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MONEY LAUNDERING AND ITS REGULATION

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Abstract*

The recent wave of terrorist attacks has increased the attention paid to money laundering activities. Using several methodologies, this paper investigates empirically the determinants of money laundering and its regulation in over 80 countries by assembling a cross-country dataset on proxies for money laundering and the prevalence of feeding activities. The paper additionally constructs specific money laundering regulation indices based on available information on laws and their mechanisms of enforcement and measures their impact on money laundering proxies. The paper finds that tougher money laundering regulations, particularly those that criminalize feeding activities and improve disclosure, are linked to lower levels of money laundering across countries; the results are robust to potential endogeneity of money laundering regulation. The relevance of historical factors in explaining the variation of money laundering regulation across countries sheds light on theories of institutions and provides room for further action, particularly in the areas of the law that improve the impact of criminalization, including liability of intermediaries, reductions of the burden of proof and better disclosure.

Keywords: Money laundering, regulation, laws, crime, enforcement

JEL Classification Codes: K40, G10

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1. Introduction

The recent wave of international terrorism and the increased concerns about drug activities have led to an increased focus on money laundering and its regulation. In fact, money laundering is not a recent phenomenon and has occupied the minds of policymakers and regulators for many centuries.¹ The forms may vary, but illegal activities that act as feeders to money laundering have always searched for processes to turn their proceeds into usable assets. Although the relevance of money laundering seems to be growing, there is relatively very little theoretical and even less empirical academic work on the topic. In this paper we provide a first empirical look at the determinants of money laundering and its regulation in over 80 countries. We analyze the specific features of money laundering regulation in each country and examine the relationship between these regulations and various measures of money laundering and its feeder activities. Finally, we interpret these relationships in light of the available theories of institutions and the relevance of historical factors in explaining the variation of regulation across countries.

Although there is very little work focusing on the theory of optimal money laundering regulation, our understanding of the theories of regulation in other areas, such as crime and the regulation of legal markets, can help us formulate testable theories about money laundering regulation. In this paper we consider the effect of law and regulations on money laundering at two levels. At the first level, the question is whether statutory laws on money laundering matter at all. In fact, an important tradition in law and economics, originating in the work of Coase (1960) and Stigler (1964), holds that statutory laws are either irrelevant or counterproductive. Specific money laundering regulation may not be effective because it targets the wrong area: money laundering is only the outcome of illegal activities. That is, it is a symptom but not the cause. According to this view, feeder activities are the ones that should be regulated, as their effective monitoring and control will naturally lead to a reduction in money laundering. This view suggests that an efficient set of legal tools to deal with criminal activities and good enforcement by courts should suffice for the containment of money laundering. The legal framework is complemented by the reputational concerns of financial institutions, as a large

¹ Money laundering is not a modern phenomenon but it has a long history. In his book *Lord of the Rim*, historian Sterling Seagrave describes how, more than three thousand years ago, merchants in China concealed their wealth by moving cash outside of their own jurisdiction, trading at inflated prices or converting money into movable assets in case they might be banished by their rulers. Although mechanisms and reasons have changed, all these techniques are still used by current launderers.

portion of money laundering take place through financial institutions which have reputations to maintain. These concerns mean that financial intermediaries themselves have an interest in trying not to facilitate “dirty” transactions. Therefore, reputations and a solid body of crime regulation should keep laundering of cash under control and may render anti-money laundering legislation ineffective.

It has also been pointed out that anti-money laundering legislation comes at a cost. Masciandro (1998) analyzes the development of Italian regulation and proposes a generalized model that shows that anti-money laundering regulation negatively impacts the efficiency of banks; legislation is less effective the more it reduces bank efficiency. Rahn (2001) postulates that anti-money laundering legislation has been completely ineffective in dealing with drug trafficking and may have actually fostered crimes such as kidnappings, smuggling and racketeering. He argues that honest individuals are having a harder time hiding their assets from kidnapers, criminals and corrupt governments, thus fostering the growth of the criminal industry. As during the Prohibition years in the U.S., anti-money laundering is a classic case of “police creating increased demand for their services by inventing new crimes, which in turn creates a new criminal industry to evade the new laws” (Rahn, 2001). For all of these reasons, specific regulation of money laundering could be thought of as either irrelevant or even detrimental in so far as it raises costs and interferes with the functioning of markets.²

An alternative tradition argues that “law matters.” In particular, statutory regulations are an important institution controlling the illegal sector of the economy. This argument has a long tradition in regulatory economics (see, for example, Landes, 1998 in the area of securities law). According to this view, the basic legal framework controlling crime is insufficient to keep money laundering under control because the incentives to engage in such activities might be too high for “long-run” benefits of honesty to matter and because litigation may be too unpredictable and expensive to serve as a deterrent (see, e.g., Djankov et al., 2002). To counter these problems, a regulatory framework is required. Our first cut in the empirical work in this paper will aim to directly distinguish the irrelevance hypothesis from the “law matters” hypothesis in the context of money laundering.

² According to Camdessus (1998), there are those who hold an extreme view that regulation cannot curtail money laundering in the current environment of financial markets liberalization. They suggest that keeping in place centralized credit allocation and foreign exchange control systems is necessary to identify money launderers –even

This discussion brings us to the second level of analysis: if money laundering regulation does matter, what about it makes a difference? In most simple frameworks that analyze the impact of law and regulation, courts are modeled or assumed as functioning in the background with the appropriate legal tools to make criminal legislation work and achieve its goals. But this may hardly be the case, not only because of the shortcomings of the efficiency of the judicial system itself (see La Porta et al., 2001, and Djankov et al., 2002), but also because not all legislation provides the appropriate set of “legal tools” to facilitate the fight against crime.

At this deeper level, there are two views of what matters, both based on the proposition that, while enforcement is costly and unpredictable, money laundering laws and regulation can reduce enforcement costs. If money launderers are rational profit-maximizers, like other criminals, deterrence is essential in order to curtail their behavior. If we apply Becker’s (1968) ideas on crime and punishment, deterrence can come from several areas of law that would make laundering activities less profitable. The first view emphasizes the important role played by preventive measures that increase the probability of catching money launderers. This view holds that standardized disclosures and clearer liability rules that create incentives for all participants are key for prevention and lower enforcement costs. This view relies heavily on the role of financial intermediaries in the laundering process. To the extent that a large fraction of cash laundered goes through bank or non-bank financial institutions at some point, money laundering regulation can standardize disclosures by these institutions. Without standardized disclosures, there are large costs involved in detection of criminal activities. Money laundering regulation can provide the additional service of explicitly setting forth the obligations of various parties and burdens of proof, thereby reducing the costs to the court of establishing liability.³

though we now have substantial empirical evidence that such control comes at the cost of economic growth and development.

³ Under this view, the application of clear liability standards to all participants in money laundering transactions could prove helpful. Similar to the perspective adopted in financial markets in the United States in the 1930s, with the Securities Act of 1933 and 1934, a tougher liability standard could be established for those financial intermediaries through which money laundering takes place. Since they are sophisticated institutions, they will themselves develop the mechanisms to detect and report laundering. They have the incentives to disclose all available information on their clients simply because failing to do so could cause people to think the worst. If financial intermediaries were to be held liable and bear some responsibility, they would probably find a higher incentive to act as an arm of the state, thus reducing the need for a lengthy body of specific regulations. This perspective uses banks and other financial institutions as screeners rather than reporters and places a burden on them to monitor compliance by its clients. The data in this version of the paper do not allow us to test this theory directly, but we are gathering the data to do so.

