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Appendices

A. Additional Tables

Table A1: Summary Statistics for Model 2 & 4 in Table 4

	(1) N	(2) Mean	(3) SD	(4) Min	(5) Max
ACLED Conflict	170,646	0.076	0.266	0	1
Natural Resource Value in Cell (Time Lag/Log)	162,315	0.488	3.091	0	35.076
Resources 1st Order Spatial Lag	170,646	2.556	6.766	0	35.971
Resources 2nd Order Spatial Lag	170,646	5.199	9.305	0	37.330
Presence of Lootable Resources	170,646	0.015	0.122	0	1
Number of Excluded Ethnic Groups	170,646	0.335	0.619	0	5
Nighttime Lights	154,394	0.041	0.027	0.014	0.806
V-Dem Democracy Index	170,646	0.397	0.192	0.093	0.851
Mean Population Density					
Spatially Lagged Conflict Measure	162,520	0.275	0.446	0	1
Natural Resource Value w/ Instrumented Country-Specific Price					

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A2: Main Spatial HAC and 2SLS IV Model Results for ACLED Outcome on SSA and NA (Three-Way Fixed Effects)

	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4
Natural Resource Value in Cell (Time Lag/Log)	0.0041***	0.0028***		
	(0.0004)	(0.0004)		
Resources 1st Order Spatial Lag		0.0006***		0.0003
		(0.0002)		(0.0002)
Resources 2nd Order Spatial Lag		0.0000		0.0000
		(0.0001)		(0.0001)
Presence of Lootable Resources		0.0102		-0.0670***
		(0.0100)		(0.0164)
Number of Excluded Ethnic Groups		-0.0021		0.0032
		(0.0039)		(0.0034)
Nighttime Lights		-0.4819***		0.3954***
		(0.1359)		(0.0549)
V-Dem Democracy Index		0.7152		0.0452***
		(140.6154)		(0.0120)
Spatially Lagged Conflict Measure		0.0330***		0.0761***
		(0.0021)		(0.0024)
Natural Resource Value w/ Instrumented Country-Specific Price			0.0142***	0.0101***
			(0.0010)	(0.0013)
Constant			0.0657***	0.0071
			(0.0004)	(0.0047)
Observations	208815	187913	208815	187913
R^2	0.002	0.002		
Adjusted R^2	0.005	0.005		

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A3: Main Spatial HAC and 2SLS IV Model Results for UCDP Outcome on SSA and NA (Three-Way Fixed Effects)

	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4
Natural Resource Value in Cell (Time Lag/Log)	-0.0003 (0.0002)	-0.0002 (0.0002)		
Resources 1st Order Spatial Lag		-0.0003*** (0.0001)		-0.0003** (0.0001)
Resources 2nd Order Spatial Lag		-0.0001 (0.0001)		-0.0002* (0.0001)
Presence of Lootable Resources		-0.0018 (0.0065)		-0.0096 (0.0121)
Number of Excluded Ethnic Groups		0.0101*** (0.0029)		0.0077*** (0.0027)
Nighttime Lights		-0.1669 (0.1224)		-0.0151 (0.0390)
V-Dem Democracy Index		-0.2654 (135.6654)		-0.0455*** (0.0110)
Spatially Lagged Conflict Measure		0.0149*** (0.0016)		0.0264*** (0.0017)
Natural Resource Value w/ Instrumented Country-Specific Price			-0.0013** (0.0006)	-0.0007 (0.0009)
Constant			0.0294*** (0.0002)	0.0387*** (0.0044)
Observations	208815	187913	208815	187913
R^2	0.000	0.001		
Adjusted R^2	0.000	0.001		

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A4: Main Spatial HAC and 2SLS IV Model Results for UCDP Outcome on Middle East and North Africa (Three-Way Fixed Effects)

	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4
Natural Resource Value in Cell (Time Lag/Log)	0.0001 (0.0003)	-0.0001 (0.0003)		
Resources 1st Order Spatial Lag		-0.0001 (0.0002)		-0.0002 (0.0002)
Resources 2nd Order Spatial Lag		-0.0001 (0.0001)		0.0000 (0.0001)
Presence of Lootable Resources		-0.0032 (0.0087)		0.0153 (0.0146)
Number of Excluded Ethnic Groups		0.0989*** (0.0198)		-0.0034 (0.0173)
Nighttime Lights		-0.2328** (0.0932)		0.1277** (0.0565)
V-Dem Democracy Index		2.5725 (2.7e+03)		0.3922*** (0.0338)
Spatially Lagged Conflict Measure		-0.0013 (0.0044)		-0.0151*** (0.0047)
Natural Resource Value w/ Instrumented Country-Specific Price			0.0012 (0.0009)	-0.0011 (0.0010)
Constant			0.0437*** (0.0005)	-0.0507*** (0.0109)
Observations	99140	86072	99140	86072
R^2	0.000	0.005		
Adjusted R^2	-0.000	0.005		

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A5: Main Spatial HAC and 2SLS IV Model Results for UCDP Outcome on Asia (Three-Way Fixed Effects)

	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4
Natural Resource Value in Cell (Time Lag/Log)	-0.0006 (0.0005)	-0.0004 (0.0005)		
Resources 1st Order Spatial Lag		-0.0004 (0.0003)		-0.0001 (0.0004)
Resources 2nd Order Spatial Lag		0.0006*** (0.0002)		0.0009*** (0.0002)
Presence of Lootable Resources		-0.0189* (0.0099)		-0.0103 (0.0219)
Number of Excluded Ethnic Groups		-0.0426*** (0.0097)		-0.1025*** (0.0104)
Nighttime Lights		0.0538 (0.0478)		0.1352*** (0.0318)
V-Dem Democracy Index		0.5053 (15.4438)		-0.0514 (0.0314)
Spatially Lagged Conflict Measure		0.0119 (0.0100)		0.0039 (0.0076)
Natural Resource Value w/ Instrumented Country-Specific Price			-0.0021 (0.0021)	-0.0028 (0.0033)
Constant			0.0336*** (0.0006)	0.0935*** (0.0112)
Observations	125538	112957	125538	112957
R^2	0.000	0.001		
Adjusted R^2	0.000	0.001		

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A6: Main Spatial HAC and 2SLS IV Model Results for UCDP Outcome on Latin America (Three-Way Fixed Effects)

	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4
Natural Resource Value in Cell (Time Lag/Log)	-0.0004*	-0.0006**		
	(0.0002)	(0.0003)		
Resources 1st Order Spatial Lag		-0.0005***		-0.0004**
		(0.0001)		(0.0002)
Resources 2nd Order Spatial Lag		-0.0002*		-0.0002*
		(0.0001)		(0.0001)
Presence of Lootable Resources		0.0111**		0.0462**
		(0.0054)		(0.0187)
Number of Excluded Ethnic Groups		-0.0019		-0.0041**
		(0.0016)		(0.0016)
Nighttime Lights		0.3625***		0.0058
		(0.1251)		(0.0311)
V-Dem Democracy Index				-0.0170**
				(0.0073)
Spatially Lagged Conflict Measure				0.0000
				(.)
Natural Resource Value w/ Instrumented Country-Specific Price			-0.0012*	-0.0031**
			(0.0006)	(0.0013)
Constant			0.0163***	0.0352***
			(0.0004)	(0.0064)
Observations	158440	142398	158440	142398
R^2	0.000	0.001		
Adjusted R^2	0.000	0.001		

