

The Rise of China and the Natural Resource Curse in Africa

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Abstract

This paper studies the causal impact of China's rising demand for natural resources (NR) on Sub-Saharan African political and economic development. We separately instrument for NR exports to China, to the World, to the U.S. and India with the interaction terms of a African country's NR endowment and the demand for those resources for the respective buyers. We find that exporting NR to China is unique in having large positive effects on economic growth and investment, but is not alone in its detrimental effects on human rights. Exporting to the U.S. also has similar negative effects on human rights outcomes, whereas exporting to India improves human rights. Exporting NR overall has no effect on economic growth but has potentially negative effects on political institutions. Our results suggest that the commonly cited *natural resource curse* embodies heterogenous effects of exporting NR. We provide strong novel evidence that the characteristics of the trading partner matter.

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1 Introduction

From South Africa's manganese mines to Niger's uranium pits, from Sudan's oil fields to Congo's cobalt mines, China's hunger for resources has been a shot in the arm, increasing revenues and helping push some of the world's poorest countries further up the ladder of development... "Let the Chinese come," said Mahamat Hassan Abakar, a lawyer in Chad, a former French colony in central Africa with deepening ties to China. "What Africa needs is investment. It needs partners. All of these years we have been tied to France. Look what it has brought us."

- *New York Times* "NEW POWER IN AFRICA: China's Trade in Africa Carries a Price Tag" August 21, 2007

In the mid 1980s, only six African countries were trading with China. Figure 1 shows that by 2006, that number had risen to 35. Africa's total trade with China increased from USD 1 billion in 1986 to USD 50 billion in 2006, and the bulk of African exports to China are the Natural Resources (NR) needed to fuel Chinese economic growth.¹ Figure 2 shows the rapid increase of NR exports to China both as a fraction of total trade with China (total exports + imports) and as a fraction of total NR exports to the world at large. These dramatic changes might have important effects because China's approach to Africa has been sharply different from that of the West.² A strict interpretation of the principle of sovereignty has allowed close contact, investment and official development aid to regimes with dubious political, economic and human rights records. Such dealings have generated accusations against China that have ranged from abetting genocidal regimes to proclamations that she wants to create a "League of Dictators" to act as a buffer against Western influence in the developing world.³

One of the most cited examples is Sudan. In the early 90s, Western oil firms scaled back their operations due to human rights concerns and civil conflict in Southern Sudan. In contrast, China started heavily investing in oil extraction in Sudan in 1996. By 2006, Sudan supplied 10% of China's oil imports. Today, the largest foreign supplier of petroleum is Angola, which accounts for 15% of China's total oil imports. In 2004, to combat widespread

¹Value reported in CPI deflated constant USD.

²As quoted in Alden (2007), Chinese diplomats have emphasized that "Non-intervention is our brand, like intervention is the Americans' brand."

³See accusations in Amnesty International (2006). See Kagan (2006) and Brookes and Shin (2006).

corruption in Angola, the IMF pressed to include transparency measures as conditions for new loans intended for reconstruction after years of civil war. To the surprise of many observers, the Angolese withdrew from the negotiations and instead accepted a USD 2 billion loan from China that was tied to the supply of oil and construction contracts. The published rates were indeed very favorable to Angola. However, it is likely that the absence of any conditionalities was also extremely palatable.⁴

Critics accuse China of not using her growing economic clout to force change unto her trading partners.⁵ But it is by no means clear either theoretically or empirically that external force from a foreign power is an effective way to cause political changes.⁶ Nor is it obvious that potential economic growth caused by trading with China (when no one else is willing to trade) will not have an independent effect in improving domestic African institutions. Given the extensive news coverage this topic has received, there are surprisingly no systematic studies yet evaluating the effect of trading with China on political outcomes in African countries.⁷ This study attempts to fill this gap by using a novel empirical strategy to estimate the causal effect of exporting natural resources to China. The outcomes examined range from economic growth to political institutions and human rights violations. We also compare these effects with those of exporting natural resources to democracies such as the U.S. and India, and the world at large.

The principal contribution of this paper is to estimate the causal effect of exporting natural resources to China on sub-Saharan African outcomes. The main empirical difficulty in interpreting a cross country comparison of outcomes between countries that export to China and those that do not is that bad countries may choose to deal with China over other countries that pressure them. Controlling for country fixed effects will not be able to address this

⁴For more details, see Taylor (2006) and Alden (2005, 2007).

⁵For instance, acclaimed American movie director and producer Steven Spielberg resigned his position as an artistic director for the Beijing Olympics arguing that China should do more to prevent atrocities in the Sudanese region of Darfur. See <http://news.bbc.co.uk/2/hi/africa/7261453.stm>

⁶On the one hand, many have argued that the end of the Cold War allowed the West to force a wave of democratization in the early 90s (this argument is described in Bratton and van de Walle, 1997). And that the *de facto* roll back of those reforms is timed with the rise of NR exports to China. This is consistent with Jensen and Wantchekon's (2004) finding that democratic consolidation only occurred in NR poor countries. On the other hand, it is not clear that previous attempts at proactive foreign pressure have been highly successful, as the cases of Cuba or Zimbabwe show.

⁷There are a number of descriptive studies on the growing economic relationships. See Broadman 2007, Deutsche Bank 2006 and Goldstein et al 2006.

problem if regimes change over time within countries, such that when a regime becomes bad, it switches to trading with China. This switch may reflect the decision of the African regime, or a choice on the part of buyers. For example, Taylor (2006) finds that China systematically approached countries where the presence of Western companies is weak. As China's demand for a commodity grows, countries who have that commodity will increase their exports to China more than countries which do not, and this increase will be orthogonal to the institutional, economic or historic circumstances of the country. Using a similar logic, we instrument for natural exports to the U.S., India and World at large with the interactions terms of the existence of a commodity in the African country and the demand for each commodity from those places.

Using data compiled from several existing data sources, we find the following results. First, controlling for the total amount of NR exports, diverting NR trade to China increases economic growth. A 1% increase in exports to China increases one year GDP growth by 0.2% and three-year growth by 0.7%. Exporting NR to China also increases capital formation, investment in value added industries, and decreases labor force participation. This suggests that the increase in GDP is partly driven by increased investment in capital intensive extractive industries. If China were to completely stop buying NR from Sub-Saharan African countries, on average, one-year GDP growth rates would decrease by 23%, capital formation would decrease by 66%, the value of value added industries would decrease by 21% in levels and by 56% as a fraction of GDP and labor force participation would increase by 9.6%. Second, we find no evidence that diverting NR exports to China causes a slide towards autocracy as measured by Polity IV or Freedom House. Third, exporting NR to China worsens internal conflict and has adverse effects on human rights. To investigate whether these effects are generic effects from trading with a rich and politically powerful country or a fast growing economy, we compare the effects to the effects of exporting NR to the U.S. and exporting to India, respectively. We find that the positive effects on economic growth are unique to exporting to China. Surprisingly, the negative effects on human rights are similar for exporting to China and to the U.S. For exporting NR to the world at large, we found no evidence of negative effects on economic outcomes but we find evidence of adverse effects on institutional development.

Our findings add to several branches of the political economy and trade literature. First, this study provides novel evidence that the political characteristics of the trading partner

matters for political outcomes. Our estimates suggest that keeping total country production and world prices constant, it makes a difference whether a country exports a barrel of oil to China or to the rest of the world. More generally, strategic objectives, political and otherwise may shape the effects of such trade on political and economic outcomes. These incentives and consequences are typically absent from models of trade and international political economy.⁸

Second, we build on the existing studies of the natural resource "curse", which began with cross country evidence from Sachs and Warner (1995, 2001).⁹ Due to potential long-standing differences across countries, it is difficult to derive causal implications from this literature. Our empirical strategy allows us to provide convincing evidence that exporting NR has no negative effects on either economic growth or the development of manufacturing, although it may increase the level of autocracy of the ruling regime. These improvements, however, come with a drawback: because we are interested in the effect of the rise of China, we look at annual data starting in 1990. As a consequence, we can only identify the short-term effects of an increase in the value of NR on economic and political outcomes.¹⁰ Furthermore, the differential effects of exporting to China suggests that aggregate consequences of NR specialization may hide heterogeneous experiences that depend on the characteristics of the trade partner.

⁸There is a small related literature. Levchenko (2005), for instance, discusses the possibility that different institutions might act as sources of comparative advantage, thus shaping trade patterns. He does not consider, however, how institutions might change as a result of trade patterns. Antràs and Padró i Miquel (2008) propose a simple model of international influence where political ties might be generated by economic ties.

⁹The basic approach in this literature is to regress long term growth (typically over two decades or more) on the percentage of NR in a country's exports or GDP at the beginning of the period for a cross-section of countries. The finding that NR intensity is negatively correlated with long-term growth performance is robust to the introduction of many controls such as geographical variables. Any causal inference is, however, impaired by the fact that NR intensity is hardly exogenous as it depends on the size of the economy and past investment. Moreover, the effect of NR on other determinants of long term growth, such as institutions, complicates the picture even more. Mehlum, Moene and Torvik (2005), show that NR are actually a blessing for countries with strong institutions. Furthermore, Sala-i-Martin and Subramanian (2005) show that NR directly impact institutional quality, showcasing the example of Nigeria. For a literature review of the huge Natural Resource Curse literature, see Van der Ploeg (2007). These findings echo a line of research in Political Science that has also found in a cross-country setting that oil and mineral wealth reduces the prospects for democracy (see Ross, 2001 and Jensen and Wantchekon, 2004).

¹⁰Because we are interested in the effect of the rise of China, we look at annual data starting in 1990. As a consequence, we only identify the short-term effects of an increase in the value of NR on economic and political outcomes. Angus and Deaton (1995) and Raddatz (2007), using different techniques as ours, found that an increase in the price of commodities has a positive effect on the countries that produce them. This, of course, is not necessarily surprising, but it seems to stand in contradiction to the Natural Resource Curse literature. In a recent paper, Collier and Goderis (2007) reconcile the short term positive effects with the long term disappointing growth performance using panel co-integration techniques.

The rest of the paper is organized as follows. The next section presents the empirical strategy. Section 3 describes the data. Section 4 discusses the results. Section 5 interprets the results. And Section 6 offers concluding remarks.

2 Empirical Strategy

The existing literature on the natural resource curse examines cross country correlations.¹¹ Applied to our study, this simple specification would examine the cross country relationship between outcomes and exporting NR to China. Because countries that export more NR to China are also more likely to export NR to the world at large, we will control for the latter so as to not confound the two effects. This has the important advantage that the estimates for the effect of exporting to China will not be confounded with any rise in prices that China may induce with her impact on global demand for NR. That effect is captured by the coefficient on the value of total NR exports. The main problem in interpreting this correlation is that countries with certain characteristics (bad economic development policies) may invest more intensively in NR sectors. In this case, a negative correlation between NR export to China (or the world at large) and outcomes such as economic growth will reflect the effect of those policies as well as any causal effect of NR exports. Including country fixed effects with a panel of countries will mitigate this problem to the extent that these characteristics do not change over time.

$$Y_{it} = \beta \text{Log}(NR_ChinaExp_{it}) + \delta \text{Log}(NR_WorldExp_{it}) + \eta \text{Log}(GDPpc_{it-1}) + \rho_i + \gamma_t + \varepsilon_{it} \quad (1)$$

The equation above regresses outcome Y_{it} for country i and year t on: the logarithm of the value of NR exports to China from country i in year t as measured in constant U.S. Dollars (USD), $NR_ChinaExp_{it}$; the logarithm of the value of NR exports to the world from country i in year t as measured in constant (USD), $NR_WorldExp_{it}$; the logarithm of GDP per capita for country i in year $t - 1$, $GDPpc_{it-1}$; country fixed effects, ρ_i ; and year fixed

¹¹For a literature review, see Van der Ploeg (2007).

effects, γ_t . All standard errors are clustered at the country level. Note that we look at the value of NR exports and we do not scale it by the size of the economy or total exports as the literature normally does. This avoids the introduction mechanical relationships. Instead, we introduce past GDP per capita as it can have a direct effect on growth and maybe also on institutions, according to modernization theories. We also estimated a separate equation controlling for total trade with the world and total trade with China and the results for β and δ were unchanged.¹²

Interpreting the coefficients of this equation as causal becomes problematic in the case of time-varying changes. For example, if bad regimes choose to trade with China or are more likely to export NR to the world at large when they come into power, the FE strategy will once again be confounded with underlying characteristics of the countries. For example, the FE strategy will underestimate the positive effects of exporting to China on economic outcomes if worsening regimes choose to export more to China and have police which cause worsening economic outcomes. To address this problem, we exploit the plausibly exogenous variation in NR exports to China caused by each country's endowment of commodities and China's rising annual demand for each commodities. The reduced form estimate is conceptually similar to a differences-in-differences estimate where we compare outcomes for countries with and without a NR that China wants, before and after China wants it. Figure 3 shows the increase in NR exports to China from Africa over time. It also shows that this increase closely follows the increase in China's GDP. Figure 4 plots Chinese consumption of each commodity over time. It shows that consumption is increasing for all commodities and that there is substantial variation in the amount of consumption across commodities.

