

The Smuggling of Art, and the Art of Smuggling: Uncovering the Illicit Trade in Cultural Property and Antiques[†]

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We empirically analyze the illicit trade in cultural property and antiques, taking advantage of different reporting incentives between source and destination countries. We generate a measure of illicit trafficking in these goods by comparing imports recorded in United States' customs data and the (purportedly identical) trade recorded by customs authorities in exporting countries. This reporting gap is highly correlated with corruption levels of exporting countries. This correlation is stronger for artifact-rich countries. As a placebo test, we do not observe any such pattern for US imports of toys. We report similar results for four other Western country markets. (JEL F14, K42, Z11, Z13)

All countries impose restrictions on the export of various classes of cultural property and antiques,¹ ranging from archeological objects, to coins, to older art works.² Hence, their sale abroad often requires their illegal export from the country of origin. As with other activities of questionable legality, however, it has been difficult to put a precise figure on the full extent of trafficking in cultural goods—estimates of the illegal trade in cultural objects range from \$300 million to \$6 billion per year (Roger Atwood 2004). Collectively, these illicit activities represent the darker side of globalization. Smuggling requires extra legal activities that may abet corruption, impose a strain on international relations, and potentially dampen the gains from legitimate international trade.³ Unfortunately, we have little systematic knowledge of the dynamics of illicit trade, as data on illegal activities are, by their very nature, difficult to obtain.

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¹ Henceforth, referred to as cultural objects or antiques. Throughout this paper we will be considering those products that, by international trade classification, belong to Harmonized System (HS) Product Code 9706 (antiques of an age exceeding 100 years).

² The specific classes of objects that are restricted from export, as well as the rules for gaining permission to export restricted objects, differ across countries. The rules defy simple categorization or measurement of restrictiveness. See Lyndell V. Prott and Patrick J. O'Keefe (1988) for the most recent comprehensive description of these laws worldwide.

³ See Peter Andreas (1998) for an overview of these issues.

In this paper, we analyze the illicit trade in cultural objects by taking advantage of a unique aspect of their trade relative to other forms of smuggling, that is, the stark difference in legality of shipments between importing and exporting countries. In particular, the exportation of broad classes of cultural objects is prohibited by most countries without a special permit. However, once these (illegally) exported goods have left the country of origin, they are not generally regarded as contraband when imported into their destination, absent additional agreements that we discuss below (Patty Gerstenblith 2008). In the United States specifically, there is a strong incentive to report accurately on the importation of cultural objects. Any goods entering the United States that are not declared properly are subject to customs seizure. Further, the zero tariff rate on antiques and cultural objects entering the country removes any incentive to misdeclare valuation (US Department of Homeland Security 2006). Even in cases where importation is of questionable legality, differences in the burden of proof between exporting countries and the United States generally allow for the relatively easy import of goods whose export would not have been permitted by the source country.

As a result of these asymmetric reporting incentives, reported imports of cultural objects into the United States provide a plausible measure of the “true” level of trade in these goods that we may compare with the export levels reported by countries rich in cultural objects. The difference between these two trade figures provides a credible measure of illegal exports. In this paper, we present a measure of smuggling in cultural objects based on this reporting gap between recorded exports on an exporter’s side and the recorded imports by US Customs. Without smuggling (and measurement error), the reporting gap should be zero. If the gap were pure measurement error, it should not be correlated with country-level attributes.

Are there country characteristics that might facilitate the illicit export of cultural objects from the source country? Not surprisingly, when smugglers are apprehended and their operations exposed, their activities are often found to be facilitated through the bribing of customs officials to look the other way (Neil Brodie, Jenny Doole, and Peter Watson 2000).

Consistent with corruption as an explanation for the illicit antiques trade, we find that our smuggling measure is highly correlated (with correlation coefficient = 0.52) with standard cross-country, survey-based corruption indices. This pattern is robust to the inclusion of region effects and controls for countries’ endowments of desirable/collectible cultural objects. Interestingly, our smuggling variable is uncorrelated with the log of income per capita once the exporter’s corruption level is controlled for, so, it is unlikely that we are picking up the effects of country-level wealth. Measures of effective rule of law are also uncorrelated with the smuggling gap once we control for corruption, arguing against explanations based on legal compliance.

