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Resource Rents, Political Rights and Civil Liberties

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Abstract

Using data for the 2005-2017 period, we consider the effects of resource rents on the sub-components of Freedom House's measures of Political Rights and Civil Liberties. Higher resource rents lead to a deterioration in Political Pluralism and Participation, but do not affect other sub-components. We also consider the relationship between resource rents and aggregate measures of Political Rights and Civil Liberties between 1975 and 2015. We find no evidence that resource rents affect Political Rights or Civil Liberties. We demonstrate why our results contrast with previous literature.

Keywords

Resource rents, human rights, state stability, civil liberties

JEL Classification

C33, D72, D73

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Resource Rents, Political Rights and Civil Liberties

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1. Introduction and background

Natural resource rents may affect how leaders govern. Knowing whether increases in rents from natural resources tend to have positive, negative, or nil effects on human rights can help determine the optimal allocation of scare global resources, such as peacekeepers, election monitors and journalistic attention.

There is an extensive literature considering the link between incomes and rights. Acemoglu, Johnson, Robinson, and Yared (2008) report a correlation between income and democracy but conclude that, once country fixed effects are accounted for, there is no relationship between income and Freedom House's measure of Political Rights. While Acemoglu et al. (2008) consider income, and two instruments of income[1], they do not consider income from natural resources as distinct from other sources. It is worthwhile to consider income from natural resources because these resources may be able to be expropriated or redirected by a country's leaders. Resource revenues can reasonably be thought of as exogenous because prices are externally determined. For this reason, many papers have considered the effects of income from natural resources. But, there is no clear consensus regarding the relationship between income from natural resources and human rights. Aslaksen (2010) finds a negative relationship between the share of GDP contributed by oil and Political Rights, using both OLS and GMM specifications.[2] Bruckner, Ciccone, and Tesei (2012) however, find that higher net oil exports relative to GDP have a *positive* effect on measures of democracy. While most of the literature considers oil, Caselli and Tesei (2016) use changes in international prices of each country's largest commodity export, and find that resource price shocks do not affect democracies, but have heterogeneous effects, both positive and negative, on autocracies[3].

[1] Past savings rates, and the incomes of trading partners.
[2] We note that the results presented in Aslaksen (2010) are sensitive to the exclusion of countries which have never reached resource rents equal to 0.5 percent of GDP. More specifically, once these countries are excluded, the Hansen scores increase to around 0.80, drawing into question the statistically significant relationship between resources and Political Rights. See our detailed discussion of these issues below.
[3] Our replications of Caselli and Tesei (2016) find that their results are highly sensitive to the specification chosen and that their GMM specifications often have far more instruments than countries.

In contrast to most of the existing literature, this paper considers resource rents as opposed to resource incomes, or incomes relative to GDP. Rents – which provide fat for rulers to hoard or distribute to favored parties – rather than resources incomes, or incomes as a share of GDP, is arguably the variable of most interest. This is the approach taken by Arezki and Bruckner (2011), who find that oil rents have a negative impact on Political Rights. But it is unclear why academic attention should be restricted to oil (as in most papers), or the single largest commodity export (as in Caselli and Tesei, 2016). As such, we include rents from oil, natural gas, coal, as well as minerals. We believe measuring rents from a wide range of resources gives a more appropriate measure of distributable resources.

In addition to the use of a broad measure of resource rents, this paper makes two additional contributions to our understanding of the relationship between natural resource rents and human rights. First, we demonstrate that, over the 2005 to 2017 period, the effects of resource rents differ depending on the particular subcomponent of Freedom House's measures of Political Rights and Civil Liberties that is considered. More precisely, we document a negative relationship between the Political Pluralism and Participation subscore (which is a component of the aggregate Political Rights score). No other subscores – for either Political Rights or Civil Liberties – have a consistent relationship with resource rents over this period. Second, we show that the often-reported negative relationship between resources and political rights disappears once the number of instruments is limited. Previous studies have paid little attention to the problem of instrument proliferation and may thus be unreliable.

The paper is structured as follows. Section 2 describes the data. Section 3 details the methodological approaches taken. Section 4 describes the results. Section 5 concludes.

2. Data

The dependent variables are draw from Freedom House (2018). From 1972, Freedom House has provided yearly measures of Political Rights and Civil Liberties, which range from 1 to 7. We refer to these as PR7 and CL7, in what follows. From 2005, Freedom House provides a more disaggregated edition of each yearly value, ranging from 0 to 40 for Political Rights, and from 0 to 60 for Civil Liberties. We refer to these more finely disaggregated measures as PR and CL. Further, since 2005, Freedom House has provided scores for the subcomponents of both Political Rights and Civil Liberties. These subcomponents are described in Table 1.