The instruments will be the interaction terms of the existence of each endowment in a given African country with China's GDP, which we use to proxy for her NR demands.¹³ Using Chinese GDP as a proxy for demand has the benefit that while it arguably drives the demand for NR, it is also more likely to be exogenous to other factors such as world prices of commodities.¹⁴ However, it has the drawback that because Chinese growth is approximately

¹²These estimates are not reported in the paper but are available upon request.

¹³Chinese GDP growth arguably is the main driving factor of her increasing demand for NR (Alden, 2005, 2007; Taylor, 2006).

¹⁴We also use the total value of China's NR consumption each year as an alternative proxy. The results are not very different and are not reported in the paper.

linear during the period of interest (1991-2005), we will not be able to control for country-level linear time trends. We proxy for the endowment of each NR x with a dummy variable for ever having produced x during 1990-2006.¹⁵ This crude measure has the advantage of being more plausibly exogenous than, say, the amount extracted each year, which would be affected by past investment decisions that could be correlated with regime quality and other determinants of trade decisions. Ideally, we would like to use a measure of the quantity of each NR in the ground, but such measures are only available for oil. Since we are interested in exploiting trade in many other minerals heavily imported by China, we settle for this measure. We will use a similar strategy to instrument for NR exports to the world at large (and also to the U.S. and India). The first stage equations are the following.

$$\begin{aligned} \text{Log}(NR_ChinaExp_{it}) &= \boldsymbol{\theta}^C(\mathbf{X}_i \times LChinaGDP_t) + \boldsymbol{\phi}^C(\mathbf{X}_i \times LWorldGDP_t) + \\ &+ \eta^C \text{Log}(GDPpc_{it-1}) + \rho_i^C + \gamma_t^C + \varepsilon_{it} \end{aligned} \quad (2)$$

$$\begin{aligned} \text{Log}(NR_WorldExp_{it}) &= \boldsymbol{\theta}^W(\mathbf{X}_i \times LChinaGDP_t) + \boldsymbol{\phi}^W(\mathbf{X}_i \times LWorldGDP_t) + \\ &+ \eta^W \text{Log}(GDPpc_{it-1}) + \rho_i^W + \gamma_t^W + \varepsilon_{it} \end{aligned} \quad (3)$$

\mathbf{X}_i is the endowment vector. Each component, $x_{1i}..x_{ni}$, equals 1 if country i produced any quantity of resource n at any point between 1990 and 2006. We regress the log of the value of NR exports to China (or the World) for country i in year t on: the interaction of the endowment vector and the logarithm of Chinese GDP (measured in 1996 USD), $LChinaGDP_t$; the interaction of the endowment vector and the logarithm of World GDP, $LWorldGDP_t$; the logarithm of GDP per capita for country i in year $t - 1$, $GDPpc_{it-1}$; country fixed effects, ρ_i ; and year fixed effects, γ_t . All standard errors are clustered at the country level. $\boldsymbol{\theta}^C$ is a vector of $\theta_1^C.. \theta_n^C$, and $\boldsymbol{\phi}^C$ is a vector of $\phi_1^C.. \phi_n^C$. Each of these components measures the correlation between the corresponding instrument and $\text{Log}(NR_ChinaExp_{it})$. $\boldsymbol{\theta}^W$ and $\boldsymbol{\phi}^W$ have the same structure and equivalent interpretation.

To understand the identification, imagine that there are two time periods and two NRs,

¹⁵We used an alternative proxies of the average amount of NR x produced during 1990-2006 as well the amount of NR x produced in each year. These alternative proxies produced similar results because the countries in our sample typically produce the maximum amount of each resource that they are endowed with each year. The results for the alternative proxies are not reported in the paper.

oil and lead. If possessing oil is correlated with bad outcomes, then this effect is differenced out by the presence of country FE. If there are secular changes over time in African political and economic development, then the cross sectional comparison between oil rich countries and lead rich countries will control for this. Identification relies on the assumption that there was no resource-specific secular trend beyond that induced by World GDP. If, for example, during the period of China’s rapid economic growth and increase in NR demand, oil-rich countries deteriorated economically and politically for reasons unrelated to exporting to oil to China and the world, then the instrument would be invalid. In the absence of such process, the instruments are valid and useful because they exclude any determinant of NR trade that is related to political and economic institutions and past historical experience. We predict NR trade based exclusively on the interaction of exogenous measures of supply and demand.

3 Data

This study uses data from several sources and matches the data at the year and country level. Because China’s role in Africa is likely to be very different during the Cold War, we restrict the sample to be post-Cold War. The matched data set contains data for 44 sub-Saharan African countries over 17 years (1990-2006). There are three countries for which we do not have enough data: Sao Tome & Principe, Djibouti and Somalia. In addition, we exclude South Africa from the sample as it is the only country with a significant industrial base and a very different political structure.¹⁶ The data for exports come from the *United Nations Conference on Trade and Development’s* (UNCTAD) *Commodity Trade Statistics Database* (COMTRADE). The exports variables are the aggregate value of 17 fuels and minerals.¹⁷ All measures used in this paper are in constant CPI-deflated USD. Figure 1 shows that as time progresses, more African countries join exporting NR to China. Figure 2 shows that NR exports to China have increased dramatically, also as a percentage of total trade.

The ideal data for endowment of a natural resource is data from geological surveys. Un-

¹⁶Table A1 shows that South Africa produces all commodities. Since we use dummy variables for whether a country ever produces a NR, we lose little variation by excluding South Africa. Hence, its exclusion does not dramatically alter the results.

¹⁷The list is composed by the following items: Aluminium, Chromium, Cobalt, Coltan, Copper, Iron, Lead, Manganese, Natural Gas, Nickel, Oil, Platinum, Tin, Titanium, Tungsten/Wolfram, Uranium and Zinc.

fortunately, reliable survey data only exists for oil. Hence, we proxy for the endowment each resource with a dummy variable for whether that mineral was ever produced by the country between 1990-2006. Appendix Table A1 shows average production by resource by country for a random sample of African countries and commodities. It shows that using dummy variables will produce considerable variation across countries.

Economic outcomes data are sourced from the World Development Indicators. GDP per capita is reported in constant USD (market exchange rates). We calculate growth in GDP per capita between year t and year n simply as $LogGDPpc_{it+n} - LogGDPpc_{it}$. Table 1A shows the average per capita growth rates. Even taking into account the African growth acceleration from 2000, the average growth rate is below 1% for the period. It also shows that, on average, 27% of total GDP is comprised of value added industries. Industry, however, might be a misleading category because it includes extractive industries. Past studies on the natural resource curse have speculated that exporting NR may retard the development of manufacturing sectors even if the overall effect on GDP is positive. This would be reflected in a decrease in manufacturing as a share of total GDP, and not so much on value added industries. Indeed, in our dataset Manufacturing value added amounts for only 11% of GDP. To examine investment, we also use Gross Fixed Capital formation as a percentage of GDP. Some observers have commented on the fact that China is using a mainly Chinese labor force for its infrastructure projects in Africa. To find a possible crowding out effect, we examine road construction and labor force participation. The length of paved road is measured in kilometers and unfortunately this data only exists for a small number of observations. Finally, we also want to investigate whether NR specialization affects the relative size of the government and thus we added data on Government Expenditures as a % of GDP. We also include a health expenditure index as a possible measure of government benevolence.

The data on political and human rights outcomes in Panel C comes from the Freedom House dataset, the CIRI data set, the Political Risk Group and the Polity IV project. The political rights and civil liberties indices from Freedom House range from 1 to 7, with 1 representing the highest and 7 the lowest level of freedom corresponds to a range of total points. For example, in 2005, China, Zambia and the U.S. had political rights ratings of 7, 4 and 1, respectively; and had civil liberty ratings of 6, 4 and 1, respectively. A detailed description of the construction of these indices is included in the Data Appendix. We take

the Polity 2 institutional index from the Polity IV database. This index measures the extent to which institutions in a country resemble a stylized definition of a democracy. It ranges from -10 (strongly autocratic) to +10 (strongly democratic). In 2005, China, Zambia and the US had a score of -7, 5 and 10, respectively. Table 1 shows that the African average in our sample is very close to 0. From the Political Risk Services Group database we use series on Internal Conflict, Ethnic Tensions and Democratic Accountability. Democratic accountability ranges from 0 (autocracy) to 6 (alternating democracy). Sample values for China, Zambia and the US in 2005 are 1, 4.5 and 6, respectively. Internal conflict measures the presence of political violence. 0 denotes a very violent environment, denotes 12 is maximum stability. China, Zambia and the US were stable in 2005 with scores above 10. The average value for Africa in our sample is 7.64, well below. Finally, Ethnic Tensions ranges from 0 (high level of tensions) to 6 (peaceful relationships). 2005 values for China, Zambia and the US were 4.5, 4 and 5. Again, the average for Africa, 3.04, falls below these levels.

The Physical Integrity Rights Index reported by CIRI is an additive index constructed from the Torture, Extra-judicial Killing, Political Imprisonment, and Disappearance indicators (see Data Appendix for details). It ranges from 0 (no government respect for these four rights) to 8 (full government respect for these four rights). For example, in 2005, China, Zambia and the U.S. had ratings of 1, 4 and 5. We also independently use the Torture index. Finally, we also extract from CIRI an index of Women's Economic Rights. Political Terror is an index of human rights violations reported by the U.S. State Department. It ranges from 1 to 5. Level 1 is for countries under a secure rule of law, people are not imprisoned for their view, and torture is rare and exceptional. Political murders are extremely rare. Level 5 include countries where murders, disappearances, and torture are a common part of life for the whole population and the leaders of these societies place no limits on the means or thoroughness with which they pursue personal or ideological goals. In 2005, China and Zambia were reported to have ratings of 4 and 3, respectively. We also collect equivalent data from Amnesty International. The results using this data is not different. Hence, we do not report them in the paper. The descriptive statistics reported in Table 1A are measured in levels (as the data is reported originally). To better understand these indices for the African context, Table 1B presents the values for Kenya and Sudan.

For the regression analysis, we transform the economic outcomes to logarithms in order to

estimate elasticities.

4 Empirical Results

4.1 OLS

Table 2 shows the OLS estimates for the correlations between exporting NR to China and the world with a select set of outcomes. For each outcomes, we show the estimates of $\hat{\beta}$ and $\hat{\delta}$ from equation (1) with and without country fixed effects (Panels A and B, respectively). The coefficients are elasticities between NR exports to China and the world and outcomes. Column (2) show that exporting NR to China has a positive and statistically significant effects on value added industries in both specifications, although the effect is smaller controlling for fixed effects. The estimate shows that increasing NR exports to China by 1% is correlated with a 0.01% increase in the value of valued added industries. For political and human rights outcomes, the effect of exporting NR to China is systematically less adverse or better once country fixed effects are controlled for. For example, columns (4), (5) and (6) show that the effects of exporting to China on the Polity 2 index, political rights and civil liberties are greatly reduced once FEs are included. The relationship with Torture in column (7) also becomes zero with FEs either. This makes sense as in adding country fixed effects we are excluding the selection effect according to which China is trading with countries that, on average, have worse institutions. This is the argument often cited by critics, and our findings confirm this correlation. The estimated effect on political terror is statistically significant and positive (more terror) in both specifications. But the effect is much smaller in magnitude with FEs.