Several additional tests lend further support to our interpretation of the results. First, we run a placebo regression using data on the reporting gap for US toy imports (i.e., the United States’ reported imports of toys from a country, minus that country’s reported exports of toys to the United States in the same year). As with the import of cultural objects into the United States, toy imports face a tariff rate of zero. However, in contrast to our findings for cultural objects, in the case of toys, we observe no correlation between an exporter’s corruption level and the customs reporting gap,

suggesting that cultural objects do, indeed, present a special case. Thus, our results cannot be explained by poor customs records in some exporting countries, since this should affect trade data for toys and antiques equally. Second, the relationship between exporting country corruption and the smuggling gap is particularly strong for those countries that are relatively better endowed in cultural objects. Finally, we report results for four other significant importing countries: Canada, Germany, Great Britain, and Switzerland, all with zero tariffs on cultural objects. We find a positive relationship between corruption and the “smuggling gap” for all four countries.

Thus, our paper provides a first empirical analysis of the trade in restricted goods, and also provides comparable cross-country estimates on the smuggling of contraband.⁴ While we contribute to the growing literature on measuring underground activities using differential reporting incentives (see, for example, Fisman and Wei 2004; Dean Yang 2008; Prachi Mishra, Petia Topalova, and Arvind Subramanian 2008), there are two key departures from prior work. First, earlier studies have focused largely on a single exporting country. Second, previous research has looked at tariff evasion rather than the trafficking of illegal objects. By contrast, cultural objects imports face no tariffs in the United States and other major markets (hence, tariff evasion is not the motivation), but are often subject to export controls in the country of origin.

The rest of this paper is organized as follows. Section I provides a short background on laws governing the trade in antiques and cultural goods. Section II provides a description of the data, and Section III presents our results. Section IV concludes.

I. Legal Background on International Trade in Cultural Property and Antiques⁵

Goods that have been exported illegally from one country are not generally regarded as contraband when imported into the United States, absent some further agreement.⁶ In the case of antiques and cultural objects, there are some limited, albeit important, statutes that provide some constraints on the importation of some classes of goods. However, as we discuss below, these constraints are generally quite limited in scope and relatively difficult to enforce.

In the United States, trade in cultural objects and antiques, which we focus on in this paper, is covered by the Convention on Cultural Property Implementation Act (CPIA).⁷ The CPIA is the result of the 1970 UNESCO Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property, an international agreement intended to control trade in such

⁴ Another related paper is Fisman and Edward Miguel (2007), who use parking violations of UN diplomats in New York as a cross-country measure of corruption norms. Relative to that study, our method has the advantage of focusing on customs, a much larger (and often notoriously corrupt) branch of the civil service in many countries.

⁵ This section draws heavily on Lisa J. Borodkin (1995) and Gerstenblith (2008). We provide only a cursory discussion here. Please see these references for further details.

⁶ In fact, the Department of Homeland Security guide to importers makes this point explicitly. See http://www.cbp.gov/linkhandler/cgov/trade/legal/informed_compliance_pubs/icp061.ctt/icp061.pdf (accessed August 30, 2008) for further details.

⁷ See Article 1 of the UNESCO Convention for a more detailed description of the objects covered under these laws, available at <http://unesdoc.unesco.org/images/0011/001140/114046e.pdf#page=130> (accessed August 30, 2008).

objects. This agreement required that signatories take steps to make illegal the importation and/or sale of objects that were removed illegally from any country that was party to the convention. The UNESCO Convention was ratified by the United States in 1972, but required further action by Congress before its statutes became law. This was done in a very limited form through the CPIA, which resulted in the implementation of just two sections of the UNESCO Convention.

First, the CPIA prohibits the import, into the United States, of stolen objects that had been documented in the inventory of a public or secular institution in countries that are signatories to the convention. Second, the CPIA grants the president the authority to impose further import restrictions on specific types of objects through bilateral agreements with other countries. The other nation must request such an agreement. The United States has signed 12 agreements, and in 8 cases the agreements were signed during 1996–2005.⁸ However, the existing agreements primarily have addressed trade only for a narrow range of objects (e.g., pre-Columbian artifacts from the Petén in Guatemala, or pre-Classical and Classical archaeological objects in Cyprus). Further, the CPIA provides only for civil forfeiture of the products in question and has no criminal penalties. Thus, overall, the CPIA has very limited coverage and weak punishment, and has rarely been invoked in actions against traffickers.

