

NBER WORKING PAPER SERIES

THE SMUGGLING OF ART, AND THE ART OF SMUGGLING:  
UNCOVERING THE ILLICIT TRADE IN CULTURAL PROPERTY AND ANTIQUES

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Working Paper 13446  
<http://www.nber.org/papers/w13446>

NATIONAL BUREAU OF ECONOMIC RESEARCH  
1050 Massachusetts Avenue  
Cambridge, MA 02138  
September 2007

We thank Daron Acemoglu, Ben Olken, Zhi Wang, and particularly Patty Gerstenblith for very helpful discussions, and Andre Heng and Chang Hong for superb research assistance. The views expressed herein are those of the author(s) and do not necessarily reflect the views of the National Bureau of Economic Research.

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NBER Working Paper No. 13446

September 2007

JEL No. F1,K42,O1,Z11

**ABSTRACT**

We empirically analyze the illicit trade in cultural property and antiques, taking advantage of different reporting incentives between source and destination countries. We thus generate a measure of illicit trafficking in these goods based on the difference between imports recorded in United States' customs data and the (purportedly identical) trade as recorded by customs authorities in exporting countries. We find that this reporting gap is highly correlated with the corruption level of the exporting country as measured by commonly used survey-based indices, and that this correlation is stronger for artifact-rich countries. As a placebo test, we do not observe any such pattern for U.S. imports of toys from these same exporters. We report similar results for four other Western country markets. Our analysis provides a useful framework for studying trade in illicit goods. Further, our results provide empirical confirmation that survey-based corruption indices are informative, as they are correlated with an objective measure of illicit activity.

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## 1. Introduction

The smuggling of antiques and cultural property is *thought* to be big business. All countries impose restrictions on the export of various classes of cultural property and antiques,<sup>1</sup> ranging from archeological objects to coins to older art works.<sup>2</sup> 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. For trade in antiquities (unearthed ancient objects), which makes up only one component of the total illegal trade in cultural objects, estimates ranging from \$300 million up to \$6 billion per year (Atwood, 2004). According to Interpol's estimates, the antiquities trade on its own ranks behind only drugs and arms in its scale of illegal trafficking (Toner, 1999). 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.<sup>3</sup> Thus, illicit trade is an important element of political economy and international trade. 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.

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: The stark difference in the legality and legal enforcement of a particular shipment between exporting and importing 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 (Gerstenblith, 2008). In the United States specifically, there is actually a strong incentive to report *accurately* on the importation of cultural objects: Any goods entering the United States that are not properly declared are subject to customs seizure; further, the zero tariff rate on antiques and cultural objects entering the country removes any incentive to misdeclare valuation (U.S. Department of Homeland Security, 2006). Even in cases

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<sup>1</sup> Henceforth referred to simply 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 one hundred years.

<sup>2</sup> 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 Prott and O'Keefe (1988) for the most recent comprehensive description of these laws worldwide.

<sup>3</sup> See Andreas (1998) for an overview of these issues.

where importation is of questionable legality, differences in the burden of proof between exporting countries and the U.S. 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 cultural object-rich countries. The difference between these two trade figures provides a credible measure of illegal exports.

What allows for 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 (Brody et al, 2000). Hence, the illegal and unreported export of cultural objects is relatively easy in countries with corrupt bureaucracies that allow for this type of transaction. Hence, if cross-country survey-based measures of corruption do indeed reflect underlying corruption realities, these measures should be good predictors of patterns of global trafficking in cultural objects. In this sense, we may use our measure that is derived from objectively measured trade data to assess the validity of these corruption indices that are often based on subjective perceptions.

In this paper, we present an objective measure of smuggling in cultural objects based on this reporting gap between recorded exports on an exporter’s side and the recorded imports by U.S. 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. However, we find that our smuggling measure is very highly correlated (with correlation coefficient =0.52) with standard cross-country survey-based corruption indices, thus providing compelling and objective validation of these indices. This pattern is robust to the inclusion of region effects and controls for countries’ endowment 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 simply picking up the effects of country-level wealth.