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A7: Main Spatial HAC and 2SLS IV Model Results for UCDP Outcome on Full Sample (Three-Way Fixed Effects)

	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4
Natural Resource Value in Cell (Time Lag/Log)	-0.0002*	-0.0003**		
	(0.0001)	(0.0001)		
Resources 1st Order Spatial Lag		-0.0003***		-0.0002***
		(0.0001)		(0.0001)
Resources 2nd Order Spatial Lag		-0.0000		-0.0000
		(0.0000)		(0.0001)
Presence of Lootable Resources		0.0007		0.0046
		(0.0035)		(0.0074)
Number of Excluded Ethnic Groups		0.0124***		-0.0055**
		(0.0025)		(0.0025)
Nighttime Lights		0.0220		0.0800***
		(0.0238)		(0.0132)
V-Dem Democracy Index		0.4580		0.0113***
		(15.4944)		(0.0042)
Spatially Lagged Conflict Measure		0.0148***		0.0227***
		(0.0015)		(0.0017)
Natural Resource Value w/ Instrumented Country-Specific Price			-0.0008*	-0.0015**
			(0.0004)	(0.0006)
Constant			0.0206***	0.0133***
			(0.0001)	(0.0024)
Observations	870532	763796	870532	763796
R^2	0.000	0.001		
Adjusted R^2	0.000	0.001		

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

B. Instrumental Variable

B.1. Criterion 1: First-Stage Assumption

First, a valid instrument must have a first-stage relationship: $COV(D, Z) \neq 0$. For our instrument, there must be a relationship between the endogenous variable (country-specific values, D) and the instrument (U.S./world values, Z). In our case, log country-specific values correlate with the instrument at 0.74 (see Table 2). The correlation between the country-specific exports prices from UN Comtrade and world prices is 0.78 (see Table 2). Conventionally, instruments are thought to be strong if the F-statistic is above 12. In all of our models with control variables (other than for Asia), the F-statistic ranges from 93 to 326. In the Asia model, the F-statistic is 12, even so meeting the basic threshold. In most of the models, therefore, the instrument is strong.[25]

B.2. Criterion 2: Monotonocity

Second, the instrument must satisfy the monotonicity assumption: $Pr(D_1 \geq D_0) = 1$ (Kern and Hainmueller, 2009).[26] Monotonicity means that the instrument is shifting outcomes in countries in the same direction; alternatively, in the language of Imbens and Angrist (1994), there are no "defiers".[27] In this case, higher U.S./world resource values for natural resources mostly fuel civil conflict. Ross (2012) points out that there is some causal heterogeneity in the resource curse for wealthy countries such as Canada and Norway, but that is mainly not the case in Africa and the other developing countries in our sample.

[25] All first-stage results available with replication files.

[26] Recent studies from, for example, de Chaisemartin (2017) and Heckman and Pinto (2018) challenge whether monotonicity is indeed necessary, but we present the assumption for the sake of completeness.

[27] Technically, it is possible to have an instrumental variable in which there are only "defiers" and no "compliers", but this is not the norm. For more on the compliers and defiers distinction, refer to Imbens and Angrist (1994) and Angrist, Imbens and Rubin (1996).

B.3. Criterion 3: Stable-Unit Treatment Value Assumption (SUTVA)

Third, the instrument must satisfy the stable-unit treatment value assumption (SUTVA): $Y_i \perp\!\!\!\perp D_j \ \forall\ i \neq j$ and $Y_i = Y_{1i}D_i + Y_{0i}(1 - D_i)$. For SUTVA to hold, units must not interfere with each other, and potential outcomes must be well-defined. One could perhaps argue that mine discoveries in one grid cell could catalyze exploration and discovery of mines in neighboring grid cells. However, any spatial spillovers are prone to time lags given that discoveries and extraction in neighboring grid-cells will not happen immediately. As Menaldo (2016) shows, natural resource extraction requires significant technology, capital, and investment. Additionally, the sites of natural resources tend to be located in rural areas, which in many countries means that there is no road access, etc.

B.4. Criterion 4: Exclusion Restriction

Fourth, the instrument needs to satisfy the exclusion restriction: $P(Y_{1d} = Y_{0d}|D) = 1 \in [0, 1]$ (Kern and Hainmueller, 2009, 384). Our proposed instrument would violate the exclusion restriction if: (a) U.S./world values (Z) are endogenous to local conflict (Y); or (b) there are alternative pathways connecting the country-specific resource values (D) to local conflict (Y) other than the country-specific value of the resource (D).

Regarding the potential endogeneity of US/world values and conflict, very prominent recent studies by Berman et al. (2017) and Christensen (2019) contend that world resource prices are exogenous to local conflict (see also Humphreys, 2010; Carter, Rausser and Smith, 2011; Rossen, 2015). According to these authors, a commodity super-cycle has been in place since roughly 1996. As many countries have become richer and more populous, world demand for minerals has spiked considerably, creating large demand-side shocks that facilitate exogeneity of resource prices to conflict. Whether these demand-side shocks from the commodity super-cycle are so large as to offset any supply-side incentives of higher resources prices potentially fueling rebel attacks of extraction sites is difficult to test empirically. Nevertheless, in this paper we furnish (to our knowledge) the first evidence to show that natural resource companies spend significant amounts of their resources on preventing rebel attacks (see Appendix C). Rebels are generally thus not able to affect the global price at will, and there are significant safeguards in place at industrial mines to avoid rebel-induced interruptions in the flow of minerals onto the world market. In turn, on a process level, local conflicts are insulated from global prices except through the mediation of country-specific prices.

With respect to the potential alternative pathways that may confound the effect of the country-specific resource values, they are hard to imagine. It may be theoretically possible that governance mediates the resource values. However, such effects would not be relevant for our grid-cell level estimation, and introducing a country-level governance variable (a universal, local-level governance measure does not exist) would simply lead to collinearity and unstable estimates. Additionally, as we show in Appendix C, companies take the security of mines and extraction sites seriously. Accordingly, it is difficult to envisage a scenario nowadays in which, most of the time, governance mediates or distorts the effect of the country-specific resource values (D) to local conflict (Y).[28]

B.5. Criterion 5: Independence/Ignorability

The fifth criterion that an instrument must satisfy is the independence or ignorability assumption: $Z_i \perp\!\!\!\perp (Y_{i1}, Y_{i0}, D_{i1}, D_{i0})$. Essentially, the instrument needs to be independent of potential outcomes and the endogenous variable in its different treatment states (Morgan and Winship, 2015, 307). In this case, the independence assumption would not hold if the US/world values (Z) are a function of local conflict (Y) or the country-specific resource values (D). We addressed the potential non-independent relationship between Y and Z in the previous section on the exclusion restriction.