The second law that has been used to confront trafficking is the US National Stolen Property Act (NSPA) of 1934, which criminalizes the knowing transport, receipt, and possession of stolen property worth more than \$5,000 across international (or state) boundaries. The NSPA provides harsher penalties than the CPIA. An individual who knowingly engages in this conduct can be criminally prosecuted. This turns out to be effective in the prosecution of trafficking in stolen objects that have come from known collections in a foreign country. More substantially, the NSPA has been applied in recent years to prosecuting smugglers of recently discovered objects. This derives from laws enacted in most countries with rich cultural endowments that assign ownership of unearthed objects to the government. These ownership laws apply to any objects discovered or excavated after the effective date of the statute. If an object is excavated (or looted) after this date and removed from the country without permission, then the object is considered stolen from the government and retains its status as stolen even after it is brought to the United States. There are two major difficulties in the enforcement of this law, however. First, it has to be proven that the object originated from a particular country. Second, it has to be proven that the object was excavated illegally after the national ownership law was passed. We expect the law to have a limited impact on our measure of smuggling, since items that can be proven to have been excavated recently represent only a fraction of the overall trade in cultural objects.⁹ Further, it has been difficult, in practice, to bring

⁸ We did examine whether the gap between reported exports and imports of antiques and cultural property was affected by the signing of these agreements. Our specifications generally produced coefficients that were consistent with a decreased gap in response to a treaty. However, the results were generally not significant and very sensitive to specification and classification of initial year of treaty and emergency agreements. This is not surprising given the very narrow focus on archaeological objects, the small sample size, and the noise in the data. Given the difficulties in interpreting these results, we do not focus on them in this paper.

⁹ Personal communication with Gerstenblith.

cases to court under the NSPA. Many objects have been brought to the United States without the knowledge of authorities in the exporting country. Even when an object in the United States becomes known to the government of the exporter, because the burden of proving that an object has an illegal background falls on the government or claimant of the exporting country, the proof may be inadequate in a US court.

In addition to the near absence of punishment for the importation of cultural objects, these products face a zero tariff rate. Thus, there is, overall, very little incentive to misreport to US customs.

On the other hand, there exists some positive incentive to report truthfully upon entry into the United States, as improper declaration of the goods (e.g., lying about the value or the country of origin) may result in forfeiture.

Turning, now, to regulations in source countries, most have laws on the books that restrict the export of cultural objects. In most cases, laws shift the burden of proof to the would-be exporter. Many nations follow a licensing scheme where permission is required for export, and others apply their national ownership laws proactively where documentation is required for export (Protts and O'Keefe 1988). As noted in the introduction, however, corruption is thought to be rife in many such countries, and, hence, exported objects may circumvent legal channels.

In summary, there is a stark asymmetry in the reporting imperatives between exporting nations and the United States. In exporting nations, traders may either not declare cultural objects to customs at all or obscure the true value of an object (e.g., label it as a cheap tourist souvenir). On the importing side, the incentives to provide misleading information are more limited, and given the potential for seizure by the US government for false declaration, there exist some incentives for truthful revelation.

II. Data

Our import and export data come from the World Integrated Trade Solution (WITS) database, which in turn gets its trade statistics from the United Nations' Comtrade database. These data are collected by the United Nations Statistical Division from the trade records of individual countries, and include information on imports and exports for each country, recorded according to the six-digit Harmonized Commodity Description and Coding System (HS). We use data for all years for which data are available on imports and exports, which results in an unbalanced panel for 1996–2005. We will also report results from a balanced panel, constructed from a subset of the original unbalanced panel.

Most export-restricted objects are classified as having HS code 9706 (antiques of an age exceeding 100 years).¹⁰ Some products in this category are not subject to export controls, and some products that are subject to restrictions take other classifications. We will also report results based on an aggregation to the two-digit HS code level (HS 97, works of art, collectors' pieces, antiques). This is more comprehensive

¹⁰ See, for example, the European Union guidelines for the protection of cultural property (<http://www.culture.gov.uk/images/publications/EUGuidelinesforculturalgoods.pdf>) (accessed on August 28, 2008).

but also potentially incorporates greater noise due to the inclusion of noncontrolled objects. All products in HS code 97 enter the United States tariff free.

Our primary outcome variable is given by

$$(1) \quad \textit{Antiques_Gap}_{cy} = \log(1 + \textit{US_Imports}_{cy}) - \log(1 + \textit{Exports_to_US}_{cy}),$$

where c indexes country, y indexes year, $\textit{US_Imports}_{cy}$ is the imports reported by the United States from country c , and $\textit{Exports_to_US}_{cy}$ is the exports reported by country c destined for the United States. The industry subscript is suppressed and is HS code 9706 unless otherwise noted. As an alternative measure of the antiques gap, we use the percentage gap, defined as

$$(2) \quad \textit{Antiques_ \%Gap}_{cy} = (\textit{US_Imports}_{cy} - \textit{Exports_to_US}_{cy}) / \textit{US_Imports}_{cy}.$$

As a placebo test, we will look at the reporting gap for toys (HS code 9503) that also come into the United States tariff free. We define $\textit{Toys_Gap}_{cy}$ analogously to our $\textit{Antiques_Gap}$ above.