Several additional tests lend further support to our interpretation of the results. First, the corruption-smuggling gap relationship is stronger for object-rich countries. Second, we run a placebo regression using data on the reporting gap in the U.S imports of toys between the exporter’s and US customs (U.S. reported imports of toys from a country, minus that country’s

reported exports of toys to the U.S. in the same year). Similar to imports of cultural objects into the United States, toy imports also have a zero tariff rate on the U.S. side. In this case, 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. Finally, we report results for four other countries – Canada, Germany, Great Britain, and Switzerland – all with zero tariffs on cultural objects that are also reported to have a significant trade in these goods; we find a positive relationship between corruption and the 'smuggling gap' for all four countries.

Our paper thus makes two primary contributions: Most importantly, we provide a first empirical analysis of the trade in restricted goods, and further provide comparable cross-country estimates on the smuggling of contraband.<sup>4</sup> We thus contribute to the growing literature on measuring underground activities using differential reporting incentives (see, for example, Fisman and Wei, 2004; Yang, 2007; Mishra et al, 2007). However, we highlight two key departures from the prior literature: First, earlier studies have largely focused on a single exporting country; second, previous research has focused on tariff evasion rather than the trafficking of illegal objects. By contrast, cultural objects imports face no tariffs in the U.S. and other major markets (hence tariff evasion is not the motivation) but are often subject to export controls in the country of origin. Second, we provide a clear validation of subjective corruption indices based on objective trade data.

The rest of this paper is organized as follows: Section 2 provides a short background on laws governing the trade in antiques and cultural goods. Section 3 provides a description of the data, and Section 4 presents our results. Section 5 concludes.

## **2. Legal background on international trade in cultural property and antiques<sup>5</sup>**

Goods that have been illegally exported from one country are not generally regarded as contraband when imported into the United States, absent some further agreement.<sup>6</sup> In the case of cultural

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<sup>4</sup> Another related paper is Fisman and Miguel (2006), who using parking violations of U.N. 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.

<sup>5</sup> This section draws heavily on Borodkin (1995) and Gerstenblith (2008). We provide only a cursory discussion here; please see these references for further details.

<sup>6</sup> In fact, the Department of Homeland Securities guidance to importers makes this point explicitly. See [http://www.cbp.gov/linkhandler/cgov/toolbox/legal/informed\\_compliance\\_pubs/icp061.ctt/icp061.pdf](http://www.cbp.gov/linkhandler/cgov/toolbox/legal/informed_compliance_pubs/icp061.ctt/icp061.pdf) (downloaded April 2, 2007) for further details.

objects there are some limited, albeit important, statutes that do provide some constraints on the importation of some classes of goods. However, as we discuss below, these constraints are generally quite limited.

Trade in cultural property is covered in the United States by the Convention on Cultural Property Implementation Act (CPIA). In the CPIA, cultural property is defined as objects, collections, specimens, structures, or sites identified as having artistic, historic, scientific, religious, or social significance.<sup>7</sup> 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 cultural property. This agreement required that signatories take steps to make illegal the importation and/or sale of cultural objects that were removed illegally from any country that was party to the Convention. It was ratified by the United States in 1972, but required further action by the Congress before its statutes became law. This was done in a very limited form through the CPIA, 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 twelve agreements, and in eight cases there is variation during 1996-2005.<sup>8</sup> However, the existing agreements have mostly addressed trade only for a narrow range of objects (e.g., Pre-Columbian artifacts from the Petén in Guatemala and Pre-Classical and Classical archaeological objects in Cyprus). Further, the CPIA provides only for civil forfeiture of the products in questions and has no criminal penalties. Thus, overall, the CPIA has very limited coverage and weak punishment.

The U.S. National Stolen Property Act (NSPA) criminalizes the knowing transport, receipt, and possession of stolen property worth more than 5,000 dollars across international (or state)

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<sup>7</sup> See Article 1 of the UNESCO Convention for the full definition of cultural property, available at [http://www.unesco.org/culture/laws/1970/html\\_eng/page2.shtml](http://www.unesco.org/culture/laws/1970/html_eng/page2.shtml) (downloaded on April 17, 2007).