Whether the relationship between Z and D suffers from Betz, Cook and Hollenbach (2018) call "spatial simultaneity" merits further discussion. For our instrument, the country-

[28] For relevant recent studies on mediation, see Imai et al. (2011) and Imai, Tingley and Yamamoto (2013).

specific resource values that we calculate from UN Comtrade prices do not constitute any form of an average or aggregate up to the US/world values that we calculate from USGS and the World Bank—and, in some cases, Multicolour (see above). In fact, none of these datasets come from the same distribution. USGS prices correspond to US resource values, which are outside our sample. Despite the literature's ubiquitous use of the world prices from the World Bank (e.g. Berman et al., 2017), the latter institution mostly draws their price data from OECD countries outside our sample (World Bank, 2018). Accordingly, our instrument does not suffer from the same concerns as the spatial averages that Betz, Cook and Hollenbach (2020) critique at length.

Betz, Cook and Hollenbach (2020) further raise the issue of spatial interdependence among outcome variables. In order to control for the possibility of spillover effects among outcome variables in neighboring units, they recommend the use of spatial two-stage least squares (S-2SLS). The latter creates a first-stage equation to predict outcome variables in neighboring cells, and it then uses the predicted values in the second-stage equation. Much of what the S-2SLS model accomplishes in practical terms is the creation of a spatial weights matrix in order to perform the two-stage equation. However, S-2SLS does not lend itself to panel data.

To address this issue, in the creation of this data set, we constructed a series of spatial weights matrices for each year of the data. After the construction of each year's spatial weights matrix, we simply appended the data from each year to produce time-series data that also contained spatially lagged variables. This simple work around allows the creation of both spatial and time-series lags, and so we included a spatially *and* temporally lagged dependent variable of conflict on the right-hand side of the equation.

Noticeably, the above procedure skips the first-stage of S-2SLS, but we posit this has some advantages. First, whereas S-2SLS uses predicted values from neighboring cells, we use the actual values of conflict in the neighboring cell that are both spatially and temporally lagged. This has the advantage of more realistically modeling diffusion and avoids simultaneity. Second, a predicted value from a neighboring cell relies on good model fit for an accurate prediction. Even if the prediction model is well-fit, the predicted value's relationship to the actual value should be unbiased. Thus, the use of the actual value would produce similar results to the use of predicted values. If the prediction equation is not well-fit, then the use of actual values will create results that are more accurate than biased results from a poorly fit predicted value. In some cases, the use of actual values may even be an overly conservative test for our primary independent variables, as the first-stage value may under-predict conflict, because of poor model fit. Thus, the use of actual values for temporally and spatially lagged dependent variables on the right-hand side appears to be an appropriate solution to the concerns about spatial interdependence.

C. DRC Case Study of Exclusion Restriction

The case of mining operations in the Democratic Republic of Congo (DRC) provides plentiful evidence that mining companies devote significant resources to protecting mines from outside forces. The most direct evidence comes from a mining company called Anvil Mining Limited. In 2009, it operated the Kinsevere Copper Project in Katanga Province of the DRC. During this time period, the company spent roughly $158,000 per month on direct security costs for the Kinsevere site alone (Booth et al., 2010). The Kinsevere Mine is a relatively average mining site in the DRC with an annual value of roughly $366 million per year, compared to the average location across all observations in the DRC of $365 million. It also has only a slightly higher annual output than the mean of all mines within the DRC. As such, it represents a typical mining location, and the mining company spent almost $2 million a year on direct site security for the Kinsevere site alone.

These direct costs are also only part of the broader picture of mine security costs. Mine security in the DRC is a complex issue that involves numerous government agencies, with side payments and informal agreements between the mining company and armed groups—both government and rebel. For instance, Anvil Mining was also reported to pay roughly $5,000 per month to local administrative and security officials to maintain their support in the area around the Dikulushi Mine north of Kilwa (Rights and Accountability in Development and Action Contre l'Impunité pour les Droits Humains, 2005). The same report indicates that informants claimed local administrators and sector chiefs each received roughly $420 per month. All of these payments stand in addition to the existing repatriation agreement, where the company repatriates 40% of proceeds from the mine site for use by the DRC government. For this mine site alone, that agreement amounted to the repatriation of $76 million in 2008 (Institute of Developing Economies, 2019). Other reports indicate that, while the central government agrees to provide security in return for a share of the mining profits, local officials do the same. At times, tacit agreements are formed with local commanders or even individual soldiers in return for the provision of security (De Koning, 2010).

In addition, there are tacit agreements at mine sites, which allow local authorities to use company security equipment when they need it for security purposes. In one instance, local authorities used mine security equipment to raid a local town that was supposedly harboring rebels. This shows that the mine site was heavily armed and prepared to defend against rebel groups. In fact it was even more heavily armed than government forces in the area, and so heavily armed that it was used a repository for those local security officials to conduct offensive operations against neighboring rebel groups. Furthermore, the company paid for the stationing of DRC troops and army intelligence at the mine site itself as a protective measure. It was only after the incident that the company requested additional security forces from the government in order to prevent the need for local security forces to requisition equipment from the company (Czernowalow, 2004).

All of these items indicate that mine security is taken very seriously across even medium-sized sites of average value, to prevent disruptions in the supply of raw materials to the world market. Because companies are determined to protect their resources through the direct provision of security and through explicit and implicit agreements with local officials, local prices of the resource at the mine site are unlikely to see significant shocks. Rather, what we generally see are steady operations at industrial sites that occasionally shut down for technical issues, which affects local prices but not global prices.

Furthermore, it is worth exploring the idea that global prices influence conflict on their own without the mediation of local prices. This is unlikely for a variety of reasons, but the main issue is that many minerals require a significant investment in infrastructure for them to be taken to the world market. They must enter the global market in order to be incorporated into supply chains and the process of adding value through conversion, transformation, refinement, or combining with other elements to produce finished products.

For instance, in the case of the same mine, the Dikulushi Mine in Southeast DRC, the minerals extracted are copper and silver. In order to bring these minerals to market, they must first be refined and finished. The company built pontoon ferries across 27 miles of Lake Mweru and then drive another 1,600 miles to a company processing facility in Namibia for refining. From there, the processed product would then need to be transported to an international port for loading onto ships and transport to facilities that apply further manufacturing techniques in Europe and Asia.

Rebels have very little ability to apply this process on their own, and even looted resources must be sold at local prices for them to be taken into the global market by others. Due to the technical nature of extraction and the need for significant infrastructure to transport many minerals to a point of sale, it is highly unlikely that rebels would ever be able to realize a world price rather than a local price.

