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Resource wealth and entrepreneurship: A blessing or a curse?

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Abstract

Resource-rich countries of the Middle East and North Africa (MENA) have the highest youth unemployment rate in the world. While other parts of the world are experiencing an increasing trend in new firms' formation as a potential solution for their unemployment problem, the MENA region has the lowest records in new business establishments. In this study, we investigate the reasons behind such a significant lag of the resource-rich countries in entrepreneurship. Panel data for more than 80 countries from 2004-2009 shows that higher dependence on resource rents reduces entrepreneurship activities. The decline is more significant in countries with higher levels of point resources such as oil and coal.

JEL classification: O13, Q32, M13

Keywords: resource curse, entrepreneurship, panel data

1- Introduction

Growth theory highlights the importance of entrepreneurship. In the Solow model (1956) growth comes from new and larger plants (economies of scale), while in the Romer model (1990), it comes from new and growing firms (knowledge spillovers). Acs et al. (2009) argue how knowledge spillovers following research and development spending create opportunities for entrepreneurs. The new firms as an indicator of entrepreneurship lead to higher economic growth and productivity (Hause and Du Rietz, 1984; Black and Strahan, 2002; Djankov et al., 2002; and Klapper et al., 2007), higher employment (Birch, 1979, 1987), more technological innovations (Acs and Audretsch, 1990), and higher levels of education (Dias and McDermott, 2006).

One of the main reasons behind the wide-spread political protests in the Middle East and North Africa (MENA) are difficult conditions for business entry. These political unrests called Arab Spring have led to the fall of governments in Tunisia, Egypt, Libya, and Yemen, while treating the Syrian regime as well. The MENA region is experiencing a significant demographic transition. This region has one the highest growth rates in the share of working age population in the world (Dhonte et al., 2000, and Assaad and Roudi-Fahimi, 2007). While such a demographic bonus caused significant economic growth in East Asia, (Bloom and Williamson, 1998 and Bloom et al., 2000) it has turned into a demographic curse in the MENA region (Bjorvatn and Farzanegan, 2012). A large size of the working age population in the MENA region is unemployed. According to ILO (2011), the youth unemployment rate for males and females in this region was 22 and 39 percent respectively, while the average world figure was 13 percent. This army of unemployed could be a source of economic growth in the case of more business friendly policies for the private sector. According to calculations of the Kauffman Foundation from 1980 to 2005, almost all net job creation in the United

States was realized in firms that were less than five years old.[1] Therefore, encouraging new firms' establishment and facilitating small business activities may be an option for the high unemployment in the MENA region. Table 1 compares the rate of firms' entry density in the MENA with other regions. The MENA has the lowest rate of entry of new firms in the world.

Table 1. Entrepreneurship: MENA lags behind the Rest of World

Average 2004 -2009	**MENA**	**EAP**	**LA**	**SSA**	**OECD**	**World**
New business density (new registrations per 1,000 people ages 15-64)	0.66	1.35	2.28	1.13	5.03	3.25
GDP per capita (constant 2000 US$)	1836	1590	4481	592	28206	5827
Domestic credit to private sector (% of GDP)	32.33	101.20	32.81	62.41	160.33	133.04
Cost of business start-up procedures (% of GNI per capita)	67.35	47.47	53.99	195.63	6.88	74.39
Procedures to register property (number)	6.98	5.29	6.88	6.58	5.04	6.11
Procedures to enforce a contract (number)	42.40	37.28	39.08	39.37	31.83	37.97
Oil rents (% of GDP)	25.43	2.77	5.87	11.72	0.57	2.57
Lack of Corruption	-0.18	-0.02	0.10	-0.63	1.41	-0.02
Regulatory Quality	-0.22	-0.10	0.11	-0.74	1.36	-0.003

Note: EAP (East Asia & Pacific), LA (Latin America *and the* Caribbean), SSA (Sub-Saharan Africa).
Source: WDI (2012).