The estimates for exporting NR to the World exhibit similar changes between the two specifications. Columns (1) and (3) shows that the cross country correlation used in the existing literature on the natural resource curse will produce a statistically significant negative relationship with GDP and a positive relationship with paved road length. However, with FE, both correlations become zero. This is strong evidence that the commonly cited evidence for the natural resource curse is largely driven by time-invariant differences between countries that export NR and those that do not.

To check that our regression estimates are not driven by outliers, we plot the residuals and

regression line from the fixed effects estimates. As examples Figures 5A and 5B show these figures for the outcomes of per capita GDP growth over 3 years, and manufacturing as a share of GDP.

4.2 2SLS

Table 3 shows the first stage estimates. We have two endogenous variables, $\text{Log}(NR_ChinaExp_{it})$ and $\text{Log}(NR_WorldExp_{it})$ and 17 instruments for each (see equations (2) and (3)). Columns (1A) and (2B) display the estimates for θ^C from equation (2) and ϕ^W from equation (3). In column (1A), the point estimates for $\hat{\theta}^C$, the instruments for $\text{Log}(NR_ChinaExp_{it})$, are statistically significant at the 5% level. The F-statistic for joint significance is 97.36. Hence, weak instruments problems are unlikely. In column (2B), the point estimates for ϕ^W , the instruments for $\text{Log}(NR_WorldExp_{it})$, are only significant at the 5% level for three commodities. The F-statistic for joint significance is 4.21. We cannot rule out the possibility of weak instruments in this case. These estimates may be biased towards OLS due to weak instruments. We will there more not interpret the magnitude of the 2SLS estimates for ϕ^W . Reduced form estimates of the effects of the instruments on the outcomes of interest are not reported in the paper for the sake of brevity.

The 2SLS estimates are presented in Tables 4 and 5, in the B Panels. In each table, Panel A shows the OLS estimates with fixed effects as a comparison. Table 4 shows the effects on economic outcomes. Columns (1), (2) and (3) show that exporting NR to China increased GDP growth. The estimates are statistically significant at the 10% level for one year and three year growth. Columns (4), (5) and (6) show that the 2SLS estimates are also positive and statistically significant for capital formation, value added industries and value added industries as a fraction of GDP; and negative and significant for labor force participation. This is consistent with the idea that exports to China are mostly extractive, capital intensive industries which do not foster direct employment growth. We find no effect on manufacturing industries. Interestingly, we find that exporting to China significantly increases government consumption (column (5)) while having no effect on public health expenditures or the length of paved roads.

The 2SLS estimates from Table 4 Panel B show that if China were to completely stop

buying NR from Sub-Saharan African countries, one-year GDP growth rates would decrease by 23%, capital formation would decrease by 66%, the value of value added industries would decrease by 21% in levels and by 56% as a fraction of GDP and labor force participation would increase by 9.6%.

The estimates for exporting to the World is not statistically different from zero except for value added industries.

Table 5 shows the results for institutional and human rights outcomes. We find that exporting to China has no effect on the polity 2, political rights, civil liberties, democratic accountability, or ethnic tensions indices. However, it worsens internal conflict and but increases women’s economic rights. For human rights outcomes in columns (8)-(11), the estimates in Panel B show that exporting to China has a statistically significant and negative effect on human rights according to all indices. The estimates for exporting NR to the World suggest that it increases autocracy (decreases Polity 2) and decreases political rights. The estimates for the effect on human right are not statistically different from zero. But it is interesting to note that the coefficients all have opposite signs from the coefficients for estimating to China. We also examined the effect of exporting to China on outcomes one and three years later. We found no persistent or delayed effect. These estimates are not reported in the paper.

4.3 Robustness

To check our identification strategy, we used lagged outcomes (e.g. political terror in year $t - 1$) as dependent variables and re-estimated the OLS and 2SLS equations. The coefficients are close to zero (and order of magnitude smaller than the main results) and not statistically significant). This is evidence that our results are not driven by existing trends in African countries. For brevity, they are not reported in the paper.

4.4 China versus the U.S.

It is difficult to determine whether the effects unveiled in the previous subsection are specific from China. It might be, for instance, that any buyer of significant size generates them. Alternatively, these results could be due to the fact that China is an autocracy. The latter hypothesis is difficult to examine because China is the only autocracy big enough to significantly

affect NR trade. To investigate the former hypothesis, we compare the effects of exporting to China versus exporting to the US. We estimate an equation similar to (1). The only difference is that we now include total NR exports to the U.S. on the right hand side. The OLS estimates with FE are shown in Panel A of Table 6. For the sake of brevity, we only report part of the outcomes of the previous section. These estimates show that exporting to the U.S. is more positively correlated with one and three year GDP growth than exporting to China. The estimates for exporting to the U.S. are statistically significant at the 1% level. But they are not statistically different from exporting to China. Column (4) shows that exporting to the U.S. has similar effects on value added industries as a fraction of GDP as exporting to China. Column (13) shows that exporting to the U.S. is uncorrelated with political terror where as exporting to China increases it. The estimate for China is statistically significant at the 5% level.

We use the interaction terms between the existence of each commodity for a given African country and U.S. GDP each year as instruments for the value of NR exports to the U.S. The first stage estimates are shown in Table A2. Column (2B) shows that the estimates for the instruments are mostly significant at the 5% and 1% levels. The F-statistic for joint significance is 9.9 in Column (2C). Note that the F-statistic for the instruments for exports to China and exports to the World are 269 and 14.55, respectively.

Panel B of Table 6 shows the 2SLS estimates. Columns (2)-(4) show that exporting to China has positive effects on three-year GDP growth, capital formation and value added industries as a fraction of GDP. The estimates are statistically significant at the 10%, 5% and 1% levels. The estimates for exporting to the U.S. are positive, but much smaller in magnitude, and not statistically different from zero. Column (6) shows that exporting to China has a more negative effect on labor force participation than exporting to the U.S. But the difference is not statistically different. Columns (8) and (10) examine outcomes that reflect pronounced preferences of the democratic and communist regimes, democratic accountability and women's economic rights. The estimates show that exporting to the U.S. increases political accountability (1% significance level) and has no effect on women's economic rights, where as exporting to China has no effect on democratic accountability but increases women's economic rights (1% significance level). Column (9) shows that exporting to China worsens internal conflict (1% significance level) where as exporting to the U.S. has a positive

coefficient but is not statistically different from zero. Interestingly, for human rights outcomes, the signs of the estimated coefficients are the same for exporting to the U.S. and China. Also, the coefficients for torture and political terror are very similar in magnitude. However, they are only statistically different from zero for exporting to China.

These results show that exporting to China leads to more short term economic growth, worse democratic accountability, less internal conflict and improved economic rights for women. The effects on human rights are not obviously different from the effect of exporting to the U.S.

4.5 China versus India

Another possible interpretation for the main results presented in Table 5 is that there is a trickling down effect from trading with a fast growing economy. This is especially a concern for outcomes such as economic growth. To address this, we compare the effects of exporting NR to China with exporting to India, whose GDP has grown at approximately 9.2% per year compared to China's 10%. India differs from China in two ways. First, it is a democracy. Second, the levels of NR imports from Africa are much lower although the trends are similar. The OLS estimates are reported in Panel A of Table 7. For the sake of brevity, we focus the discussion on the causally identified 2SLS results in Panel B. The first stage estimates are shown in Table A3.

Columns (1)-(4) show that exporting to China has positive and statistically significant effects on GDP growth, capital formation and value added industries as a fraction of GDP, where as the coefficients for exporting to India are much smaller in magnitude and not statistically different from zero. Interestingly, column (5) shows that the coefficient for the effect of exporting to India on manufacturing industries is positive and almost significant at the 15% level, where as the coefficient for exporting to China is an order of a magnitude smaller and not statistically different from zero. Columns (9) and (10) show that exporting to China worsens internal conflict and improves women's economic rights where as exporting to India has no effect on internal conflict but may decrease women's economic rights. Interestingly, Columns (11)-(13) show that the estimated coefficients for the effect of exporting to India on physical integrity, torture and political terror all have the opposite signs from the coefficients

for China, which have the same effects as before. However, only the estimate for torture is statistically significant at the 5% level for India. For exporting to China, the estimates for torture and political terror are statistically significant at the 1% level. Interestingly, these results show that while exporting to India has similar effects as exporting to the U.S. for economic and institutional outcomes, it has different effects on human rights. It is alone, amongst the three countries we examine, in having potentially beneficial effects on human rights.

5 Interpretation

The comparison of OLS estimates with and without country FE shows that part of the cross-sectional correlation that can be used as evidence for the adverse effects of exporting NR to China (and the natural resource curse more generally) is generated by omitted variable bias or selection. The finding that the 2SLS estimates for the positive effects of exporting to China on economic and institutional outcomes are larger than the FE estimates suggest that the selection of worsening regimes in trading with China is causing the FE estimates to be attenuated. However, the same explanation cannot be used to explain why the FE estimates for human rights violations are smaller than the 2SLS. If the FE is attenuated because regimes are self-selecting to trade with China, our results suggest that regimes have better human rights in order to trade with China. But the causal effect of exporting NR to China is negative for human rights.

The comparison with exporting to the U.S. and India show that the benefits for economic growth are China specific. They are not generic effects from exporting to a large country (e.g. U.S.) or a fast growing country (e.g. India). While the data limits our empirical investigation of the mechanisms underlying the effect on economic growth, anecdotal evidence and our results together allow us to speculate. Our results suggest that investment in the extractive industries is an important channel. China seems to direct more capital to the improvement of mines, oil and oleoducts than other trade partners. There are many reasons why this might be so. There is some anecdotal evidence that Chinese oil companies receive capital from the Chinese government at a subsidized rate (from their huge foreign reserves, and typically through the ExIm bank). Furthermore, Chinese oil companies use Chinese labor which greatly reduces labor costs compared to their Western counterparts. Therefore, these companies enjoy

cheaper inputs which allows them to develop fields faster. Indeed, some analysts maintain that in some cases, Chinese companies are bidding for concessions at levels that would make Western companies operate at a loss. Moreover, the Chinese government is directing soft loans and other forms of foreign aid to countries in which Chinese extraction companies operate. Some of this aid includes transfer “in kind,” such as agreements for Chinese companies to build infrastructure items such as roads, hospitals, presidential palaces and football stadiums. These transfers also have a comparative advantage due to low labor costs.¹⁸ All in all, it might well be that African countries are obtaining on average a better effective price for their NR when they divert trade to China.

The findings that exporting to China has a positive effect on government consumption but no effect on public health expenditures and length of paved road suggest that the increase in GDP is at least in part being directed to the government, who in turn is not spending it on the people. (We also examined other types of public spending such as education. The results are similar to health and not reported in the paper).

Our results seem to support some popular speculation that exporting NR to China has adverse effects on human rights records, and it also seems to generate internal conflict. It seems clear that Chinese companies can afford to be indifferent as to the human rights performance of their host countries in a way that Western companies cannot. Taylor (2006) cites a Chinese director of African studies in Beijing who argues “We [China] don’t believe that human rights should stand above sovereignty... We have a different view on this, and African countries share our view.” Conversely, Western companies and governments have to take into account that dealing with unpalatable regimes might create a backlash in their home countries. There are two possible mechanisms which could drive the negative effect of exporting to China on human rights: funds from China are abetting regimes that will behave badly regardless of the source of revenues; or, China is actively promoting bad behavior in its suppliers (perhaps to further alienate them from the West in an attempt to keep the competition out and prices low). We believe that the former is more likely for several reasons. First, historical bad behavior suggests that countries trading with China (e.g. Sudan and Angola) may have latent demand for behaving badly when China’s demand for their resources increased. Second, while

¹⁸See Alden (2007) for a discussion of these issues. Note that some of these points are consistent with the reduction of labor force participation that NR trade with China seems to cause.

China takes pride in a no strings attached policy, there is no reason to think that it benefits in any way from being systematically affiliated with countries with bad human rights outcomes. Finally, and most importantly, the fact that the effects are not obviously different for exporting to the U.S. (while they are different for exporting to India) suggests that trading with a rich and politically powerful country may adversely affect human rights independently of (or in addition to) the political leanings of the trading partner. It may very well be that a rich and powerful trading partner offers some protection from international monitoring of human rights. More research on this is needed.