Thus, because of the nature of many minerals—both their need for further value-added and the necessity of large-scale infrastructure on the ground in order to realize any value, local conflict is relatively insulated from world prices. Since companies that do the mining also expend significant time and money guarding the resource sites, local conflicts are insulated from both supply- and demand-side shocks from the global market. Therefore, the instrument meets the exclusion restriction.

D. Codebook

D.1. Overview

This codebook describes the process of coding variables for the Global Resources Dataset.

D.2. Coding process

The unit of observation is the mine, resource extraction site, or resource processing facility in each year. The data are coded from annual country fact sheets produced by the United States Geological Survey (USGS) website.

We undertook a number of safeguards to ensure high quality data. First, we undertook an initial round of coding. Next, especially since geolocations are not always clear with higher level precision codes, we undertook a second round of coding to check all of the entries for accuracy. At the end of the second round of coding, the coders randomly sampled each other's work and performed some triple-checks. In the third round of coding, coders performed an initial coding of each location-year, with another coder double-checking over each coded entry. Senior coders also performed spot checks throughout and adjudicated all difficult cases that were not initially clear from the PDF documents produced by the United States Geological Survey (USGS). After the second and third rounds of coding, we further examined instances in which the same location was given different latitudes and longitudes for different location-years. Accordingly, an expert coder then re-checked those locations and assigned a final latitude and longitude to them ex post.

D.3. Frequently Asked Questions

1. *Did you perform any interpolation or imputation, and can you explain the coding gaps?*

   No, we did not do any interpolation or imputation. First, most yearly USGS country reports tend to be written by the same author or set of authors every year. Essentially, there does not appear to be much staff turnover over time for the authors of these country reports. Accordingly, it stands to reason that the USGS country experts would not remove observations from year-to-year without a reason. Second, civil wars and natural disasters, for example, could affect mine output levels, so we would not recommend that users perform any sort of interpolation without specific knowledge of the country-years in question. Where interpolation/imputation *could* be germane is if the observations refer to contiguous gaps in USGS country reports. Users can discern whether there are contiguous gaps for a particular country by referring to Table D2. By the same token, we would still advise each user who is considering interpolation/imputation to analyse the specific country-years in question. For example, it is possible that there is a coding gap due to a civil war or natural disaster, in which case the gap might be justifiable. On our end, we endeavored to ensure that all coding gaps were a result of there not being a USGS country report available for a particular country-year. In other words, once we started coding a country, we did not stop until there were no more USGS reports available.

2. *I noticed that the GRD only goes until 2014 or 2015 for most countries. Others countries only extend until 2012 or 2013. Still others have uncoded country reports for years prior to 2002. Why is that the case?*

   We coded as many years as possible for each country. Thus far, 88 different coders have contributed to the GRD. Given the enormous coding task posed by the sheer number of countries in the GRD and the non-uniform release of newer reports for each country, the newer years are inevitably the ones for which the GRD is least likely to cover. Pending resource availability, we may extend the GRD to cover some earlier and later country-years for which USGS country reports are available. Additionally, we may extend the GRD to new countries.

D.4. Variables

This section outlines the variables in the dataset.

D.4.1. resource

This information is taken from United States Geological Survey (USGS). Details on the individuals resources covered in this dataset are found in Table D1. In total, there are 192 different resources in the dataset.

Table D1: Resources in the Global Resources Dataset (GRD)

Resource	Number of Observations
alumina	674
aluminum	1,614
aluminum floride	11
amazonite	2
amber	7
amethyst	21
ametrine	7
ammonia	198
ammonium nitrate	1
andalusite	65
anhydrite	14
antimony	386
antimony trioxide	15
apatite	28
aquamarine	14
arsenic	7
arsenic trioxide	10
asbestos	179
asphalt	16
attapulgite	22
barite	655
basalt	19
bauxite	1,027
bentonite	98
beryl	3

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Table D1: Resources – *continued*

Resource	Number of Observations
beryl and emerald	4
beryllium	1
bismuth	158
black carbon	46
borax	6
boron	308
bromine	12
cadmium	17
calcite	6
calcium carbonate	216
carbon dioxide	10
caustic soda	18
celestite	9
cement	10,043
chlorine	3
chromite	1,026
chromite ferrochromium	15
chromium	55
citrine	3
clay	206
coal	3,288
cobalt	386
coke	175
copper	4,092
copper sulfate	32
diamond	1,015
diatomite	49
diesel	6
dolomite	63
emerald	74
feldspar	189
ferro-chromium	106
ferro-manganese	4
ferro-molybdenum	17
ferro-nickel	29
ferro-silicon	50
ferro-vanadium	14
ferroalloys	1,077
fertilizer	753
fluorspar	559
gallium	19

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Table D1: Resources – *continued*

Resource	Number of Observations
garnet	37
gasoline	54
gemstones	73
germanium	11
glass	53
gold	5,196
granite	73
graphite	434
guano	2
gypsum	830
helium	49
indium	51
iodine	93
iron	2,676
iron and steel	249
iron oxides	18
iron pyrites	22
kaolin	422
kerosene	6
kyanite	84
labradorite	46
lapis	15
lead	1,424
lignite	110
lime	422
limestone	569
liquified natural gas	182
liquified petroleum gas	24
lithium	49
lithium chloride	11
lithium hydroxide	10
magnesite	183
magnesium	77
manganese	946
marble	327
mercury	62
methane	6
methanol	69
mica	110
molybdenum oxide	18
morganite	7

Continued on next page

Table D1: Resources – *continued*

Resource	Number of Observations
naphtha	4
natural gas	2,392
nickel	948
niobium	243
niobium and tantalum	207
nitrates	102
nitrogen	333
nitrogen ammonia	78
nitrogen urea	24
oil	8,323
onyx	4
opal	9
palladium	259
peat	49
perlite	45
petroleum products	1,096
phosphate	1,192
phosphoric acid	226
phosphorite	40
platinum	714
potash	76
potassium	12
potassium chloride	16
potassium nitrate	27
potassium sulfate	7
pozzolan	62
pozzolana	13
pumice	90
pyrophyllite	74
quartz	74
quartzite	4
rare earths	39
rebar	1
rhenium	34
rhodium	258
rhyolite	1
ruby	56
ruthenium	38
salt	1,149
sand	103
sand and gravel	62

Continued on next page

Table D1: Resources – *continued*

Resource	Number of Observations
sandstone	13
sapphire	128
selenium	52
sepiolite	4
silica	269
silicomanganese	1
silicon	17
silver	1,860
soapstone	12
soda ash	140
sodium	1
sodium nitrate	15
sodium silicate	19
sodium sulfate	68
sodium tripolyphosphate	4
steel	4,896
stone	308
strontium	36
sulfur	408
sulfuric acid	320
synthetic fuels	25
talc	140
tantalite	8
tantalum	84
tanzanite	64
tellurium	34
tin	1,706
titanium	583
tourmaline	39
travertine	46
tuff	108
tungsten	496
turquoise	12
uranium	197
urea	73
vanadium	44
vanadium pentoxide	70
vermiculite	60
wolframite	12
wollastonite	13
zeolite	48

Continued on next page

Table D1: Resources – *continued*

Resource	Number of Observations
zinc	2,161
zircon	3
zirconium	257
Total	77,782

D.4.2. country

This variable identifies the country in which a resource-location-year observation is located. Table D2 lists the countries included in the GRD, the first and last year for which data is included, and the total number of resource location-years for each country. The number in parentheses after the country name indicates the number of years for which data are missing. In most cases, this is because there is no USGS country report for that year. Most missing observations occur before 2004.