Our primary measure of corruption ($\textit{Corruption}_{cy}$) is from the World Bank Institute (Daniel Kaufman, Aart Kraay, and Pablo Zoido 1999), which generates a composite corruption rating that is essentially the first principal component of all other available (mostly subjective) corruption indices of country c in year y . To avoid confusion, we use the negative of the values presented in Kaufman, Kraay, and Zoido (1999) so that a bigger value represents a higher level of corruption. This variable is available for 1996, 1998, 2000, and 2002–2005. Since virtually all variation is cross-sectional, we use the lagged value of $\textit{Corruption}_{cy}$ for 1997, 1999, and 2001.

In one of our extensions, we also control for rule of law, a distinct, but related, potential cause of reporting gaps. We use the Kaufman, Kraay, and Zoido (1999) measure of rule of law (\textit{Law}), constructed in a similar manner to their corruption measure, with coverage for the same years.

It may be useful to account for the endowment of country's cultural objects, especially those considered desirable in the major buyer's markets. Our proxy for this is premised on the assumption that a country's endowment of such objects is highly correlated with (or proportional to) the holdings of that country's cultural objects by the Metropolitan Museum of Art (the Met) in New York. The Met's collection affords a number of advantages in generating a measure for the potential supply of desirable cultural objects. First, most of its holdings were acquired prior to the advent of international agreements to control the global flow of cultural property. Second, its collection is vast, and its mission provides a general mandate to "collect, preserve, study, exhibit, and stimulate appreciation for and advance knowledge of works of art that collectively represent the broadest spectrum of human achievement." Hence, its collections are not focused on any particular country or region. An inventory of the Met's full collection has not been put in digital form. We use the listing of the museum's highlights available on the Met's Web site, restricting our

attention to pre-nineteenth century non-US collections that would be affected by export restrictions in the source countries.¹¹

We generate a simple count variable ($MetHoldings_c$) based on the 493 (pre-nineteenth century) objects listed, reflecting the number of objects in the highlights collection from each country c . In almost all cases, a single country is listed as the origin of the object. Where multiple countries are listed, we assign partial points equally to all countries. Finally, ancient regions are listed for 23 objects. We assign partial points equally to all countries that overlap geographically with the ancient region. For example, for the three objects from the Levant, we assign 0.2 points each to Israel, Syria, Lebanon, Egypt, and Jordan. Given the high dispersion in $MetHoldings_c$, we employ an indicator variable, $MetDummy_c$, that denotes whether $MetHoldings_c$ is positive, and also $\log(1 + MetHoldings_c)$, in our analyses.

We use gross domestic product (GDP) per capita in 2000 US dollars ($GDPPCUS_{cy}$), taken from the *World Development Indicators* database, as a control for the overall level of economic development. Finally, we allow for region-year fixed effects, where the regions are North America and the Caribbean, Latin America, Europe, Africa, Asia, Oceania, and the Middle East.

We restrict our attention for the sample with data available on $GDPPCUS_{cy}$, $Corruption_{cy}$, and $Antiques_Gap_{cy}$, yielding a final unbalanced sample of 1,193 country-year observations for HS code 9706, covering 162 countries (the sample will differ slightly when we broaden our sample to include all trade data for HS code 97). We present summary statistics in Table 1, panel A for the full sample, and also the sample split based on countries' median values of $Antiques_Gap_{cy}$. Strikingly, the difference in $Corruption_{cy}$ between the two groups is 1.14, which is a very large number given $Corruption_{cy}$'s standard deviation of 1.07. However, this may be somewhat confounded by the correlation with income that is also evident in Table 1. There is also a significant difference in $\log(1 + MetHoldings_c)$ and $MetDummy_c$ for the two groups. Finally, we note that there are many more observations per country for the high $Antiques_Gap_{cy}$ subgroup. This is unsurprising, as these are countries for which there is a steadier trade in this HS code.

In panel B, we show the $Antiques_Gap$ for the other four importing countries: Canada, Switzerland, Germany, and Great Britain. The number of observations is substantially smaller for each of these than it is for the United States. This underscores the rationale for focusing on the United States for our primary results, as the largest import market for antiques.¹²

III. Results

In Figure 1, we present the raw relationship between $Corruption_c$ and $Antiques_Gap_{cy}$ for the year 2000. There is a clear positive relationship (with a correlation

¹¹ http://www.metmuseum.org/Works_of_Art/collection.asp?HomePageLink=permanentcollection_1 (accessed on August 28, 2008). The specific categories that we use are Ancient Near Eastern; Arts of Africa, Oceania and the Americas; Greek and Roman Art; Asian Art; Egyptian Art; Islamic Art; European Paintings; and pre-nineteenth century European Sculptures.