Interestingly, we find that exporting to China improves women's economic rights whereas exporting to the U.S. increases democratic accountability. Insofar as these two measures reflect the propaganda of the respective communist and democratic governments of China and the U.S., this is our only evidence that either China or the U.S. is promoting "ideology" to their African suppliers.

Our results for exporting NR to the world at large rejects the standard natural resource curse argument that exporting NR is bad for economic growth or the development of manufacturing. Our estimates are always positive, although imprecisely estimated. Conversely, we do find suggestive evidence that exporting NR in general increases autocracy. This is consistent with a large body of theoretical literature about the detrimental effects of NR on institutions.¹⁹

6 Conclusion

China's supposed negative influence in Africa has been one of the most commonly reported stories in the popular media such as *The Economist* in the past few years. Absent systematic evidence, anecdotal examples such as the conflict in Darfur in Sudan has been used to galvanize world opinion. This paper uses a unique empirical strategy to provide novel evidence that perhaps, these commonly proclaimed beliefs are not wholly true. We find that exporting NR to China has positive effects on short term economic growth, capital formation and the development of value added industries. A 1% increase in exports to China increases one year

¹⁹ Amongst other studies, see Acemoglu, Robinson and Verdier (2004), Acemoglu and Robinson (2006), Boix (2003), Robinson and Torvik (2006), and Lam and Wantchekon (2003).

GDP growth by 0.2% and three-year growth by 0.7%. The economic benefits are much larger than the obtained from exporting to the U.S. or India, another rapidly growing democracy. For human rights, our results show that exporting NR to China has an adverse effect. However, it is similar to the effect of exporting NR to the U.S., a rich and powerful democracy. Conversely, exporting to India, a relatively smaller democracy, improves human rights. Hence, while we can conclude that the characteristics of a trading partner matters, we cannot attribute the adverse effect of exporting to China on human rights only to the fact that it is not a democracy. Rather, the findings of this paper suggest that there is a separate effect from having a rich and politically powerful trading partner.

For international policy makers, these results should be reassuring. They support the hypothesis that political pressure from economic partners can be effective. Further research, both empirical and theoretical, should explore the specific channels and reach of this international influence. Currently, these factors are all but absent from the literature in international economics.

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Figure 1: Number of African Countries Exporting Natural Resources to China

