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THE EVALUATION OF LOCAL CONTENT IMPLEMENTATION IN KAZAKHSTAN

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Abstract

This paper answers the question what helps subsoil users to meet local content requirements, which are set in subsoil users' contracts. This paper provides an empirical analysis using annual data from 823 contracts on extraction and exploration of metals in Kazakhstan over the period 2013-2015. We found that devaluation of local currency helped subsoil users to meet LC requirements in procurements of goods and services; employment of managers; and training of local employees. Subsoil users meet local content requirements in employment of specialists and qualified workers, set in contracts on extraction better than in contracts on exploration of metals in Kazakhstan. The metal, in contracts on extraction or exploration, affects the fulfilment of local content requirements in procurements of goods and works; and in employment of managers and specialists.

Keywords: local content, subsoil users, subsoil contracts, procurements.

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1. Introduction

Local content (LC) "is an industrial tool that can enable domestic producers to expand their activities, at least partially with domestic inputs, and gain access to international technological and managerial expertise." (Kalyuzhnova et al. 2016). The objective of LC policy in Kazakhstan is to achieve a spill-over from extractive industry to diversify economy (Kalyuzhnova et al. 2014). Subsoil companies have minimal LC requirements in subsoil users' contracts in Kazakhstan: 1) minimum local content in goods, works, services and labour (managers, specialists and workers[1]) and 2) minimum expenditures on training of local employees. The first requirement is set as a percentage, while the second requirement is set in national currency, tenge. These LC requirements are submitted by subsoil companies to win the right for subsoil use. The winner signs contract with agreed LC requirements in goods, works, services, labour and expenditure on training (see Order of the Minister of Investment and Development N412/2015). Failure to meet minimum LC requirements entails a penalty 30% on goods, works and expenditure on training and 2000 monthly calculation index[2] on services and labour (Governmental Degree N1412/2010). Why oil companies do not meet LC requirements? There are two possible explanations:

- Companies got long-term contracts with employees or suppliers
- Companies provide higher LC targets to win projects (with intention to fail meeting requirements)

[1] Order N320-e/2010

[2] Monthly calculation index (MCI) is set by the government of Kazakhstan for every year, e.g. in 2013 it was 1,731 KZT, 1,852 KZT in 2014 and 1,982 KZT in 2015 (Budget Law N54-V/2012), to calculate fines.

Kazakhstani suppliers have advantage in procurements of Subsoil companies (Laws N2828/1996 and N291-IV/2010). Local suppliers have 20% price advantage in tenders of subsoil users, nevertheless many subsoil users fail to meet LC requirements, which are set in subsoil users' contracts. Since local producers have advantages in procurements, the definition of local producers is crucial. The definition of local producer of goods differs from definition of local producer of works and services. Local producers of goods receive certificate of local producer "CT-KZ" to receive advantage in procurements. To obtain this certificate goods must be produced completely in Kazakhstan or had sufficient processing in Kazakhstan. Goods which had sufficient processing in Kazakhstan are defined by the Government Decree N1647/2009 as following:

1) Classification code of Commodity Classification for Foreign Economic Activity has changed due to processing in Kazakhstan (any of the first four digits);

2) Production or technical processing done in Kazakhstan;

3) Not less than 50% of value added in Kazakhstan (Resolution of Custom Union N515/2010).

Local producers of works and services are defined as firms established and located in Kazakhstan with at least 95% of citizens of Kazakhstan employed at this firm (Law N 2/2004). Local producers of goods are local organizations producing agricultural goods or final goods with more than 50% of local components or goods with sufficient local processing (Law 20.11.08 N87-IV).

In this paper, using empirical methods and data of 823 subsoil users' contracts on exploration and extraction of metal in Kazakhstan over the period 2013-2015, we identified determinants of LC fulfilment/violation.

The paper is structured as follows. Section 2 reviews literature. Section 3 describes LC policy in Kazakhstan. Section 4 describes data. Section 5 explains the model. Section 6 provides results.