Table 1 Description of variables

Variable	Description	Source
Resource rents	Sum of oil rents, natural gas rents, mineral rents (including coal).	World Bank (2019)
Political Rights	Reflects the three subcomponents: Electoral Process; Political Pluralism and Participation; and the Functioning of Government. From 1972 this measure is available in aggregated form and varies between 1 and 7. [say whether we rescale to 0-1]. From 2005 onwards Political Rights are available as the sum of its three sub components, and varies between 0 and 40 points.	Freedom House (2018)
Electoral Process	Between 0 and 12 points allocated depending upon the characteristics of: executive elections; legislative elections; and electoral frameworks. Available from 2005 onwards.	Freedom House (2018)
Political Pluralism and Participation	Between 0 and 16 points allocated depending upon the characteristics of: party systems; political opposition and competition; political choices dominated by powerful groups; and minority voting rights. Available from 2005 onwards.	Freedom House (2018)
Functioning of Government	Between 0 and 12 points allocated depending upon the characteristics of: corruption; transparency; and ability of elected officials to govern in practice. Available from 2005 onwards.	Freedom House (2018)
Civil Liberties	Reflects the four subcomponents: Freedom of Expression and Belief; Associational and Organizational Rights; Rule of law; and Personal Autonomy and Individual Rights. From 1972 this measure is available in aggregated form and varies between 1 and 7. [say whether we rescale to 0-1]. From 2005 onwards Civil Liberties are available as the sum of its four sub components, and varies between 0 and 40 points.	Freedom House (2018)
Freedom of Expression and Belief	Between 0 and 12 points allocated depending upon the characteristics of: media; religious; and academic freedoms; and free private discussion. Available from 2005 onwards.	Freedom House (2018)
Associational and Organizational Rights	Between 0 and 12 points allocated depending upon the characteristics of: free assembly; civic groups; and labor union rights. Available from 2005 onwards.	Freedom House (2018)
Rule of Law	Between 0 and 16 points allocated depending upon the characteristics of: independent judges and prosecutors; due process; crime and disorder; and legal equality for minority and other groups. Available from 2005 onwards.	Freedom House (2018)
Personal Autonomy and Individual Rights	Between 0 and 16 points allocated depending upon the characteristics of: freedom of movement; business and property rights; women's and family rights; and freedom from economic exploitation. Available from 2005 onwards.	Freedom House (2018)
GDP per capita	GDP per capita in current U.S. dollars.	World Bank (2018)b

Population	Population regardless of legal status or citizenship.	World Bank (2018)c

The data underlying the key explanatory variable – resource rents as a percentage of GDP – are sourced from the World Bank. Our measure of resource rents aggregates rents from oil, gas, coal, and minerals. These are all point-source commodities which require substantial capital and can be controlled by political elites. We thus consider our measure preferable to considering only oil or some other individual commodity. The other control variables - population and GDP per capita – are also sourced form the World Bank. Some other studies including Acemoglu et al. (2008) control for the average number of years of schooling. We do not include this variable because data are available only until 2010. We want to be able to use the disaggregated measures of PR and CL and their sub-components through 2017. Table 1 includes descriptions of the variables used.

Table 2 Descriptive statistics – 2005 to 2017 period

Variable	Obs.	Mean	Std.Dev.	Min	Max
Resource rents	1,532	10.5	13.9	0	74
Political Rights (PR)[4]	1,562	20.6	12.6	1	40
Electoral Process (EP)	1,562	6.5	4.4	0	12
Political Pluralism and Participation (PPP)	1,562	8.5	5.1	0	16
Functioning of Government (FG)	1,562	5.4	3.5	0	12
Civil Liberties (CL)	1,562	31.8	15.6	1	60
Freedom of Expression and Belief (FEB)	1,562	10.0	4.5	0	16
Associational and Organizational Rights (AOR)	1,562	6.6	3.8	0	12
Rule of Law (RL)	1,562	6.7	4.3	0	16
Personal Autonomy and Individual Rights (PAIR)	1,562	8.5	3.8	0	16
GDP per capita	1,539	10,039	16,032	151	103,059
Population	1,539	52,100,000	171,000,000	274,009	1,390,000,000

Note: Countries are excluded if resource rents never exceed 0.5 percent of GDP.

[4] The subcomponents of Political Rights (Electoral Process, Political Pluralism and participation, and Functioning of Government) do not sum to the aggregate value of Political Rights due to rounding.

Table 2 provides descriptive statistics for the dependent and explanatory variables over the period 2005 to 2017. These are for our main analysis sample—those countries with resource rents greater than 0.5 per cent of GDP in at least one year. The measures of Political Rights and Civil Liberties over this period are the sum of their various subcomponents. This panel of data is relatively short, but is of similar length to Arezki and Bruckner (2001) who consider the 1992 to 2005 period. Arezki and Bruckner (2011) utilize data from 30 countries, whereas most of the regressions presented in this paper include data from over 100 countries. The 2005 to 2017 period is also useful as it covers a period of rapidly increasing, and then decreasing, commodity prices (IMF 2019), as well as substantial variation in Freedom House measures of Political Rights and Civil Liberties.

Table 3 provides descriptive statistics for the period 1975 to 2015 for our main analysis sample. Consistent with estimates presented in Section 3, only every fifth year is considered.

Table 3 Descriptive statistics – 1975 to 2015 period

Variable	Obs.	Mean	Std.Dev.	Min	Max
Resource rents	994	8.61	13.66	0.00	78.62
Political Rights (PR7)	1,056	3.82	2.18	1	7
Civil liberties (PR7)	1,056	3.90	1.85	1	7
GDP per capita	1,026	6313	11176	65	87770
Poplation	1,026	43,500,000	146,000,000	133,260	1,370,000,000

Note: Countries are excluded if resource rents never exceed 0.5 percent of GDP.

3. Methodology

We explore the dynamics of Political Rights (PR) and Civil Liberties (CL) with respect to resource rents. We do so over the period 2005 to 2017 using annual data, and separately over the period 1975 to 2015 using 5-yearly data. The use of 5-yearly data is consistent with Acemoglu et al. (2008). This approach is not possible for the shorter 2005-2017 period as the sample size would be too small; we thus use annual observations in these estimates.