The new business density as a proxy for entrepreneurship in the MENA region from 2004-2009 is half of the EAP, and a third of Latin America. The OECD rate of new business density is 7 times that of the MENA figure. The MENA region lacks behind the Sub-Saharan region and average world. What are the main reasons behind such a poor performance of the MENA region in terms of entrepreneurship? Previous studies such as Djankov et al. (2010)

[1] For more details see http://finance.senate.gov/newsroom/chairman/release/?id=d9c1e0ca-6653-4312-b812-5870d6728926#_ftn1

have examined the main determinants of entrepreneurship across countries. We have shown a group of main drivers of entrepreneurship in Table 1.

Higher levels of real GDP per capita can be a proxy for local market size for the potential entrepreneurs. The MENA real GDP per capital lags behind LA, OECD and average world but is higher than EAP and SSA. Although market size and power of purchase are higher in the MENA region than in EAP and especially in SSA, entrepreneurship activity is significantly lower than in those regions. The second critical indicator for entrepreneurship activity is the financial development. Higher financial development means higher access of entrepreneurs to financial sources with lower costs. The MENA region shows a significant shortage in terms of financial development (domestic credit to private sector as share of GDP) compared to other parts of the world. Cost of starting business (as a share of GNI per capita) is a bit lower in the MENA region than average world but significantly higher than other regions except for the SSA. Procedures to register property and to enforce a contract in the MENA take longer than in any other region in the world. Apart from the financial costs of starting new businesses, the MENA region performs poorly in terms of control of corruption and quality of regulation. Low regulatory quality levels in the MENA region indicate a lower ability of the MENA governments to formulate and implement sound policies and regulations that permit and promote private sector development. The MENA governance scores are only marginally better than the SSA scores.

All that said, one of the main characteristics of the MENA region is its significant natural resource wealth, and especially its oil resources. The main contribution of this study is to examine the effect of *natural resource wealth* on the entrepreneurship. The theoretical framework for our empirical test is Torvik (2002). He investigates the effect of natural resources on entrepreneurs' activities. His model shows that increasing natural resource rents motivate the citizens' activity in rent-seeking and informal economy, diverting them from the

productive part of the economy. He concludes that the fall of income due to this reallocation of entrepreneurs outweighs the benefits of natural resource rents.

Are oil revenues responsible for such a disappointing performance of the MENA countries in increasing the share of entrepreneurs in the economy? Does resource wealth remain a significant driver of entrepreneurship activity in the MENA region after controlling for other key determinants of business formation? These questions and theoretical predictions of Torvik (2002) call for an empirical investigation across countries.

Our analysis of more than 80 countries from 2004 to 2009 shows that richness in natural resources is a significant dampening factor for entrepreneurship even after controlling for other major drivers of entrepreneurship.

The rest of the paper is organized as follows. Section 2 presents and discusses resource curse literature. The Data and empirical strategies are discussed in Section 3. Section 4 presents the results and Section 5 concludes the paper.

2- Resource Curse: a Brief Review of Literature

Our study can be seen as a contribution in the resource curse and entrepreneurship related literature. The literature on the resource curse shows that resource wealth may reduce economic growth (for a review of literature see Frankel, 2010 and van der Ploeg, 2011)[2]. This negative growth effect of natural resource wealth is documented through different channels.

Some link the curse to the Dutch disease. In this case, higher oil prices increase the real effective exchange rate and an appreciation of the domestic currency, thus increasing the price of non-oil exports and causing deindustrialization (see Corden and Neary, 1982; Corden, 1984; van Wijenbergen, 1984; Torvik, 2001). Others argue that the neglect of human capital is responsible for the curse of resources. Resource-rich countries invest less in education, leading to lower economic growth in the long run (Gylfason, 2001). The role of political

[2] Recent studies challenge the common wisdom of resource curse (see Alexeev and Conrad, 2009).