<sup>8</sup> 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.

boundaries. The NSPA provides harsher penalties than the CPIA. An individual who knowingly engages in this conduct can be criminally prosecuted. This effectively allows for the prosecution for trafficking in objects that can be proven to have come from known collections in a foreign country. More substantially, the NSPA has been applied in recent years in prosecuting antiquities smugglers. This derives from laws enacted in most countries with antiquities endowments that assign ownership of unearthed antiquities 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. However, we expect this to have a very limited impact on our measure of smuggling, since antiquities represent only a fraction of the overall of trade in cultural objects.<sup>9</sup> Further, it has been difficult in practice for cases to be brought to court under the NSPA: Many antiquities in the United States were excavated illegally and without the knowledge of the exporting country's authorities, and thus lack sufficient documentation to make a case of guilt, and because the burden of proving that an object has an illegal background falls on the exporting country's government or claimant, the proof may be inadequate in a U.S. court to establish that an undocumented antiquity is an illegally excavated or traded one. If imported cultural objects do not show up in a U.S. museum (as most do not), the exporter's government may not be aware of such trade.

On the other hand, there exists some positive incentive to report truthfully upon entry into the United States, as improper declaration of the goods upon entry (e.g. lying about the value or the country of origin) may result in forfeiture. Combined with the zero tariff rate on imports of cultural objects, there is incentive to report honestly the import of cultural objects.

By contrast, laws on the books in 'object-rich' countries generally 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. However, as noted in the introduction, corruption is thought to be rife in many such countries, and hence exported objects may circumvent legal channels.

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<sup>9</sup> Personal communication with Professor Patty Gerstenblith. Since trade statistics do not disaggregate antiques into its constituent parts, it is difficult to know the proportion of cultural property and antiques that are antiquities.

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 their customs at all or obscure an object's true value (e.g., label it as a cheap tourist souvenir). On the importing side, the incentives to provide misleading information are limited, and given the potential for seizure by the U.S. government for false declaration, there exist some strong incentives for truthful revelation.

### 3. 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 individual countries' trade records, and include information on imports and exports for each country, recorded according to the 6-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 below from the balanced panel.

Most export-restricted objects are classified as having HS code 9706 (antiques of an age exceeding one hundred years).<sup>10</sup> 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 (97 – Works of art. Collectors' pieces, antiques). This is more comprehensive but also potentially incorporates greater noise due to the inclusion of non-controlled objects. All products in HS code 97 enter the United States tariff free.

Our primary outcome variable is given by:

$$(1) \textit{Antiques\_Gap}_{cy} = \log(1 + \textit{US\_Imports}_{cy}) - \log(1 + \textit{Exports\_to\_US}_{cy})$$

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<sup>10</sup> See, for example, the European Union guidelines for the protection of cultural property (<http://www.culture.gov.uk/NR/rdonlyres/6FC9A8B7-7C91-495F-AC7A-653A45288CC5/0/EUGuidelinesforculturalgoods.pdf> downloaded on April 19, 2007).



where  $c$  indexes country,  $y$  indexes year,  $US\_Imports_{cy}$  is the imports reported by the United States from country  $c$ , and  $Exports\_to\_US_{cy}$  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.

Our primary measure of corruption ( $Corruption_{cy}$ ) is from the World Bank Institute (Kaufman et al, 2006), 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 et al so that values of  $Corruption_{cy}$  are increasing in the level of corruption. This variable is available for 1996, 1998, 2000, 2002-2005. Since virtually all variation is cross-sectional, we use the lagged value of  $Corruption_{cy}$  for 1997, 1999, and 2001.

It may be useful to account for countries' endowment of 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 (Met) in New York City. 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 very 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 yet been put in digital form. We utilize the listing of the museum's highlights available on the Met's webpage, restricting our attention to pre-19<sup>th</sup> century non-U.S. collections that would be affected by export restrictions in the source countries.<sup>11</sup>

We generate a simple count variable ( $MetHoldings_c$ ) based on 493 (pre-19<sup>th</sup> 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 object's origin. Where multiple countries are listed, we assign partial points equally to all countries. Finally, for 23 objects, ancient regions are listed;

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<sup>11</sup> [http://www.metmuseum.org/Works\\_of\\_Art/collection.asp?HomePageLink=permanentcollection\\_1](http://www.metmuseum.org/Works_of_Art/collection.asp?HomePageLink=permanentcollection_1) (downloaded on April 19, 2007). The specific categories that we use are Ancient Near Eastern; Arts of Africa, Oceania & the Americas; Greek & Roman Art; Asian Art; Egyptian Art; Islamic Art; European Paintings; pre-19<sup>th</sup> century European Sculptures.

