

RESEARCH BRIEF

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Natural Resource Endowment and the Geography of Poverty in Pakistan

Debates on regional development in Pakistan have often focused on the deep disconnect between natural resource extraction from certain regions and their levels of social and economic development. This brief engages with the policy debate on the relationship between natural resource endowment and socio-economic deprivations at the sub-provincial level in Pakistan. Given the absence of such an analysis, it draws upon the available evidence to examine on how populations in various natural resource endowed districts in the four provinces fare in terms of access to health, education, and overall living conditions and economic status. It compares the natural resource profile of various resource-rich districts in the country with data on multidimensional poverty in each of the four provinces for the year 2013. Given the limited scope of this brief, it offers a starting point for a much needed deeper analysis of various institutional factors that keep resource rich districts poor. We conclude this brief by outlining some broad policy recommendations for socially just and equitable arrangements to utilise the gains of natural resources in improving social and economic conditions affecting the majority of populations in these districts.

The relationship between poverty and natural resources has been widely discussed in the global literature although often from a macroeconomic perspective (see, for example, NRG & UNDP, 2016). It has been argued that the poor populations' limited capacity to generate revenues from their natural resources leads to a 'downward spiral' that accentuates wealth for those with access to financial capital at the cost of the poor, who are also affected the most by the environmental degradation caused by the exploitation of these natural resources (for a survey of the issues, see USAID, 2006).

Governance is considered central to how natural resource management impacts poverty-making natural resources boon or bane (Segal, 2011). Governance systems including laws, institutions, political systems, social networks and cultural values determine the efficiency, effectiveness and equity in the distribution of the gains of natural resources (Reed 2005; Ribot 2004). These mechanisms can contribute to growth with producer-friendly institutions and limit it if the same institutions are 'grabber friendly' (Mehlum, Moene and Torvik, 2006) and Boschini, Pettersson and Roine, 2007). Given the tight competition over these resources, corruption can also perpetuate poverty. Similarly, effective and functioning markets can offer the mechanisms that turn natural resources into financial assets broadening choices that people have in the wake of vulnerability. At the same time, market failure resulting from the lack of information, market segmentation and exclusion the lack of well-defined property and the nature of pricing and tax policies can perpetuate poverty (USADI 2006; Cosby 2004; Dollar and Kraay 2001).

The centralized decision making in natural resource management has been considered a source of minimal transparency and incentives for corruption, and has contributed to conflict (Brosio & Singh, 2015). Public representatives, through parliamentary procedures can play an important role in enacting rules for resource management and distribution and providing an oversight mechanism (Natural Resource Governance Institute, 2015). It is also important to note that revenues from natural resources are often volatile. The inherent

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instability of rents from natural resources, particularly in the context of underdeveloped regions, requires that the government ensure a smooth fiscal spending pattern so that key development expenditures are not affected even if there is a bust in the revenue cycle. Whatever revenue transfer system there is, it should be simple and have the acceptance of the polity with transparency and an independent oversight mechanism (NRGI & UNDP, 2016).

One possible effect of abundance in natural resources is deindustrialization, leaving the local populations limited options for economic mobility and therefore undermining development of the region. Regarding the negative impact of natural resource abundance on economic growth, Gylfason and Zoega have argued that physical capital could be crowded out by natural capital, thereby inhibiting economic growth in such regions. Yet, there is also evidence that such negative impact could be addressed through economic and structural reforms that help propel natural resource abundant regions economically forward (Gylfason & Zoega, 2001). In such a case, governments need to focus on and sustain medium to long term development plans for regions that provide natural resources for the rest of the country. Equally significant for executing development plans is that revenue sharing should also be timely and accessible for subnational governments so that they can fulfil their development responsibilities effectively (Natural Resource Governance Institute, 2015). Agustina, Ahmad, Dhanie Nugroho, & Herbert, 2012 propose a hybrid solution whereby the local populations are compensated through direct transfers to poor households whereas the governments simultaneously focus on spending to meet infrastructure gaps to improve overall development in such regions. Other proposals offered by literature include using the revenues to establish social safety nets for poor populations in underdeveloped regions (Gupta, Segura-Ubiergo, & Flores, 2014).