The second view emphasizes the powers of the enforcer and argues for the criminalization of offenses, better confiscation rules, and increased international cooperation and intervention to curtail money laundering. Powerful enforcement can be essential to curtailing money laundering, as it allows the collection of information and the setting of rules that facilitate enforcement and sanction misconduct. Several mechanisms can be used to induce deterrence in this area. First, several of the feeder activities to money laundering are not considered criminal acts in several countries, and one may think that criminalization would raise the stakes for the criminal and would thus deter action and/or facilitate the work of courts. A second area where more specific legislation may be needed is confiscation. There are marked differences across national legislations on the powers to confiscate proceeds from criminal activities. If criminals and their organizations are able to keep their gains, convictions and prison sentences may not be enough to deter such crimes. Therefore, a powerful system of confiscation would be more cost effective and could be an important deterrent to criminal activity and money laundering. Finally, this theory also points to the potential benefits of a powerful agency, with broad powers, specialized in pursuing launderers. Indeed, international cooperation and joint action are important elements in the fight against money laundering.

The disclosure view and the powerful enforcement view are, of course, not mutually exclusive. Whether better disclosure or a more powerful set of mechanisms to facilitate enforcement is more effective in curtailing money laundering and its feeding activities is an open question. The empirical work in this paper will aim at discovering which elements matter most.⁴

To address these issues, we gathered a large cross-country dataset of money laundering proxies in the 1990s spanning over 80 jurisdictions. We also assembled a database of rules and regulations on money laundering from two different sources, then organized the data to produce quantitative measures of money laundering regulation that capture the theoretical questions raised above. Finally, we examine in some detail the relationship between specific legal arrangements and proxies for money laundering. The results reveal evidence that money laundering regulations indeed matter, and they give us a first look at the ways in which they do. Our results are robust to potential endogeneity of money laundering regulation. The relevance of

⁴ In this paper, we take a first cut at this question with some general indices about each of these activities. We are currently undertaking other work to look deeper into the details of the various mechanisms at play since specific features of liabilities, burden of proof and confiscation may be relevant.

historical factors in explaining the variation of money laundering regulation across countries sheds light on the theories of institutions and provides room for further action.

2. Measuring Money Laundering and its Feeders

By definition, money laundering is trying to legitimize the proceeds of illegal activities while maintaining the value of the acquired assets. In short, it describes the process by which “dirty” money is turned into “clean” money.⁵ Obviously, money laundering cannot be done in the open and requires sometimes sophisticated means to disguise the actual origins of the assets. In many instances, the process requires the intervention of some financial institution. While money laundering attracts the most attention when associated with trafficking of illicit narcotics, and more recently, with terrorist activities, enterprising criminals of every sort, from stock cheaters to corporate embezzlers to commodity smugglers, launder money since the money per se can be the target of investigation and action.⁶ Money laundering may occur almost anywhere in the world, and it has become a significant global problem with potentially increasingly serious social and economic ramifications.⁷

Given the clandestine nature of money laundering, it is quite problematic to assess the volume in terms of economic repercussions. There are some estimates that calculate the impact of money laundering to account between 2 and 5 percent of global gross domestic product, which amounts to about 1.5 to 2.0 trillion dollars per year (International Monetary Fund, 2001).⁸

In the rest of this section, we first describe our procedures for data construction of the proxies of money laundering and the logic behind the specific variables. We then present some information about the data, including the variation of money laundering across jurisdictions.

⁵ Spremann (2001) provides a vivid description of the stages and techniques involved in money laundering breaking the process into: (1) placing of illegal funds; (2) layering of the funds to make their origin untraceable; and (3) integrating the funds into the financial system.

⁶ United Nations (2000).

⁷ A non-exhaustive list of negative impacts of money laundering include: (1) economic distortions, as launderers care less about profits and invest more inefficiently than legitimate investors; (2) monetary instability, due to inexplicable changes in money demand and volatility (World Bank, 2003); (3) loss of financial integrity and reputation risks, due to the potentially large sums of money that may be suddenly withdrawn from the system (Bartlett, 2002; Bair, 2002); (4) loss of taxes and deviation of government resources to curtail criminal activities (United Nations, 1998; James, 2002); (5) increased corruption; and (6) socio-economic repercussions as a result of increased criminal activity (Dowers and Palmreuther, 2003; Drayton, 2002).

⁸ Using similar methodologies for the case of Latin America, a rough estimate of money laundering in the region appears to be somewhere between 2.5 and 6.3 percent of the annual regional gross domestic product (IDB, 2004).

A review of the literature suggests that we can group the main sources of money laundering into three categories: criminal activities, such as drug traffic or import smuggling, the underground economy, and tax evasion. The most commonly used approach to get at the measurement of money laundering is thus to estimate proxies for the size of these feeding activities, and several studies have analyzed the links and interrelations of these activities and money laundering. As Reuter and Truman (2004) have pointed out, the measurement of the true amounts of money being laundered is difficult due to its very nature. For this reason, and aware of all the caveats, we adopt the approach of calculating several different proxies using different methodologies for obtaining estimates of the feeder activities that generate the cash that needs to be cleaned.⁹ We complement these numbers with subjective measures from surveys on the prevalence of laundering activities across countries. Although each individual measure is subject to potential criticisms, this comprehensive approach captures different aspects of money laundering and its feeding activities and provides useful boundaries of the potential amounts of cash and economic activity devoted to this effort. We have calculated and gathered data for six different proxies for money laundering across countries, spanning some of its main dimensions. The exact definitions of each variable are shown in Table 1, while the data on cross-country measures of money laundered are presented in Tables 2 and 3.

The first three measures we calculate estimate proxies for money laundering indirectly by measuring the underground economy as the discrepancy between the official (or declared) value of a macro series and its actual (or estimated) value following several methodologies. The first method we use is commonly known as the “currency demand” approach. This was first used by Cagan (1958), who calculated a correlation between tax pressure and currency demand for the first half of the 1900s in the US, and later by Gutmann (1977) who developed a similar idea

⁹ A very good description of the methodologies used, their advantages and shortcomings can be found in Schneider and Klinglmair (2004). Some of the methods typically employed to measure the impact of money laundering on GDP include measuring (i) the discrepancy between income and expenditure measures of GDP reported in national accounts statistics, assuming that expenditures will be reasonably well reported but that elements of income will be concealed or underreported; (ii) the discrepancy between the official and actual labor force, assuming that a decline in participation in the official market may reflect increasing activity in the underground economy; (iii) the discrepancy between official GDP and total nominal GDP (transactions approach), assuming a constant relationship over time between the volume of transactions and official GDP (Fisher’s quantity equation); (iv) the discrepancy between actual or “excess” demand for money and the demand for money that can be explained by conventional or normal factors (currency demand approach), assuming that cash is the primary means of payment used to settle transactions in the underground economy; and (v) the discrepancy between actual and official GDP estimated on the basis of electricity consumption, assuming that economic activity and electricity consumption move together, with an electricity/GDP elasticity close to one.

regarding the comparative advantage of money over checks for payment of purchases of services and goods that individuals can conceal from authorities. This approach was further developed econometrically by Tanzi (1980, 1983) estimating a currency demand function.¹⁰ To apply the currency demand method, we used annual data on Currency Holdings and Demand deposits and we have computed two time averages for 52 countries for the years between 1980 and 2000 and between 1990 and 2000.¹¹

For the second data series, we use the methodology developed in Kaufmann and Kaliberda (1996). According to this method, the size of the informal economy is best measured by the discrepancy between an indicator of the overall economic activity and the official gross domestic product. Given the high correlation between consumption of electricity and economic activity, the growth rate of electricity consumption serves as an indicator of the evolution of GDP.¹² Hence, any difference between the growth of electricity consumption and GDP growth can be attributed to changes in the size of the informal economy. We labeled this as the “Electricity differences” approach in the tables of the paper. To calculate this measure, we use the data on total electricity consumption from the World Bank, 2004. Data on real (official) gross domestic product, measured as the nominal GDP deflated by the implicit gross domestic product deflator, were obtained from the International Monetary Fund. Using annual observations, we

¹⁰ This method assumes that the ratio of currency to demand deposits is affected only by the growth of unreported transactions (currency-ratio method); that the income velocities of reported and unreported transactions are identical; and that in some base period, unreported income was zero, so that the observed base period currency deposit ratio serves as a proxy for the desired currency ratio in the official economy. As described by Feige (1989), these restrictions imply that ratio of the informal (Y_i) to formal GDP (Y_f) can be estimated as follows:

$$\frac{Y_i}{Y_f} = \frac{C - k_o D}{(1 + k_o) D}$$

ratio, respectively. The intuition behind this equation is that any positive deviation from the desired level of the currency to deposits ratio (which stays constant over time) is caused by an increase in the demand for currency, which in turn is produced by the increase of the size of the informal economy.