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 will employ an indicator variable,  $MetDummy_c$  that denotes whether  $MetHoldings_c$  is positive, and also  $\log(1 + MetHoldings_c)$  in our analyses.

We use GDP per capita in 2000 U.S. dollars ( $GDPPCUS_{cy}$ ), taken from the *World Development Indicators* database, as a control for the overall level of economic development. As an additional control we use the distance between two countries weighted by the location of their populations ( $Distance_c$ ), from Mayer and Zignago (2005), which may be reflective of transport costs. Finally, we will 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 1193 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 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 also  $MetDummy_c$  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.

#### 4. Results

We present the raw relationship between  $Corruption_c$  and  $Antiques\_Gap_{cy}$  for the year 2000 in Figure 1. There is a clear positive relationship (with a correlation coefficient  $\rho = 0.52$ ) – more corrupt countries are more likely to under-report in their customs data some of the exports to the United States relative to the U.S. customs import data. It is interesting to note that many countries that are well-endowed in ancient objects – Egypt, Syria, Iran, Greece – are well above the regression line. The reason for this is intuitive – as noted in Section 2, 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:

$$(2) \text{ Antiques\_Gap}_{cy} = \alpha + \beta_1 * \text{Corruption}_{cy} + \beta_2 * \text{MetDummy}_{cy} \\ + \text{Controls}_{cy} + \text{Region-Year Fixed Effects} + \varepsilon_{cy}$$

While we present results using country-year observations, almost all variation is cross-sectional, so we allow for clustering at the country level, and also present results using a cross-section with country-level median values.

We present our main results in Table 2. In column (1) we include only year effects as controls. As suggested by the pattern in Figure 1, the correlation is highly significant and positive – the reporting gap in cultural objects is wider for more corrupt countries. In column (2) we present the results with log of exporter's income level,  $\log(GDPPCUS_{cy})$ , and year effects only. There is a negative and significant relationship between the reporting gap and exporter's income level, though it is somewhat weaker than that for corruption in column (1). When we include both income and corruption measures in column (3), however, we find that the point estimate on  $Corruption_{cy}$  actually increases, while income loses its significance entirely. That is, income matters only insofar as it is correlated with corruption. Adding Region\*Year effects in column (4) yields very similar results. The magnitude, in the range of 1.5, implies that the rate of smuggling of cultural objects for relatively high corruption countries such as Mexico or Egypt ( $Corruption_{cy}$  of about 0.4 in 2005) is more than double that of more moderately corrupt countries such as Italy and Greece ( $Corruption_{cy}$  of about -0.4 in 2005). This is in part due to some outlying values of  $Antiques\_Gap_{cy}$ ; however, even when we omit the top and bottom five percent of observations on  $Antiques\_Gap_{cy}$ , the significance of the  $Corruption_{cy}$  is largely unchanged and its value is still above 1.2. We also experimented with specifications that included a variety of 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 under-reporting for HS 9706 goods. In column (5) we include  $MetDummy_c$  and find that it is highly significant and quantitatively large, implying that  $Antiques\_Gap_{cy}$  is more than double 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 that 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 hence uncorrelated with corruption; we expect a larger effect of corruption as the potential for smuggling increases. We report these results in column (6) and find that the interaction term is highly significant with a magnitude of about 0.5.<sup>12</sup> In columns (7) and (8) 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. Three of these – Switzerland, Great Britain, and Germany – are noteworthy in that none 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 UNESCO Convention and passed the Cultural Property Export and Import Act in 1978 that provides stringent controls on importing cultural objects that were illegally exported. However, by many accounts enforcement has been spotty, and only five cases of illegal imports have been resolved since 1992 (Department of Canadian Heritage, 2003, 2005). We present results using our preferred specification that includes Region\*Year dummies in Table 3. In all cases, the coefficient on  $Corruption_{cy}$  is significant at the one percent level. In all cases, the coefficient is in the range of 0.5 – 1.<sup>13</sup> This is both 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.