institutions and policies in the resources-growth nexus is also discussed (Mehlum et al., 2006; Brunnschweiler and Bulte, 2008; Brunnschweiler, 2008; Iimi, 2007; Kolstad, 2009 and Arezki and van der Ploeg, 2010). In their theoretical model, Robinson et al. (2006) show that the final impact of the resource booms on growth depends on the quality of institutions. Based on their model, the lack of institutions promoting accountability and state competence is the main cause of the natural resource curse. Others argue that resource wealth can increase corruption. In a game theoretical model and panel data analysis, Bhattacharyya and Hodler (2010) show that the effect of resource rents on corruption depends on the quality of democratic institutions. Resource-rich countries have a less developed tax system. The government has less willingness to increase the share of taxes in total revenues. Resource rents lead to a financial independence of the state from its electorate. As a result, the accountability of the government to the people is undermined in rentier states (Mahdavy, 1970 and Bornhorst et al., 2009). Others argue that the resources are only a curse for economic growth if a country has a high degree of ethnical factionalism (Montalvo and Reynal-Querol, 2005 and Hodler, 2006) or political factionalism (Bjorvatn and Selvik, 2008; and Bjorvatn et al., forthcoming).

Finally, a branch of literature discusses the allocation of skills and talents between rent-seeking and productive entrepreneurship activities. As a result of boom in resource rents, the natural resource sector will expand and absorb the human capital from other more dynamic sectors such as manufacturing and advanced services. In the long run, the economy will specialize itself in resource industries. A marginalized manufacturing sector in which knowledge spill over happens means lower levels of innovation and entrepreneurship in the whole economy. Booming resource prices and the discovery of new reserves provide necessary reasons for private investors to compete for resource rents. This destructive competition in combination with weak states in terms of rule of law and transparency lead to distorted economic and political policies in favour of rent-seekers. As a result, entrepreneurship will be punished under such a system (for a formal model of rent-seeking

behaviour in resource-rich economies see Tornell and Lane, 1998 and 1999). Baland and Francois (2000) and Torvik (2002) explain by their theoretical model how entrepreneurship can be marginalized as a result of a resource boom and increasing rent-seeking. Torvik (2002) shows that higher resource rents are a significant factor behind the shifting of entrepreneurs from a productive part of the economy to rent-seeking unproductive fields. It is shown that point-resources such as energy and minerals are more harmful for the economic growth, encouraging higher levels of rent-seeking (Auty 2001; Karl 1997; Ross 1999; Sala-I- Martin and Subramanian 2003 and Boschini et al., 2007).

Summarizing our literature review and in particular the theoretical debates raised by Torvik (2002) and Baland and Francois (2000) we can define the following hypothesis for our empirical examination:

Hypothesis: Higher levels of natural resource rents limit the entrepreneurship activities, *ceteris paribus*.

3- Data and Methodology

To measure the effect of resource rents dependence on entrepreneurs' activities we estimate the following country and year fixed effects panel regression for more than 80 countries from 2004 to 2009[3]:

$$Entrepreneurship_{it} = cons + \beta_1 . RES_{it} + \beta_2 . X_{it} + \mu_i + \delta_t + \varepsilon_{it} \quad (1)$$

where the subscripts denote the country *i* and the time period *t*. We follow the World Bank definition of entrepreneurship which is defined as: *The activities of an individual or a group aimed at initiating economic enterprise in the formal sector under a legal form of business.* The source of entrepreneurship data is the 2010 World Bank Entrepreneurship Snapshots (WBGES).[4] The data were collected directly from the local Registrar of

[3] The period of analysis is due to the availability of entrepreneurship data.
[4] The data is available at: http://econ.worldbank.org/research/entrepreneurship.

Companies. Therefore, they are not based on surveys or estimations. Following Klapper and Love (2011), we use the *Entry Density* indicator as a proxy for entrepreneurship activities. It is calculated as the number of newly registered limited-liability firms in the corresponding year as a percentage of the country's working age population (ages 15–64), normalized by 1000.[5] *RES* is one of our natural resource rents indicators as a share of GDP. The natural resource variable covers oil, natural gas, coal, mineral, and forest rents.