¹² We also note that data quality issues for a larger set of importers dissuaded us from broadening the sample further.

TABLE I—SUMMARY STATISTICS

	Mean	SD	Min	Max	Observations
<i>Panel A: US data</i>					
Antiques_Gap	3.83	2.70	-3.58	10.65	1193
Toys_Gap	0.98	1.66	-5.29	8.48	972
Corruption	-0.07	1.07	-2.52	2.13	1193
log(GDPPCUS)	7.82	1.60	4.45	11.21	1193
MetDummy	0.40	0.49	0.00	1.00	162
log(1 + MetHoldings)	0.59	0.95	0.00	4.04	162
log(Distance)	9.07	0.44	7.64	9.71	161
Above median Antiques_Gap					
Corruption	0.49	0.57	-1.72	2.13	602
log(GDPPCUS)	7.11	1.18	4.45	10.09	602
MetDummy	0.62	0.49	0.00	1.00	69
log(1 + MetHoldings)	0.91	1.05	0.00	4.04	69
log(Distance)	9.13	0.42	7.92	9.65	68
Below median Antiques_Gap					
Corruption	-0.65	1.15	-2.52	1.36	591
log(GDPPCUS)	8.54	1.66	4.95	11.21	591
MetDummy	0.24	0.43	0.00	1.00	93
log(1 + MetHoldings)	0.35	0.79	0.00	3.78	93
log(Distance)	9.03	0.46	7.64	9.71	93
<i>Panel B: Gaps for other countries</i>					
Canada	1.93	1.88	-4.03	6.93	528
Switzerland	1.73	2.45	-8.73	8.84	470
Germany	1.01	2.21	-6.52	8.77	483
Great Britain	2.60	2.60	-4.80	12.35	692

Notes: *Antiques_Gap* is defined as $\log(1 + US_Imports) - \log(1 + Exports_to_US)$, where *US_Imports* are imports reported by the United States for HS Code 9706 (antiques of an age exceeding 100 years) from country *c*, and *Exports_to_US* are exports destined for the United States for HS Code 9706 from country *c*. *Corruption* is (the negative of) the Kaufman et al. (2006) measure of corruption. *GDPPCUS* is per capita income for country *c* in constant 2000 US dollars. *MetDummy* denotes that country *c* is reported as the country of origin for at least one item in the Metropolitan Museum of Art's highlights collection. *MetHoldings* is the number of pre-nineteenth century items in the Metropolitan Museum's highlights collection. *Corruption* and *GDPPCUS* are country-year level observations; *MetDummy* and *MetHoldings* are country-level observations. See Section II of the text for further information and sources.

coefficient $\rho = 0.52$), more corrupt countries are more likely to underreport exports to the United States relative to the US customs import data. It is interesting to note that many countries that are well endowed in ancient objects (Egypt, Syria, Iran, Greece, and Russia) are well above the regression line. The reason for this is intuitive. As noted in Section II, illegal exports constitute only a component of HS 9706, and it is plausible that this component is higher for such countries. In fact, for $MetDummy_c = 0$ countries, the average value of $Antiques_Gap_{cy}$ is 2.90. For $MetDummy_c = 1$ countries, the average value of $Antiques_Gap_{cy}$ is 4.98. This suggests the importance of controlling for a country's stock of desirable objects, which we do now in a regression framework.

Our baseline specification is as follows:

$$(3) \quad Antiques_Gap_{cy} = \alpha + \beta_1 Corruption_{cy} + \beta_2 MetDummy_{cy} \\ + Controls_{cy} + Region\text{-}Year\text{ Fixed Effects} + \varepsilon_{cy}$$

TABLE 2—CORRELATION BETWEEN CORRUPTION AND ANTIQUES SMUGGLING

	(1)	(2)	(3)	(4)	(5)
Corruption	1.371*** (0.111)		1.602*** (0.222)	1.468*** (0.235)	1.653*** (0.413)
log(GDPPCUS)		-0.720*** (0.098)	0.182 (0.163)	0.014 (0.199)	-0.0136 (0.223)
Law					0.243 (0.518)
Fixed effects	Year	Year	Year	Region × Year	Region × Year
Observations	1,193	1,193	1,193	1,193	1,193
R ²	0.30	0.18	0.30	0.40	0.396