A dynamic model is used as a static model may fail to capture the time evolution of the key relationships and may erroneously ascribe long-term relationships to short-run coefficients.

$$y_{i,t} = \rho y_{i,t-1} + \gamma r_{i,t-1} + \beta \boldsymbol{x}_{i,t-1} + \psi_i + \epsilon_{i,t} \qquad (1)$$

The lagged variable $r_{i,t-1}$ is our key variable of interest: resource rents. Other regressors are included in the vector $\boldsymbol{x}_{i,t-1}$. We show results for ordinary least squares and fixed effects specifications. However, Nickell Bias (Nickel 1981) may result from a fixed effects specification because the lagged dependent variable may be correlated with the error term. First-differencing (1) yields

$$y_{i,t} - y_{i,t-1} = \rho\left(y_{i,t-1} - y_{i,t-2}\right) + \gamma\left(r_{i,t-1} - r_{i,t-2}\right) + \beta(\boldsymbol{x}_{i,t-1} - \boldsymbol{x}_{i,t-2}) + (\epsilon_{i,t} - \epsilon_{i,t-1}) \quad (2)$$

OLS applied to (2) is still inconsistent as $y_{i,t-1}$ is correlated with $\epsilon_{i,t-1}$, and $\boldsymbol{x}_{i,t-1}$ is also correlated with $\epsilon_{i,t-1}$ unless it is exogenous. However, lagged variables such as $y_{i,t-2}$ and $\boldsymbol{x}_{i,t-2}$ are potentially valid instruments. Two stage least squares applied to either (1) or (2) will give consistent estimates if the instruments are uncorrelated with the error term. The generalised method of moments method (Blundell and Bond 1998) improves on the efficiency of two stage least squares using transformed equations and lagged values of endogenous variables. Another method introduced in Keane and Runkle (1992) transforms (2) and uses forward filtering to increase efficiency while maintaining consistency. We use both GMM and KR methods to check the robustness of our results.[5]

Our regressions include the independent variable of interest - the rent to gdp ratio - as well as log population and log of gdp per capita. We focus on the short-run coefficient $\hat{\gamma}$ for resource rents, noting the long-run effect using the estimated coefficient of the lagged dependent variable will be:

[5] Note that KR uses the existing Stata command xtkr (Keane and Neal, 2016), which requires a balanced panel with no missing values. This reduces the number of groups included in estimates. As such, this is not our preferred estimation technique.

$$\hat{\gamma}_{LR} = \frac{\hat{\gamma}}{1-\hat{\rho}} \qquad (3).$$

A difference in our estimation strategy relative to some previous studies is to exclude countries that have negligible resource rents. We exclude countries if they never experienced more than 0.5 percent of GDP being resource rents. This approach is more appropriate than using an average rent as the cutoff because of the potential for resource discoveries in recent periods.

This exclusion drops about 1/3 of countries. Our results are thus conditional on the sample of countries that have at least some resource rents during this time period. No sample selection is created, as we are selecting the sample on one of the independent variables. However, the relationship between resource rents and Political Rights and Civil Liberties may be different for countries which have resource rents and those which don't. Using only those countries with resource rents allows us to avoid modeling these differences, which might be difficult given our relatively small time series of data. Empirically, this restriction does not impact materially on our results—see discussion in results section.

The vector $\boldsymbol{x}_{i,t-1}$ consists of two main regressors: log of population and log of gdp per capita. We use the lag of both variables as a change will likely take time to impact any democracy measure, if there is an impact. These lagged variables can be considered as predetermined in the GMM estimation. There is a case that they could be made exogenous: there is evidence that income has no effect on democracy (Acemoglu et al. 2008), and it seems reasonable that democracy has no effect on the population, or indeed resource rents, at least in the short to medium run. However, we consider both $\boldsymbol{x}_{i,t-1}$ and $r_{i,t-1}$ as predetermined, rather than exogenous, by default.

We use system-GMM as the standard errors have generally been found to have smaller bias in finite samples than difference-GMM. This specification is consistent with Acemoglu et

al. (2008) and Aslaksen (2010). But system-GMM estimates may be fallacious as *T* grows because the number of instruments becomes large relative to *N*, resulting in the "too many instruments problem" (Roodman 2009b). Taking guidance from Roodman (2009b), we collapse instruments in all GMM estimates except where noted to reduce the instrument count. As the Hansen p-value is pushed higher from a high instrument count, Roodman (2009b) suggests viewing a value of above 0.25 as a potential sign of trouble.

In our view, many significant results previously reported are not robust to a reduction in the instrument count. Therefore, we undertake several robustness checks. Both GMM and KR methods are applied where appropriate, and for GMM, we report the number of instruments and Sargan and Hansen p-values. We show results after excluding OECD countries as the effect of rents on democracy may differ due to higher incomes and stronger democratic institutions. We also consider another way of reducing the instrument count by using principal components (PC) rather than the GMM-style instruments (Kapetanios and Marcellino 2010; Bai and Ng 2010; Mehrhoff 2009).[6]

4. Results

Empirical results for the period 2005 to 2017 are discussed first, including analysis of the subcomponents which are only available for this time period. We then discuss results for the period 1975 to 2015 for the aggregated PR7 and CL7 variables. Recall that PR7 and CR7 refer to the measures of Political Rights and Civil Liberties over the 1975 to 2015 period, where values range from 1 to 7.

4.1 Annual results

Consider aggregate PR as the dependent variable. Results for various estimation methods are shown in Table 4. The OLS regression in column 1 suffers from dynamic panel bias and

[6] The PC method's implementation in Stata is detailed in Roodman 2009a.

so the significant result for resource rents is unreliable. The FE estimator is also inconsistent as the regressors and errors are still correlated after the within-group transformation. However, as highlighted by (Roodman 2009a), the coefficient of the lagged dependent variable will generally be biased upwards by OLS and downwards by FE, so that good estimates should lie in or near the range of these two values.