¹¹ One of the most common critiques of this method involves its assumption of constancy of the income velocity of money. As mentioned by Hanousek and Palda (2003), financial developments may result in instability in money demand. Other criticisms of the methodology are reviewed in Reuter and Truman (2003) and Schneider and Klinglmair (2004).

¹² This assumes that the elasticity of electricity consumption to gross domestic product should be close to one. Recognizing that this assumption may be too strong the authors perform sensitivity analysis allowing the value of the elasticity to vary across countries and time, which may account for technological changes in production process, variations of the sectoral composition of GDP and different production structures across countries. Following this, in order to account for the fact that economies may become more efficient in the use of electricity, we assume that elasticity decreases by 0.05 from decade to decade (from 1.15 in the 1960s to a value of 1 in the 1990s). In this first approach, we use the average for the last decade. In the regression analysis we show the results of adopting the constant elasticity assumption, and the alternative measures constructed using decreasing elasticity lead to similar results.

computed two different time averages for the windows 1980-2000 and 1990-2000 for 67 countries.¹³

The third proxy from money laundering and its feeder activities is labeled “Shadow Economy” in our tables and comes from the calculations performed in Schneider and Klinglmaier (2004). They calculated a measure of the shadow economy for 110 countries mostly following a dynamic multiple-indicators multiple-causes approach (DYMIMIC). The benefit of this approach is that, unlike the previous two methodologies, which estimate the size and development of the underground economy considering only one indicator, this model approach explicitly considers multiple causes for the growth of the shadow economy and multiple effects of the shadow economy over time. The multiple causes used in the model include the burden of taxation, citizens’ attitudes towards taxes, and the burden of regulation. Some of the multiple indicators or effects include the development of monetary, labor market and production market measures.¹⁴

Abstracting from any peculiar characteristic of each method, this indirect approach has the caveat of providing only a rough (residual) measure of a country’s underground economy. Hence, it is not able to disentangle the pure (or specific) quantity of money laundered with respect to the rest of the illegal activities in the economy.¹⁵

Table 2 shows the means and medians for these three variables around the world and across geographical regions, providing some statistical tests of the differences. The data show that, under these three proxies of the underground economy, the scope for money laundering is quite large, amounting from 19 (15) percent to 31 (32) percent of GDP for the average (median) country in the world. The group with the largest average is Latin America, exceeding 40 percentage points in two of the three measures. African numbers, although lower, are not statistically different than those of Latin America. The third largest region in terms of scope for money laundering, according to these measures, is Asia and Oceania (which includes some OECD countries, such as Japan and Australia). The numbers for this region range between 20

¹³ Some of the shortcomings of this method include: (1) the fact that not all hidden activities are electricity intensive; (2) there could be large changes in the elasticity of electricity to GDP across countries and over time (although we experimented with several numbers and that did not make a large difference for the results); and (3) the fact that technological progress has made production and consumption of electricity more efficient over time.

¹⁴ The empirical methodology is best explained in the appendix of Schneider and Klinglmaier (2004). The method is very different from the one used in the previous two variables and involves the use of statistical theory of unobserved variables with multiple causes and multiple effects of the phenomenon measured.

and 30 percent of economic activity. The Middle East is in fact the region that comes closest to the developed world (Europe and North America). The means and medians for this region are not statistically different from those of Europe and North America. Even in this last group, the scope for money laundering is large, ranging between 15 (13) and 24 (22) percentage points of GDP across measures.

Table 3 takes a different cut at the data. As the table shows, when we rank countries according to the size of their GDP, only the largest 25th percentile of countries have statistically significant lower measures of money laundering proxied by the underground economy. Tables 2 and 3 signal the widespread reach of money laundering. Two basic facts come across. First, only the very few largest economies, mostly OECD countries, have statistically lower levels of money laundering activity than the rest of the world. Second, even in those countries, the magnitude of feeder activities is substantially large, reaching levels between 11 to 22 percentage points of GDP. As Reuter and Truman (2004) have argued, these may be rough upper bound estimates of the demand for laundering activities, but their magnitudes deserve policymakers' attention.

Since macroeconomic estimates of money laundering and its feeder activities have potential measurement problems, we also compile additional data that address money laundering in a more direct, yet subjective fashion. We gathered data from surveys of investors conducted by the World Economic Forum (WEF) in nearly 80 countries. The first of the three measures, shown in the fourth column of Tables 2 and 3, attempts to measure the potential for money laundering as it relates to tax evasion. As noted above, tax evasion is another major feeder activity of money laundering, as businesses and individuals hasten to clean their unreported income. Respondents were asked to rate from 1 (pervasive) to 7 (extremely rare) the degree of tax evasion in their respective jurisdiction. The numbers shown are those pertaining to the answers in the 2001-2002 report, the last time the WEF included this question. The statistics show a similar pattern to those that calculated money laundering demand through quantitative methods, although not entirely. Latin America remains the only region with statistically significant higher tax evasion (lower tax compliance) than Europe and Asia. The rest of the numbers are not statistically different from each other among the developing and developed

¹⁵ Finding a more precise measure of money laundering in a country from this residual quantity is, in our view, the most challenging motive for future research on this topic.

(Europe and North American) nations. Table 3 shows the same pattern with very similar tax evasion patterns among quartiles of the size of the economy.

The last two measures we use as proxies for money laundering are also opinion surveys taken from the 2003 edition of the World Economic Forum's *Global Competitiveness Report*, but this time the measures involve direct questions about the prevalence of money laundering through bank and non-bank channels. The scale of answers also goes from 1 (pervasive) to 7 (extremely rare). The data for these two measures produce almost identical patterns as the data on the three quantitative measures. As Table 2 shows, Latin America has the lowest mean and median scores for both measures, which are in fact statistically significantly lower than any other region in the world, this time including Africa. Europe and North America rank with the lowest level of prevalence of money laundering activities through banks while the Middle East is even a bit lower than Europe for money laundering through non-bank channels. Finally, Table 3 closely mimics the rest of the table: only the largest economies have lower levels of money laundering activities via bank or non-bank channels.

Overall, opinion surveys match the results of the quantitative methods, which should possibly increase our degree of confidence in the latter estimators. None of these measures is perfect, but they all seem to move together quite nicely. This is indeed the message of Table 4, which reports pair-wise correlations among all our proxies for money laundering across countries. All the correlation coefficients are statistically significant at the 1 percent level. Again, the high degree of association among all of these different measures using different methodologies suggests that, although imperfect, these statistics may say something about money laundering and its prevalence that would allow us to make safer inferences in the following sections of the paper when we introduce regulation measures.

3. The Regulation of Money Laundering

A crucial issue for the current policy debate is whether anti-money laundering laws and regulation play a significant role in curtailing laundering and/or feeder activities. Several authors have looked at this question for some specific countries (e.g., Reuter and Truman, 2004) and others have argued, sometimes in a cross-national context, that under certain conditions anti-money laundering legislation can be useful when combined with anti-tax evasion or anti-crime policies (i.e., Alworth and Masciandaro, 2003; Masciandaro, 2000). Although our goal is

somewhat similar to other papers, our approach is different from the papers mentioned above. Our data first attempt to capture the aggregate stance or strength of the regulation of anti-money laundering legislation and enforcement efforts in order to answer the general first-level question of the relevance of this set of rules. In a second effort, we try to classify and codify this data into various categories motivated by the theories of optimal regulation in this area as spelled out in the introduction of the paper. The ultimate goal is thus to determine what measures of the law seem to matter most—if they matter at all.