2. Literature review

Grossman (1981) is a pioneer in the theory of LC policy. Grossman (1981) studies the effect of LC requirements on resource reallocation. Content protection of local intermediate input, M, a certain fraction of the total quantity of physical units of the intermediate good used as input to final good production be of domestic origin, k. Otherwise must pay penalty on imported inputs. Firm maximizes profit just to satisfy LC requirement. Grossman (1981) distinguishes LC measure in physical terms and in value-added. The theory shows that due to LC requirements local inputs are employed beyond the point where its marginal revenue equals its marginal cost, MR>MC, while without LC requirements inputs are employed until MR=MC. Thus, LC requirements increase the equilibrium output of domestic inputs, $dM/dk > 0$. However successively larger LC requirements may lead to a reduction in equilibrium output of local inputs, $dM/dk < 0$. Grossman (1981) shows that LC requirements on intermediate inputs can increase output and employment, further increase in LC requirements has the opposite effect. Thus, LC policy can increase employment and decrease it. The importance of balanced LC requirements is discussed by Grossman (1981) and Lahiri and Ono (2003). Policy makers must consider that LC policy, which objective is to increase LC might have an opposite effect or to violation of LC requirements. The extend of local protection is crucial, but it is hard to predict the extend of local protection, thus LC

policy might fail (Grossman, 1981). LC requirements are instruments which are used by governments to increase LC in their country. LC requirements can stimulate local production, and thus employment. However, successively larger LC requirements may drive foreign firms away, and thus reduce output and employment (Grossman 1981; Lahiri and Ono 2003) or cause violation of LC requirements. Literature provides arguments in support and against LCP (Table 1).

Table 1. The debate on LCP

Arguments in support of LCP	Arguments against of LCP	What affects LCP
FDI does not bring in any benefit on employment in the absence of LCP, (Lahiri and Ono, 1998)	If **technology transfer** exists, welfare will increase even without LCP (Chaudhuri, 2005)	An increase in the volatility foreign exchange rate decreases optimal LCR. the government uses a less strict LCR policy when the number of foreign firms is endogenous than when it is exogenous (Lahiri & Mesa, 2006)
Output can increase when LCP introduced (Grossman, 1981)	Output can decreases (Grossman, 1981)	
Price on final goods decreases due to LCP (Ohdoi, 2009)		

3. Kazakhstan: local content policy setting the scene

Local content policy originally emerged as part of Norwegian industrial policy in the 1960s; and the concept has recently become a core element of the development of other resource-rich economies. Historically, LC requirements were related primarily to government procurement and labour quotas for the O&G industries. The government's aim is to boost the competitiveness of a country's O&G sector via introduction of LCP (Kalyuzhnova 2008; Kalyuzhnova et.al. 2016). For many resource-rich countries, the success of the Norwegian experience was a prime example and provided an inspiration for what LCP could achieve with regards to the boosting competitiveness of local firms. At the present time, some countries have made a spillover of LC requirements into new industries (e.g. Kazakhstan). Clearly, the perception that LCP could boost the competitiveness of local industries is strong among the governments of resource-rich countries.

3.1. Evolution of local content policy since the 1990s

At the beginning of the transition from a central planned to a market economy, the development of the O&G sector was at the core of Kazakhstani economic reforms when the Kazakhstani government began to form its strategy aiming to create an environment to promote local business in the hydrocarbon development process. In this respect, initially the development of human capital played a central part of Kazakhstani LCP, with the business environment in the early 1990s characterized by the concentration of the foreign companies in industrial and services sectors of the O&G industry (Kalyuzhnova 2008). This is the area that inspired the Kazakhstani government to produce the legislation aiming to boost LC and to create long-term local capability in hydrocarbon operations, production, maintenance, engineering and projects – and the term "Kazakh (or Kazakhstani) content" was introduced in subsoil legislation on the 1st December 2004 at the same time as the terms "Kazakh manufacturer" and "Kazakh origin" were spelled out (Kalyuzhnova et al. 2016).