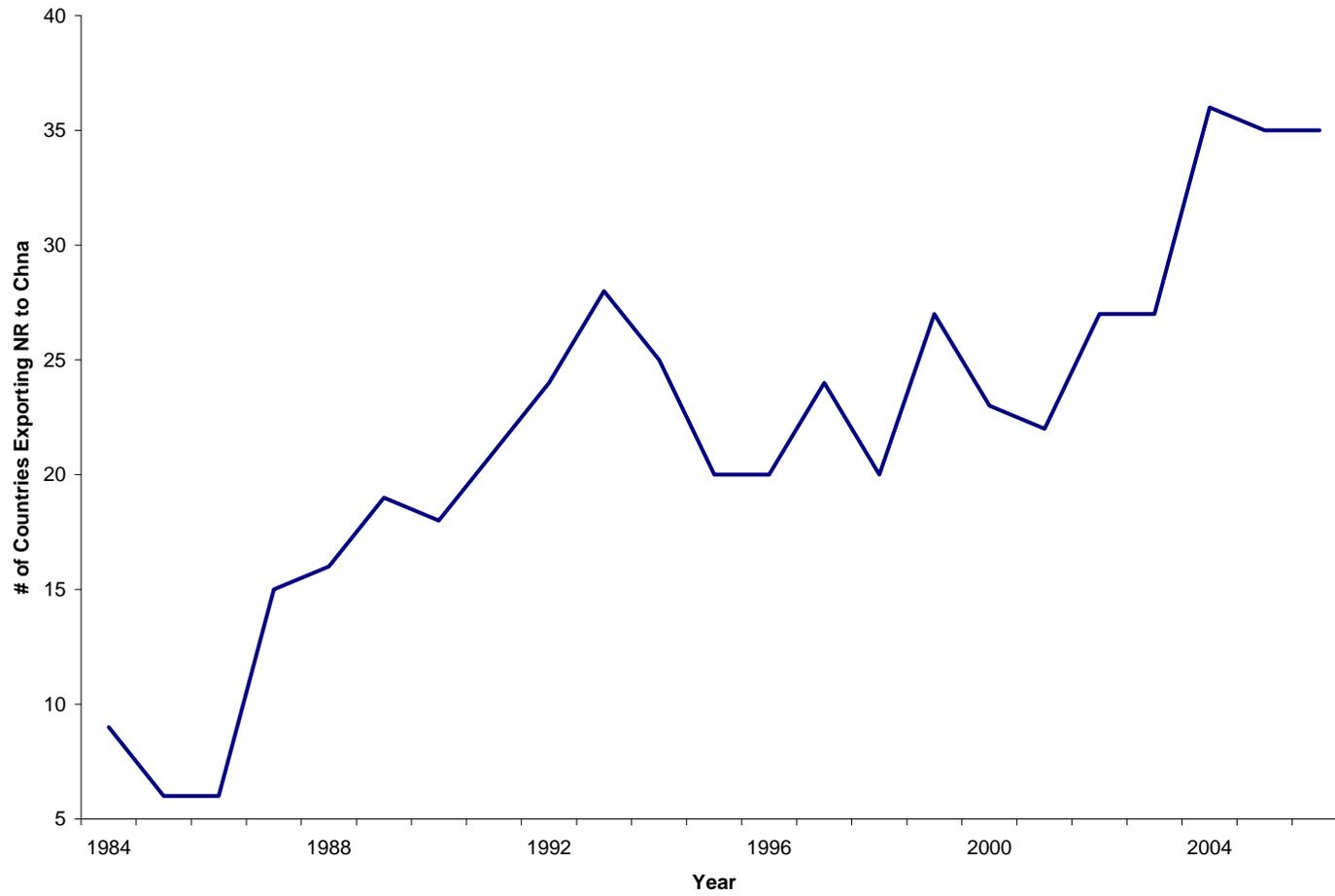


Figure 2: African Exports of Natural Resources to China over Time

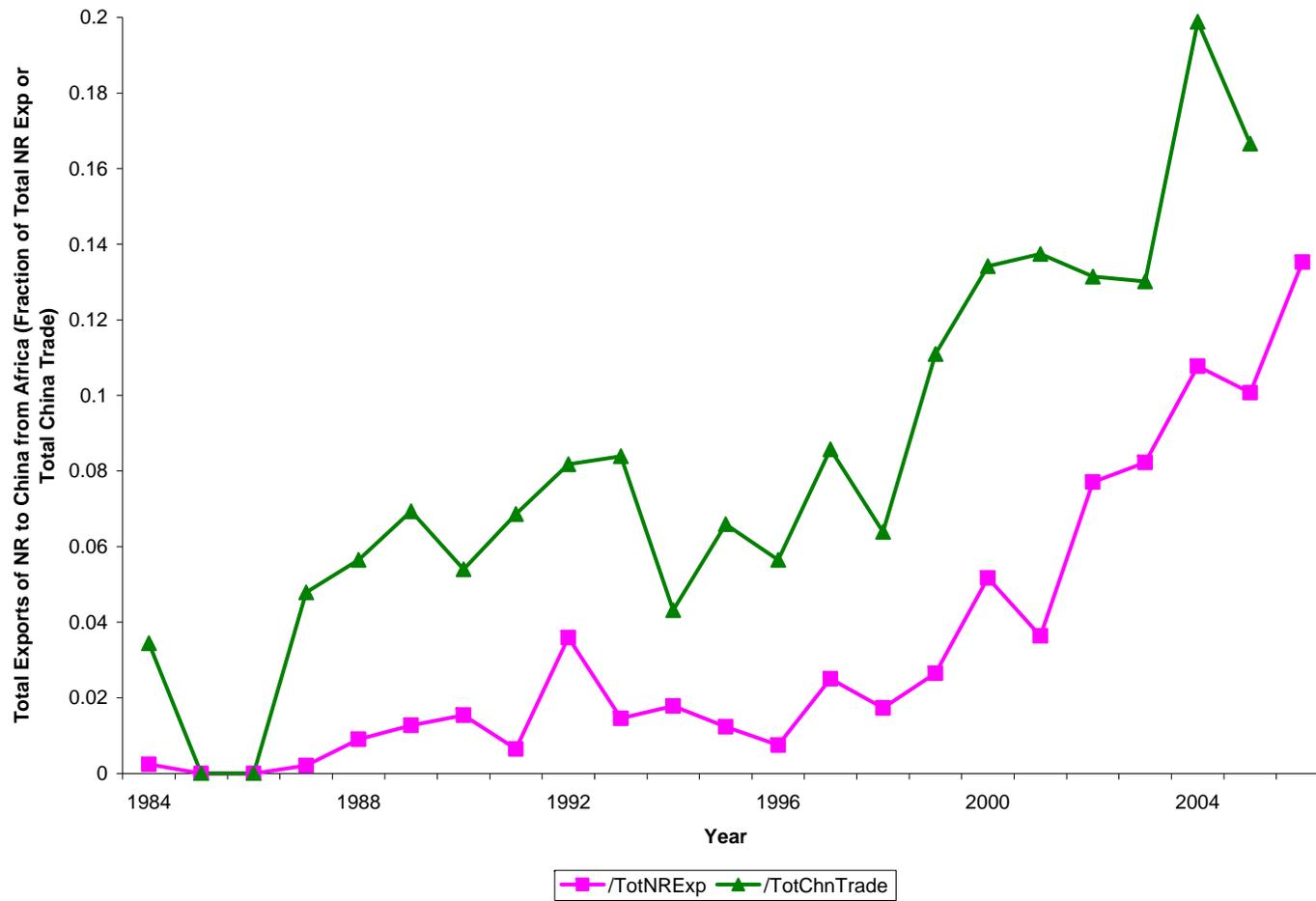


Figure 3: Chinese GDP and African Natural Resource Export to China

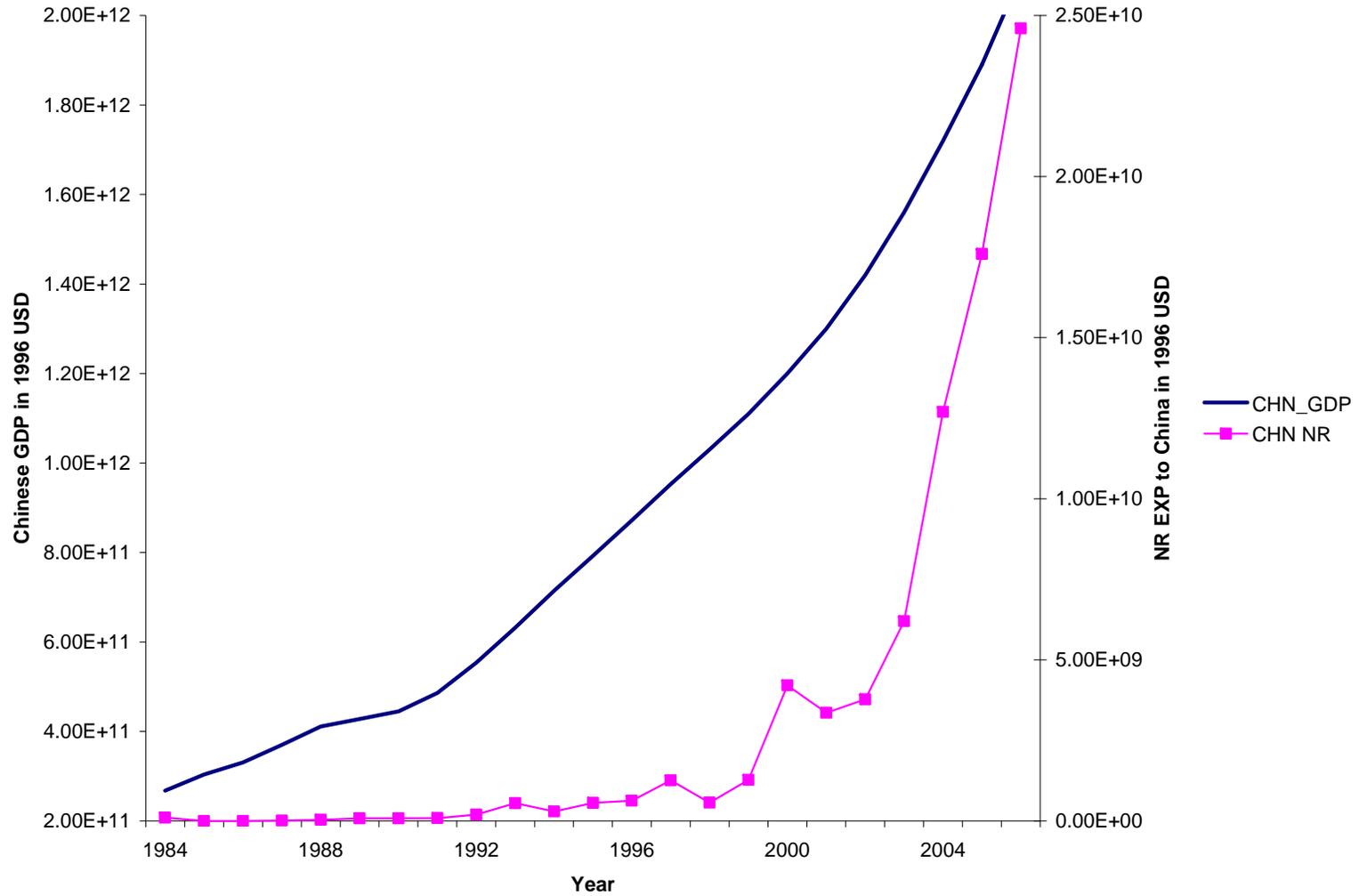


Figure 4: Chinese Natural Resource Consumption by Type

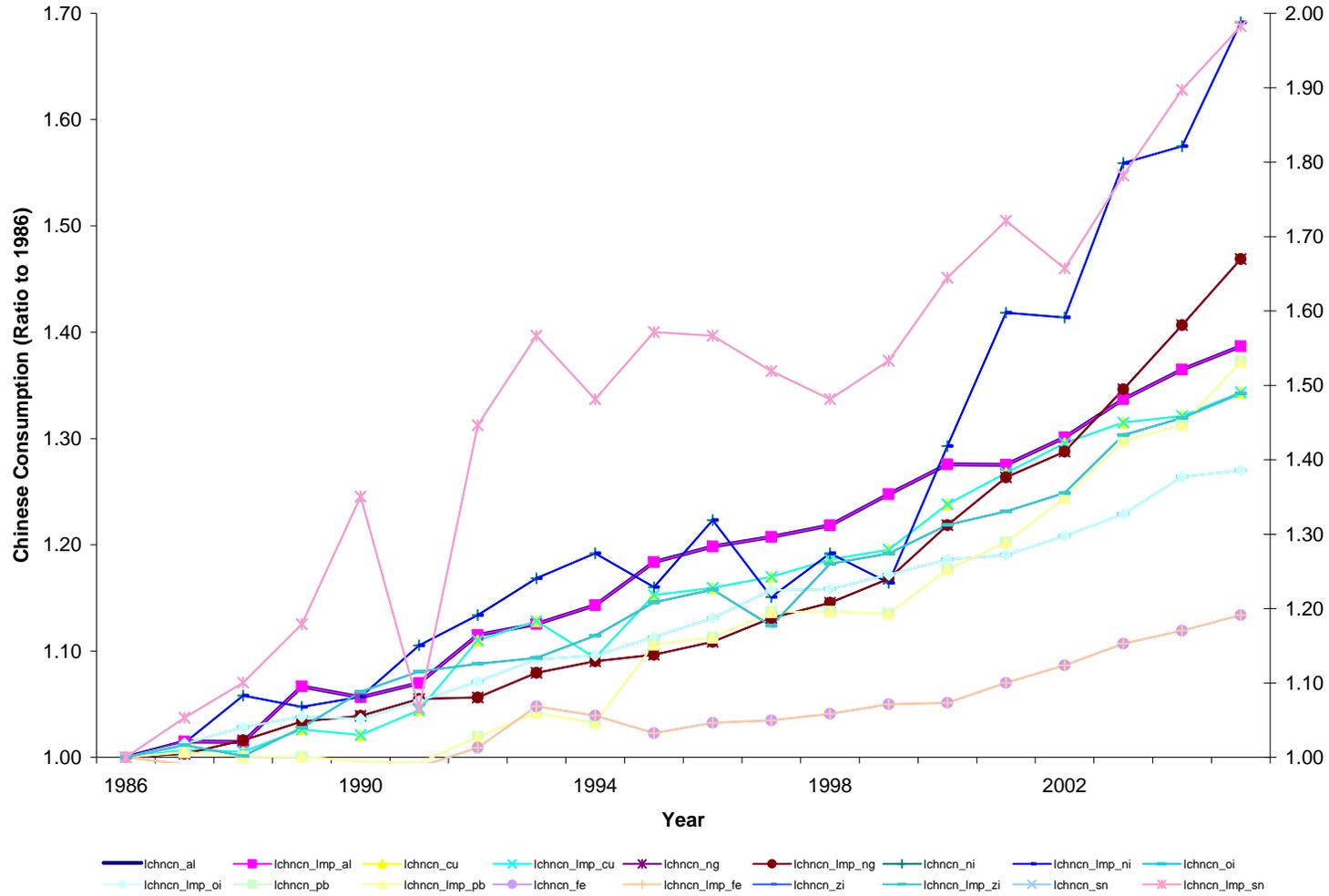


Figure 5A: The OLS Estimate of the Effect of Exporting NR to China on GDP Growth (3 Years)

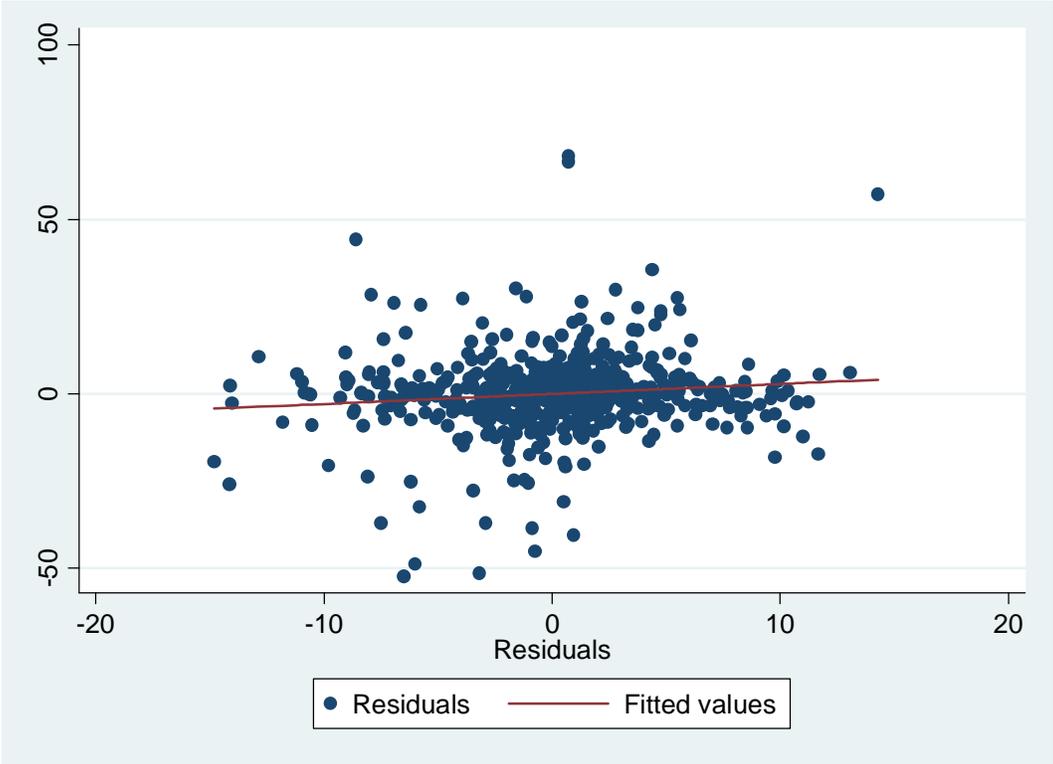


Figure 5B: The OLS Estimate of the Effect of Exporting NR to China on Manufacturing as a Share of GDP

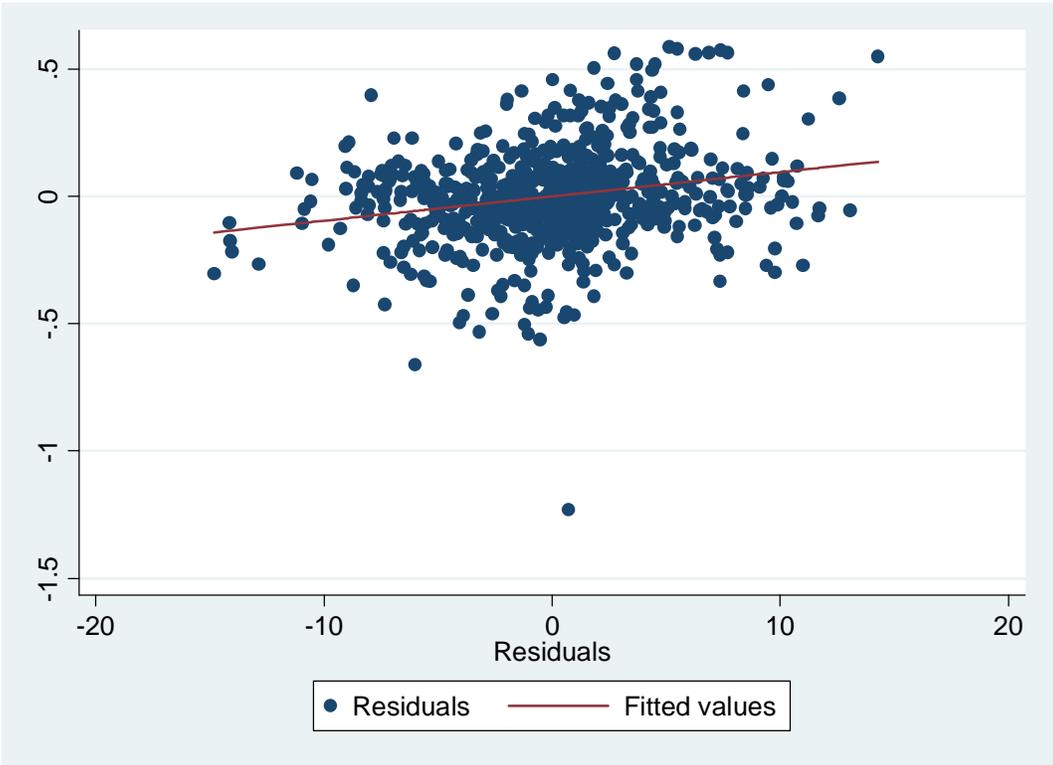


Table 1A: Descriptive Statistics on Exports to China and Political, Social Outcomes

Variable	Data Source	Obs	Mean	Std. Err.
A. Economic Outcomes				
Log GDP Per Capita	WDI	647	2364.16	119.65
GDP Growth 1 Year	WDI	718	0.99	0.28
GDP Growth 3 Years	WDI	628	3.13	0.67
GDP Growth 5 Years	WDI	538	6.09	1.02
Gross fixed capital formation (% of GDP)	WDI	725	19.87	0.41
Government final consumption expenditure (% of GDP)	WDI	715	15.43	0.30
Value Added Industry	WDI	742	24.80	0.06
Value Added Industry as %of GDP	WDI	747	26.83	0.55
Manufacturing as a % of GDP	WDI	716	10.81	0.25
Labor Force Participation	WDI	782	74.66	0.35
Health Expenditure	WDI	232	50.71	5.77
Paved Road (km)	WDI	147	5517.97	919.64
B. Political and Human Rights				
Polity 2	Polity IV	650	-0.36	0.22
Political Rights (Index 1 to 7)	Freedom House	796	4.61	0.07
Civil Liberties (Index 1 to 7)	Freedom House	796	4.40	0.05
Internal Conflict	CIRI	544	7.64	0.11
Ethnic Tension	CIRI	544	3.04	0.05
Women Economic Rights	CIRI	586	1.01	0.02
Physical Integrity	CIRI	606	4.21	0.09
Disappearance	CIRI	606	1.59	0.03
Torture	CIRI	606	0.55	0.03
Political Terror Amnesty International	Amnesty International	563	3.10	0.05
Political Terror U.S. State Department	U.S. State Department	684	2.89	0.04

Constant USD is used as the measure for GDP, exports and expenditures.