The third column shows results from (collapsed) GMM. The coefficient of resource rents is negative and significant at the 10% level using this method, and the Hansen statistic verifies that the instruments are valid, although the p-value is higher than 0.25 and therefore may be a cause for concern (Roodman 2009b). Columns 4-6 then undertake robustness check for this result. Column 4 excludes OECD countries, leading to similar coefficients but larger standard errors. Column 5 shows results from the PC method, which reduces the number of instruments and further increases standard errors. Finally, balanced panel KR estimates are shown in column 6 with a slightly reduced sample size.[7] The coefficient for resource rents is significant at the 10 percent level using KR. Note that some data are dropped for the KR estimation due to the requirement of having a balanced panel, and the countries that are dropped are likely not random.

TABLE 4—POLITICAL RIGHTS USING ANNUAL 2005 TO 2017 DATA FOR COUNTRIES WITH RENTS > 0.5 PERCENT OF GDP

	1 OLS	2 FE	3 GMM	4 GMM_noecd	5 GMM_pca	6 KR
PR_{t-1}	0.977***	0.736***	0.975***	0.979***	0.929***	0.810***
	(0.00680)	(0.0483)	(0.0173)	(0.0201)	(0.0554)	(0.0580)
$rent_{t-1}$	-0.0113**	-0.00350	-0.0185*	-0.0189	-0.0275	-0.0325*
	(0.00521)	(0.0125)	(0.0106)	(0.0135)	(0.0331)	(0.0169)
pop_{t-1}	-0.0550	-2.255*	-0.418*	-0.365	-3.652	-1.615
	(0.0359)	(1.231)	(0.220)	(0.291)	(3.626)	(1.461)
$gdppc_{t-1}$	0.0630	-0.229	0.344	0.412	-0.485	1.656**
	(0.0472)	(0.444)	(0.245)	(0.316)	(0.772)	(0.829)
AR2 p-value			0.165	0.152	0.163	
Sargan p-value			0.518	0.326	0.191	
Hansen p-value			0.399	0.219	0.109	
Observations	1417	1417	1417	1225	1417	1308
Groups (countries)		121	121	105	121	109
Instruments			60	60	20	8

Notes: ***, ** and * indicates significance at the 1%, 5% and 10% levels.

[7] Two lags of each independent variable are used as instruments, making eight in total.

The significance of the result for the base GMM specification as well as KR, coupled with the negative estimates across all GMM and KR specifications, would seem to indicate a negative effect of rents on PR. The statistical significance of the result is dependent upon the specification, but we note that the point estimate is always larger, in absolute value, in columns 4-6 than it is in the baseline specification of column 3.

Table 5 shows estimates of the effect of rents across aggregate PR and CL and their subcomponents for the same specifications. Note that the first row (labelled PR_{t-1}) is the same as the first row of Table 1.

TABLE 5: COEFFICIENT ON $rent_{t-1}$ ($\hat{\gamma}$) USING ANNUAL 2005 TO 2017 DATA FOR COUNTRIES WITH RENTS > 0.5 PERCENT OF GDP

	1	2	3	4	5	6
	OLS	FE	GMM	GMM_noecd	GMM_pca	KR
PR_{t-1}	-0.0113**	-0.0035	-0.0185*	-0.0189	-0.0275	-0.0325*
	(0.0052)	(0.0125)	(0.0106)	(0.0135)	(0.0331)	(0.0169)
EP_{t-1}	-0.005**	-0.0015	-0.0012	-0.002	0.0057	-0.0006
	(0.0024)	(0.0063)	(0.0041)	(0.0043)	(0.0101)	(0.0065)
PPP_{t-1}	-0.0043*	-0.0013	-0.0107*	-0.0133**	-0.0228*	-0.0146*
	(0.0022)	(0.005)	(0.0055)	(0.0058)	(0.0134)	(0.0075)
FG_{t-1}	-0.0046***	0.0014	-0.0034	-0.0047	-0.0122	-0.0031
	(0.0011)	(0.0035)	(0.0042)	(0.0042)	(0.008)	(0.0055)
CL_{t-1}	-0.0057	0.0029	0.0024	0.0058	-0.0029	0.01
	(0.0042)	(0.0099)	(0.0098)	(0.01)	(0.0174)	(0.022)
FEB_{t-1}	-0.0028*	-0.0003	-0.0056*	-0.0068*	-0.0075	0.0041
	(0.0015)	(0.0036)	(0.0032)	(0.0032)	(0.0069)	(0.0091)
AOR_{t-1}	-0.0026*	-0.0041	-0.0044*	-0.0037	0.0018	-0.0033
	(0.0013)	(0.0037)	(0.0026)	(0.0028)	(0.0045)	(0.0071)
RL_{t-1}	-0.0023*	0.0038	0.002	0.0036	0.0061	-0.0001
	(0.0013)	(0.0031)	(0.0037)	(0.0039)	(0.007)	(0.0069)
$PAIR_{t-1}$	-0.0017	0.0038	0.0048	0.004	-0.002	0.0079
	(0.0012)	(0.0036)	(0.0033)	(0.0032)	(0.0078)	(0.0079)
Observations	1417	1417	1417	1417	1417	1308
Groups (countries)	121	121	121	121	121	109
Instruments			60	60	20	8

Notes: Abbreviations are defined in Table 2
Models include population and GDP as in Table 4
***, ** and * indicates significance at the 1%, 5% and 10% levels.

Political Pluralism and Participation subscore (PPP) is negative and statistically significant across all specifications. Freedom of Expression and Belief (FEB) and Associational and Organizational Rights (AOR) are significant and negative in the collapsed GMM specification but become insignificant and switch sign in the PC and KR approaches. All of the other sub-components are statistically insignificant across the various specifications. Some of them appear to be quite precise zeros.