Table D2: Country-Years in the Global Resources Dataset

Country	Beginning Year	Ending Year	Observations
Afghanistan	2008	2015	163
Albania	1994	2015	826
Algeria (3)	2001	2015	1418
Angola	2002	2014	437
Argentina	1994	2015	1369
Armenia (1)	1994	2015	422
Bahrain	2006	2015	239
Bangladesh	2006	2015	418
Belize	2005	2015	30
Benin	2004	2015	39
Bhutan	2006	2015	59
Bolivia (7)	1994	2015	1727
Botswana (2)	2003	2015	162
Brazil	1994	2015	8866

Continued on next page

Table D2: Country-Years in the Global Resources Dataset – *continued*

Country	Beginning Year	Ending Year	Observations
Burkina Faso (1)	2002	2012	100
Burundi	2004	2015	320
Cambodia	2006	2015	93
Cameroon (1)	2003	2015	80
Cape Verde (3)	2004	2014	11
Chad	2004	2015	121
Chile (1)	1994	2015	3787
China	1994	1996	320
Colombia (1)	1994	2014	1029
Costa Rica (6)	1994	2014	172
Cote d'Ivoire	2002	2012	114
Cuba	2007	2014	190
Democratic Republic of Congo (2)	2003	2014	1014
Djibouti (1)	2004	2015	67
Dominican Republic (7)	1994	2015	127
Ecuador	2005	2014	246
Egypt (4)	1994	2015	1359
El Salvador (2)	2001	2015	95
Equatorial Guinea	2005	2015	132
Eritrea	2002	2015	81
Ethiopia	2002	2015	574
French Guiana	2013	2013	9
Gabon (5)	1994	2014	408
Ghana (3)	1994	2014	445
Guatemala (2)	1994	2014	308
Guinea	2002	2014	178
Guyana	1994	2014	251
Honduras (3)	1994	2014	141
India	1994	2015	4135
Indonesia (2)	1994	2016	1401
Iran (3)	2000	2014	2025
Iraq (2)	2001	2014	605
Israel	2001	2014	530
Jamaica (6)	1994	2015	166
Jordan	2003	2014	453
Kazakhstan (20)	1994	2014	106
Kenya (1)	2004	2014	400
Kuwait (6)	1994	2014	557
Kyrgyzstan	2007	2013	370
Laos	2007	2016	316
Lebanon	2004	2013	148

Continued on next page

Table D2: Country-Years in the Global Resources Dataset – *continued*

Country	Beginning Year	Ending Year	Observations
Lesotho	2006	2014	34
Liberia (3)	2004	2014	24
Libya (1)	2004	2014	679
Madagascar	2001	2014	444
Malawi	2002	2014	194
Malaysia	1994	2015	1141
Mali (2)	2002	2014	95
Mauritania (2)	2002	2014	118
Mauritius (1)	2002	2014	33
Mexico	1994	2015	3271
Moldova	1994	2016	89
Mongolia	2006	2015	209
Morocco (2)	2002	2014	840
Mozambique	2001	2014	316
Myanmar (Burma)	2005	2014	227
Namibia (1)	2003	2014	319
Nepal	2006	2015	82
Nicaragua (3)	1994	2014	110
Niger (2)	2002	2014	71
Nigeria (5)	1994	2014	530
Oman	2006	2012	362
Pakistan	2005	2014	551
Panama (5)	1994	2014	55
Paraguay	2004	2014	44
Peru	1994	2015	2224
Philippines (3)	1994	2015	675
Poland	1994	2015	2721
Qatar (3)	2001	2014	532
Republic of Congo (1)	2004	2014	289
Reunion (2)	2002	2013	9
Russia (6)	1988	2014	4127
Rwanda	2002	2014	281
Saudi Arabia (7)	1994	2015	842
Senegal (1)	2002	2014	133
Seychelles	2006	2013	17
Sierra Leone (1)	2002	2014	75
Somalia	2002	2003	14
South Africa (1)	2002	2014	4220
South Sudan	2011	2015	30
Sri Lanka	2006	2015	150
Sudan	2002	2015	353

Continued on next page

Table D2: Country-Years in the Global Resources Dataset – *continued*

Country	Beginning Year	Ending Year	Observations
Suriname (1)	1994	2015	184
Swaziland (Eswatini)	2006	2015	26
Syria	2004	2015	836
Taiwan	1994	2015	551
Tajikistan	1994	2015	750
Tanzania	2002	2015	513
Thailand	1994	2015	1410
Togo	2002	2015	105
Tunisia	2004	2015	809
Turkey	2007	2015	1704
Uganda	2001	2015	348
United Arab Emirates	2006	2015	718
Uruguay (10)	1994	2015	60
Venezuela	1994	2015	1248
Vietnam	2002	2015	1076
Western Sahara (3)	2002	2015	14
Yemen (4)	2001	2015	339
Zaire	1994	1994	20
Zambia	2006	2015	479
Zimbabwe (7)	1998	2015	903

D.4.3. year

This variable corresponds to the year of the respective resource value. This information is taken from United States Geological Survey (USGS). Years range from 1994–2015. Data availability varies by country. Details on the individuals country-years covered in this dataset can be found in Table D2.

D.4.4. COW_code

This variable corresponds to the Correlates of War (COW) country code.

D.4.5. gwno

This variable corresponds to the Gleditsch-Ward country code.

D.4.6. wb_ccode

This variable corresponds to the World Bank/ISO3 country code.

D.4.7. region_wb

This variable corresponds to World Bank region of the mine location or resource extraction site. There are five regions in the dataset: (Subsaharan) Africa; Middle East and North Africa; Latin America and Caribbean; South Asia; and East Asia and Pacific.

D.4.8. continent

This variable corresponds to the continent of the mine location or resource extraction site. The dataset contains observations from Asia; Europe; the Americas (South and Central America); and Africa.

D.4.9. gid

This variable corresponds to the grid-cell ID from the PRIO-GRID (see Tollefsen, Strand and Buhaug, 2012). In line with Tollefsen, Strand and Buhaug (2012), we performed the relevant spatial join with the WGS84 coordinate reference system, using the sf package in R (Pebesma, 2018).