Finally, in Table 4 we present a range of robustness tests. In Column (1) we report results using exporter-level medians to take away the time-series element of our variation. The coefficient

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<sup>12</sup> If we include  $\log(GDPPCUS_{cy}) * MetDummy_c$  as a control, we find it to be insignificant, and the coefficient on  $Corruption_{cy} * MetDummy_c$  is unaffected.

<sup>13</sup> 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 U.S.-based.

on  $Corruption_{cy}$  is 1.30, marginally lower than the coefficients reported in Table 2. Column (2) presents results for imports and exports for HS Code 97 (Works of art. Collectors' pieces, antiques), since some cultural property may be classified in other 4-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 products in HS 97 but outside of HS 9706 would be expected to contain a smaller proportion of export-restricted objects. 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. Finally, we include results using HS Code 9503 (Toys, scale models etc, puzzles, parts), by far the largest component of the 2-digit HS Code 95; we also report results using the entire HS 95 industry. As a placebo regression this industry has the advantages of having had a zero tariff rate since 1994 (and hence no incentive for importers to lie to the US customs). We report results for HS 9503 and HS 95 in columns (4) and (5) respectively. In both cases, 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 U.S. is unlikely due to some missing factors that are common across product lines.

## 5. Conclusions

Exploring 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 under-recording of exports of cultural objects is highly correlated the exporting country's level of corruption as measured by a commonly used subjective index. Furthermore, the association between the two is stronger for countries that are particularly well-endowed in export-restricted objects that are considered to be desirable in the 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 both importing and exporting countries

have been made available.<sup>14</sup> 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 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 which could be utilized in tracking other illicit trade.

Second, we provide an important contribution to the literature on measuring corruption. Since 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 indices 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 any meaningful measure based 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 our final measure of the total level of trafficking. We will leave this type of exercise for future work.

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<sup>14</sup> 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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**Figure 1: Percentage Under-reporting of Exports of Cultural Objects to the US and Exporters' Corruption Level, 2000**