Notes: Robust standard errors are in parentheses, clustered by country. The dependent variable in all regressions is *Antiques_Gap*, which is defined as $\log(1 + US_Imports) - \log(1 + Exports_to_US)$, where *US_Imports* are imports reported by the United States for HS Code 9706 from country *c*, and *Exports_to_US* are exports destined for the United States for HS Code 9706 from country *c*. *Corruption* is (the negative of) the Kaufman et al. (2006) measure of corruption. *GDPPCUS* is per capita income for country *c* in constant 2000 US dollars. *Law* is the rule of law measure from Kaufman et al. (2006). See Section II of the text for further information and sources.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

without complicit customs officials. We include a measure of rule of law (*Law*) to assess this possibility. Given the parallels between these two explanations, and the very high correlation between *Corruption* and *Law* ($\rho = 0.94$), it may not be possible to distinguish between them. The results presented in column 5, however, favor the corruption story. When both *Law* and *Corruption* are included as covariates, the coefficient on *Corruption* is similar to that of earlier regressions, while the coefficient on *Law* is indistinguishable from zero (t -statistic = 0.47).

We also experimented with specifications that included a variety of additional controls such as geographic distance, English as primary language, and legal origin. None of these substantively affected our results, and we suppress them to save space.

Some of the outlying observations, in Figure 1, also suggest the importance of controlling for countries' stocks of desirable cultural property. For countries with many desirable objects that are export-restricted, we expect a larger rate of underreporting for HS 9706 goods. We explore the impact of object richness on the link between the antiques gap and corruption in Table 3. In column 1, we include *MetDummy_c* and find that it is highly significant and quantitatively large, implying that *Antiques_Gap_{cy}* is more than doubled for countries with objects in the Met's collection highlights. The inclusion of *MetDummy_c* has very little effect on the coefficient on *Corruption_{cy}*. We also expect the marginal impact of corruption to be greater for countries with larger stocks of cultural objects. In the absence of such objects, the reporting gap should be largely noise, and uncorrelated with corruption. We expect a larger effect of corruption as the potential for smuggling increases. We report these results in column 2 and find that the interaction term is highly significant with a magnitude of about 0.5.¹³

¹³ If we include $\log(GDPPCUS_{cy}) \times MetDummy_c$ as a control, we find it to be insignificant, and the coefficient on $Corruption_{cy} \times MetDummy_c$ is unaffected.

TABLE 3—IMPACT OF OBJECT-RICHNESS

	(1)	(2)	(3)	(4)
Corruption	1.404*** (0.213)	1.165*** (0.219)	1.385*** (0.211)	1.117*** (0.192)
log(GDPPCUS)	0.005 (0.176)	0.004 (0.175)	−0.024 (0.174)	0.027 (0.162)
MetDummy	1.105*** (0.280)	1.153*** (0.272)		
MetDummy × Corruption		0.535*** (0.202)		
log(1 + MetHoldings)			0.783*** (0.161)	0.930*** (0.131)
log(1 + MetHoldings) × Corruption				0.519*** (0.103)
Fixed effects	Region × Year	Region × Year	Region × Year	Region × Year
Observations	1,193	1,193	1,193	1,193
R ²	0.75	0.75	0.75	0.75

Notes: Robust standard errors are in parentheses, clustered by country. The dependent variable in all regressions is *Antiques_Gap*, which is defined as $\log(1 + US_Imports) - \log(1 + Exports_to_US)$, where *US_Imports* are imports reported by the United States for HS Code 9706 from country *c*, and *Exports_to_US* are exports destined for the United States for HS Code 9706 from country *c*. Corruption is (the negative of) the Kaufman et al. (2006) measure of corruption. *GDPPCUS* is per capita income for country *c* in constant 2000 US dollars. *MetDummy* denotes that country *c* is reported as the country of origin for at least one item in the Metropolitan Museum of Art's highlights collection. *MetHoldings* is the number of pre-nineteenth century items in the Metropolitan Museum's highlights collection. *Corruption* and *GDPPCUS* are country-year level observations; *MetDummy* and *MetHoldings* are country-level observations. See Section II of the text for further information and sources.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

In columns 3 and 4, we repeat our analyses using $\log(1 + MetHoldings_c)$ in place of *MetDummy_c*. The implied magnitudes are very similar for both measures.