With these perspectives in view, there is a need for understanding the ways in which various processes and mechanisms in the given political economy shape the relationship between poverty and natural resource distribution across various regions in Pakistan. Since there are limited prior detailed analyses of these issues in Pakistan, we offer here a brief overview of how natural resource endowed regions fare in poverty. It focuses on only three key natural resources for energy: petroleum, natural gas and hydel, which constitute roughly 60 percent of Pakistan's gross energy supplies (Pakistan Petroleum Information Service, 2014) and some of the important mineral resources. The data for energy sources are taken from the Pakistan Energy Yearbook 2013 (data is for 2011-12) whereas data on mineral deposits is from the Natural Resources Wing of the Ministry of Petroleum and Natural Resources. Data on poverty is taken from the estimates of multidimensional poverty provided by Naveed, Wood, & Ghaus (2016). Pakistan's poverty distribution has been discussed at length in Naveed et al., which shows that there exist sharp regional disparities in poverty that have persisted over time. As we discuss in this brief, many of such poverty stricken districts, however, are also natural resource abundant. This has led to serious questions over how revenues generated from natural resources are spent, and the extent to which they benefit local populations.

Balochistan

Balochistan province is a key energy producer in the country, with the bulk of its supplies centred in Dera Bugti and supplying gas to the major cities of Pakistan since 1964. Gross gas production in the district in 2012 was 12.52689 trillion cubic feet. Dera Bugti's gas supplies account for roughly 18 percent of national supplies (Fazl-E-Haider, 2018). The district is also a major producer of oil. In 2010-11, crude oil production in Dera Bugti stood at 22,028 US barrels. Most importantly, Dera Bugti has the largest gas reserves in the country. As of June 30, 2012, the various fields in the district had 12.53 trillion cubic feet of natural gas which amounts to 47% of the total gas resources in the country (Hydrocarbon Development Institute of Pakistan, 2012). Yet Dera Bugti is also one of the poorest regions not only in Balochistan but across the whole country, with 87 percent population living below poverty line in 2012-13 suggesting the overwhelmingly large proportion of district's population did not have access to education, healthcare, decent living conditions and economic opportunities.

Several other districts in the province are rich with mineral resources but the majority of their population continues to be deprived on basic indicators of human development including education and health, lives under poor living conditions, and lacks access economic opportunities. Table 1 summarizes the key mineral resources in Balochistan and their sites, along with districts' poverty headcount ratios in 2013.



Table 1 : District level mineral resources and poverty headcount ratio in Balochistan

District	Key mineral resources	Poverty headcount ratio 2012-13
Chagai	Copper	0.82
	Iron Ore	
	Lead Zinc	
	Gold	
	Silver	
	Tungsten	
Lasbela	Manganese	0.60
	Lead Zinc	
	Copper (not mined)	
Khuzdar	Chromite	0.68
	Lead Zinc	
	Antimony	
Killa Saifullah	Chromite	0.81
Killa Abdulla	Antimony	0.85
Zhob	Chromite	0.72
Kharan	Chromite	0.60
	Manganese	
Nushki	Manganese	0.42

Source: Chief Minister's Policy Reform Unit, 2016, Naveed & Ali, 2012

District Chagai has tremendous reserves of chromite, copper, silver, gold, and iron ore. Reko Diq, a site in the district has more than 5,000 million tonnes of copper. The district is also rich in gold with reserves of over 1600 million tonnes, and silver with reserves of 618 million tonnes. At the same time, over 80 percent the district's population lives under multidimensional poverty. As Table 1 shows, chromite reserves are found in Zhob, Killa Saifullah, Chagai, and Khuzdar, cumulatively standing at 1.8 million tonnes. All four districts had disproportionately high levels of poverty. Antimony is present in Killa Abdulla and Khuzdar. The province is also rich in iron ore, with high reserves around Khuzdar (27.46 million tonnes), Chagai (268 million tonnes), Kalat, and Quetta (Chief Minister's Policy Reform Unit, 2016). With the exception of Quetta, all these districts have very high incidence of poverty.