In this section, we explain our data and methodology for the construction of anti-money laundering regulation indices. Following the literature on what areas of the law could work and why, we have divided each index into three major sub-indices that try to capture narrower aspects of regulation. These three sub-indices are: (1) disclosure of information by financial intermediaries; (2) criminalization of crimes and confiscation of proceeds; and (3) international cooperation. Table 1 describes in detail the data in each of these areas and how they is codified.

Our data on the regulation of money laundering are based on two different sources. In both cases, we examined the available information and transformed it into quantitative indices that allow us to test hypotheses empirically.

The first data source is the International Narcotics Control Strategy Report (INCSR) of the United States State Department. This annual publication, which describes the efforts of key countries to attack all aspects of the international drug trade, contains a section dedicated to money laundering and financial crimes. Since 1996, U.S. officials from agencies with anti-money laundering responsibilities meet to assess the money laundering situation in more than 185 jurisdictions. The review includes an assessment of the significance of financial transactions in the country's financial institutions that involve proceeds of serious crime, steps taken or not taken to address financial crime and money laundering, each jurisdiction's vulnerability to money laundering, the conformity of its laws and policies to international standards, the effectiveness with which the government has acted, and the government's political will to take needed actions. Over the last nine years U.S. officials have collected data on 16 different areas, of which we have focused on the 12 binary indicators that assess the compliance of the jurisdiction to combat money laundering and that appear in all years since 1996. Following previous codification methodologies used in La Porta et al. (1998 and 2000) and Botero et. al. (2004), we assign a value of "1" to countries when there are laws and regulations pertaining to

the specific area measures in that year, thus adding a point, and zero otherwise. When we aggregate these numbers across measures we obtain higher scores for countries where more anti-money laundering regulations have been enacted.¹⁶ We followed this procedure for each year and each country from 1996 to 2004 and computed country-year average scores for three periods: (a) 1996-2000; (b) 2001-2004; and (c) 1996-2004. This classification was undertaken in order to detect the changes in regulation following the attacks of September 11, 2001 in the United States, which led to increased efforts to establish anti-money laundering regulation. The data presented in Table 5 show the average country scores for the periods 1996-2004 and 1996-2000 for the aggregate index of money laundering legislation and its constituent areas.

The second data source is the website of *EstandardsForum*, which provides investors, financial institutions and governments with comprehensive monitoring of the efforts to converge to international standards and codes established by the global standard-setting authorities in 12 key areas, among which we find anti-money laundering. Their coverage reports available legislation on anti-money laundering in each country in seven different areas that reflect the convergence of the country in question to the recommendations on money laundering made by the Financial Action Task Force (FATF). Data are available only for 2004, but they are particularly rich because they provide a gradation of answers regarding the extent of coverage or the stage at which the country is trying to deal with a specific FATF recommendation. For this reason we followed a methodology that allowed us to include all of that information and assigned a scale of 0 (no compliance), 0.25 (intent declared), 0.5 (enacted legislation); 0.75 (compliance in progress), and 1 (full compliance) in each of the seven categories. Table 6 presents the aggregate index for each country (ML Regulation, FAFT Convergence) as well as the results for each of the four sub-indices we calculated.

As mentioned above, we tried to follow the same classification of three categories in both datasets to provide an additional robustness check on the econometric results (financial system regulation or disclosure, criminalization, and international cooperation). The following sections describe the contents of each variable by sub-index.

¹⁶ Not all countries in the sample have complete data for all years. One way of dealing with this problem, as we did in this paper, is to set as missing the country-year observations for which we have fewer than six of the 12 indicators. An alternative methodology we used (not shown in the paper) was to take country-year information into consideration giving a value of zero to those numbers which were missing. The rationale behind it is that the US Department of State did not assign values when there was not enough information to make an assessment.

3.1 Financial System Regulation and Disclosures

The first area of interest involves mandated disclosures from financial and/or non-financial institutions. As explained above, preventive measures such as standardized disclosures and liabilities for all participants can create the information and incentives that increase the costs of laundering, thus deterring criminal behavior. In the case of the State Department data (Table 5), our sub-index of financial system regulation is calculated as the average of four variables that try to measure the degree of regulation and disclosures from financial institutions. The first variable included in this index is assigned a value of one when, by law or legislation, banks are required to maintain records of large transactions in currency or other monetary instruments, and zero otherwise. The next two variables measure the banking requirements to maintain records over time and obligations to report suspicious transactions to the authorities. The last variable in this index takes a value of one when the legislation of the country requires non-bank financial institutions to meet the same customer identification standards that apply to banks. The first column of Table 6 shows the same category of indicators of financial system money-laundering legislation, following the data on FAFT convergence. In this case, the index is the average of two components only: (1) the existence of identification rules; and (2) the degree of diligence of financial institutions in meeting regulatory demands.

3.2 Criminalization

As mentioned above, the powers of the enforcer could serve as an important set of rules that increase criminals' costs. In the case of the U.S. State Department materials, this sub-index is composed of two variables. The first measure considers whether the jurisdiction has enacted laws criminalizing money-laundering related to drug trafficking. The second measure assigns a value of one to those jurisdictions that have criminalized beyond drugs, meaning the extension of the anti-money laundering statutes to include non-drug related money laundering. For the case of the FATF convergence index, the data allow us to tackle the same question of criminalization as the money-laundering act, as well as some data on confiscation. Our variable on confiscation measures the degree to which authorities take provisional measures and engage in the confiscation of laundered money.

3.3 International Cooperation

The final area of regulation that could help curtail money laundering involves the potential increase in efficiency that could be associated with the sharing of information across international agencies and with the joint actions undertaken by those parties. In the case of the index derived from U.S. State Department information (Table 5), we have detailed information including on the following areas: asset sharing arrangements by law; legislation allowing banks to cooperate with international law enforcement; laws that requires the control and monitoring of flows of currency across borders; legislation providing for mutual legal assistance; rules for disclosure protection safe harbor for financial institutions; and whether the jurisdiction is a party to the 1988 UN drug convention. All of these measures are aggregated to form the sub-index of “international cooperation.” Table 6 contains a similar index that is calculated with information on convergence with FATF rules. The sub-index in this table is calculated as the simple average of the score of two variables: international information exchange and international confiscation.

In the case of the FATF convergence index, we separated the variable called “administrative authorities” from the index in international cooperation because it speaks more as a measure that makes specific statements about the actions of local authorities. The results do not change if we include this variable as part of the sub-indices of “international cooperation” or “criminalization.”

As mentioned above, Tables 5 and 6 show the data on sub-indices, as well as the aggregate indices for U.S. State Department information and FATF convergence in the area of money laundering. Data are organized across groups based on the log of GNP, which approximates the size of their economies. The simple tests of differences in means and medians show that bigger economies have higher scores across all sub-indices and the aggregate indices of money laundering legislation. In all cases, the economies in the three smallest quartiles have lower levels of regulations than the largest. The differences between the smallest countries and the middle 50 percent of the sample is also statistically significant for the U.S. State Department, but not for the indices of FATF convergence.

It is important to note the high degree of correlation between the data from the two different sources. In Table 7 we observe that the aggregate indices of money laundering legislation based on U.S. State Department information and on FATF convergence, respectively, are correlated at 0.787. Finally, Table 7 further shows the high degree of correlations among

sub-indices within the same database and with indices from the other data source. These correlations are all significant at 1 percent and range between 0.60 and 0.76.¹⁷ The data seem to suggest that jurisdictions either act or do not act in the area of regulation. There does not seem to be any evidence of “regulation substitution” whereby a country would heavily regulate disclosures from financial markets participants without undertaking enforcement measures.