Table 1B: Index Values for Kenya and Sudan

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Country Name	Polity 2	Pol Rights	Civ Lib	Democratic Account	Internal Conflict	Ethnic Tensions	Women Econ	Physical Integrity	Disappear	Torture	Pol Ter Amnest	Pol Ter U.S.
Sudan	-7	7	7	4	2	0	0	0	2	0	5	5
Kenya	-2	6	5	8	3	2	1	2	0	0	3	3

Table 2: The Correlation between Exporting NR to China and Outcomes

	Dependent Variables							
	Economic Outcomes			Political and Human Rights Outcomes				
	LGDP (1)	Value Added (2)	Roads (3)	Polity2 (4)	Pol Rights (5)	Civ Lib (6)	Torture (7)	Pol Ter U.S. (8)
A. OLS No Country FE								
China NR Exp	0.047 (0.052)	0.042 (0.014)	0.028 (0.020)	-0.106 (0.074)	0.045 (0.023)	0.041 (0.017)	-0.014 (0.006)	0.043 (0.012)
World NR Exp	-0.173 (0.089)	0.211 (0.040)	0.164 (0.034)	-0.110 (0.161)	0.070 (0.048)	0.047 (0.030)	-0.038 (0.021)	0.065 (0.028)
Observations	661	684	341	580	705	705	544	599
B. OLS Country FE								
China NR Exp	0.056 (0.060)	0.010 (0.004)	-0.006 (0.005)	-0.050 (0.041)	0.010 (0.012)	0.008 (0.009)	0.001 (0.004)	0.014 (0.007)
World NR Exp	0.050 (0.184)	0.031 (0.010)	0.008 (0.005)	-0.128 (0.110)	0.040 (0.030)	0.023 (0.017)	0.001 (0.014)	0.011 (0.019)
Observations	661	684	341	580	705	705	544	599

Standard errors clustered at country level.

All regressions control for year fixed effects.

Table 3: First Stage Estimates of the Effect of China's Demand for NR on NR Exports to China and the Effect of the World's Demand for NR on NR Exports to the World

Dependent Variables	China NR	World NR		China NR	World NR
	Exp	Exp		Exp	Exp
	(1A)	(2A)		(1B)	(2B)
cgdp_eal	18.40 (10.27)	-4.65 (3.96)	lgdpw_e_al	-58.85 (27.15)	9.51 (13.17)
cgdp_ecob	-26.83 (9.89)	2.10 (2.53)	lgdpw_e_cob	72.91 (29.94)	-4.98 (10.11)
cgdp_ecu	-27.74 (10.75)	-9.87 (4.28)	lgdpw_e_cu	109.45 (34.50)	31.03 (16.50)
cgdp_efe	3.96 (6.50)	3.95 (2.53)	lgdpw_e_fe	-9.30 (22.58)	-15.55 (9.76)
cgdp_emg	-40.21 (14.43)	1.39 (6.90)	lgdpw_e_mg	147.51 (41.66)	-10.26 (23.23)
cgdp_eng	45.24 (13.99)	8.38 (6.10)	lgdpw_e_ng	-151.82 (41.75)	-28.82 (21.12)
cgdp_eni	84.68 (15.10)	7.69 (5.64)	lgdpw_e_ni	-284.66 (48.11)	-25.64 (20.31)
cgdp_eoi	-16.68 (10.31)	-3.46 (3.89)	lgdpw_e_oi	71.64 (31.74)	12.76 (15.76)
cgdp_epb	65.48 (13.09)	2.33 (4.96)	lgdpw_e_pb	-229.11 (41.36)	-10.86 (17.99)
cgdp_ept	-0.57 (21.06)	8.97 (10.32)	lgdpw_e_pt	-40.54 (68.00)	-29.57 (38.63)
cgdp_esn	-14.29 (10.31)	1.46 (3.23)	lgdpw_e_sn	56.87 (33.62)	-7.18 (12.42)
cgdp_eti	-36.30 (12.03)	-3.51 (4.91)	lgdpw_e_ti	113.18 (31.62)	10.38 (15.82)
cgdp_eur	10.84 (9.69)	-5.08 (4.73)	lgdpw_e_ur	-65.78 (30.35)	19.34 (16.23)
cgdp_ew	86.75 (25.57)	6.09 (9.10)	lgdpw_e_w	-269.89 (76.76)	-22.42 (31.53)
cgdp_ezi	19.50 (20.98)	8.51 (8.55)	lgdpw_e_zi	-103.82 (63.22)	-27.24 (30.04)
cgdp_ecr	-47.77 (14.89)	-12.24 (8.15)	lgdpw_e_ta	278.34 (51.81)	45.66 (24.83)
cgdp_eta	-82.30 (17.67)	-13.19 (7.31)	lgdpw_e_cr	167.10 (49.21)	41.63 (31.73)
Observations				705	705
F Statistic				97.36	4.21

Standard errors clustered at country level.

All regressions control for country and year fixed effects.

Table 4: The Effect of Exporting Natural Resources to China and the World on Economic Outcomes

	Dependent Variables										
	LGDP (1)	LGDP3 (2)	LGDP5 (3)	Capital (4)	Gov Con (5)	VA (6)	VAGDP (7)	Manu (8)	Labor (9)	Health (10)	Road (11)
A. OLS											
China NR Exp	0.056 (0.060)	0.332 (0.222)	0.423 (0.271)	0.115 (0.080)	0.005 (0.039)	0.010 (0.004)	0.317 (0.125)	-0.001 (0.027)	0.001 (0.018)	-0.003 (0.004)	-0.006 (0.005)
World NR Exp	0.050 (0.184)	0.202 (0.525)	0.352 (0.876)	0.265 (0.403)	0.048 (0.191)	0.031 (0.010)	0.730 (0.205)	0.141 (0.127)	-0.015 (0.048)	0.005 (0.008)	0.008 (0.005)
Observations	661	573	485	666	657	684	684	652	688	220	341
B. IV with NR Existence * Chinese GDP											
China NR Exp	0.230 (0.121)	0.740 (0.428)	1.171 (0.825)	0.666 (0.296)	0.171 (0.120)	0.021 (0.008)	0.564 (0.217)	0.027 (0.093)	-0.096 (0.055)	-0.005 (0.008)	-0.009 (0.014)
World NR Exp	0.355 (0.688)	1.042 (2.244)	-0.531 (2.718)	0.313 (1.243)	-0.530 (0.557)	0.057 (0.038)	2.186 (1.029)	0.643 (0.657)	0.043 (0.279)	-0.025 (0.046)	0.035 (0.033)
Observations	661	573	485	666	657	684	684	652	688	220	341

Standard errors clustered at country level.

All regressions control for country and year fixed effects.

Table 5: The Effect of Exporting Natural Resources to China and the World on Political and Human Rights Outcomes

	Dependent Variables										
	Polity 2 (1)	Pol Rights (2)	Civ Lib (3)	Democratic Account (4)	Internal Conflict (5)	Ethnic Tensions (6)	Women Econ (7)	Physical Integrity (8)	Disappear (9)	Torture (10)	Pol Ter U.S. (11)
A. OLS											
China NR Exp	-0.050 (0.041)	0.010 (0.012)	0.008 (0.009)	-0.001 (0.010)	-0.024 (0.023)	-0.005 (0.009)	-0.001 (0.002)	-0.002 (0.013)	-0.004 (0.005)	0.001 (0.004)	0.014 (0.007)
World NR Exp	-0.128 (0.110)	0.040 (0.030)	0.023 (0.017)	0.081 (0.039)	0.122 (0.102)	0.029 (0.043)	-0.010 (0.011)	0.017 (0.039)	0.006 (0.019)	0.001 (0.014)	0.011 (0.019)
Observations	580	705	705	490	490	490	529	544	544	544	599
B. IV with NR Existence * Chinese GDP and NR Existence * World GDP											
China NR Exp	0.036 (0.113)	-0.013 (0.036)	0.002 (0.029)	0.015 (0.038)	-0.164 (0.079)	-0.043 (0.031)	0.019 (0.009)	-0.060 (0.037)	-0.021 (0.012)	-0.022 (0.010)	0.045 (0.016)
World NR Exp	-1.358 (0.620)	0.451 (0.207)	0.279 (0.154)	0.034 (0.131)	0.002 (0.402)	0.104 (0.164)	-0.027 (0.035)	0.044 (0.220)	0.045 (0.082)	0.006 (0.060)	-0.017 (0.075)
Observations	580	705	705	490	490	490	529	544	544	544	599

Standard errors clustered at country level.

All regressions control for country and year fixed effects.

Note: For Physical Integrity, Disappearance and Torture indices, higher values reflect *better* outcomes. For Political Terror indices, higher values reflect worse outcomes.

Table 6: The Effects of Exporting NR to China and Exporting NR to the U.S. and Outcomes

	Dependent Variables												
	LGDP (1)	LGDP3 (2)	Capital (3)	VAGDP (4)	Manu (5)	Labor (6)	Polity 2 (7)	Demo Account (8)	Internal Conflict (9)	Women Econ (10)	Physical Integrity (11)	Torture (12)	Pol Ter U.S. (13)
A. OLS													
China NR Exp	0.046 (0.056)	0.297 (0.201)	0.112 (0.082)	0.299 (0.120)	0.000 (0.026)	0.001 (0.018)	-0.046 (0.042)	-0.004 (0.009)	-0.026 (0.023)	-0.001 (0.002)	-0.001 (0.013)	0.001 (0.004)	0.014 (0.007)
U.S. NR Exp	0.116 (0.095)	0.462 (0.272)	0.046 (0.104)	0.183 (0.078)	-0.021 (0.022)	0.004 (0.014)	-0.032 (0.041)	0.038 (0.014)	0.030 (0.025)	-0.005 (0.006)	-0.007 (0.020)	0.002 (0.007)	-0.004 (0.008)
World NR Exp	-0.017 (0.152)	-0.022 (0.432)	0.237 (0.364)	0.621 (0.171)	0.152 (0.121)	-0.017 (0.049)	-0.109 (0.119)	0.063 (0.040)	0.108 (0.104)	-0.008 (0.011)	0.022 (0.037)	0.000 (0.014)	0.013 (0.020)
Observations	661	573	666	684	652	688	580	490	490	529	544	544	599
B. IV with NR Existence * Chinese GDP and NR Existence * U.S. GDP and NR Existence * World GDP													
China NR Exp	0.175 (0.120)	0.724 (0.424)	0.528 (0.250)	0.439 (0.197)	0.008 (0.071)	-0.083 (0.043)	0.032 (0.100)	0.002 (0.024)	-0.143 (0.062)	0.017 (0.007)	-0.044 (0.035)	-0.018 (0.009)	0.043 (0.015)
U.S. NR Exp	-0.089 (0.130)	0.232 (0.424)	0.019 (0.326)	0.164 (0.256)	-0.015 (0.110)	-0.035 (0.069)	-0.042 (0.167)	0.155 (0.047)	0.111 (0.129)	-0.016 (0.015)	-0.085 (0.062)	-0.023 (0.020)	0.032 (0.029)
World NR Exp	0.323 (0.607)	0.611 (2.185)	0.095 (1.118)	1.631 (0.935)	0.522 (0.584)	0.053 (0.211)	-1.116 (0.628)	0.149 (0.126)	0.118 (0.311)	-0.033 (0.033)	0.153 (0.194)	0.029 (0.055)	-0.054 (0.075)
Observations	661	573	666	684	652	688	580	490	490	529	544	544	599

Standard errors clustered at country level.

All regressions control for country and year fixed effects.