D.4.10. gid_centroid_latitude

This variable corresponds to the latitude of the grid-cell centroid from the PRIO-GRID. In line with Tollefsen, Strand and Buhaug (2012), we performed the relevant spatial join with the WGS84 coordinate reference system

D.4.11. gid_centroid_longitude

This variable corresponds to the longitude of the grid-cell centroid from the PRIO-GRID. In line with Tollefsen, Strand and Buhaug (2012), we performed the relevant spatial join with the WGS84 coordinate reference system.

D.4.12. standard_measure

This variable identifies the standard unit of measure for each resource. Information is taken from United States Geological Survey (USGS). Data are recorded using the following units: 42-gallon barrels, 42-gallon barrels per day, billion cubic meters, carats, cubic meters, kilograms, metric tons, metric tons per day, million 42-gallon barrels, million bricks, million cubic meters, million cubic meters per day, million metric tons, square meters, thousand 41-gallon barrels, thousand 41-gallon barrels, thousand 42-gallon barrels per day, thousand 42-gallon barrels per day, thousand bricks, thousand carats, thousand cubic meters, thousand metric tons, and thousand square meters.

D.4.13. comtrade_unit

This information is taken from UN Comtrade. It describes the unit measure for the respective UN Comtrade prices. Prices are expressed in carats, cubic meters, kilograms, and liters.

D.4.14. wb_unit

This information is taken from the World Bank's Global Economic Monitor. The variable describes the unit corresponding to the world price of the respective mineral or resource. Prices are expressed in 42-gallon barrels, metric tons, troy ounces, and mmbtu.

D.4.15. usgs_unit

This information is taken from the United States Geological Survey (USGS). The variable describes the unit corresponding to the US prices of the respective mineral or resource. Prices are expressed in metric tons.

D.4.16. multicolour_unit

This is information is taken from Multicolour. The variable describes the unit corresponding to the world price of the respective mineral or resource. All Multicolour prices are given in carats. For more inquiries on Multicolour prices, please contact David Weinberg at Multicolour: info@multicolour.com.

D.4.17. APIforoil

Table D3: API Gravity to Density Conversions

API Gravity Measure	**Corresponding Density (kg/m^3)**
20	933.993
25	904.152
30	876.161
35	849.850
40	825.073
45	800.8

This information refers to the American Petroleum Institute (API) gravity measure for oil/petroleum or products thereof. It is the industry standard for expressing density, as compared to the density of water. Higher API gravities entail lower densities, which in turn return higher prices on commodity spot markets. When oil has a lower API gravity/higher density, yielding a heavier 42-gallon oil barrel/drum, it requires additional processing steps to make the oil usable.

Table D3 provides the densities in kg/m^3 corresponding to the API gravity measures for a sample of API gravities used in this dataset. The data availability for API gravity based on oil field assays is limited. Thus, when we were unable to find the API gravity each oil field, we approximated the API gravities by country based on information here, here, here, here, here, other websites, and:

Awadh, Salih Muhammed, and HebaSadoon Al-Mimar. 2013. "Statistical Analysis of the Relations between API, Specific Gravity, and Sulfur Content in the Universal Crude Oil." *International Journal of Science and Research* 4(5): 1279-1284.

D.4.18. SGforoil

This variable pertains to the specific gravity of oil/petroleum and products thereof. The specific gravity can be calculated as follows:

D.4.19. density

This information refers to the density of variables for which output data is expressed in terms of mass but price data is given in volume or heat content—or vice-versa. Table D4 provides the relevant densities (kg/m^3) used in this dataset. Note that densities are only relevant when converting between mass, volume, or heat content units.

Table D4: Density by Resource

Resource	**Corresponding Density (kg/m^3)**
clay (bricks)	1900
gasoline	719.7
granite	2075
helium	147
limestone	2360
liquefied petroleum gas	550
liquefied natural gas	450
marble	2700
natural gas	0.8
oil	see Table D3
salt	1025
stone	2515

D.4.20. heat_content

This variable describes the heat content of certain resources in MMBtu/bbl. Refer to Table D5 for the resource for which it was necessary to have heat content information due to conversions between mass, volume, and heat content units. Heat contents by resource can be found on the website of the Society for Petroleum Engineers.

Table D5: Heat Content by Resource

Resource	**Heat Content (MMBtu/bbl)**
liquified natural gas	3.735
natural gas	3.735
oil/petroleum	5.8
petrochemicals	5.976
petroleum products	5.976

D.4.21. specific_surface_area

This variable corresponds to the specific surface area of stone, sandstone, granite, and marble in meters^2/grams. This variable is necessary for these minerals because USGS annual allocation capacity figures are expressed in square meters. We obtained data from the following resources:

- Keppert, Martin, Jaromir Zumar, Monika Cachova, Dana Konakova, Petr Svora, Zbysek Pavlik, Eva Vejmelkova, and Robert Cerny. 2016. "Water Vapor Diffusion and Adsorption of Sandstones." *Advances in Materials Science and Engineering* (2016). DOI:10.1155/2016/8039748
- Ticknor, Kenneth V., and Preet P.S. Saluja. 1990. "Determination of Surface Areas of Mineral Powders By Adsorption Capacity" *Clays and Clay Minerals* (38)4: 437-441.

D.4.22. locationname

This information is taken from United States Geological Survey (USGS). The location information describes the closest available city, town, or point of interest to the mine or resource extraction site.

D.4.23. mineownership

This information comes from United States Geological Survey (USGS). The following different types of mines are available in the data: artisanal, artisanal/military, cooperative, cooperative/industrial, industrial, industrial/government, and government. When ownership information is not available, it has been listed as "n/a". The mixed categories with more than one type of owner are for instances in which there is more than one owner and neither owns a majority stake (i.e. greater than 50%). When any one of the above owns more than a 50% stake, it is classified as only one of the above categories.

D.4.24. minetype

This variable denotes whether the site is a mine, other extraction site, refinery, or downstream plant/processing facility. Coders consulted a variety of sources to determine the minetype, including the USGS country reports, Internet searches, specialized publications, and remote sensing images of the location.

We define these values as follows:

1. Mines are generally related to ores and minerals. They can be underground, or aboveground in the case of strip-mining.

2. Extraction sites cover a broader scope, and includes gas and oil. This minetype value also river deposits of commodities such as diamonds or gold.

3. Production facilities are locations which smelt or produce a commodity, rather than extract it. Cement and steel are examples, as well as anything specified as a "metal" or a product of some process.

4. Refineries are generally only put as a minetype if it is specifically referred to as such in the USGS .pdf. An example of this would be "Petroleum: Refined", rather than the usual "Petroleum" or "Petroleum: Crude". We apply the same process to metals.

5. The Unknown minetype exists in the event that no minetype can be identified.

D.4.25. admin1

This information is taken from GeoNames (www.geonames.org) or Google Maps on the basis of the location name from USGS. This information corresponds to the administrative level 1 precision code. Generally, it corresponds to a province/department/state.