We present results for four additional countries that are potential destination markets for cultural objects. Note that Switzerland and Great Britain had not ratified the 1970 UNESCO Convention until very recently. Germany is still not a signatory to the convention. By contrast, our fourth country, Canada, ratified the 1970 UNESCO Convention and passed the Cultural Property Export and Import Act, which provides stringent controls on importing cultural objects that were illegally exported, in 1978. By many accounts enforcement has been spotty, however, and only five cases of illegal imports have been resolved since 1992 (Department of Canadian Heritage 2003, 2005). In Table 4, we present results using our preferred specification which includes Region × Year dummies. In all cases, the coefficient on *Corruption_{cy}* is in the range of 0.5–1 and significant at the 1 percent level.¹⁴ This is surprising and interesting given the range of legal statutes across the four markets. Switzerland has a reputation as a haven for laundering the provenance of ancient art, whereas Canada has potentially strong legal sanction against trafficking in cultural property.

¹⁴ Perhaps surprisingly, the coefficient on *MetDummy_c* does not take on any consistent sign across specifications. This may reflect different tastes for artifacts across countries, as our measure is US-based.

TABLE 4—PREDICTING THE ANTIQUES_GAP IN OTHER IMPORTING COUNTRIES

	(1)	(2)	(3)	(4)
Corruption	0.582** (0.286)	0.807*** (0.248)	0.761** (0.335)	0.924*** (0.323)
log(GDPPCUS)	-0.134 (0.231)	0.035 (0.205)	-0.073 (0.241)	0.241 (0.256)
MetDummy	-0.222 (0.328)	0.996*** (0.323)	-0.030 (0.348)	0.274 (0.325)
Importing country	Switzerland	Germany	Great Britain	Canada
Observations	470	483	692	528
R ²	0.38	0.35	0.33	0.27

Notes: Robust standard errors in parentheses, clustered by country. The dependent variable in all regressions is *Antiques_Gap*, which is defined as $\log(1 + \text{Imports}_{by_k}) - \log(1 + \text{Exports}_{to_k})$, where *Imports_{by_k}* are imports reported by country *k* (Switzerland, Germany, UK, or Canada) for HS Code 9706 from country *c*, and *Exports_{to_k}* are exports destined for country *k* for HS code 9706 as reported by country *c*. *Corruption* is (the negative of) the Kaufman et al. (2006) measure of corruption. *GDPPCUS* is per capita income for country *c* in constant 2000 US dollars. *MetDummy* denotes that country *c* is reported as the country of origin for at least one item in the Metropolitan Museum of Art's highlights collection. *Corruption* and *GDPPCUS* are country-year level observations; *MetDummy* is a country-level observation. See Section II of the text for further information and sources.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

Finally, in Table 5, we present a range of additional robustness tests. In column 1, we report results using exporter-level medians to take away the time-series element of our variation. The coefficient on *Corruption_{cy}* is 1.30, marginally lower than the coefficients reported in Table 2, but still statistically significant. Column 2 presents results for imports and exports for HS code 97 (works of art, collectors' pieces, antiques, of which 9706 is a subset), since some cultural property may be classified in other four-digit classes, such as paintings (9701) or sculpture (9703). We obtain similar, though somewhat weaker, results than those reported in Table 2. As previously noted, this may result from the fact that many products in HS 97, but outside of HS 9706, may not face export restrictions and therefore have no reason to be misdeclared to customs of the exporting country. In column 3, we show our results with exporting country fixed effects included. While the coefficient on *Corruption_{cy}* is still positive, it is no longer significant. This is not surprising, given that most of the variation in *Corruption_{cy}* is cross sectional. In columns 4 and 5, we use alternative outcome measures of the smuggling gap. First, we use $\log(1 + \text{US_Imports}_{cy}) - \log(1 + \text{Exports}_{to_US}_{cy})$, omitting any observation when either imports or exports are zero. Additionally, we use the percentage difference between imports and exports, $(\text{US_Imports}_{cy} - \text{Exports}_{to_US}_{cy})/\text{US_Imports}_{cy}$. We obtain similar results with these alternative measures.

Finally, we include results using HS code 9503 (toys not elsewhere specified or included, scale models etc., puzzles, parts, etc.), by far the largest component of the two-digit HS code 95. We also report results using the entire HS 95 industry. As a placebo regression, this industry has the advantage of having had a zero tariff rate since 1994 (and hence no incentive for importers to lie to US customs). We report results for HS 9503 and HS 95 in columns 6 and 7, respectively. In both cases,