Table 7: The Effects of Exporting NR to China and Exporting NR to India on Outcomes

	Dependent Variables												
	LGDP (1)	LGDP3 (2)	Capital (3)	VAGDP (4)	Manu (5)	Labor (6)	Polity 2 (7)	Demo Account (8)	Internal Conflict (9)	Women Econ (10)	Physical Integrity (11)	Torture (12)	Pol Ter U.S. (13)
A. OLS													
China NR Exp	0.056 (0.060)	0.332 (0.221)	0.114 (0.080)	0.315 (0.125)	0.001 (0.026)	0.001 (0.018)	-0.051 (0.041)	-0.002 (0.010)	-0.026 (0.023)	-0.001 (0.002)	-0.002 (0.013)	0.001 (0.004)	0.014 (0.007)
India NR Exp	0.004 (0.067)	-0.120 (0.146)	-0.082 (0.083)	-0.076 (0.120)	0.100 (0.045)	-0.009 (0.017)	0.085 (0.043)	0.005 (0.016)	0.028 (0.033)	-0.006 (0.004)	0.002 (0.016)	0.006 (0.005)	0.003 (0.008)
World NR Exp	0.050 (0.183)	0.196 (0.519)	0.260 (0.399)	0.723 (0.199)	0.149 (0.118)	-0.016 (0.048)	-0.118 (0.107)	0.081 (0.040)	0.122 (0.102)	-0.011 (0.011)	0.017 (0.039)	0.001 (0.014)	0.011 (0.019)
Observations	661	573	666	684	652	688	580	490	490	529	544	544	599
B. IV with NR Existence * Chinese GDP and NR Existence * Indian GDP and NR Existence * World GDP													
China NR Exp	0.369 (0.195)	0.888 (0.504)	0.527 (0.212)	0.496 (0.192)	0.035 (0.061)	-0.073 (0.049)	0.000 (0.105)	0.000 (0.026)	-0.132 (0.055)	0.015 (0.007)	-0.053 (0.034)	-0.019 (0.008)	0.032 (0.016)
India NR Exp	0.123 (0.188)	0.185 (0.467)	0.044 (0.225)	0.037 (0.329)	0.276 (0.156)	-0.047 (0.047)	0.280 (0.120)	0.034 (0.042)	0.105 (0.072)	-0.014 (0.009)	0.072 (0.042)	0.020 (0.011)	-0.019 (0.021)
World NR Exp	0.222 (0.648)	0.466 (1.699)	-0.187 (1.027)	2.150 (0.904)	0.565 (0.467)	-0.021 (0.234)	-1.087 (0.590)	0.092 (0.127)	0.073 (0.381)	-0.019 (0.034)	0.024 (0.203)	0.023 (0.054)	0.005 (0.079)
Observations	661	573	666	684	652	688	580	490	490	529	544	544	599

Standard errors clustered at country level.

All regressions control for country and year fixed effects.

APPENDIX Table A1: Average Natural Resource Production during 1990-2000 by Country

Country	Resource																				
	Silver	Alum	Gold	Cobalt	Coltan	Copper	Diam	Iron	Magn	N.Gas	Nickel	Oil	Pallad	Lead	Pho	Plat	Tin	Tit	Ur	Tung	Zinc
Angola							4928			1611		331372									
Benin			75									847									
Botswana			836	299	932	27	25443				28260										
Burkina Faso			1849												1						
Burundi			162														2			22	
Cameroon			973				12					38320					3				
C. African Rep.			59				431														
Chad			124									66									
Congo			11				5					8187									
Côte d'Ivoire			32				232			180		6419									
D.R. Congo	29967		2713	8248	17	127	21486			5		9317					54			17	2914
Equ. Guinea			286							874		56788									
Eritrea			96																		
Ethiopia	178		4194							1											
Gabon			137				1	944	111			115330							689		
Ghana	347	623	6323				98	242				2833									
Guinea		15425	1369				389														
Kenya			897																93		
Lesotho							82														
Liberia			42				99	249													
Madagascar			54																		
Malawi					73																
Mali	26		34732												2						
Mauritania			1499			3		767													
Mozambique		9	885		31					69									4		
Namibia	34552		2447			22	1531							13773			9		2733		46772
Niger			117		165												2		314		
Nigeria			32		25			177		3424		89136		155			1172				
Rwanda			371														37			128	
Senegal			583							7		3			618						
Sierra Leone		1315	33				326												58		
South Africa	13347		414423	46	22254	145	11725	2232	153	1963	3726	14131	63543	6367	146	1375	114	937	1368		586
Sudan			4390							1		15675									
Swaziland					24																
Togo															550						
Uganda			332	44				2										29		43	
Tanzania	7478		2936		75	3	29	14		72					4		9				
Zambia	9431		315	7778	3	385								9			1				
Zimbabwe	6650		16496	14	3853	6	177	272			135		1624		28	275	377				1

Table A2: First Stage Estimates of the Effect of China's Demand for NR on NR Exports to China, the Effect of the U.S.'s Demand for NR on NR Exports to the U.S., and the Effect of the World's Demand for NR on NR Exports to the World

	Dependent Variables										
	China (1A)	U.S. (2A)	World (3A)		China (1B)	U.S. (2B)	World (3B)		China (1C)	U.S. (2C)	World (3C)
cgdp_eal	27.60 (11.48)	-0.56 (6.34)	-2.73 (3.59)	us_lgdp_eal	-164.98 (54.67)	-41.84 (37.54)	-34.86 (15.88)	lgdpw_e_al	93.48 (53.18)	42.88 (45.47)	41.85 (24.84)
cgdp_ecob	-22.77 (8.00)	-17.95 (15.32)	1.64 (2.66)	us_lgdp_ecob	-99.99 (62.74)	46.29 (46.15)	6.53 (16.30)	lgdpw_e_cob	173.92 (82.37)	32.92 (90.48)	-10.27 (17.90)
cgdp_ecu	-17.04 (12.53)	8.04 (14.61)	-6.95 (4.09)	us_lgdp_ecr	-17.29 (55.33)	34.51 (31.78)	0.87 (14.17)	lgdpw_e_cu	269.89 (80.98)	162.18 (126.85)	74.65 (38.60)
cgdp_efe	9.99 (6.54)	7.77 (13.28)	5.22 (3.02)	us_lgdp_ecu	-177.64 (82.95)	-198.83 (88.85)	-48.28 (32.67)	lgdpw_e_fe	100.18 (47.41)	83.18 (80.41)	10.22 (14.29)
cgdp_emg	-59.49 (14.82)	-8.76 (12.34)	-0.90 (6.30)	us_lgdp_efe	-116.98 (37.53)	-90.58 (41.97)	-27.05 (18.38)	lgdpw_e_mg	-171.35 (98.42)	-224.86 (99.13)	-50.88 (44.33)
cgdp_eng	37.95 (14.17)	16.11 (11.07)	6.51 (5.95)	us_lgdp_emg	345.87 (90.06)	236.99 (74.20)	43.48 (28.95)	lgdpw_e_ng	-253.59 (74.29)	-238.83 (85.59)	-56.92 (31.81)
cgdp_eni	75.09 (15.26)	66.45 (24.27)	6.90 (6.01)	us_lgdp_eng	115.33 (62.95)	172.18 (60.66)	31.24 (17.83)	lgdpw_e_ni	-708.14 (134.81)	392.64 (173.43)	-62.56 (37.46)
cgdp_eoi	-14.38 (8.93)	5.51 (6.57)	-0.50 (3.45)	us_lgdp_eoi	442.31 (121.94)	-715.54 (127.88)	39.03 (34.64)	lgdpw_e_oi	110.57 (78.83)	178.12 (85.20)	62.06 (34.05)
cgdp_epb	62.31 (14.28)	23.95 (17.35)	2.84 (5.20)	us_lgdp_eoi	-41.95 (59.61)	-182.26 (69.58)	-53.35 (24.53)	lgdpw_e_pb	-316.82 (67.41)	60.06 (112.72)	-4.73 (25.41)
cgdp_ept	-5.70 (21.90)	-79.27 (26.09)	8.89 (10.89)	us_lgdp_epb	85.43 (66.02)	-138.68 (78.17)	-7.32 (21.17)	lgdpw_e_pt	122.85 (140.32)	-493.54 (178.67)	-6.99 (47.06)
cgdp_esn	-27.52 (12.47)	-18.38 (8.93)	0.35 (2.76)	us_lgdp_ept	-165.04 (121.64)	860.71 (131.31)	-23.56 (39.38)	lgdpw_e_sn	-154.19 (51.60)	-202.25 (74.21)	-25.16 (26.30)
cgdp_eti	-36.92 (12.44)	-4.85 (6.39)	-1.84 (4.22)	us_lgdp_esn	230.69 (62.20)	248.38 (69.70)	19.57 (18.30)	lgdpw_e_ti	107.36 (55.37)	95.20 (46.90)	38.78 (31.82)
cgdp_eur	32.20 (10.32)	-13.35 (10.67)	-3.02 (4.01)	us_lgdp_eta	-176.75 (62.61)	29.32 (74.62)	-13.40 (17.63)	lgdpw_e_ur	258.17 (72.04)	281.17 (80.46)	50.68 (37.39)
cgdp_ew	83.85 (25.07)	56.86 (24.08)	6.56 (9.12)	us_lgdp_eti	7.22 (46.26)	-78.72 (43.89)	-30.65 (19.05)	lgdpw_e_w	-310.45 (139.34)	68.77 (155.02)	-13.11 (39.57)
cgdp_ezi	17.21 (19.51)	-15.67 (24.77)	6.36 (8.69)	us_lgdp_eur	-358.94 (69.44)	-218.57 (65.52)	-34.80 (28.32)	lgdpw_e_zi	-191.14 (128.84)	-155.88 (161.94)	-58.68 (51.16)
cgdp_ecr	-46.35 (17.22)	-6.62 (11.76)	-12.19 (8.67)	us_lgdp_ew	45.92 (113.46)	-256.01 (102.82)	-9.69 (21.83)	lgdpw_e_ta	436.57 (80.24)	23.77 (105.91)	57.00 (33.20)
cgdp_eta	-71.45 (17.52)	-17.96 (13.75)	-12.22 (7.25)	us_lgdp_ezi	78.56 (98.16)	211.35 (96.45)	33.86 (44.06)	lgdpw_e_cr	180.70 (29.37)	-18.80 (65.64)	40.30 (26.25)
								Observations	705	705	705
								F-Statistic	269.79	9.9	14.55

All regressions control for country and year fixed effects.
Standard errors are clustered at the country level.

Table A3: First Stage Estimates of the Effect of China's Demand for NR on NR Exports to China, the Effect of the U.S.'s Demand for NR on NR Exports to India, and the Effect of the World's Demand for NR on NR Exports to the World