D.4.26. admin2

This information is taken from GeoNames (www.geonames.org) or Google Maps on the basis of the location name from USGS. This information corresponds to the administrative level 2 precision code. Generally, it corresponds to a district/municipality.

D.4.27. latitude

This information is taken from GeoNames (www.geonames.org) or Google Maps on the basis of the location name from USGS. In instances where there are multiple location names that match the USGS description, the coder arbitrates between the locations given clues on the USGS document, such as province information given by USGS. Further, geonames provides aerial shots of the location, which can be used to pinpoint a probable mine location.

D.4.28. longtitude

This information is taken from GeoNames (www.geonames.org) or Google Maps on the basis of the location name from USGS. In instances where there are multiple location names that match the USGS description, the coder arbitrates between the locations given clues on the USGS document, such as province information given by USGS. Further, geonames provides aerial shots of the location, which can be used to pinpoint a probable mine location.

D.4.29. precisioncode

This information is derived from GeoNames (www.geonames.org) or Google Maps on the basis of the location name from USGS. We use the following precision codes:

- 1: Mine/production facility itself
- 2: Nearby city

- 3: District level
- 4: Province
- 9: Unsure if location is correct

D.4.30. comtrade_price_mult

This variables corresponds to the UN Comtrade export price of the resource, expressed in its standard measure output unit (see above). Thus, prices are available for specific resources and years but also each respective country. All prices are deflated to represent their 2010 United States dollar value. To access the deflators, refer to the World Bank's World Development Indicators.

D.4.31. wb_price_mult

This variables corresponds to the World Bank price for the resource, expressed in its standard measure unit (see above). All prices, which are world prices, are deflated to represent their 2010 United States dollar value. To access the deflators, refer to the World Bank's World Development Indicators.

D.4.32. usgs_price_mult

This variables corresponds to the USGS for the resource, expressed in its standard measure unit (see above). All prices, which are world prices, are deflated to represent their 2010 United States dollar value. To access the deflators, refer to the World Bank's World Development Indicators.

Kindly also note the following:

1. We merge antimony and antimony ore into one antimony price variable. There are few antimony ore observations in our dataset, and pure antimony is a very rare in

occurrence. So, it is logical to use one price for antimony.

2. We merge boron and boron refined concentrates into one boron price. There are few boron observations in the dataset.

D.4.33. multicolour_price_mult

This variable corresponds to the Multicolour price for the resource, expressed in its standard measure unit. All prices, which are world prices, are deflated to represent their 2010 United States dollar value. To access the deflators, refer to the World Bank's World Development Indicators. For all information regarding Multicolour, please contact David Weinberg: info@multicolour.com

Kindly also note the following:

1. We merge bi-color tourmaline with chrome tourmaline into one tourmaline price. Often, it is possible to find tourmalines of different colors in the same mines.
2. We merge color change sapphire, fancy sapphire, and sapphire into one sapphire price. It is possible to find sapphires of different colors in the same mine.
3. We merge grossular garnet, tsavorite, color change garnet, and garnet into one garnet price. Garnets of different colors can be found in the same mine.
4. We merge chrysocolla quartz, rose quartz, rutilated quartz, and quartz into one quartz price.

D.4.34. multiplier_comtrade

This variable corresponds to the multiplier used for the conversion of the UN Comtrade price unit conversion into the standard measure unit.

D.4.35. multiplier_wb

This variable corresponds to the multiplier used for the conversion of the World Bank price unit conversion into the standard measure unit.

D.4.36. multiplier_usgs

This variable corresponds to the multiplier used for the conversion of the United States Geological Service (USGS) price unit conversion into the standard measure unit.

D.4.37. multiplier_multicolour

This variable corresponds to the multiplier used for the conversion of the USGS or World Bank price unit conversion into the standard measure unit.

D.4.38. annualallocationcapacity

This information is taken from United States Geological Survey (USGS). It measures yearly output of the mine or resource extraction site in the standard measure unit.

D.4.39. exp_annual_value_location1

This variable accounts for annual value of the location in 2010 United States Dollars (USD). This measure of the annual value of the location prioritizes UN Comtrade export prices first. Then, it incorporates prices from the World Bank, followed by those of the USGS. The variable excludes prices from Multicolour.

A few reasons underpin our rationale provide one set of prices without Multicolour values. First, not each resource-year in the Multicolour dataset has a high number of observations. Second, Multicolour sales tend to be a on a very small scale, with typical prices being at the gram or carat level. Accordingly, small fluctuations in the Multicolour prices per carat, which is normal given factors such as gem quality size, clarity, and color, can make a significant difference in the price. By contrast, the prices for most minerals from UN Comtrade, USGS, the World Bank tend to be aggregated at the kilogram, metric ton, or thousand metric ton levels, making them less prone changes from small fluctuations.

D.4.40. exp_annual_value_location2

This variable accounts for annual value of the location in 2010 United States Dollars (USD). This measure of the annual value of the location prioritizes UN Comtrade export prices first. Then, it incorporates world prices from World Bank, USGS, and Multicolour (in that order).

D.4.41. wd_annual_value_location1

This variable accounts for annual value of the location in 2010 United States Dollars (USD). This measure of the annual value of the location prioritizes world prices from World Bank. Then, it incorporates US prices from USGS, followed by country-specific export prices from UN Comtrade. The variable excludes prices from Multicolour.

A few reasons underpin our rationale provide one set of prices without Multicolour values. First, not each resource-year in the Multicolour dataset has a high number of observations. Second, Multicolour sales tend to be a on a very small scale, with typical prices being at the gram or carat level. Accordingly, small fluctuations in the Multicolour prices per gram or carat, which is normal given factors such as gem quality size, clarity, and color, can make a significant difference in the price. By contrast, the prices for most minerals from UN Comtrade, USGS, the World Bank tend to be aggregated at the kilogram, metric ton, or thousand metric ton levels, making them less prone to changes from small fluctuations.

D.4.42. wd_annual_value_location2

This variable accounts for annual value of the location in 2010 United States Dollars (USD). This measure of the annual value of the location prioritizes world prices from World Bank and US prices from USGS. Then, it incorporates export prices from UN Comtrade. The variables excludes prices from Multicolour. .

D.4.43. comtrade_value

This variable corresponds to the annual value of the location using only export prices from UN comtrade.

D.4.44. wb_value

This variable corresponds to the annual value of the location using only world prices from the World Bank's Global Economic Monitor Commodities Pink Sheet.

D.4.45. usgs_value

This variable corresponds to the annual value of the location using only US prices from the United States Geological Survey (USGS).

D.4.46. world_val_nomc

This variable corresponds to the the annual value of the location using world prices from the World Bank or US prices from USGS (in that order), excluding world prices from Multicolour. We include USGS prices alongside World Bank ones since, based our data, `wb_value` and `usgs_value` correlate at 0.99. That is even before logging the data, too.