It is unrealistic to assume that natural resource wealth alone determines entrepreneurship levels. There are other time-variant variables (X_{it}) which may affect entrepreneurship in addition to resource rents. To account for other channels of causality, we add a set of control variables. In choosing our control variables, we follow Klapper et al. (2007) who study entrepreneurship and firm formation across countries. We control in all models for GDP per capita growth rate (as a proxy for business cycles), financial development, number of entry procedures, financing costs, share of government spending in the economy and quality of governance.

We expect that higher economic growth and financial development facilitates the establishment of new firms, boosting entrepreneurship activities. In contrast, a higher number of entry procedures, financing costs (interest rate) and the size of the government in the economy limit entrepreneurship density. All variables are from the World Bank (2011). We use the average of the six Kaufmann et al. (2010) governance indices: Voice and Accountability, Political Stability, Government Effectiveness, Regulatory Quality, Rule of Law and Control of Corruption. We test the effects of oil, gas, coal, mineral, forest rents on the entrepreneurship, controlling for mentioned other variables, country and year fixed effects.

[5] For an examination of entrepreneurship data see Acs et al. (2008).

In contrast to cross-country regressions, we allow for country (μ_i) and time (δ_t) fixed effects. There are several time-invariant country characteristics that affect the level of entrepreneurship such as culture, geography or religion, increasing the risk of omitted variable bias. Country fixed effects eliminate this latent heterogeneity between countries. The fixed time effects capture shocks common to all countries such as oil price shocks or global financial crises. Table A in Appendix A shows the summary statistics of our variables. Our dependent variable is new business density (new registrations per 1,000 people ages 15-64) - *entry density*. As is evident from Table A, there is a considerable variation in entry density across countries and time periods. In the country with the lowest entry density (Niger) there were only 0.004 new registrations per 1,000 people within 5 years, whereas in the country with the highest entry density (Liechtenstein), we saw 35 new firm registrations. The main independent variable is the total resource rents (as a share of GDP). From Table A we see that this variable has also a large variation across countries and periods, ranging from 0 (in several countries) to 89% in Iraq. Appendix B shows the global picture of *entry density of new firms* in the last available year (2009).

4- Results

Table 2 shows the panel fixed effects results for the effects of five different resource rents on the entrepreneurship indicator.[6]

Models 1-5 show the effect of different resource rents on entry density, while model 6 shows the effect of total rents on entry density. Table 2 shows that point source resources or lootable resources in terminology of Mehlum et al. (2006) such as oil and coal have a highly statistically significant negative impact on entrepreneurship.

[6] We have also tried to estimate random effects instead if fixed effects. We use the Hausman test to find the most appropriate approach. The Hausman test tests the null hypothesis that the coefficients estimated by the efficient random effects estimator are the same as the ones estimated by the consistent fixed effects estimator. In all models, we get a significant P-value (smaller than 0.05), providing more support for the use of fixed effects.

Table 2. Entrepreneurship and resource rents, panel fixed effects regressions, 2004-2009

	(1)	(2)	(3)	(4)	(5)	(6)
oil rent	**-0.0593****					
	(-2.21)					
gas rent		-0.0131				
		(-0.39)				
coal rent			**-0.108*****			
			(-2.88)			
mineral rent				-0.0432		
				(-1.64)		
forest rent					-0.0254	
					(-0.18)	
total rent						**-0.0318***
						(-1.87)
gdp pc growth	0.0125	0.00929	0.00151	-0.00531	0.00207	0.00977
	(0.62)	(0.45)	(0.08)	(-0.26)	(0.10)	(0.49)
interest rate	**-0.0174***	-0.0109	-0.00832	-0.00810	-0.00829	**-0.0163***
	(-1.80)	(-1.22)	(-0.98)	(-0.96)	(-0.95)	**(-1.71)**
government spending	-0.0649	-0.0652	**-0.0871***	-0.0982	-0.0858	-0.0723
	(-1.23)	(-1.24)	**(-1.67)**	(-1.64)	(-1.63)	(-1.33)
private credit	**0.0138****	**0.0137****	**0.0136****	**0.0133****	**0.0136****	**0.0135****
	(2.62)	**(2.60)**	**(2.56)**	**(2.42)**	**(2.57)**	**(2.55)**
procedures	**-0.0949****	**-0.0968****	**-0.0917****	**-0.0792***	**-0.0910****	**-0.0968****
	(-2.45)	**(-2.43)**	**(-2.21)**	**(-1.83)**	**(-2.18)**	**(-2.47)**
governance	-0.842	-0.790	-0.364	-0.168	-0.370	-0.798
	(-1.18)	(-1.11)	(-0.58)	(-0.26)	(-0.58)	(-1.12)
Observations	417	417	407	402	407	417
Countries	86	86	83	83	83	86
Within R-sq	0.17	0.16	0.16	0.16	0.16	0.17