Khyber Pakhtunkhwa

Various parts of KP have high production of gas and oil and some districts make the greatest contribution to the hydel energy production in the country. As shown in Table 2, the key centres of natural resource production in KP include Shangla, Bannu, Karak, Kohat, Malakand, Chitral, and Haripur. Table 2 shows the production of oil, gas and hydel energy from these districts for the years 2012 and 2011.

Table 2 : Districts with significant energy resources in KP

District	Gas production in 2012 (trillion cubic feet)	Hydel (Gigawatt hour)	Oil production in 2011 (US barrels)	Poverty headcount ratio (2013)
Shangla			1,523,822	0.70
Bannu		10.91		0.44
Karak	0.4105		4,634,812	0.42
Kohat			2,306,945	0.36
Malakand		84.65		0.3
Chitral		3.5		0.26
Haripur		14105.33		0.17

Sources: Hydrocarbon Development Institute of Pakistan, 2012



While most districts have lower poverty compared to those in Balochistan, their headcount ratios are still higher than national and provincial average poverty rates. Shangla, which is rich in crude oil production, had 68 percent population living below poverty line. Similarly, Bannu, which produces both hydel electricity and oil, had 44 percent population multidimensional poor, and Karak - rich in gas and oil - had 43 percent population living under poverty. A major provincial oil producer, Kohat too had over one third of its population living in poverty with a headcount ratio of 0.36. The headcount ratios in the remaining three districts were however lower; 0.3 in Malakand, 0.26 in Chitral, and 0.18 in Haripur. Table 3 shows the key centres of mineral resources in the province.

Table 3 : Districts with significant reserves of key minerals and their poverty rate

District	Key mineral resources	Poverty headcount ratio 2013
Chitral	Antimony	0.26
	Iron Ore	
Shangla	Chromite	0.70
	Iron Ore	
Lakki Marwat	Iron Ore	0.50
Kohat	Iron Ore	0.36
Abbottabad	Iron Ore	0.20
	Manganese	
Malakand	Chromite	0.30

Source: Ministry of Petroleum and Natural Resources, 2015

The total iron ore reserves in the province stand around 340 million tonnes, distributed across Chitral, Shangla, Lakki Marwat, Kohat and Abbottabad. Antimony is found in Chitral which has reserves of 0.06 million tonnes. Abbottabad has 0.18 million tonne reserves of manganese. Chromite is found in Malakand and Shangla as well as in parts of FATA. Of the districts endowed with mineral resources, Shangla had over 65 percent of its population living in poverty, followed by Lakki Marwat and Kohat.

Punjab

Many districts in Punjab are also endowed with natural resources including gas, oil and hydel energy. The key energy production hubs in Punjab are shown in Table 4

Table 4 : Districts with significant energy resources in Punjab

District	Gas production in 2012 (trillion cubic feet)	Hydel (Gigawatt hour)	Oil production in 2011 (US barrels)	Poverty headcount ratio 2013
D. G. Khan	0.0598	-	75,693	.56
Rahimyar Khan	0.01192	-	45,979	.44
Jhang	0.00964	-	-	.37
Mianwali	-	1074.79	513,700	.3
Narowal	-	-	-	.27
Okara	-	2.88	1,875,559	.27
Khushab	0.31100	-	103,830	.21
Sargodha	0.00473	-	155,580	.19
Sheikhupura	-	34.48	-	.18



District	Gas production in 2012 (trillion cubic feet)	Hydel (Gigawatt hour)	Oil production in 2011 (US barrels)	Poverty headcount ratio 2013
Mandi Bahauddin	-	68.05	-	.11
Gujranwala	0.02881	42.03	-	.01
Attock	0.21808	991.09	224846	.09
Gujrat	0.00711	32.68	-	.07
Jhelum	-	-	558691	.06
Rawalpindi	-	-	79,966	.06
Chakwal (including Talagang)	0.00809	-	431,555	.06

Sources: Hydrocarbon Development Institute of Pakistan, 2012

With 44 percent population living below poverty line, district Rahim Yar Khan is the major producer of oil and gas in the province followed by D.G. Khan that has even higher level of poverty (56 percent). With a poverty headcount ratio of 0.37 (nearly twice the provincial average), Jhang is another example of a high incidence of poverty despite its production of gas supplies. Mianwali (0.3) and Okara (0.27), which are major producers of hydel electricity, and Narowal (0.27), an oil producer had over a fourth of their populations living in poverty.