Although there were a number of legislative documents related to LC, which stipulated the numerical parameters of the LC implementation (e.g. labour quotas, direct orders to the

companies to contribute to social projects locally), up until the late 2000s the LC programme was merely a statement. This period was a period of *market-creating LC* when Kazakhstan had a very little pre-existing O&G expertise.

3.2. Local content policy: current stand

Since 2010, the LC concept in Kazakhstan has received a new dimension – service providers were included (based on the Kazakhstan Law on Subsoil and Subsoil Use 2010) as well as the focus on LC and technology, to further Kazakhstan's policy for the economic development of the country. This made a significant impact on the O&G industry with the increased participation of KazMunaiGas (the national oil company), there was an increased emphasis on the use and development of LC and "high technologies," a change in government take, and increased regulation and oversight (Kalyuzhnova et al. 2016) aiming to move from *market-creating LC* to the second stage of LC development – *market-sustaining LC*. This phase had complications, since the limitations to the scope and speed of training the Kazakhstani labour force was still an impediment, along with the capacity of local subcontractors with an outdated technical base, tools and machinery, which required investment and upgrade.

Until 2014 Kazakhstan, as well as other oil-rich countries, found itself in the very comfortable environment of high oil prices. Since the oil price plunge in 2014, the World Trade Organization (WTO) membership has altogether changed its approach to LCP in resource-rich countries, with Kazakhstan being a good example. On 9 November 2015, related to Kazakhstan's membership of the WTO, amendments to the subsoil use legislation came into force, significantly altering the existing LC requirements. A transition period was given to the hydrocarbon sector until 2021. The question that remains debatable among industrial policy experts and policy-makers is will Kazakhstan be able to capitalize on this time and move to the third stage of LC development – efficiency LC – to be in a position to expand local economic activity and to develop an internationally competitive industry? In the context of the WTO, the challenge is as it ever was – but more pressing – to develop an internationally competitive indigenous sector. Local content is an industrial policy tool picked up within a wider economic development policy toolbox to build competitive human, financial and infrastructural foundations to support entrepreneurship and innovation and drive the further social and economic development of Kazakhstan.

4. Data

We used three-level data: firm-level, region-level and country-level (Table 2).

Contract-level data

We used data from 823 contracts on extraction and exploration of metal in Kazakhstan with annual LC requirements set in contracts and actual LC by goods, works, services, labour (managers, specialists and workers) and training of local employees over the period 2013-2015 (Table A1). LC is measured as a share of local value in goods, works and services in the total value of goods, works and services. LC in labour is calculated as a share of local employees in the total number of employees across three labour categories: managers, specialists and workers (Order N320-e/2010). LC in goods, works and services is measured in percentage. LC in training is measured in local currency, tenge. The methodology on calculation of LC in goods, works and services is set by (Decree N964/2010). Our dependent variables are calculated as differences between actual LC and LC requirements in goods, works, services, labour (managers, specialists and workers) and training of local employees

(Table A1). Value zero and above means that a firm successfully meets LC requirements and negative value means that firm fails to meet LC requirement (violation). Subsoil users sign contracts on extraction, exploration; and extraction and exploration of metals. Although there is no significant difference in LC requirements in contracts on extraction, exploration; and extraction and exploration, the actual LC in procurements of goods and employment of specialists and workers differs among contracts on extraction, exploration; and extraction and exploration (Table A2).

Regional data

We used regional data to control for business environment, i.e. number of small and medium enterprises, population, unemployment ratio, gross domestic product (GDP) per capita, across 14 administrative regions[3] (*"oblasts"*) in Kazakhstan. Regional dummy variables were included to control for other regional characteristics.

Country-level data

USD exchange rate was included as it affects imports. Due to multicollinearity problem and short period of data available (2013-2015) other country-level variables, such as rule of law, corruption and quality of governance, were not included. Time variable was included to capture them.