Note: The dependent variable is annual *entry density*. All models include country and year fixed effects and standard errors clustered at the country-level. *, **, and *** indicate significance at 10%, 5%, and 1%, respectively.

Summing up, all lootable and non-lootable resources in model 6 also show a dampening effect on entry density across countries. This observation is in line with Torvik's (2002) theoretical predictions. Higher reliance on lootable resource rents affects the allocation of labor forces in favor of directly unproductive activities rather than entrepreneurship ones. In a resource-based economy, fewer entrepreneurs will run firms and more will engage in rent seeking (Torvik, 2009). A 1% increase in the size of oil rents (as a share of GDP), reduces the number of newly registered limited-liability firms as a percentage of the country's working

age population by 0.06%, while the same increase in the share of coal rents in the economy limits the entry density by 0.10%.

Regarding the vector of control variables, the entry density of new firms increases in higher levels of financial development, as is evidenced in the highly significant and positive sign of domestic credits to the private sector (% of GDP, private credit) in all models.

Higher financial resources provided to the private sector, such as through loans, purchases of non-equity securities, and trade credits stimulate entrepreneurship activities. In contrast, entrepreneurship activities decrease with higher numbers of start-up procedures to register a business (procedures), at the 95% level of confidence, consistent with the findings by Klapper et al. (2007). A higher share of government spending in the economy as a proxy for the governmental interventions has also a dampening effect on the entry density of new firms. This negative effect, however, is only statistically significant in model 3. Financial costs of investment are represented by the real interest rate (*rinterest*). The real interest rate is the lending interest rate adjusted for inflation as measured by the GDP deflator. Higher interest rates also discourage the entrance of new firms. The negative effect of this variable on entry density is statically significant in models 1 and 6. The composite index of governance does not have any statistical significance on entry density while controlling for other determinants of entrepreneurship in our analysis. We have also examined the interaction effect of resource rents and governance on entry density, which turns out to be statistically insignificant.

5- Summary and conclusion

Entrepreneurship is the engine of economic growth, employment, innovation and political openness worldwide. The recent radical political changes across the Arab world are partly rooted in repressed entrepreneurs. An overall observation shows the significant shortage of resource-rich countries of the Middle East and North Africa region in terms of

entrepreneurship. Is the curse of resources a relevant story behind such a disappointing performance in resource-rich countries? This paper empirically examines the effect of natural resource wealth dependence on entrepreneurship activities for more than 80 countries from 2004 to 2009. Following theoretical predictions of Torvik (2002), we show that higher levels of natural resource wealth reduce the willingness for entrepreneurship activities. In particular, countries with higher lootable resources such as oil suffer from lower levels of entry density defined as the number of newly registered limited-liability firms as a percentage of the country's working age population. This negative association remains robust across different models, controlling for other major determinants of entrepreneurship such as economic growth, financial costs, financial development, size of government in the economy and quality of governance.