PPP is a subcomponent of PR and the magnitudes of the rent coefficients are large relative to the other subcomponents EP and FG. This suggests that the negative effects of rents on political rights (PR) appear to be a result of the effect of their negative effect on PPP. The GMM estimate implies that a one percentage point increase in resource rents lowers the PPP metric (which varies between 0 and 16) by only 0.01 the next year while the long-run effect is 0.27 lower.[8] This implies that, a 12.4 percentage point increase in resource rents relative to GDP (one standard deviation, as recorded in Table 2), has the long run effect of moving the PPP score from that of the United States (14) to that of the Philippines (11).[9] Including all countries, rather than those above the rent threshold, leads to similar results. These results are shown in Appendix Table A1. Table A2 through A9 in the Appendix show the detailed regression results which produce rows two through eight in Table 5.[10]

More detailed regression results appear in Table 6. The result for GMM in column 3 is unreliable given the significant Hansen statistic. However, similar negative effects are found by reducing the sample to non-OECD countries and by using the PC method, and the Hansen test statistic in both cases fails to reject that the instruments are invalid at the five per cent level. The KR specification, with and without OECD countries, also indicates a negative effect. All estimates are negative and the confidence intervals using one standard deviation all overlap each other. There is thus evidence of resource rents affecting PPP.

TABLE 6—RESULTS FOR PPP FOR ANNUAL 2005 TO 2017 DATA FOR COUNTRIES WITH RENTS > 0.5 PERCENT OF GDP

	1 OLS	2 FE	3 GMM	4 GMM_noecd	5 GMM_pca	6 KR	7 KR_noecd
PPP_{t-1}	0.978***	0.721***	0.961***	0.945***	0.884***	0.784***	0.758***
	(0.00704)	(0.0466)	(0.0305)	(0.0388)	(0.0637)	(0.0736)	(0.0793)
$rent_{t-1}$	-0.00427*	-0.00132	-0.0107*	-0.0133**	-0.0228*	-0.0146*	-0.0144*
	(0.00223)	(0.00498)	(0.00546)	(0.00582)	(0.0134)	(0.00747)	(0.00836)
pop_{t-1}	-0.0280*	-0.981*	0.0979	-0.00637	-2.164	-0.934	-1.039
	(0.0142)	(0.520)	(0.185)	(0.154)	(1.343)	(0.662)	(0.758)
$gdppc_{t-1}$	0.0333*	-0.112	0.208	0.142	-0.421	0.200	0.254
	(0.0185)	(0.193)	(0.140)	(0.240)	(0.310)	(0.368)	(0.444)

[8] Long-run coefficients for KR are lower than GMM due to a lower coefficient for the lagged PPP variable.
[9] Using 2017 PPP subscores.
[10] In general, the main conclusions from these tables do not change if we include the countries with zero resource rents. These results are available from the authors.

AR2 p-value			0.189	0.193	0.183		
Sargan p-value			0.202	0.159	0.0139		
Hansen p-value			0.0364	0.0584	0.0605		
Observations	1417	1417	1417	1225	1417	1090	930
Groups		121	121	105	121		
Instruments			60	60	20	8	8

Notes: Standard errors in brackets. ***, ** and * indicates significance at the 1%, 5% and 10% levels.

Arezki and Bruckner (2011) find that increased oil rents lead to worsening PR but improving CL. We find no such result for CL and some evidence for an effect on PR, likely via an effect on PPP, as demonstrated above. Bhattacharyya and Hodler (2010) find an increase in corruption from resource rents, which would seem to correlate with the Functioning of Government (FG) subcomponent of PR, as one criterion in this subcomponent is whether the government is free from pervasive corruption. In contrast, we find no consistent, statistically significant result for the FG subcomponent.

One reason that resource rents may affect PPP is via pro-incumbent effects on elected officials from rent windfalls. For example, Brollo, Nannicini, Perotti, and Tabellini (2013) find that windfall-like federal transfers boost re-election rates. As the PPP criterion includes an assessment of whether there is a significant opposition vote, the pro-incumbent effect could lead to a fall in this measure.

4.2 5-year results

Previous literature has considered PR7 and CL7 which cover a far longer time period than that covered by the subscores discussed in Section 4.1. Results for 5-year increments are shown in Table 7. As expected, the coefficient of the lagged dependent variable is lower, consistent with longer time increments. For PR7, (collapsed) GMM shows no effect from resource rents. The PC method is only just identified and so overidentification tests are not applicable. The coefficient for the lagged dependent variable is also well above the OLS value, so we conclude that this specification is not reliable. Column 5 excludes OECD countries and the Hansen statistic indicates valid instruments at the 5 per cent level; thus

this is our preferred specification. We exclude the KR specification as balancing the panel removes most of the data points.

For comparison, we show uncollapsed GMM in column 6. This shows a highly significant resource rent effect for both PR and CL, similar to OLS. While this highly significant result is robust to the removal of OECD countries (results available from the authors), the risks of instrument proliferation are well established and we believe these results are not reliable as they are not robust to a reduction in the instrument count. Note the very high values of the Hansen test statistic (0.78 and 0.74) which also suggest that instrument proliferation is a major concern with these results. With our preferred approach of collapsed GMM, we find no significant effect of resource rents on PR7 or CL7.