Table 2. Variables and data sources

Variable	Description	Source
Contract-level		
Goods	Actual % of local goods purchased in total value of good purchased minus minimum requirement in contract	National Agency on Development of Local Content http://www.nadloc.kz/
Works	Actual % of local works purchased in total value of works purchased minus minimum requirement in contract	
Services	Actual % of local services purchased in total value of services purchased minus minimum requirement in contract	
Managers	Actual share of local managers employed in total amount of top managers minus minimum requirement in contract	
Specialists	Actual share of local specialists employed in total amount of middle managers minus minimum requirement in contract	
Workers	Actual share of local qualified workers employed in total amount of specialists minus minimum requirement in contract	

[3] Regional data for Kazakhstan is provided by Statistics Committee by 16 regions: 14 oblasts (Karagandinskaya, East-Kazakhstan, Akmolinskaya, Aktubinskaya, Kostanaiskaya, North-Kazakhstan, Pavlodarskaya, Almatinskaya, Jambylskaya, Kyzylordinskaya, South-Kazakhstan, Atyrauskaya, Mangystauskaya, West-Kazakhstan) and 2 cities (Astana, the capital, and Almaty, the former capital). We used only data from 14 oblasts because exploration and extraction does not take place in Astana or Almaty, although offices could be in Astana or Almaty.

Training	Actual amount spent on training and professional development of local employees minus minimum requirement in contract (tenge)	
Coal, Copper, Manganese, Polymetals, Precious metals[4]*, Uranus, Other*	Dummy variable, equals 1 if contract on this metal and 0 otherwise	
Extraction	Dummy variable, equals 1 if firm got contract only on extraction of metals and 0 otherwise	Committee of geology and subsoil use http://geology.gov.kz
Exploration	Dummy variable, equals 1 if firm got contract only on exploration of metals and 0 otherwise	
Extraction and Exploration	Dummy variable, equals 1 if firm got contract on exploration and extraction of metals and 0 otherwise	
Region-level		
SMEs	Number of SMEs	
Unemployment ratio	Share of unemployed population above 15 years in total population, %	
Wage	Average wage, tenge	
GDP per capita	Nominal GDP per capita, tenge	
Population	Population, people	
Country-level		
Exchange rate	Average annual exchange rate of US dollar, tenge per US dollar	National bank of Kazakhstan http://nationalbank.kz

5. Model

We adopt firm growth theory (Penrose, 1959) to identify the determinants of firms' performance in meeting LC requirements. Determinants of firm performance can be divided in to four groups: managers' characteristics, firm specific characteristics, location/region characteristics and country policy changes. Thus, LC fulfilment or violation in subsoil users' contracts might also depend on the firm characteristics (firm age and size), managers' characteristics, type of the contract (extraction/exploration and subsoils), regional characteristics (unemployment ratio, GDP per capita, number of SMEs, wage, population) and country-level changes (exchange rate).

Hausman test (Hausman 1978) was used to decide between fixed effects (FE) or random effects (RE). The null hypothesis (H0): random effect (unique errors (u_i) are not correlated with the regressors) and alternative hypothesis (H1): fixed effects (unique errors (u_i) are correlated with the regressors). Breusch-Pagan Lagrange multiplier test was used to decide between a random effects and an Ordinary Least Squares (OLS) regression. The H0: OLS regression (no significant difference across units) and H1: RE (panel effect). In the presence of heteroskedasticity the estimators are inefficient. The test for heteroskedasticity (2000, p. 598) identifies the presence of H0: homoskedasticity (constant variance, σ^2) and H1: heteroskedasticity (variances are not constant, σ_i^2) This problem can be solved by using robust standard errors.