D.4.47. world_val_withmc

This variable corresponds to the the annual value of the location using world prices from the World Bank, US prices from USGS or world prices from Multicolour (in that order). We include USGS prices alongside World Bank ones since, based our data, `wb_value` and `usgs_value` correlate at 0.99. That is even before logging the data, too.

D.4.48. lootable

This is a dummy variable indicating, based on our research, that the resource is potentially lootable. To be lootable, a resource must have high value and low barriers to entry/extraction. We say "potentially" lootable because certain types of resources can be found in different extraction sites, and some of these extraction sites make it easier to extract than others. For example, gold may be mined through placer techniques, which can be done by most anyone. By the same token, gold can also be mined through the use of expensive dredging or digging machinery. Even though not everyone has access to the expensive machinery, the fact that almost anyone can mine gold through placer techniques makes the resource "lootable" for the purposes of this dataset.

D.5. Resource Price Data Availability

Table D6 provides the availability of prices used in this dataset by resource. In cases when there are prices from more than one source by variable, refer to Section D.4 for how we calculate the respective prices.

Table D6: Source of Resource Prices

	UN Comtrade	World Bank	USGS	Multicolour
alumina	X		X	

Continued on next page

Table D6 : Source of Resource Prices – *continued*

Resource	**UN Comtrade**	**World Bank**	**USGS**	**Multicolour**
aluminum	X	X	X	
aluminum floride	X			
amazonite				
amber				
amethyst				X
ametrine				X
ammonia	X			
ammonium nitrate				
andalusite	X			X
anhydrite	X			
antimony	X		X	
antimony trioxide	X			
apatite				X
aquamarine				X
arsenic	X			
arsenic trioxide				
asbestos	X		X	
asphalt	X			
attapulgite				.

Continued on next page

Table D6 : Source of Resource Prices – *continued*

Resource	**UN Comtrade**	**World Bank**	**USGS**	**Multicolour**
barite	X		X	
basalt	X			
bauxite	X		X	
bentonite	X		X	
beryl				X
beryl and emerald				
beryllium	.		X	
bismuth	X		X	
black carbon	X			
borax				
boron	X		X	
bromine	X		X	
cadmium	X		X	
calcite				
calcium carbonate	X			
calcium oxide				
carbon dioxide	X			
caustic soda	X			
celestite				

Continued on next page

Table D6 : Source of Resource Prices – *continued*

Resource	**UN Comtrade**	**World Bank**	**USGS**	**Multicolour**
cement			X	
chlorine				
chromite	X			
chromite ferrochomium				
chromium	X		X	
citrine				X
clay	X		X	
coal	X	X		
cobalt	X		X	
coke				
copper	X	X	X	
copper sulfate				
diamond	X		X	X
diatomite	X		X	
diesel				
dolomite	X			
emerald	X			X
feldspar	X		X	X
ferro-chromium	X			

Continued on next page

Table D6 : Source of Resource Prices – *continued*

Resource	**UN Comtrade**	**World Bank**	**USGS**	**Multicolour**
ferro-manganese	X			
ferro-molybdenum	X			
ferro-nickel	X			
ferro-silicon	X			
ferro-vanadium				
ferroalloys	X			
fertilizer				
fluorspar	X		X	
gallium	X		X	
garnet	X		X	X
gasoline	X			
gemstones	X		X	
germanium			X	
glass				
gold	X	X	X	
granite	X			
graphite			X	
guano				
gypsum	X		X	

Continued on next page

Table D6 : Source of Resource Prices – *continued*

Resource	**UN Comtrade**	**World Bank**	**USGS**	**Multicolour**
helium			X	
indium	X		X	
iodine	X		X	
iron	X	X		
iron and steel			X	
iron oxides		.	X	
iron pyrites	X			
kaolin	X		X	
kerosene				
kyanite	X		X	X
labradorite				X
lapis	.			X
lead	X	X	X	
lignite	X			
lime	X		X	
limestone	X			
liquefied natural gas	X	X		
liquefied petroleum gas	X			
lithium			X	

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Table D6 : Source of Resource Prices – *continued*

Resource	**UN Comtrade**	**World Bank**	**USGS**	**Multicolour**
lithium carbonate				
lithium chloride				
lithium hydroxide	X			
magnesite	X			
magnesium	X		X	
manganese	X		X	
marble	X			
mercury	X		X	
methane				
methanol	X			
mica	X		X	
molybdenum oxide	X			
morganite	.			X
naphtha				
natural gas	X			
nickel	X	X	X	
niobium	X		X	
niobium and tantalum	X			
nitrates	X			

Continued on next page

Table D6 : Source of Resource Prices – *continued*

Resource	**UN Comtrade**	**World Bank**	**USGS**	**Multicolour**
nitrogen	X		X	
nitrogen ammonia				
nitrogen urea				
oil	X	X		
onyx				
opal				X
palladium	X			
peat	X		X	
perlite	X		X	
petroleum products	X			
phosphate	X	X	X	
phosphoric acid	X			
phosphorite				
platinum	X	X	X	
potash				
potassium				
potassium chlorite				
potassium nitrate				
potassium sulfate	X			

Continued on next page

Table D6 : Source of Resource Prices – *continued*

Resource	**UN Comtrade**	**World Bank**	**USGS**	**Multicolour**
pozzolan				
pozzolana				
pumice			X	
pyrophyllite			X	
quartz	X		X	X
quartzite				
rare earths			X	
rebar				
rhenium	X		X	
rhodium	X			
rhyolite				
ruby	X			X
ruthenium	X			
salt	X		X	
sand	X			
sand and gravel	X		X	
sandstone	X			
sapphire	X			X
scoria				

Continued on next page

Table D6 : Source of Resource Prices – *continued*

Resource	**UN Comtrade**	**World Bank**	**USGS**	**Multicolour**
selenium	X		X	
sepiolite				
silica	X			
silicomanganese				
silicon	X		X	
silver	X	X	X	
soapstone				
soda ash	X		X	
sodium				
sodium nitrate	X			
sodium silicate				
sodium sulfate			X	
sodium tripolyphite	X			
steel			X	
stone	X		X	
strontium	X		X	
sulfur	X		X	
sulfuric acid	X			
synthetic fuels				

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Table D6 : Source of Resource Prices – *continued*

Resource	**UN Comtrade**	**World Bank**	**USGS**	**Multicolour**
talc	X		X	
tantalite				
tantalum	X		X	
tanzanite				X
tellurium	X		X	
tin	X	X	X	
titanium			X	
titanium oxide				
tourmaline				X
travertine				
tuff				
tungsten	X		X	
tungsten anhydrite				
turquoise				X
uranium	X			
urea	X	X		
vanadium	X		X	
vanadium pentoxide	X			
vermiculite	X			

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Table D6 : Source of Resource Prices – *continued*

Resource	**UN Comtrade**	**World Bank**	**USGS**	**Multicolour**
wolframite				
wollastonite			X	
zeolite				
zinc	X	X	X	
zircon				X
zirconium	X		X	