TABLE 7 —RESULTS FOR PR7 AND CL7 FOR 5-YEAR 1975 TO 2015 DATA FOR COUNTRIES WITH RENTS > 0.5 PERCENT OF GDP

Discount rate	1 OLS	2 FE	3 GMM	4 GMM_pca	5 GMM_noecd	6 GMM uncollapsed
$PR7_{t-1}$	0.783***	0.352***	0.767***	0.957***	0.686***	0.747***
	(0.0296)	(0.0494)	(0.109)	(0.204)	(0.0998)	(0.0501)
$rent_{t-1}$	-0.0181***	0.00279	-0.00747	0.00444	0.00425	-0.0229***
	(0.00292)	(0.00420)	(0.0140)	(0.00922)	(0.0124)	(0.00451)
pop_{t-1}	-0.0149	-0.526**	0.428	-0.215	0.319	0.122*
	(0.0221)	(0.202)	(0.282)	(0.237)	(0.274)	(0.0687)
$gdppc_{t-1}$	0.125***	-0.0414	0.0348	-0.000394	-0.178	0.152***
	(0.0323)	(0.0898)	(0.119)	(0.182)	(0.173)	(0.0488)
AR2 p-value			0.317	0.303	0.210	0.332
Sargan p-value			0.0051	.	0.0087	0.154
Hansen p-value			0.0345	.	0.0570	0.780
Observations	840	840	840	1017	691	840
Groups		129	129	181	108	129
Instruments			40	14	40	148
$CL7_{t-1}$	0.826***	0.404***	0.744***	0.916***	0.621***	0.802***
	(0.0220)	(0.0434)	(0.0864)	(0.173)	(0.108)	(0.0395)
$rent_{t-1}$	-0.0132***	0.00332	-0.0107	-0.00744	0.00343	-0.0171***
	(0.00210)	(0.00321)	(0.0115)	(0.0104)	(0.0109)	(0.00367)
pop_{t-1}	-0.00989	-0.307**	0.414**	-0.129	0.454**	0.00987
	(0.0161)	(0.144)	(0.208)	(0.187)	(0.225)	(0.0439)
$gdppc_{t-1}$	0.0983***	-0.0227	0.0320	-0.0937	-0.116	0.0887**
	(0.0233)	(0.0661)	(0.0862)	(0.162)	(0.115)	(0.0355)
AR2 p-value			0.864	0.779	0.721	0.829
Sargan p-value			0.0035	.	0.0129	0.0163
Hansen p-value			0.108	.	0.323	0.741
Observations	840	840	840	1017	691	840
Groups		129	129	181	108	129
Instruments			40	13	40	148

Notes: Standard errors in brackets. ***, ** and * indicates significance at the 1%, 5% and 10% levels.

A potential issue with the Freedom House measures is a potential bias introduced by the floor and ceiling values for the scores. Similar to BenYishay and Betancourt (2014), we checked the impact of dropping boundary observations on results and found our key results were unaffected. These results are available from the authors upon request.

5. Conclusion

We have, for the first time, considered the relationship between a wide-ranging and inclusive measure of resource rents and the subcomponents of Political Rights and Civil Liberties. This is important because, while the existing literature has evaluated the responsiveness of Political Rights and Civil Liberties to resource rents, both Political Rights and Civil Liberties are broad concepts. We find evidence that higher resource rents cause a deterioration in the Political Pluralism and Participation subcomponent of Political Rights over the 2005 to 2017 period. We do not, however, find a consistently significant relationship between any of the other subcomponents of Political Rights or Civil Liberties and resource rents. Similarly, we find no relationship between the aggregate measures of Political Rights and Civil Liberties and resource rents. This result may suggest that civil society groups and other stakeholders should be particularly focused on ensuring that political opposition and competition are not degraded at times of rising resource rents.

We have also considered the relationship between resource rents and Political Rights and Civil Liberties over the period 1975 to 2015, using the same – less finely disaggregated measures – that have been used by researchers in the past. Our findings suggest that there is no statistically significant relationship between resource rents and Political Rights or Civil Liberties.

Our results differ from the previous literature, which has suggest a relationship between resource rents and Political Rights or Civil Liberties. As we demonstrate above, this

appears to be driven by the attention we pay to the problem of instrument proliferation. Most previous papers which have found a significant relationship appear to have suffered from using an excess of instruments, evident from the sheer number of instruments used relative to countries and as measured by the Hansen test. We show that collapsing the instruments, the standard solution to this problem, results in an insignificant relationship between resource rents and Political Rights or Civil Liberties. Much of the existing literature, therefore, does not appear to be robust to the chosen instrument set.

Our paper suggests that the conventional wisdom that resource rents negatively impact Political Rights and Civil Liberties may be too strong. The effect that we find of resource rents on Political Pluralism and Participation suggests that more attention needs to be paid to the channels through which resource rents impact society.

6. References

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Appendix

TABLE A1 — RESULTS FOR ALL MEASURES FOR ANNUAL 2005 TO 2017 DATA FOR ALL COUNTRIES

	1	2	3	4	5	6
	OLS	FE	GMM	GMM_noecd	GMM_pca	KR
PR_{t-1}	-0.0121**	-0.00117	-0.0103	-0.00962	0.00311	-0.0211
	(0.00445)	(0.0112)	(0.00953)	(0.0103)	(0.0182)	(0.0154)
EP_{t-1}	-0.00572**	-0.00021	-0.00071	-0.00171	0.00523	0.000286
	(0.00219)	(0.00567)	(0.00398)	(0.00472)	(0.00598)	(0.00616)
PPP_{t-1}	-0.00464*	-0.0018	-0.00714	-0.0104**	-0.0103	-0.0138*
	(0.00189)	(0.00458)	(0.005)	(0.00555)	(0.00866)	(0.0068)
FG_{t-1}	-0.00437***	0.00156	-0.00066	-0.00017	-0.00386	-0.00035
	(0.00104)	(0.0033)	(0.00422)	(0.0041)	(0.00453)	(0.00516)
CL_{t-1}	-0.00501	0.00681	0.00978	0.0123	0.0125	0.013
	(0.0036)	(0.00904)	(0.00816)	(0.00902)	(0.0135)	(0.0132)
FEB_{t-1}	-0.00282*	0.00134	-0.0019	-0.00374	-0.00121	0.00752
	(0.00129)	(0.00326)	(0.00386)	(0.00374)	(0.00533)	(0.00561)
AOR_{t-1}	-0.00306*	-0.00293	-0.0002	-0.00028	0.0032	-0.0011
	(0.00113)	(0.00335)	(0.00224)	(0.00273)	(0.00361)	(0.00488)
RL_{t-1}	-0.00235*	0.00462	0.0021	0.00387	0.00655	0.00581
	(0.00111)	(0.00286)	(0.0035)	(0.00372)	(0.00473)	(0.00569)
$PAIR_{t-1}$	-0.00105	0.00372	0.00404	0.00413	0.00267	-0.00763
	(0.00108)	(0.00352)	(0.00276)	(0.00261)	(0.00418)	(0.00936)
Observations	2167	2167	2167	2167	2167	2004
Groups	185	185	185	185	185	167
Instruments			60	60	20	8