	Dependent Variables										
	China	India	World		China	India	World	China	India	World	
	(1A)	(2A)	(3A)		(1B)	(2B)	(3B)	(1C)	(2C)	(3C)	
cgdp_eal	20.09 (11.41)	-23.47 (16.73)	-4.82 (4.23)	ind_lgdp_eal	-24.07 (29.74)	-41.78 (51.25)	2.67 (7.38)	lgdpw_e_al	-29.68 (48.80)	173.61 (59.92)	6.22 (16.40)
cgdp_ecob	-32.59 (10.18)	-46.22 (11.00)	1.86 (2.49)	ind_lgdp_ecob	40.87 (38.45)	-40.32 (38.59)	1.42 (10.20)	lgdpw_e_cob	8.22 (82.39)	230.74 (60.36)	-6.36 (23.92)
cgdp_ecu	-35.20 (10.01)	45.51 (9.17)	-11.41 (4.98)	ind_lgdp_ecr	78.39 (82.20)	26.41 (16.69)	-3.28 (12.71)	lgdpw_e_cu	-109.84 (149.26)	-208.17 (62.01)	-9.90 (32.17)
cgdp_efe	-3.97 (6.30)	-4.76 (5.01)	2.92 (2.24)	ind_lgdp_ecu	106.48 (69.99)	18.13 (31.67)	23.07 (18.90)	lgdpw_e_fe	-203.68 (60.41)	118.24 (51.79)	-37.14 (23.95)
cgdp_emg	-32.08 (16.49)	41.95 (16.35)	2.20 (8.03)	ind_lgdp_efe	102.47 (27.52)	-45.73 (27.27)	12.31 (9.91)	lgdpw_e_mg	372.07 (111.64)	-322.32 (73.38)	7.73 (26.10)
cgdp_eng	49.33 (14.98)	-5.36 (10.56)	10.15 (6.91)	ind_lgdp_emg	-111.86 (61.57)	87.71 (47.56)	-10.77 (19.31)	lgdpw_e_ng	-11.02 (96.75)	-84.18 (59.79)	17.98 (18.44)
cgdp_eni	28.18 (17.84)	138.18 (19.71)	9.26 (6.57)	ind_lgdp_eng	-72.94 (47.95)	44.57 (27.83)	-25.08 (14.12)	lgdpw_e_ni	-668.72 (160.47)	213.32 (107.93)	11.23 (42.48)
cgdp_eoi	-18.03 (12.41)	-1.37 (7.99)	-4.80 (4.63)	ind_lgdp_eni	209.98 (79.70)	254.27 (61.27)	-20.27 (22.04)	lgdpw_e_oi	29.47 (83.27)	103.13 (42.49)	-18.78 (23.58)
cgdp_epb	70.77 (12.17)	-0.32 (14.64)	2.93 (5.33)	ind_lgdp_eoi	11.27 (48.44)	-48.29 (25.13)	18.47 (15.94)	lgdpw_e_pb	-178.14 (167.03)	-27.73 (63.99)	-1.27 (25.68)
cgdp_ept	76.61 (22.06)	-140.76 (31.08)	7.13 (10.83)	ind_lgdp_epb	-32.21 (77.41)	5.43 (40.89)	-6.05 (11.99)	lgdpw_e_pt	833.77 (219.79)	-259.85 (140.46)	-76.76 (59.64)
cgdp_esn	-3.33 (8.06)	10.66 (11.80)	2.15 (4.00)	ind_lgdp_ept	-466.39 (102.20)	282.96 (68.06)	24.20 (19.87)	lgdpw_e_sn	348.46 (149.96)	-85.57 (32.98)	10.93 (15.20)
cgdp_eti	-39.11 (14.00)	33.11 (17.90)	-3.86 (5.45)	ind_lgdp_esn	-156.84 (67.35)	24.70 (25.22)	-9.67 (12.25)	lgdpw_e_ti	47.17 (50.74)	-179.24 (62.48)	3.26 (14.58)
cgdp_eur	3.07 (9.91)	-25.42 (12.78)	-5.32 (5.48)	ind_lgdp_eta	96.58 (84.36)	-70.15 (33.24)	22.68 (13.02)	lgdpw_e_ur	-339.35 (113.54)	384.73 (44.31)	10.13 (24.21)
cgdp_ew	86.65 (25.42)	-15.23 (22.42)	8.21 (9.78)	ind_lgdp_eti	30.27 (36.46)	29.60 (54.58)	4.63 (8.64)	lgdpw_e_w	-263.28 (236.74)	-20.52 (110.56)	31.88 (36.78)
cgdp_ezi	26.98 (21.89)	-12.57 (19.29)	8.52 (9.04)	ind_lgdp_eur	131.54 (55.87)	148.56 (30.86)	5.68 (15.70)	lgdpw_e_zi	-47.69 (156.09)	-418.91 (96.53)	-31.75 (53.58)
cgdp_ecr	-52.76 (10.28)	8.73 (23.19)	-11.96 (7.62)	ind_lgdp_ew	-9.96 (110.51)	15.69 (70.15)	-28.51 (17.19)	lgdpw_e_ta	88.96 (172.30)	128.88 (73.65)	3.73 (23.65)
cgdp_eta	-88.22 (18.41)	8.60 (12.20)	-14.72 (7.96)	ind_lgdp_ezi	-22.17 (78.48)	225.05 (52.31)	-0.71 (25.91)	lgdpw_e_cr	20.47 (192.37)	-77.33 (86.76)	47.25 (51.16)
								Observations	705	705	705
								F-Statistic	65.25	109.09	4.4

Standard errors clustered at country level.

All regressions control for country and year fixed effects.

Data Appendix

Economic Data

Trade Data

Exports and Imports by SITC Rev2, current US Dollars from UNCTAD's COMTRADE database

Source: <http://comtrade.un.org/>

GDP and Government Spending Data

GDP and GDP per capita growth, Government Health Spending, and Government Education Spending from World Development Indicators, World Bank.

Paved Roads

Length of Paved Road, kilometers.

Source: World Development Indicators and Canning, David, "A Database of World Stocks of Infrastructure: 1950-1995," The World Bank Economic Review, 1998, Vol. 12(3), pp 529-548. Updated database at <http://www.hsph.harvard.edu/faculty/david-canning/data-sets/>

Natural Resource Data

Mineral Ore Production Data, US Geological Survey

Volumes of minerals.

Source: All minerals: <http://minerals.usgs.gov/minerals/>, African Mineral Yearbooks, various issues: <http://minerals.usgs.gov/minerals/pubs/country/africa.html>

Consumption Data

World Metal Statistics Yearbook, various issues, World Bureau of Metal Statistics,. 2005 values from Streifel, Shane, 2006, "Impact of China and India on Global Commodity Markets

Focus on Metals & Minerals and Petroleum",

<http://siteresources.worldbank.org/INTCHIINDGLOECO/Resources/ChinaIndiaCommodityImpact.pdf>

Political and Human Rights Data

The indicators on Political outcomes and Human rights are from the Quality of Government Institute at Göteborg University, <http://www.qog.pol.gu.se/>. Below are brief descriptions of each of the variables used along with the original sources. In addition, examples of values for China, the United States and Zambia are provided.

Political Terror (US State Dept)

Human rights score (1 to 5 scale)

- Level 1: Countries under a secure rule of law, people are not imprisoned for their view, and torture is rare and exceptional. Political murders are extremely rare.
- Level 2: There is a limited amount of imprisonment for nonviolent political activity. However, few persons are affected, torture and beatings are exceptional. Political murder is rare.
- Level 3: There is extensive political imprisonment, or a recent history of such imprisonment. Execution or political murders and brutality may be common. Unlimited detention, with or without trial, for political view is accepted.
- Level 4: The practices of level 3 are expanded to larger number. Murders, disappearances, and torture are a common part of life. In spite of its generality, on this level terror affects those who interest themselves in politics or ideas.
- Level 5: – The terrors of level 4 have been expanded to the whole population. The leaders of these societies place no limits on the means or thoroughness with which they pursue personal or ideological goals.

Examples of values in 2005 (State Dept): China (4), the United States (n/a), Zambia. (3)

Source: <http://www.unca.edu/politicalscience/images/Colloquium/faculty-staff/gibney.html>,

<http://www.unca.edu/politicalscience/DOCS/Gibney/Gibney%20and%20Dalton.pdf>

Freedom House Political Rights, Civil Liberties Indices

Raw Points – The ratings process is based on a checklist of 10 political rights questions and 15 civil liberties questions. The political rights questions are grouped into the three sub-categories: Electoral Process (3 questions), Political Pluralism and Participation (4), and Functioning of Government (3). The civil liberties questions are grouped into four sub-categories: Freedom of Expression and Belief (4 questions), Associational and Organizational Rights (3), Rule of Law (4), and Personal Autonomy and Individual Rights (4). Raw points are awarded to each of these questions on a scale of 0 to 4, where 0 points represents the smallest degree and 4 the greatest degree of rights or liberties present. The political rights section also contains two additional discretionary questions: question A (For traditional monarchies that have no parties or electoral process, does the system provide for genuine, meaningful consultation with the people, encourage public discussion of policy choices, and allow the right to petition the ruler?) and question B (Is the government or occupying power deliberately changing the ethnic composition of a country or territory so as to destroy a culture or tip the political balance in favor of another group?). For additional discretionary question A, 1 to 4 points may be added, as applicable, while for discretionary question B, 1 to 4 points may be subtracted (the worse the situation, the more points that may be subtracted). The highest number of points that can be awarded to the political rights checklist is 40 (or a total of up to 4 points for each of the 10 questions). The highest number of points that can be awarded to the civil liberties checklist is 60 (or a total of up to 4 points for each of the 15 questions).

The raw points from the previous survey edition are used as a benchmark for the current year under review. In general, a change in raw points is made only if there has been a real world development during the year that warrants a change (e.g., a crackdown on the

media, the country's first free and fair elections) and is reflected accordingly in the narrative.

In answering both the political rights and civil liberties questions, Freedom House does not equate constitutional or other legal guarantees of rights with the on-the-ground fulfillment of these rights. While both laws and actual practices are factored into the ratings decisions, greater emphasis is placed on the latter.

In addition, for states and territories with small populations, the absence of pluralism in the political system or civil society is not necessarily viewed as a negative situation unless the government or other centers of domination are deliberately blocking its establishment or operation. For example, a small country without diverse political parties or media outlets or significant trade unions are not penalized if these limitations are determined to be a function of size and not overt restrictions.

Political Rights and Civil Liberties Ratings – The total number of points awarded to the political rights and civil liberties checklists determines the political rights and civil liberties ratings. Each rating of 1 through 7, with 1 representing the highest and 7 the lowest level of freedom corresponds to a range of total points.

Examples of values in 2005 (Political Rights): China (7), the United States (1), Zambia. (4)

Examples of values in 2005 (Civil Liberties): China (6), the United States (1), Zambia. (4)

Source: <http://www.freedomhouse.org>

Physical integrity Rights Index

This is an additive index constructed from the Torture, Extrajudicial Killing, Political Imprisonment, and Disappearance indicators. It ranges from 0 (no government respect for these four rights) to 8 (full government respect for these four rights). Details on its construction and use can be found in: David L. Cingranelli and David L. Richards. 1999. "Measuring the Level, Pattern, and Sequence of Government Respect for Physical Integrity Rights." *International Studies Quarterly*, Vol 43.2: 407-18.

Examples of values in 2005: China (1), the United States (5), Zambia. (4)

Source: CIRI Human Rights, <http://ciri.binghamton.edu/>

Disappearance

Disappearances are cases in which people have disappeared, political motivation appears likely, and the victims have not been found. Knowledge of the whereabouts of the disappeared is, by definition, not public knowledge. However, while there is typically no way of knowing where victims are, it is typically known by whom they were taken and under what circumstances. A score of 0 indicates that disappearances have occurred frequently in a given year; a score of 1 indicates that disappearances occasionally occurred; and a score of 2 indicates that disappearances did not occur in a given year.

Examples of values in 2005: China (1), the United States (1), Zambia. (2)

Source: CIRI Human Rights, <http://ciri.binghamton.edu/>

Extrajudicial killing

Extrajudicial killings are killings by government officials without due process of law. They include murders by private groups if instigated by government. These killings may result from the deliberate, illegal, and excessive use of lethal force by the police, security forces, or other agents of the state whether against criminal suspects, detainees, prisoners, or others. A score of 0 indicates that extrajudicial killings were practiced frequently in a given year; a score of 1 indicates that extrajudicial killings were practiced occasionally; and a score of 2 indicates that such killings did not occur in a given year.

Examples of values in 2005: China (0), the United States (1), Zambia. (1)

Source: CIRI Human Rights, <http://ciri.binghamton.edu/>

Political Imprisonment

Political imprisonment refers to the incarceration of people by government officials because of: their speech; their non-violent opposition to government policies or leaders; their religious beliefs; their non-violent religious practices including proselytizing; or their membership in a group, including an ethnic or racial group. A score of 0 indicates that there were many people imprisoned because of their religious, political, or other beliefs in a given year; a score of 1 indicates that a few people were imprisoned; and a score of 2 indicates that no persons were imprisoned for any of the above reasons in a given year.

Examples of values in 2005: China (0), the United States (2), Zambia. (1)

Source: CIRI Human Rights, <http://ciri.binghamton.edu/>

Torture

Torture refers to the purposeful inflicting of extreme pain, whether mental or physical, by government officials or by private individuals at the instigation of government officials. Torture includes the use of physical and other force by police and prison guards that is cruel, inhuman, or degrading. This also includes deaths in custody due to negligence by government officials. A score of 0 indicates that torture was practiced frequently in a given year; a score of 1 indicates that torture was practiced occasionally; and a score of 2 indicates that torture did not occur in a given year.

Examples of values in 2005: China (0), the United States (1), Zambia. (0)

Source: CIRI Human Rights, <http://ciri.binghamton.edu/>