4. Impact of Regulation and Enforcement on Money Laundering

4.1 Anti-Money Laundering Aggregate Indices

The high correlation amongst sub-indices facilitates the performance and interpretation of the econometric work in this section. We are interested in understanding the effect of anti-money laundering regulation provisions on money laundering. We use as dependent variables the six proxies for money laundering and its feeder activities developed in Section 2, and to isolate the effect of these provisions on money laundering we control for several factors. The set of regressions presented throughout the paper controls for the size of the economy, which previous sections showed to be an important determinant of the various proxies of money laundering across countries. According to North (1981), as the scale of economic activity expands, better institutions become affordable. This variable could not only be picking up the scale effect associated with money laundering, but also part of the effect of wealth across nations, and it is thus a good summary variable for many country characteristics associated with the spread of the informal economy and tax evasion, for example. Bigger and richer countries could have a higher quality of institutions in general, including better property rights and rule of law, which could be associated with lower levels of money laundering and its feeder activities.¹⁸

Finally, and with the aim ensuring that we explicitly take account of enforcement, we also consider the effects of several proxies of the quality of enforcement by courts on the level of money laundering activities across countries. Previous research on the impacts of regulation (Djankov et al., 2002; Botero, et. al., 2004; and La Porta et. al., 1997 and 1998) have shown that

¹⁷ The U.S. State Department indices for all sub-periods show a large and statistically significant correlation with the FATF convergence index, ranging between 0.70 and 0.82.

¹⁸ As an additional way to control for wealth effects and other regional factors that may explain money laundering, we ran all regressions in the paper adding a set of continent dummies that follow the geographical breakdown used in Table 2. The results do not significantly change, but the tables are not included in the paper for reasons of space. There are no differences amongst the dummies with the exception of Latin America, which in two-thirds of the variables shows consistently higher levels of money laundering as compared to Europe and North America.

enforcement is a key explanatory variable. Better enforcement by the legal system could be associated with lower levels of criminal activity, including money laundering, regardless of the content of the laws (North, 1981; La Porta et al., 1999). We use two different measures to proxy for the quality of enforcement in each country. Both of these measures come from Djankov et al. (2002), who collected information in over 100 jurisdictions on the regulation of civil procedures for the collection of a bounced check and the eviction of a non-paying tenant through the legal system. The data, developed with the help of law firms in each country, aim to obtain measures of the enforcement and efficiency of the legal system that are not contaminated by subjectivity and macroeconomic cyclicalities, as are most other proxies in the literature. The first of these measures is the logarithm of the average total duration of the legal process of collecting a bounced check through the courts. This number ranges from 60 days in New Zealand to 527 in Colombia, and 645 in Italy. The second measure we use as a proxy for enforcement is the index of court formalism (or regulation) for the collection of a bounced check. This index tries to measure the degree of cumbersomeness and proceduralism involved in civil procedures, which affects most disputes in court. The index is the result of an aggregation of seven broad aspects of formalism which have been shown to explain lengthy court processes and citizens' discontent with the enforcement environment.

Tables 8 and 9 present the results of regressions of our six measure of money laundering on the aggregate indices of money laundering regulation detailed in the previous section, the logarithm of GNP, and a measure of the quality of legal enforcement in each table. The tables include three panels, each using a different aggregate measure of money laundering regulation. Across panels and tables, the size of the economy predicts lower levels of money laundering at its feeder activities, although significance is only reached consistently with the proxy of the shadow economy and sometimes with the electricity difference method. The efficiency of the judicial system, as proxied by our two different variables, is almost invariably related with lower levels of money laundering activities across countries. The results are always significant for the index of court formalism at 1 percent levels, and in four out of six regressions for the case of the length of check collection. The estimated coefficients predict that a two-standard deviation increase in the efficiency of the legal system, as proxied by court formalism (roughly the distance between Kazakhstan and the United States) is associated with a decrease of money laundering of 12.8 percent in the currency demand method, a 14.1 percent fall in the electricity

differences method, a 10.85 percent decrease in the shadow economy method, a 1.16 improvement in the tax evasion measure, and a rise of 0.87 and 0.71 in the indices of Money Laundering via banks and non-bank institutions, respectively. Similarly, a two-standard deviation increase in the duration of check collection (roughly the distance between Botswana and the United States) is also associated with a statistically significant increase in money laundering of 3.06 percent for the shadow economy and an increase in the tax evasion index of 0.60 points, and 0.46 and 0.52 points for the money laundering through banks and non-bank institutions, respectively. All of these numbers point to the large effects of the quality of enforcement on controlling money laundering. Perhaps most interestingly, anti-money laundering regulation also has a strong statistically significant impact on money laundering activities. The first two panels use the anti-money laundering indices based on the information provided by the U.S. State Department. Panel A uses the average of the annual index of regulation for the years 1996-2000, while Panel B uses the whole series of data spanning from 1996 to 2004. We separated the periods for two reasons. First, we try to isolate the effects of the September 11, 2001 attacks on the regulation of money-laundering and other criminal activities in the U.S. and other nations. Second, since some of our dependent variables end in 2000, we wanted to look at the regulation up to that period. The results in Tables 8 and 9 show that this does not matter much. In both cases, the anti-money laundering regulation index is strongly significant, but the economic impact is higher for the 1996-2004 index. The estimated coefficients predict that a two-standard deviation increase in the anti-money laundering regulation index for 1996 to 2004 (roughly the distance between Kenya and the U.S.) is associated with a decrease in money laundering of 10 percent in the currency demand method, an 8 percent decline with the electricity differences method, a 6.8 percent decrease with the shadow economy method, a 0.80 improvement in the tax evasion measure, and an increase of 0.56 and 0.48 in the indices of Money Laundering via banks and non-bank institutions, respectively. The economic magnitude of these results is very similar if we use the money laundering regulation index developed using U.S. State Department information department for the sub-period 1996-2000.

One of the reasons for developing two alternative measures of money regulation from different sources is to provide some robustness check on our results. Our aggregate index on money-laundering regulation measuring the convergence of legislation to FATF shows that the

impact of regulation is still present, with strong significance. The estimated coefficients predict that a two-standard deviation increase in the anti-money laundering regulation FATF convergence index in 2004 (roughly the distance between Ecuador and the U.S.) is associated with a decrease of money laundering of 10 percent in the currency demand method, a 12 percent fall with the electricity differences method, a 5.5 decrease with the shadow economy method, a 0.73 improvement in the tax evasion measure, and a rise of 0.74 and 0.66 in the indices of Money Laundering via banks and non-bank institutions, respectively.

4.2 Robustness

As a first robustness check, we attempt to ensure that the econometric specification of these regressions did not materially impact the results of the paper. Given the nature of the data for some of our measures of money laundering, Tables 10 and 11 use a Tobit specification as an alternative. There are very small changes in economic magnitudes, but the statistical significance of our results on the impact of anti-money laundering regulation and enforcement are preserved and sometimes improved.

A second and possibly more important issue is that of endogeneity: are anti-money laundering regulations endogenous? It is possible that countries adopt better anti-money laundering standards and regulations are those where the problems are smaller to begin with, or where the fight against crime has produced success. We can partially address this problem using instrumental variables. There are several instruments that we can use to determine the exogenous component of anti-money laundering regulation, and these variables have been developed and used in other contexts for the regulation of financial and labor markets, among other areas (e.g., La Porta et al., 1999; Djankov et al., 2002; and Botero et al., 2004).

In order to address endogeneity concerns, we need reasonably exogenous sources of variation linked to the legal, political or economic characteristics of nations. There are four sets of instruments we use to proxy for deeper economic, legal, political and social characteristics of countries that may explain the variation of regulation. The first instrument proxies for the economic theories of institutions. Under these theories, as economic wealth expands, better institutions become affordable. Latitude is a good proxy for some of the exogenous reasons that allow countries to grow richer; in locations closer to the equator, high rates of infectious disease lead to lower productivity and efficiency, which in turn affects rates of investment and growth

over time. The second set of instrument was developed by La Porta et al. (1997 and 1998) and pertains to countries' legal origin. Under the legal theory, a country's approach to regulation is shaped by its legal tradition, and the majority of countries in the world have inherited their basic legal structure from their conquerors or colonizers. The laws of different colonizers belong to different legal traditions which, in broad terms, fall into common law or civil law traditions with very different strategies toward the social control of business (La Porta, et. al., 1999, and Djankov et al., 2003).