***, ** and * indicates significance at the 1%, 5% and 10% levels.

TABLE A2 — RESULTS FOR EP FOR ANNUAL 2005 TO 2017 DATA WHERE RENTS > 0.5 PERCENT OF GDP

	OLS	FE	GMM	GMM_noecd	KR	KR_noecd
EP_{t-1}	0.966***	0.685***	0.972***	0.967***	0.908***	0.784***
	(0.00853)	(0.0427)	(0.0229)	(0.0205)	(0.0585)	(0.0491)
$rent_{t-1}$	-0.00497**	-0.00147	-0.00122	-0.00201	0.00567	-0.000629
	(0.00239)	(0.00633)	(0.00412)	(0.00433)	(0.0101)	(0.00651)
pop_{t-1}	-0.0181	-0.603	-0.124	-0.142	-0.477	-0.0197
	(0.0143)	(0.502)	(0.133)	(0.113)	(1.225)	(0.542)
$gdppc_{t-1}$	0.0313*	-0.133	0.117	0.102	-0.377**	0.0154
	(0.0170)	(0.195)	(0.0791)	(0.106)	(0.166)	(0.313)
AR2 p-value			60	60	20	
Sargan p-value			0.0000211	0.0000259	0.0000103	
Hansen p-value			0.328	0.326	0.324	

***, ** and * indicates significance at the 1%, 5% and 10% levels.

TABLE A3 — RESULTS FOR PPP FOR ANNUAL 2005 TO 2017 DATA WHERE RENTS > 0.5 PERCENT OF GDP

	OLS	FE	GMM	GMM_noecd	KR	KR_noecd
PPP_{t-1}	0.978***	0.721***	0.961***	0.945***	0.884***	0.784***
	(0.00704)	(0.0466)	(0.0305)	(0.0388)	(0.0637)	(0.0736)
$rent_{t-1}$	-0.00427*	-0.00132	-0.0107*	-0.0133**	-0.0228*	-0.0146*
	(0.00223)	(0.00498)	(0.00546)	(0.00582)	(0.0134)	(0.00747)
pop_{t-1}	-0.0280*	-0.981*	0.0979	-0.00637	-2.164	-0.934
	(0.0142)	(0.520)	(0.185)	(0.154)	(1.343)	(0.662)
$gdppc_{t-1}$	0.0333*	-0.112	0.208	0.142	-0.421	0.200
	(0.0185)	(0.193)	(0.140)	(0.240)	(0.310)	(0.368)
AR2 p-value			0.189	0.193	0.183	
Sargan p-value			0.202	0.159	0.0139	
Hansen p-value			0.0364	0.0584	0.0605	

***, ** and * indicates significance at the 1%, 5% and 10% levels.

TABLE A4 — RESULTS FOR FG FOR ANNUAL 2005 TO 2017 DATA WHERE RENTS > 0.5 PERCENT OF GDP

	OLS	FE	GMM	GMM_noecd	KR	KR_noecd
FG_{t-1}	0.970***	0.719***	0.988***	0.991***	0.975***	1.028***
	(0.00623)	(0.0347)	(0.0195)	(0.0252)	(0.0549)	(0.0619)
$rent_{t-1}$	-0.00462***	0.00142	-0.00342	-0.00465	-0.0122	-0.00309
	(0.00110)	(0.00350)	(0.00419)	(0.00417)	(0.00801)	(0.00546)
pop_{t-1}	-0.0197**	-0.363	0.0137	-0.0538	-1.180	0.0918
	(0.00872)	(0.298)	(0.0759)	(0.0771)	(0.831)	(0.425)
$gdppc_{t-1}$	0.0252*	0.0233	0.0606	0.0489	-0.0477	0.237
	(0.0142)	(0.132)	(0.0566)	(0.0685)	(0.218)	(0.255)
AR2 p-value			60	60	20	
Sargan p-value			0.0000315	0.0000796	0.0000345	
Hansen p-value			0.371	0.305	0.406	

***, ** and * indicates significance at the 1%, 5% and 10% levels.

TABLE A5 — RESULTS FOR CL FOR ANNUAL 2005 TO 2017 DATA WHERE RENTS > 0.5 PERCENT OF GDP

	OLS	FE	GMM	GMM_noecd	KR	KR_noecd
CL_{t-1}	0.993***	0.808***	1.004***	1.014***	0.997***	0.582***
	(0.00470)	(0.0369)	(0.0128)	(0.0145)	(0.0278)	(0.204)
$rent_{t-1}$	-0.00565	0.00293	0.00244	0.00579	-0.00290	0.00999
	(0.00423)	(0.00985)	(0.00975)	(0.0100)	(0.0174)	(0.0220)
pop_{t-1}	-0.0547**	-1.233	0.0202	0.0345	-0.206	-1.008
	(0.0255)	(0.818)	(0.206)	(0.177)	(1.353)	(2.200)
$gdppc_{t-1}$	0.0472	0.0331	0.118	0.173	0.205	0.869
	(0.0410)	(0.333)	(0.178)	(0.203)	(0.571)	(1.087)
AR2 p-value			60	60	20	
Sargan p-value			0.00326	0.00491	0.00295	
Hansen p-value			0.475	0.561	0.464	
Obs	1417	1417	1417	1225	1417	1090
Groups		121	121	105	121	
Instruments			60	60	20	8