Table 3. Tests results

[4] Silver, Gold and Platinum

Dependent variable	Hausman test χ^2 (Prob > χ^2) H0:RE vs. H1:FE	Breusch-Pagan LM test χ^2 (Prob > χ^2) H0: OLS vs. H1: FE	Model
Goods	13.82 (0.38)		RE
Works	26.25*** (0.00)	0.01 (0.46)	OLS
Services	8.07 (0.62)		RE
Managers	0.83 (0.97)		RE
Specialists	2.10 (0.83)		RE
Workers	11.38** (0.04)	1.45 (0.11)	OLS
Training	9.42 (0.39)		RE

*** p<0.01, ** p<0.05, * p<0.1

We regress using RE, FE or OLS according to results (Table 3).

RE: $GOODS_{ijt} = \alpha_0 + \beta_k \sum C_{ijt} + \gamma_n \sum R_{jt} + \delta_m M_t + u_{ijt} + \varepsilon_{ijt}$,
OLS: $WORKS_{ijt} = \alpha_0 + \beta_k \sum C_{ijt} + \gamma_n \sum R_{jt} + \delta_m M_t + \epsilon_{ijt}$,
RE: $SERVICES_{ijt} = \alpha_0 + \beta_k \sum C_{ijt} + \gamma_n \sum R_{jt} + \delta_m M_t + u_{ijt} + \varepsilon_{ijt}$,
RE: $TOP_{ijt} = \alpha_0 + \beta_k \sum C_{ijt} + \gamma_n \sum R_{jt} + \delta_m M_t + u_{ijt} + \varepsilon_{ijt}$,
RE: $MIDDLE_{ijt} = \alpha_0 + \beta_k \sum C_{ijt} + \gamma_n \sum R_{jt} + \delta_m M_t + u_{ijt} + \varepsilon_{ijt}$,
OLS: $SPECIALIST_{ijt} = \alpha_0 + \beta_k \sum C_{ijt} + \gamma_n \sum R_{jt} + \delta_m M_t + \epsilon_{ijt}$
and
RE: $TRAINING_{ijt} = \alpha_0 + \beta_k \sum C_{ijt} + \gamma_n \sum R_{jt} + \delta_m M_t + u_{ijt} + \varepsilon_{ijt}$,
where $GOODS_{ijt}, WORKS_{ijt}, SERVICES_{ijt}, TOP_{ijt}, MIDDLE_{ijt}, SPECIALIST_{ijt}$, $GOODS_{ijt}, WORKS_{ijt}, SERVICES_{ijt}, TOP_{ijt}, MIDDLE_{ijt}, SPECIALIST_{ijt}$, $TRAINING_{ijt}$ are differences between actual LC in procurements of local goods, works, services, employment of local Managers, specialists and workers; and training of local employees respectively and LC requirements which were set in contract *i*, region *j* and period *t*, contract characteristics (extraction/exploration and metal) are denoted by *C*; *R* are regional characteristics (*GDP*, *SME*, *wage*, *population*, *unemployment*), macroeconomic factors (*exchange rate*) are denoted by *M*; ϵ, ε and *u* are error terms; α_0 is a constant; α_I is the unknown intercept for each contract *i*.

5. Results

Our results (Table 4) support that how firms meet LC requirements depends on contract, regional and country-level characteristics.

1. Subsoil users meet LC requirements in employment of specialists and workers on extraction better than in contracts on exploration of metals in Kazakhstan.

2. The metal, in contracts on extraction and exploration, affects the fulfilment of LC requirements in procurements of goods and works; and employment of managers and specialists. Specifically, LC requirements in goods are fulfilled better in contracts on extraction or exploration of Uranus; LC requirements in works are fulfilled better in contracts on extraction or exploration of copper, iron, magnesium, polymetals and precious metals; LC requirements in employment of managers are fulfilled better in contracts on extraction or

exploration of copper; LC requirements in employment of specialists are fulfilled better in contracts on extraction or exploration of iron than in contracts on other metals.