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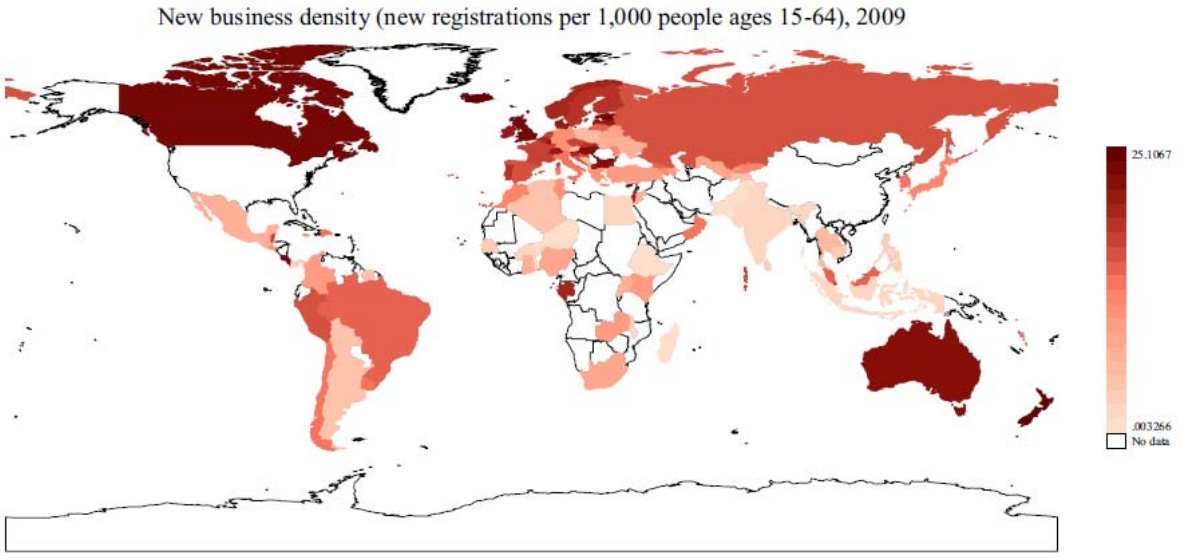
Appendix A.

Table A. Summary statistics

Variable	Variation	Mean	Std. Dev.	Min	Max
Entry Density	overall	3.27	4.80	0.00	44.13
	between		5.15	0.00	34.62
	within		1.21	-6.25	15.80
oil rent	overall	5.82	14.62	0.00	96.60
	between		14.69	0.00	85.32
	within		2.31	-13.32	17.42
gas rent	overall	1.83	6.68	0.00	91.37
	between		6.66	0.00	65.47
	within		1.82	-38.19	27.73
coal rent	overall	0.21	0.83	0.00	9.46
	between		0.74	0.00	5.44
	within		0.35	-1.59	5.35
mineral rent	overall	1.08	3.86	0.00	36.70
	between		3.67	0.00	29.19
	within		1.07	-11.94	11.51
forest rent	overall	1.24	2.38	0.00	15.83
	between		2.34	0.00	14.94
	within		0.38	-1.81	4.10
Total rent	overall	9.74	17.52	0.00	100.95
	between		17.58	0.00	85.97
	within		3.49	-34.44	38.28
gdp pc growth	overall	3.03	5.69	-17.55	101.13
	between		3.08	-6.83	19.17
	within		4.78	-18.48	84.99
interest rate	overall	7.74	30.24	-32.00	605.44
	between		32.15	-8.09	399.06
	within		12.91	-171.23	214.12
government spending	overall	15.80	6.04	2.05	47.53
	between		6.04	2.85	40.85
	within		1.76	6.56	27.02
private credit	overall	52.64	49.99	0.00	319.46
	between		48.60	2.94	235.37
	within		11.11	-40.09	166.69
procedures	overall	8.94	3.45	1.00	28.00
	between		3.21	1.67	20.80
	within		1.41	2.11	28.94
governance	overall	-0.03	0.89	-1.92	1.98
	between		0.89	-1.69	1.89
	within		0.08	-0.50	0.35

Appendix B. Entrepreneurship: A Global View in 2009



Source: WDI (2012) and own calculations