In addition to energy resources, some of the minerals such as iron ore and antimony are also found in various districts in the province. Table 5 shows sites of key mineral resources in Punjab.

Table 5: Districts with significant reserves of key minerals in Punjab

District	Key mineral resources	Poverty headcount ratio 2013
Mianwali	Iron Ore	0.30
Chiniot	Iron Ore	0.23
Sargodha	Iron Ore	0.19
Sialkot	Antimony	0.10
DG Khan	Iron Ore	0.56

Source: Ministry of Petroleum and Natural Resources, 2015

Large reserves of iron ore have been found in districts Chiniot, D. G. Khan, Mianwali, and Sargodha. Antimony is found predominantly in the Sialkot region. With the exception of Sialkot, these districts have higher incidence of poverty compared to the provincial average.

Sindh

Sindh has many districts with high production of natural gas and oil. Table 6 lists these districts with their respective magnitude of oil and gas production for 2011 and 2012 respectively. Importantly, Ghotki has country's one-quarter of natural gas reserves and Dadu has 9 percent. Nearly half of the population in the two districts lives below multidimensional poverty line.



Table 6: Districts with significant energy resources in Sindh

District	Gas production in 2012 (trillion cubic feet)	Oil production in 2011 (US barrels)	Poverty headcount ratio (2012-13)
Tharparkar	0.01625		0.79
Badin	0.22094	118,808	0.74
Thatta	0.22604		0.73
Kashmore	0.95900	23,165	0.64
Mirpur Khas	0.00079		0.61
Tando Mohammad Khan	0.33997	62,096	0.61
Jacobabad	0.00356		0.58
Shaheed Benazirabad	0.05307	363,264	0.53
Tando Allahyar	0.28659	780,859	0.61
Shahdadkot	0.03600	16,043	0.52
Shikarpur	0.01766		0.51
Khairpur	1.76099	16,524	0.49
Ghotki	6.77668	6,406	0.48
Dadu	2.43953	939,986	0.47
Naushahro Feroze	0.01874		0.47
Sanghar	0.03582	1,013,703	0.46
Matiali	0.09023		0.40
Sukkur	0.55097	19,039	0.35
Larkana	0.01057	895,732	0.33
Hyderabad	0.06345	5,802,442	0.15

Sources: Hydrocarbon Development Institute of Pakistan, 2012

Out of 20, 17 energy production centres in Sindh had a poverty headcount ratio of over 0.4 in 2013. Tharparkar, a coal and natural gas producer had 79 percent of its population living in poverty. Several other districts also have very high proportion of their population living in multidimensional poverty, such as: Badin (0.74), Thatta (0.73), Kashmore (0.64), Mirpur Khas (0.6), Tando Mohammad Khan (0.6), Jacobabad (0.58), Shaheed Benazirabad (0.53), Tando Allahyar (0.53), Shahdadkot (0.52), Shikarpur (0.51), and Khairpur (0.5). All the remaining energy production centres too had more than one third of their populations living in poverty. There is thus a correlation between the levels of energy production and poverty rates in the province – resource rich districts have high poverty.

Discussion

There are several institutional factors underlying this inverse relationship between natural resource endowment and social economic development. Oil and gas, for example, are extremely important natural resources of the country and their management is central to the distribution of their gains across the country. In Pakistan, these resources are managed under centrally run Oil and Gas Distribution Company Limited (OGDCL) and Pakistan Petroleum Limited (PPL). Provincial representatives have argued that following the 18th amendment, the ownership of these companies too should have been



devolved to the provinces but that has not happened (Ahmed M. , 2015). The effective decentralisation from the Federal to the Provincial Governments and beyond to the district level in the wake of intra-provincial inequalities would entail devolving and strengthening the capacities of the latter for managing their own resources. The matter of benefits from natural resources will arguably remain contentious as long the management and exploration of natural resources remains practically centralized even after the 18th amendment. With more administrative powers resting with them now, provincial governments will have to prioritize the development of rural districts to enable them to benefit from their own resources.