The essence of political theories of institutions is that political divergence in societies, emerging from social, class, or ethnic interests, impacts the choice of regulation and institutions, as those in power try to stay in power and transfer resources to themselves and away from other groups. Following this theory, we use ethno-linguistic fractionalization in a country as an instrument (La Porta et al., 1999).

Finally, our fourth set of instruments try to capture more explicitly the cultural aspects that could drive regulation and government policies. According to cultural theories (Weber, 1958; Banfield, 1958; Putnam, 1993; and Landes 1998), societies hold beliefs that can shape institutions. Societies' distrust and intolerance affect regulation and legislation. Following the approach of other papers, we use as a set of instruments the percentage of the population in 1980 that belonged to the three largest religions in the world: Catholics, Muslims and Protestants, with the omitted variable lumping all other religions and non-religious populations. As an alternative we have also used the same variables but for the 1900, the results do not change.

Panels A.2, B.2 and C.2 of Tables 12 and 13 shows the results of the first-stage regressions. There are four main results from these tables, with respect to the excluded instruments. First, latitude is an important determinant of anti-money laundering regulation, as countries farther away from the equator have higher levels of regulation. Second, in about half of the specifications, English Common Law countries also show statistically significantly higher levels of anti-money laundering regulation. Third, countries with higher percentages of Catholic populations also exhibit higher levels of anti-money laundering regulatory measures, while in a few of the specifications, predominantly Muslim nations show lower levels. Finally, a higher level of ethno-linguistic fractionalization in a country explains lower levels of anti-money laundering regulation, but this result is significant in only a third of the specifications.

Most importantly, the results of the first-stage regressions show that there are exogenous sources that partly determine the level of anti-money laundering regulations. The F-statistic on the excluded instruments is between 7 and 17, according to the specification. The fact that there is exogenous variation in regulation alleviates the concerns of endogeneity problems that could have been thought to be the drivers of the results in the previous sections.

Panels A.1, B.1 and C.1 of Tables 12 and 13 show the second-stage regressions with the instrumental variables results. Our previous simple OLS and Tobit results survive. The magnitudes of the coefficients has changed, but the three aggregate anti-money laundering regulation variables are still strong predictors of the amount and extent of money laundering activities. The estimated coefficients predict that a two-standard deviation increase in the anti-money laundering regulation index for 1996 to 2004 (roughly the distance between Kenya and the United States) is associated with an decrease in money laundering of 9 percent in the currency demand method, an 11 percent fall with the electricity differences method, a 7.4 percent decrease with the shadow economy method, a 1.01 improvement in the tax evasion measure, and a rise of 0.90 and 0.78 in the indices of Money Laundering via banks and non-bank institutions, respectively. Using our alternative aggregate index of FATF convergence produces similar results.¹⁹

The results in Tables 8 through 13 show that there is a large and statistically significant impact of anti-money laundering regulation across countries and that this impact is different than and in addition to the impact of better enforcement. In the following section we try to understand which aspects of anti-money laundering regulation work better and why.

5. What Aspects of Money Laundering Regulation Work Better?

As explained above, if money laundering regulation works, we may want to explore deeper and ask which aspects of the law work better. Section 1 of the paper spelled out the groups of theories about the impact of regulation applied to money laundering in this case. There are basically two non-exclusive views of what works. The first view assigns a large role to prevention through standardized disclosures and tougher liability standards for all participants in

¹⁹ We have also produced, but not included in the paper, a similar set of instrumental variables regressions for the Tobit specifications of Tables 10 and 11. Results are very similar.

the process, while the second view focuses on greater enforcement powers.²⁰ Tables 14 and 15 run the same type of regressions as in the previous sections but we now include the individual sub-indices of the indices we developed based on 1996-2004 U.S. State Department information and the *EstandardsForum* 2004 information. These tables show the basic OLS specifications, mimicking those in Table 8, which control for the log of GNP and the log of the total duration of the check collection through the courts.²¹

The results of Panel A of Tables 14 and 15 for the regulation of financial intermediaries show a significant impact of this indicator in four out of the six money laundering measures. In Table 14, the estimated coefficients predict that a two-standard deviation increase in the financial system regulation sub index for 1996 to 2004 (roughly the distance between Pakistan and the United States) is associated with a decrease in money laundering of 5 percent in the currency demand method, a 4.8 percent decrease with the shadow economy method, a 0.59 improvement in the tax evasion measure, and a rise of 0.47 in the index of Money Laundering via banks. Panel A of Table 15 shows that when using the FATF convergence information for financial regulation, the economic magnitude of these results is more than 40 percent higher in most cases, with significant impacts on money laundering reduction in five out of the six regressions.

Panel B of Tables 14 and 15 shows even stronger results for the sub-index of criminalization. The economic impact of the criminalization sub-index is similar to that of the financial regulation sub-index, but the statistical significance is always higher at 1 percent levels in nine out of the 12 regressions. In Table 14, the estimated coefficients predict that a two-standard deviation increase in this sub index for the 1996-2004 period (roughly the distance between Uganda and the United States) is associated with a decrease in money laundering of 10 percent in the currency demand method, a 12 percent decline with the electricity differences method, an 8.8 percent decrease with the shadow economy method, a 1.1 improvement in the tax evasion measure, and an increase of 0.93 and 0.89 in the indices of Money Laundering via banks and non-bank institutions, respectively. Panel B of Table 15 shows very similar results in terms of statistical significance, but the economic impact is between 20 and 30 percent higher.

²⁰ Whereas these are rough characterizations, the available evidence in this paper already allows us to say something about these issues, suggesting areas that could be pursued further.

²¹ The results do not significantly change when we use all the alternative specifications that we have shown in Section 5 (i.e., using the sub period of 1996-200 data for the US State Department information, controlling for other indices of enforcement, tobit specifications, and instrumental variables). We do not show these tables for reasons of space, but the results are available from the authors.

Panels C of Tables 14 and 15 deal with the impact of international cooperation measures. The results are in general weaker than for the criminalization and financial regulations sub-indices. The coefficients are statistically significant in only two of the six measures using the U.S. State Department information, and only reach 10 percent significance levels in several of the specifications of the FATF sub-index. Finally, Panel D of Table 15 shows the results of the variable on authorities from the index on FATF convergence. The results show a sizeable and statistically significant impact in most regressions.

To summarize, most aspects of regulation matter, criminalization and financial regulation most of all. The magnitudes differ, but since we find a role for each of these sub-indices it is hard to say at first glance that some particular area of regulation of anti-money laundering is ineffective. We are currently gathering more data about specific features in several of these areas in the hope of obtaining more refined measures that would allow us to take a second look and tell these stories apart.

As a final approach to try to disentangle or rank the effects of various groups of measures, Table 16 shows a horse race between the three sub-indices of financial system regulation, criminalization and international cooperation, for each of our two data sources. For reasons of space, we show only the simple OLS regressions. The table shows that the index of criminalization comes in strongly significant in most specifications, to the detriment of the sub-indices of financial system and international cooperation. This seems to suggest that the criminalization of feeder activities and tougher confiscation of proceeds raise the cost to criminals and curtail money laundering. We should also point out that the current measures that we have for the prevention theory, mainly those of financial system regulations, are missing the key ingredient of the liability of intermediaries, which could be thought of as an important factor. We believe that, as in the case of securities markets regulation, if financial intermediaries were to be liable, though probably only for negligence, they would act as a monitoring arm of the authorities and thus improve the detection of money laundering.

We should take these results with some caution, however, since Table 7 has shown that the sub-indices are correlated. Multicollinearity between the three sub-indices may be of concern, as the correlation of these variables is between 0.61 and 0.96.

These results point to the high impact of criminalization and confiscation features on the regulation of money laundering. We should put these results in the context of the results presented in Tables 14 and 15, which also show that the other sub-indices matter.