***, ** and * indicates significance at the 1%, 5% and 10% levels.

TABLE A6 — RESULTS FOR FEB FOR ANNUAL 2005 TO 2017 DATA WHERE RENTS > 0.5 PERCENT OF GDP

	OLS	FE	GMM	GMM_noecd	KR	KR_noecd
FEB_{t-1}	0.988***	0.794***	0.985***	0.997***	0.978***	0.469**
	(0.00593)	(0.0317)	(0.0145)	(0.0177)	(0.0305)	(0.223)
$rent_{t-1}$	-0.00278*	-0.000306	-0.00558*	-0.00680**	-0.00749	0.00409
	(0.00152)	(0.00359)	(0.00320)	(0.00319)	(0.00693)	(0.00905)
pop_{t-1}	-0.0223**	-0.579	0.0127	0.0155	-0.157	-0.370
	(0.0100)	(0.384)	(0.0991)	(0.0806)	(0.546)	(0.982)
$gdppc_{t-1}$	0.00687	0.0681	0.0937*	0.146**	0.197	0.303
	(0.0139)	(0.136)	(0.0527)	(0.0733)	(0.161)	(0.502)
AR2 p-value			60	60	20	
Sargan p-value			0.000129	0.000357	0.000174	
Hansen p-value			0.351	0.428	0.345	

***, ** and * indicates significance at the 1%, 5% and 10% levels.

TABLE A7 — RESULTS FOR AOR FOR ANNUAL 2005 TO 2017 DATA WHERE RENTS > 0.5 PERCENT OF GDP

	OLS	FE	GMM	GMM_noecd	KR	KR_noecd
AOR_{t-1}	0.983***	0.703***	0.963***	0.961***	0.946***	0.424***
	(0.00567)	(0.0465)	(0.0238)	(0.0179)	(0.0458)	(0.108)
$rent_{t-1}$	-0.00264**	-0.00405	-0.00443*	-0.00370	0.00175	-0.00325
	(0.00130)	(0.00369)	(0.00259)	(0.00275)	(0.00454)	(0.00710)
pop_{t-1}	-0.0129	-0.840**	0.0648	-0.0110	0.574	-1.090
	(0.00839)	(0.362)	(0.115)	(0.0894)	(0.732)	(0.706)
$gdppc_{t-1}$	0.0189*	-0.0923	0.0481	0.0284	-0.114	-0.196
	(0.0112)	(0.142)	(0.0566)	(0.0566)	(0.197)	(0.362)
AR2 p-value			60	60	20	
Sargan p-value			0.0000199	0.0000578	0.0000149	
Hansen p-value			0.185	0.221	0.179	

***, ** and * indicates significance at the 1%, 5% and 10% levels.

TABLE A8 — RESULTS FOR RL FOR ANNUAL 2005 TO 2017 DATA WHERE RENTS > 0.5 PERCENT OF GDP

	OLS	FE	GMM	GMM_noecd	KR	KR_noecd
RL_{t-1}	0.981***	0.684***	1.005***	1.019***	1.007***	0.546***
	(0.00598)	(0.0419)	(0.0198)	(0.0213)	(0.0624)	(0.176)
$rent_{t-1}$	-0.00227*	0.00384	0.00195	0.00364	0.00614	-0.000122
	(0.00134)	(0.00312)	(0.00372)	(0.00394)	(0.00700)	(0.00686)
pop_{t-1}	-0.0177*	0.0532	-0.0380	-0.0448	0.534	0.199
	(0.00988)	(0.286)	(0.0922)	(0.0941)	(0.766)	(0.586)
$gdppc_{t-1}$	0.0324**	-0.0223	0.0653	0.0244	-0.0549	0.0621
	(0.0161)	(0.0951)	(0.0601)	(0.0621)	(0.233)	(0.352)
AR2 p-value			60	60	20	
Sargan p-value			0.0000414	0.000146	0.0000735	
Hansen p-value			0.603	0.370	0.600	

***, ** and * indicates significance at the 1%, 5% and 10% levels.

TABLE A9 — RESULTS FOR PAIR FOR ANNUAL 2005 TO 2017 DATA WHERE RENTS > 0.5 PERCENT OF GDP

	OLS	FE	GMM	GMM_noecd	KR	KR_noecd
$PAIR_{t-1}$	0.990***	0.807***	1.018***	1.010***	0.954***	0.433
	(0.00482)	(0.0291)	(0.0103)	(0.0131)	(0.123)	(0.323)
$rent_{t-1}$	-0.00167	0.00382	0.00480	0.00403	-0.00201	0.00790
	(0.00123)	(0.00360)	(0.00325)	(0.00324)	(0.00780)	(0.00792)
pop_{t-1}	-0.00946*	-0.0742	-0.0295	-0.0280	-0.172	-0.0371
	(0.00532)	(0.206)	(0.0719)	(0.0604)	(1.079)	(0.543)
$gdppc_{t-1}$	0.0247**	0.0746	-0.0841	-0.0637	-0.0410	0.334
	(0.0103)	(0.0975)	(0.0533)	(0.0541)	(0.445)	(0.393)
AR2 p-value			60	60	20	
Sargan p-value			4.08e-09	1.05e-08	0.000000582	
Hansen p-value			0.312	0.254	0.293	

***, ** and * indicates significance at the 1%, 5% and 10% levels.