This brief has established that the districts with high endowment of natural resources also have a large proportion of their populations living below poverty line experiencing multiple deprivations such as on education, health, living conditions and economic opportunities. A higher allocation of the revenues from natural resources to improve social and economic development and living conditions of the local communities is important to prevent resentment among these communities as their wealth contributes to improve living conditions elsewhere (Agustina, Ahmad, Dhanie Nugroho, & Herbert, 2012). As convincingly argued by Brosio and Singh, areas that produce natural resources should be compensated not only for the production but also for environmental, social and economic costs associated with extraction (Brosio & Singh, 2015). Given the presence of poverty stricken populations in natural resource abundant regions, poverty alleviation is the best use of natural resource revenues (Segal, 2011). Segal recommends direct transfers from natural resource revenues to the local communities to avoid bureaucratic inefficiencies, corruption and misuse of funds.

Revenue sharing mechanisms between different layers of government is the key determinant of how much of the economic production is transferred back to resource rich regions to impact the state of development in their jurisdictions (Bauer, Gankhuyag, Halling, Manley, & Venugopal, 2016). In Pakistan, while the provinces exercise full rights over natural resources, the financial resource sharing scheme is largely determined by the National Finance Commission Award (NFC). The 7th NFC Award 2009 – still operational – addressed some of the critical concerns of provinces, particularly those related to being compensated for the use and extraction of their resources (Ahmed G. , 2010). Whilst the 7th Award had a greater emphasis on poverty as well as the special development needs of Balochistan, it is still predominantly determined by population (which carries a weight of 82 percent), followed by poverty (10.3 percent), and revenue collection (5 percent, divided equally between revenue generation and revenue collection) (Mustafa, 2011). As poorest areas have low population density, they receive less financial resources which further affects their ability to develop their produce as well as relevant markets for their produce to generate revenues.

The role of intra-provincial distribution of resources is fundamental in reducing poverty particularly in the natural resource-endowed districts. Provincial governments control not just the public resources received from the Federal Government under the NFC, they also control the major share of revenues from natural resources in their respective districts. In the absence of a devolution of power from provinces to districts, administrative as well as financial, there is little to indicate that provincial governments are distributing financial resources to districts in line with their developmental needs as we have illustrated in the case of Punjab and Sindh (Naveed and Khan 2018a, 2018b).

Additionally, there is a need for a greater recognition of natural resources as important assets for poor regions, communities and households. The current regimes of administrative and financial controls over these resources therefore need to adapt pro-poor approaches. It is also important to recognise that markets are central to the distribution of the gains of natural resources to the poor regions and communities. Rigorous market analyses in the resource-endowed districts could provide the basis for understanding the nature of property rights, the skills needs and gaps, the wider dynamics of supply chains, the level of competition in these markets, particularly the monopolistic practices, and the incidence of pricing and taxation policies on poverty. Such systematic analyses could help in identifying the appropriate policy responses that could improve not only the productivity of these resources. Moreover, the global experiences suggest a strong role of local organisations (including trade unions, civil society networks, NGOs and community organisation) in advancing the pro-poor agenda including improving governance, countering market failure. The increasing control of the state over such organisations in the recent times could worsen poverty by suppressing the voices of the poor and local communities in general.



