69), whereas the major change was from 2009-10 in Tanzania (0.48 to 0.95), and thereafter at a higher level
- Using some preliminary available audited accounts, effective tax rates (tax/gross profit) calculated for Tanzania following privatization vary significantly between mines, with for exampe North Mara the lowest of the large mines so far at 12% (2002-2013), Geita at 23% (2000-2013) and Golden Pride at 44% (1999-2013) and some with net losses so far (Bulyanhulu). For several of these however, the life time remaining is signifiantly longer and rates will change over time
- In Zambia the windfall tax that ended up being implemented different from what the technical comitte had recommended (main problem was not making it deductible from CIT as originally proposed), proved to be highly effective in securing estimated government take and in an upcoming paper we analyze the actual financial and economic impact and characteristics of this instrument in the Zambian specific mine context within a historical, political and fiscal framework

7. Preliminary lessons for resource rich poor developing countries

- Foregone government take from poorly designed and implemented fiscal-tax regimes in mining could have been a substantial source of development finance
- Optimal fiscal-tax regimes in specific country situations are almost never/never going to be first best solutions in a strict sense if one consider the full economic, political, organizational and institutional realities
- Over the last few decades, in particular tax rates but also mineral prices were the strongest determinants of levels of government take
- Investing in country level owned tax modelling tools and specialized production and tax audit tools and institutional capacity, increasingly enabling evidence based regulatory efforts, can have very high returns
- Legislate rather than negotiate when it comes to key fiscal, social and environmental terms
- If realistic/possible, introduce competition through auctions and encourage exploration similar to in oil-gas with better follow up of data sharing and production-investment plans