3. Regions, where subsoil users are located, have significant effect of the fulfilment of LC requirements in procurements of goods, works and services; and in employment of top managers. Specifically, LC requirements in procurement of goods are fulfilled better in the West-Kazakhstan region; LC requirements in procurement of works are fulfilled better in Almatinskaya, Zhambylskaya and South Kazakhstan regions and worse in West Kazakhstan and Kyzylordinskaya regions; LC requirements in procurement of services are fulfilled worse in North Kazakhstan; LC requirements in employment of managers are fulfilled better in Mangistauskaya region than in other regions. We could not find which region characteristics help subsoil users to meet LC requirements. Regional characteristics which we included, i.e. *wage, GDP, population, number of SMEs, unemployment,* are no statistically significant or nearly zero.

4. The devaluation of local currency helped subsoil users to meet LC requirements in procurements of goods and services; employment of managers; and training of local employees.

Table 4. Results

Variables	Goods	Works	Service	Manager	Specialist	Worker	Training
				Contract-level			
Extraction	-1.18	-7.33	-2.88	-0.83	14.44***	44.24***	378.21
	(9.82)	(4.75)	(2.76)	(3.74)	(4.97)	(5.51)	(382.99)
Exploration	-12.70	1.87	1.48	1.54	15.36***	35.43***	-26.59
and extraction	(10.54)	(5.02)	(3.58)	(3.76)	(5.42)	(5.94)	(119.87)
Copper	8.46	17.95**	-5.98	14.18**	4.15	16.32	793.45
	(8.42)	(7.67)	(4.62)	(5.95)	(6.95)	(11.34)	(1,100.61)
Iron	10.79	26.67***	1.64	2.93	14.66**	2.08	679.29
	(9.25)	(8.45)	(6.26)	(5.57)	(6.20)	(12.65)	(714.55)
Manganese	17.90	19.82**	-6.91	-7.34	3.19	-2.53	648.52
	(12.33)	(9.91)	(5.55)	(4.75)	(6.52)	(13.17)	(698.27)
Polymetals	13.69	25.44***	-2.90	9.11	9.93	10.29	954.63
	(9.31)	(8.70)	(4.75)	(7.60)	(9.34)	(12.39)	(778.69)
Precious	4.75	19.13**	-4.62	0.96	1.23	0.73	708.09
metal	(8.78)	(7.64)	(4.76)	(3.40)	(3.80)	(10.67)	(725.88)
Uranus	66.86***	22.90	-4.81	0.26	9.75	6.04	672.66
	(22.83)	(14.94)	(8.27)	(6.55)	(12.05)	(20.58)	(844.39)
Other	4.28	8.89	-6.80	5.14	-2.99	-2.57	573.42
	(9.80)	(7.93)	(5.00)	(3.72)	(5.72)	(11.02)	(729.06)
				Region-level			
Aktubinskaya	2.45	12.96	12.36	6.30	19.37	-75.21	709.59
	(32.00)	(35.11)	(14.74)	(22.62)	(24.99)	(57.22)	(544.45)
Almatinskaya	-107.74	498.93*	124.00	74.44	159.97	-170.48	8,017.03
	(234.26)	(288.77)	(81.06)	(87.65)	(124.38)	(273.44)	(8,451.35)
Atyrauskaya				78.14	100.44	-280.44	-269.96
				(120.70)	(127.76)	(301.25)	(1,737.92)
East Kazakhstan	-32.09	259.25	72.49	51.17	98.02	-123.48	4,286.47
	(131.59)	(160.25)	(44.59)	(50.06)	(68.30)	(156.75)	(4,443.55)
Zhambylskaya	-41.54	151.49*	30.08	16.24	31.13	-53.81	2,428.01