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Bibliography

- Agustina, C. D., Ahmad, E., Dhanie Nugroho, & Herbert, S. (2012). Political economy of natural resource revenue sharing in Indonesia.
- Ahmed, G. (2010). Management of Oil and Gas Revenues in Pakistan. Washington, D.C.: The World Bank and Forum of Federations.
- Ahmed, M. (2015, March 23). "The federal petroleum ministry should have been abolished after the passage of the 18th amendment". DAWN Herald.
- Anderson, K. (1997). Are Resource-Abundant Economies Disadvantaged? CIES SEMINAR PAPER 97-03.
- Bauer, A., Gankhuyag, U., Halling, S., Manley, D., & Venugopal, V. (2016). Natural Resource Revenue Sharing. Natural Resource Governance Institute and UNDP.
- Brosio, G., & Singh, R. J. (2015). Raising and Sharing Revenues from Natural Resources: A Review of Country Practices. MFM Global Practice.
- Business Recorder. (2017, March 29). NFC Award.
- Chief Minister's Policy Reform Unit. (2016). Profile of Metallic Minerals and Fossil Fuels of Balochistan. Quetta: Government of Balochistan.
- Chief Minister's Policy Reform Unit. (2016). Profile of Metallic Minerals and Fossil Fuels of Balochistan. Quetta: Government of Balochistan.
- Fazl-E-Haider, S. (2018, January 22). Oil & Gas future in Balochistan: more exploration activities required. Pakistan and Gulf Economist.
- Gupta, S., Segura-Ubiergo, A., & Flores, E. (2014). Direct Distribution of Resource Revenues: Worth Considering? IMF STAFF DISCUSSION NOTE.
- Gylfason, T., & Zoega, G. (2001). Natural Resources and Economic Growth: The Role of Investment. Economic Policy Research Unit.
- Hydrocarbon Development Institute of Pakistan. (2012). Pakistan Energy Yearbook. Islamabad: Ministry of Petroleum and Natural Resources.
- Irfan, M. (2007). Poverty and Natural Resource Management in Pakistan. The Pakistan Development Review, 46(4), 691-708.
- Memon, N. (2009, January 5). Sharing oil and gas resources. DAWN.
- Ministry of Petroleum and Natural Resources. (2015). An Overview of Mineral Potential of Pakistan. Islamabad: Ministry of Petroleum and Natural Resources.
- Mustafa, U. (2011). Fiscal Federalism in Pakistan: The 7th National Finance Commission Award and its Implications. PIDE Working Papers(73).
- Natural Resource Governance Institute. (2015, January). Managing and Spending Natural Resource Revenues. Paliamentary Briefing.
- Natural Resource Governance Institute. (2015, March). Subnational Revenue Distribution: Natural Resource Revenues in a Decentralized Context. NGRI Reader.
- Naveed, A., & Ali, N. (2012). Clustered Deprivation: District Profile of Poverty in Pakistan. Islamabad: Sustainable Development Policy Institute.
- Naveed, A., Wood, G., & Ghaus, U. (2016). Geography of Poverty 2008-09-2012-13: Distribution, Trends & Explanations. Islamabad: Pakistan Poverty Alleviation Fund & Sustainable Development Policy Institute.
- NRGI & UNDP. (2016). Natural Resource Revenue Sharing. Natural Resource Governance Institute and United Nations Development Programme.
- Pakistan Petroleum Information Service. (2014). Energy Infrastructure Map. Islamabad: Ministry of Petroleum and Natural Resources.
- Segal, P. (2011). How to spend it: Resource wealth and the distribution of resource rents. Kuwait Programme on Development, Governance and Globalisation in the Gulf States, The London School of Economics and Political Science.
- USAID. (2006). Issues in Poverty Reduction and Natural Resource Management. Washington, DC: United States Agency for International Development.
- Reed, david. 2005. Changing the Political Economy of Poverty and Ecological Disruption. Washington, d.c.: World Wildlife Fund Macroeconomics Program office.
- Ribot, Jesse c. 2004. Waiting for Democracy: The Politics of Choice in Natural Resource Decentralization. Washington, d.c.: World resources Institute (Wri).
- Cosbey, aaron. 2004b. Lessons Learned on Trade and Sustainable Development. Winnipeg, canada: International Institute for sustainable development.
- Dollar, david, and aart Kraay. 2001. "trade, growth, and Poverty." Finance and Development. volume 38 (3).