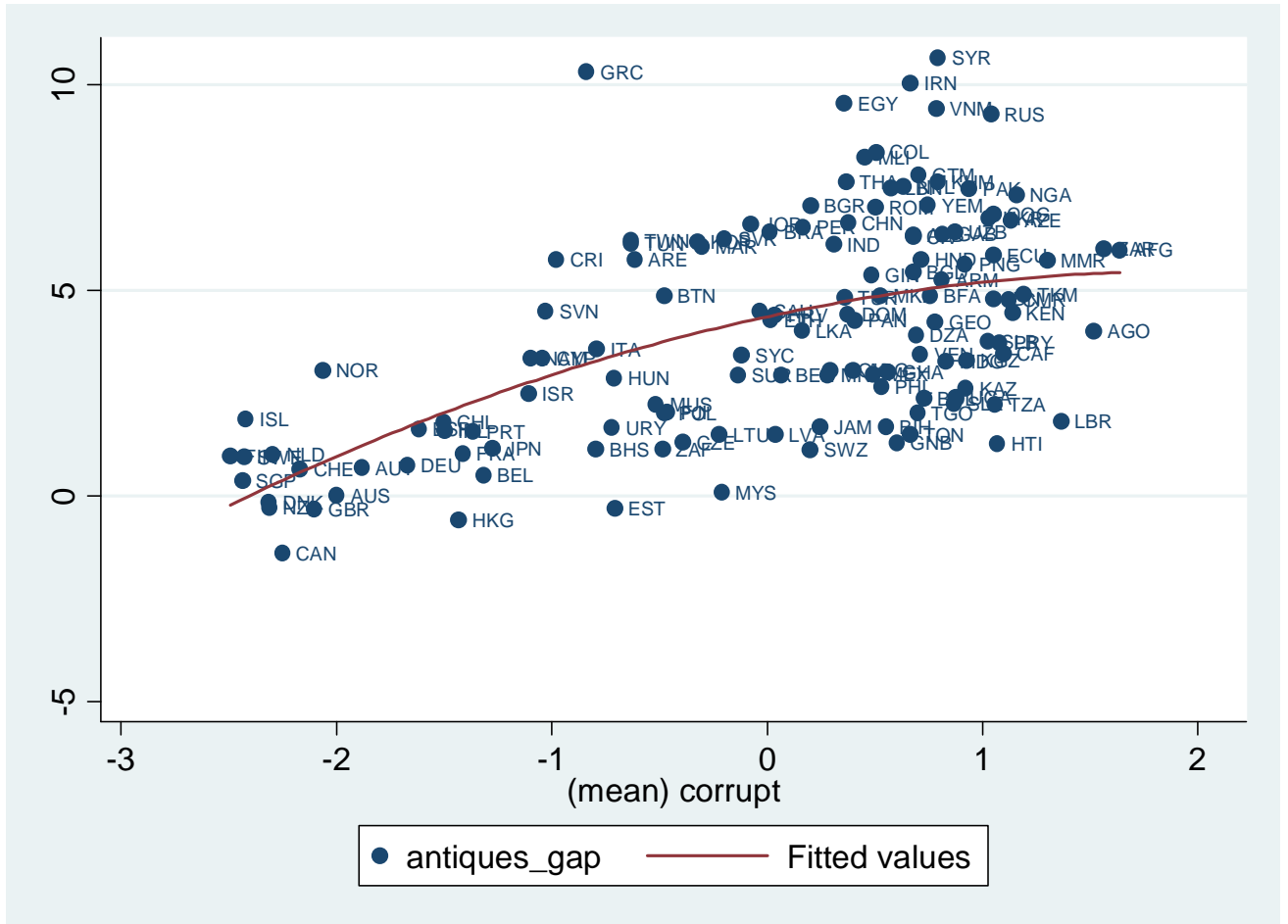


Table 1 - Summary Statistics

	Mean	Std. Dev.	Min	Max	Obs
Antiques_Gap	3.83	2.70	-3.58	10.65	1199
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
<u>Above median Antiques_Gap</u>					
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
<u>Below median Antiques_Gap</u>					
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

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 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-19th Century items in the Metropolitan Museum's highlights collection. Corruption and GDPPCUS are country-year level observations; MetDummy and MetHoldings are country-level observations. Please see section 2 of the text for further information and sources.

Table 2 - Correlation between corruption and smuggling of cultural objects

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Corruption	1.371*** (0.111)		1.602*** (0.222)	1.468*** (0.235)	1.404*** (0.213)	1.165*** (0.219)	1.385*** (0.211)	1.117*** (0.192)
log(GDPPCUS)		-0.720*** (0.098)	0.182 (0.163)	0.014 (0.199)	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	Year	Year	Year	Region*Yr	Region*Yr	Region*Yr	Region*Yr	Region*Yr
Observations	1193	1193	1193	1193	1193	1193	1193	1193
R-squared	0.30	0.18	0.30	0.40	0.75	0.75	0.75	0.75

Notes: Robust standard errors 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-19th Century items in the Metropolitan Museum's highlights collection. Corruption and GDPPCUS are country-year level observations; MetDummy and MetHoldings are country-level observations. Please see section 2 of the text for further information and sources. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Table 3 - 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-squared	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 observations. Please see section 2 of the text for further information and sources. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Table 4 - Robustness Tests

	(1)	(2)	(3)	(4)	(5)
Corruption	1.298*** (0.198)	0.983*** (0.205)	0.291 (0.311)	-0.090 (0.197)	-0.036 (0.203)
log(GDPPCUS)	0.021 (0.143)	-0.154 (0.151)	0.305 (0.390)	-0.281** (0.139)	-0.553*** (0.175)
MetDummy	1.396*** (0.288)	1.098*** (0.244)		0.091 (0.209)	0.099 (0.308)
HS Code	9706	97	9706	9503	95
Fixed Effects	Region	Region*Year	Country & Yr	Region*Year	Region*Year
Observations	162	1439	1193	972	1221
R-squared	0.50	0.34	0.75	0.19	0.19

Notes: Robust standard errors 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 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. Specification (1) employs a cross-section with country-level medians from 1996-2005 of all variables; in (2) - (5) uses 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. HS Code 9706 is Antiques of an age exceeding one hundred years; HS Code 97 is Works of art, Collectors' pieces, antiques. HS 9503 is Toys, scale models etc, puzzles, parts. HS Code 95 is Toys, games and sports requisites; parts and accessories thereof. Please see section 2 of the text for further information and sources. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%