	(65.43)	(79.81)	(21.85)	(21.82)	(31.96)	(74.62)	(2,404.05)
West Kazakhstan	85.72**	-97.88*	2.44	-6.94	10.02	-51.52	-138.52
	(39.01)	(51.21)	(25.47)	(30.41)	(33.06)	(73.42)	(929.15)
Karagandinskaya	-12.10	247.54	73.24	53.04	107.32	-145.20	4,396.86
	(135.82)	(163.40)	(46.61)	(56.76)	(73.75)	(168.88)	(4,296.38)
Kostanayskaya	-11.61	60.80	8.89	-8.08	-4.60	-52.48	1,041.26
	(35.69)	(38.85)	(12.47)	(14.25)	(20.10)	(38.97)	(977.45)
Kyzylordinskaya	44.26	-49.91*	5.03	27.06	18.71	-91.42	277.23
	(30.73)	(29.11)	(14.61)	(26.51)	(29.86)	(66.57)	(312.81)
Mangistauskaya				155.50*	115.75		450.36
				(83.38)	(90.80)		(857.11)
Pavlodarskaya	24.63	-7.97	-2.95	-12.57	-2.95	-69.31	5,002.58
	(29.50)	(29.45)	(15.42)	(20.90)	(22.40)	(49.95)	(4,659.67)
North Kazakhstan	8.98	-35.78	-29.46*	-28.78	-18.14	42.06	-1,017.91
	(51.80)	(48.98)	(15.57)	(19.83)	(25.03)	(46.45)	(1,168.82)
South Kazakhstan	-192.79	811.28*	209.14	106.02	239.22	-241.81	12,635.51
	(389.16)	(476.16)	(132.53)	(143.28)	(197.51)	(455.24)	(13,403.48)
Unemployment	-22.53	-34.52	-4.64	-0.18	-8.22	-41.02	457.24
	(36.89)	(35.29)	(20.56)	(24.55)	(25.14)	(57.43)	(291.51)
SME	-0.00	-0.00	0.00	0.00	0.00*	0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Wage	-0.00***	0.00	-0.00	-0.00**	-0.00	0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
Population	0.00	-0.00*	-0.00	-0.00	-0.00	0.00	-0.01
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
GDP	0.29	0.17	0.00	0.20	0.02	-0.13	-0.29
	(0.29)	(0.29)	(0.14)	(0.18)	(0.18)	(0.34)	(3.50)
			Country-level				
Exchange rate	0.79***	0.12	0.18**	0.39***	0.23	-0.87**	5.19*
	(0.15)	(0.18)	(0.08)	(0.14)	(0.15)	(0.42)	(3.03)
Constant	101.96	345.89	145.45	122.16	190.99	-35.81	1,912.10
	(274.93)	(285.43)	(117.17)	(144.78)	(159.77)	(338.11)	(4,958.61)
Observations	357	299	485	475	453	406	496
R-squared		0.16				0.28	
Number of contracts	197		282	322	316		315

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

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Appendix

Table A1. Local content

Variable	2013					2014					2015				
	Obs.	Mean	s.d.	Min	Max	Obs.	Mean	s.d.	Min	Max	Obs.	Mean	s.d.	Min	Max
Goods	161	-12	39	-100	81	67	-27	29	-100	46	133	6	38	-91	100
Works	143	-2	30	-100	94	46	6	25	-94	91	111	11	23	-72	100
Services	227	7	23	-95	94	70	6	19	-52	100	195	11	21	-90	100
Manager	239	8	14	-50	50	7	-17	9	-28	-2	236	19	33	-95	100
Specialist	220	5	8	-33	50	4	-4	6	-12	0	236	7	44	-100	100
Worker	174	3	6	-3	50	3	-1	0	-1	-1	236	-23	57	-100	100
Training	242	21	161	-682	1553	109	-2	2	-9	0	156	549	5155	-239	63800

Note: + fulfilment/-violation

Table A2. Actual LC in procurements and employment

Variables	LC in contract on extraction, %	LC in contract on exploration	LC in contract on extraction and exploration
Goods	27	40	32
Works	86	92	88
Services	93	95	93
Managers	97	98	94
Specialists	97	88	95
Workers	95	50	84