TABLE 5—ROBUSTNESS TESTS AND EXTENSIONS

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Corruption	1.298*** (0.198)	0.983*** (0.205)	0.291 (0.311)	1.003** (0.396)	0.381*** (0.101)	-0.090 (0.197)	-0.036 (0.203)
log(GDPPCUS)	0.021 (0.143)	-0.154 (0.151)	0.305 (0.390)	-0.410 (0.345)	-0.0484 (0.0676)	-0.281** (0.139)	-0.553*** (0.175)
MetDummy	1.396*** (0.288)	1.098*** (0.244)		1.160** (0.450)	0.225* (0.116)	0.091 (0.209)	0.099 (0.308)
HS code	9706	97 Work of art	9706	9706	9706	9503 Toys	95 Toys
Fixed effects	Region	Region × Year	Country and Year	Region × Year	Region × Year	Region × Year	Region × Year
Specification	x-section	Panel	Panel	Panel	Panel	Placebo	Placebo
Observations	162	1,439	1,193	392	1,182	972	1,221
R ²	0.50	0.34	0.75	0.52	0.14	0.19	0.19

Notes: Robust standard errors are in parentheses, clustered by country. The dependent variable in columns 1–3 is *Antiques_Gap*, which is defined as $\log(1 + US_Imports) - \log(1 + Exports_to_US)$, where *US_Imports* are imports reported by the United States from country *c*, and *Exports_to_US* are exports destined for the United States from country *c*. The relevant industry code is listed above in the table. The dependent variable in column 4 is $\log(US_Imports) - \log(Exports_to_US)$; in column 5, the dependent variable is *Antiques_PCTGap* ($(US_Imports - Exports_to_US)/US_Imports$). Finally, the dependent variable in columns 6 and 7 is *Toys_Gap*, where the relevant industry code is listed in the table. Specification 1 employs a cross section with country-level medians from 1996–2005 of all variables; columns 2–7 use all years individually. *Corruption* is (the negative of) the Kaufman et al. (2006) measure of corruption. *GDPPCUS* is per capita income for country *c* in constant 2000 US dollars. *MetDummy* denotes that country *c* is reported as the country of origin for at least one item in the Metropolitan Museum of Art's highlights collection. *Corruption* and *GDPPCUS* are country-year level observations; *MetDummy* is a country-level observations. See Section II of the text for further information and sources.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

the coefficient on $Corruption_{cy}$ is indistinguishable from zero. This suggests that the positive association between exporter's corruption and the reporting gap for the imports of cultural objects to the United States is unlikely due to some missing factors that are common across product lines such as underreporting of exports due to sloppy customs records in corrupt countries.

IV. Conclusions

Exploiting different reporting incentives in the trade in cultural objects and antiques between the exporter (e.g., Egypt) and the importer (e.g., the United States) sides, this paper provides a gauge for illicit trade in cultural goods. We find strong and robust evidence that the percentage of underrecording of exports of cultural objects is highly correlated to the exporting country's level of corruption as measured by a composite of subjective indices. Furthermore, the association between the two is stronger for countries that are particularly well-endowed in export-restricted cultural objects that are considered to be desirable in major markets.

We provide a number of contributions. First, we present a simple methodology that can be applied to generate cross-country estimates of illicit trade. This has become feasible only in recent years when large and highly disaggregated trade

data from importing and exporting countries have been made available.¹⁵ While some additional creativity will be required to apply this method to other types of illicit trade, we believe that the approach will prove to be useful. For example, some legal inputs are required in the production of illegal drugs. Potassium permanganate, for example, is used to produce crack cocaine, but also many other products. As a result, it is a controlled substance in some countries, such as Colombia, but much less tightly regulated in others. This type of legal asymmetry may, similarly, lead to different reporting incentives that could be utilized in tracking other illicit trade.

Second, we provide an important contribution to the literature on measuring corruption. Since the mid-1990s, there has been an explosion in the use of corruption indices in empirical research. Because corruption is illegal in most countries, almost all available measures are subjective indices based on surveys of citizens, experts, or firms. By finding a clear association between smuggling in cultural objects based on objectively collected trade data and a commonly used subjective corruption ranking, this paper provides valuable and independent confirmation that the survey-based corruption measures contain useful information.

While it is tempting to try to use our results to calibrate the total volume of trafficking in cultural objects into the United States and worldwide, it is not possible to generate such an estimate based solely on our analyses. First, the “trade gap” between reported imports and reported exports is generally positive for all goods. We are interested in the correlates of this gap rather than the level of the gap itself. Further, if we wish to use our regression results for such calculations, the numbers we produce will be highly sensitive to our assumptions of the extent of trafficking from very low-corruption source countries. Given that our results are expressed in terms of elasticities, any change in this assumption will naturally generate a proportionate increase in the final measure of total trafficking. We will leave this type of exercise for future work.

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¹⁵ As a practical implication for law enforcement communities, real-time cross-checking of export and import declarations may provide an extra tool to capture smuggling.

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