6. Conclusion

Money laundering has jumped high on the political agenda as a result of the increasing attention paid to the finances of drug trafficking and terrorism. In this paper, we have taken an empirical look at the determinants of money laundering and its regulation in over 80 countries using multiple sources.

Our results show that tougher money laundering regulation has an impact on reducing money laundering and the extent of its feeder activities, controlling for other country characteristics, legal enforcement and potential endogeneity. Whereas each data source may be criticized by itself, the fact that the findings we obtain all point in the same direction, regardless of the data used, gives credence to our findings. In fact, the evidence provided here also suggests a role for various aspects of money laundering regulation, such as include disclosure from financial institutions, that make enforcement easier. In particular, measures that criminalize feeding activities and improve confiscation tend to matter more than other features of legislation, although they are not the only ones that matter. In order to better understand the specific aspects of the regulation that matter within these categories we are currently collecting more data to test more refined versions of the theories.

The relevance of historical factors in explaining the variation of money laundering regulation across countries sheds light on theories of institutions and provides room for further action in various jurisdictions. In contrast to those who are skeptical of the usefulness of anti-money laundering regulation, our data consistently show a positive impact of several of its features and their enforcement.

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Table 1. Description of Variables

Variable Name	Variable description
Measures of Money Laundering	
Currency demand approach	Money laundering calculation using the method developed by Gutman (1977). His approach assumes that shadow (or hidden) transactions are undertaken in the form of cash payments, so as to leave no observable traces for the authorities. An increase in the size of the shadow economy will therefore increase the demand for currency. To isolate the resulting “excess” demand for currency, an equation for currency demand is econometrically estimated over time. All conventional possible factors, such as the development of income, payment habits, interest rates, and so on, are controlled for. Additionally, such variables as the direct and indirect tax burden, government regulation and the complexity of the tax system, which are assumed to be the major factors causing people to work in the shadow economy, are included in the estimation equation. Any “excess” increase in currency, or the amount unexplained by the conventional or normal factors is then attributed to the rising tax burden and the other reasons leading people to work in the shadow economy. To calculate this index, we used annual data on Currency Holdings and Demand deposits and we have computed two time averages, which range respectively from 1980 and 1990 to 2000.
Electricity differences approach	To measure overall (official and unofficial) economic activity in an economy, Kaufmann and Kaliberda (1996) assume that electricity consumption is regarded as the single best physical indicator of overall (or official plus unofficial) economic activity. Overall economic activity and electricity consumption have been empirically observed throughout the world to move in lockstep with an electricity to GDP elasticity usually close to one. This means, that the growth of total electricity consumption is an indicator for growth of overall (official and unofficial) GDP. By having this proxy measurement for the overall economy and then subtracting from this overall measure the estimates of official GDP, Kaufmann and Kaliberda (1996) derive an estimate of unofficial GDP. To estimate this index, we use the data on total electricity consumption from the World Bank, 2004. Data on real (official) gross domestic product, measured as the nominal GDP deflated by the implicit gross domestic product deflator, was obtained from the International Monetary Fund (2003). The assumptions here are that the GDP/electricity elasticity equals one.
Shadow economy	This method considers multiple causes and multiple indicators of the shadow economy and follows Aigner, Scheneider, and Ghosh (1988). A factor-analytic approach is used to measure the shadow economy as an unobserved variable over time. The unknown coefficients are estimated using structural equations within which the unobserved variable cannot be measured directly. This dynamic multiple-indicators multiple-causes (DYMIMIC) consists of two parts, with the measurement linking the unobserved variables to observed indicators. Thus, these structural equations specify causal relationship among the unobserved variables, in this case, the shadow economy. This is assumed to be influenced by a set of indicators for its size, thus capturing its structural dependence on variables that may be useful in predicting its movement and size in the future. In fact, there is a large body of literature on the possible causes and indicators of the shadow economy such as the development of the production market, the development of the labor market, monetary indicators, burden of regulation, taxation, and others.
Tax Evasion	This variable was taken from the World Economic Forum’s <i>Global Competitiveness Report 2001-2002</i> , in which the authors use a survey of managers. The question regarding to tax evasion was formulated as follows: “Tax evasion in your country is . . .” and it valued with discrete values from 1 to 7, where 1=rampant and 7=minimal.
ML via banks	This variable was taken from the World Economic Forum’s <i>Global Competitiveness Report 2003</i> , in which they use a survey to managers. The question regarding to money laundering through banks was formulated as follows: “Money laundering through the banking system in your country is...” and it valued with discrete values from 1 to 7, where 1=pervasive and 7=extremely rare.
ML non-banks	This variable was taken from the World Economic Forum’s <i>Global Competitiveness Report 2003</i> , in which they use a survey to managers. The question regarding to money laundering through banks was formulated as follows: “Money laundering through non-bank channels in your country is . . .” and it valued with discrete values from 1 to 7, where 1=pervasive and 7=extremely rare.

Money Laundering Regulations Indices

Financial system regulation (State Dept.)	Financial system money laundry index. This is calculated as the average four variables: (i) Record Large Transactions which takes the value of one when, by law or regulation, banks are required to maintain records of large transactions in currency or other monetary instruments and zero otherwise; (ii) Maintain Records Over Time, which takes the value of one when, by law or regulation, banks are required to keep records, especially of large or unusual transactions, for a specified period of time, e.g., five years. and zero otherwise; (iii) Report Suspicious Transactions, which takes the value of one when, by law or regulation, banks are required to record and report suspicious or unusual transactions to designated authorities, and zero otherwise; and (iv) Non-Bank Financial Institutions, which takes the value of one when, by law or regulation, the jurisdiction requires non-bank financial institutions to meet the same customer identification standards and adhere to the same reporting requirements that it imposes on banks, and zero otherwise. <i>Source:</i> Own elaboration based on data provided by the US State Department for the periods 1996-2000 and 1996-2004.
Criminalization (State Dept.)	Criminalizing of money laundry index. This index is calculated as the average of two variables: (i) Criminalized Drug Money Laundering, which takes the value of one when the jurisdiction has enacted laws criminalizing the offense of money laundering related to drug trafficking and zero otherwise; and (ii) Criminalized Beyond Drugs, which takes the value of one when the jurisdiction has extended anti-money laundering statutes and regulations to include no drug-related money laundering and zero otherwise. <i>Source:</i> Authors' compilation based on data provided by the US State Department for the periods 1996-2000 and 1996-2004.
International Cooperation (State Dept.)	International cooperation money laundry index. This index is calculated as the average of six variables: (i) Arrangements for Asset Sharing, which takes the value of one when, by law, regulation or bilateral agreement, the jurisdiction permits sharing of seized assets with third party jurisdictions which assisted in the conduct of the underlying investigation and zero otherwise; (ii) Cooperates w/International Law Enforcement, which takes the value of one when, by law or regulation, banks are permitted/required to cooperate with authorized investigations involving or initiated by third party jurisdictions, including sharing of records or other financial data, and zero otherwise; (iii) International Transportation of Currency, which takes the value of one when, by law or regulation, the jurisdiction, in cooperation with banks, controls or monitors the flow of currency and monetary instruments crossing its borders, and zero otherwise; (iv) Mutual Legal Assistance, which takes the value of one when, by law or through treaty, the jurisdiction has agreed to provide and receive mutual legal assistance, including the sharing of records and data, and zero otherwise; (v) Disclosure Protection Safe Harbor, which takes the value of one when, by law, the jurisdiction provides a "safe harbor" defense to banks or other financial institutions and their employees who provide otherwise confidential banking data to authorities in pursuit of authorized investigations, and zero otherwise; and (vi) States Parties to 1988 UN Drug Convention, which takes the value of one when, as of December 31, 2001, a party to the 1988 United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, or a territorial entity to which the application of the Convention has been extended by a party to the Convention, and zero otherwise. <i>Source:</i> Own calculations based on data provided by the US State Department for the periods 1996-2000 and 1996-2004.
ML regulation (State Dept. indices).	Average of the three sub-indices above. <i>Source:</i> Authors' calculations based on data provided by the US State Department for the periods 1996-2000 and 1996-2004.
Financial system regulation (FATF Convergence)	This index is the average of two variables: (i) Identification rules, which measures the degree to which the authorities requires customers identification and record keeping in order to prevent money laundering; and (ii) Financial institutions rules, which ties to approximate to the degree in which the diligence to financial institutions has increased in the country. Each of the two variables is assigned values according to the degree of compliance of the jurisdiction. Each variable takes the following values: 0 (no compliance); 0.25 (intent declared); 0.5 (enacted); 0.75 (compliance in progress); and 1 (full compliance). The data is for the year 2005. <i>Source:</i> Authors' calculations based on information from http://www.estandardsforum.com/
Criminalization (FATF Convergence)	This index is the average of two variables: (i) Criminalization, which measures the degree in which money laundering is considered as a criminal offence; and (ii) Confiscation, which measures the degree in which the authorities take provisional measures and confiscation regarding to money laundering. Each of the two variables is assigned values according to the degree of compliance of the jurisdiction. Each variable takes the following values: 0 (no compliance); 0.25 (intent declared); 0.5 (enacted); 0.75 (compliance in progress); and 1 (full compliance). The data is for the year 2005. <i>Source:</i> Authors' calculations based on information from http://www.estandardsforum.com/
International cooperation (FATF Convergence)	This index is the average of two variables: (i) International information exchange, which measures the degree in which the country has international cooperation and exchange of information; and (ii) International confiscation, which depends on the degree in which the country has international cooperation/confiscation or mutual assistance on extradition. Each of the two variables is assigned values according to the degree of compliance of the jurisdiction. Each variable takes the following values: 0 (no compliance); 0.25 (intent declared); 0.5 (enacted); 0.75 (compliance in progress); and 1 (full compliance). The data is for the year 2005. <i>Source:</i> Authors' calculations based on information from http://www.estandardsforum.com/
Administrative authorities (FATF Convergence)	Index developed by the Estandards Forum, based on an 83-country sample. Depending on the implementation and role of the regulatory and other administrative authorities regarding to money laundering, This variable is assigned values according to the degree of compliance of the jurisdiction., taking the following values: 0 (no compliance); 0.25 (intent declared); 0.5 (enacted); 0.75 (compliance in progress); and 1 (full compliance). The data is for the year 2005. <i>Source:</i> Authors' calculations based on information from http://www.estandardsforum.com/
ML regulation FATF convergence index	This variable is a simple average of the preceding four sub-indices above. <i>Source:</i> Authors' calculations based on information from http://www.estandardsforum.com/

Other variables (Controls and instruments)

Log GDP	Logarithm of gross domestic product in US dollars for 2000. <i>Source:</i> World Development Indicators.
Latitude	The absolute value of the latitude of the country, scaled to take values between 0 and 1. <i>Source:</i> Central Intelligence Agency (1996).
Court formalism	The index measures substantive and procedural statutory intervention in judicial cases at lower-level civil trial courts, and is formed by adding up the following indices: (i) professionals vs. laymen, (ii) written vs. oral elements, (iii) legal justification, (iv) statutory regulation of evidence, (v) control of superior review, (vi) engagement formalities, and (vii) independent procedural actions. The index ranges from 0 to 7, where 7 mean a higher level of control or intervention in the judicial process. <i>Source:</i> Djankov et al. (2003).
Log (Duration check collection)	The total estimated duration in calendar days of the procedure under the factual and procedural assumptions provided. It equals the sum of: (i) duration until completion of service of process, (ii) duration of trial, and (iii) duration of enforcement. <i>Source:</i> Djankov et al. (2003).
Common law	Identifies the legal origin of the law or commercial code of each country. Equal 1 of the origin is English common law and zero otherwise. <i>Source:</i> La Porta et al. (1999)
Log settler mortality	Log of the mortality rate faced by European settlers at the time of colonization. <i>Source:</i> Acemoglu et al. (2001).
Population density in 1500	Total population divided by total arable land in 1500 A.D. <i>Source:</i> McEvedy and Jones (1978) as cited in Acemoglu et al. (2002).
Ethno linguistic fractionalization	Average value of five different indices of ethno linguistic fractionalization. Its value ranges from 0 to 1. The five component indices are: (1) index of ethno linguistic fractionalization in 1960, which measures the probability that two randomly selected people from a given country will not belong to the same ethno linguistic group (the index is based on the number and size of population groups as distinguished by their ethnic and linguistic status); (2) and (3) probability of two randomly selected individuals speaking different languages; (4) percent of the population not speaking the official language; and (5) percent of the population not speaking the most widely used language. <i>Source:</i> Easterly and Levine (1997).
% Catholics	Identifies the % of the population of each country that belonged to Catholic religion in 1980. For countries of recent formation, the data is available for 1990-95. The numbers are in percent (0-100). <i>Sources:</i> La Porta et. al. (1999)
% Muslim	Identifies the % of the population of each country that belonged to Muslim religion in 1980. For countries of recent formation, the data is available for 1990-95. The numbers are in percent (0-100). <i>Sources:</i> La Porta et. al. (1999)
% Protestant	Identifies the % of the population of each country that belonged to Protestant religion in 1980. For countries of recent formation, the data is available for 1990-95. The numbers are in percent (0-100). <i>Sources:</i> La Porta et. al. (1999)

Table 2. Money Laundering Measures by Continent

	Currency demand	Electricity differences	Shadow economy	Tax Evasion	ML via banks	ML non-banks
Africa						
Mean	-	0.33	39.61	3.18	5.04	4.26
Median	-	0.35	38.40	3.05	5.05	4.05
Asia and Oceania						
Mean	0.20	0.26	30.18	3.74	4.81	4.20
Median	0.13	0.29	29.30	3.40	4.90	4.30
Middle East						
Mean	0.19	0.20	23.81	3.10	4.80	4.75
Median	0.16	0.20	20.65	3.60	4.80	4.75
Europe and North America						
Mean	0.15	0.16	24.06	3.68	5.09	4.38
Median	0.13	0.12	22.60	3.60	5.30	4.40
Latin America						
Mean	0.24	0.44	42.50	2.82	3.94	3.13
Median	0.22	0.42	39.45	2.60	3.85	3.10
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Sample average	0.19	0.26	31.32	3.41	4.71	4.01
Sample median	0.15	0.23	32.10	3.10	4.70	3.95
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<i>Panel B: Tests of means (t-statistics)</i>						
Latin Am. vs. Africa	-	-1.55	-0.73	0.81	3.86***	3.89***
Latin Am. vs. A&O	-0.97	-3.88***	-2.63***	2.55**	3.35***	3.79***
Latin Am. vs. Middle East	-0.78	-2.39**	-3.63***	0.59	1.78*	3.50***
Latin Am. vs. Europe and North Am.	-1.76*	-8.30***	-5.23***	3.32***	4.97***	4.94***
Africa vs. A&O	-	1.15	2.35**	-0.77	0.63	0.15
Africa vs. Middle East	-	1.58	4.72***	0.10	0.45	-0.78
Africa vs. Europe and North Am.	-	4.28***	5.36***	-0.99	-0.16	-0.31
A&O vs. Middle East	0.03	0.65	1.16	0.77	0.01	-0.71
A&O vs. Europe and North Am.	0.97	3.28***	1.82*	0.17	-1.06	-0.58
Middle East vs. Europe and North Am.	0.48	0.70	-0.06	-1.01	-0.46	0.51
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<i>Panel C: Tests of medians (Pearson chi2)</i>						
Latin Am. vs. Africa	-	2.04	0.75	1.43	7.60***	7.60***
Latin Am. vs. A&O	1.85	4.37**	1.67	5.46**	7.69***	6.06**
Latin Am. vs. Middle East	0.44	2.29	6.75***	0.39	2.64	2.20
Latin Am. vs. Europe and North Am.	4.39**	21.54***	13.50***	9.92***	15.61***	15.61***
Africa vs. A&O	-	2.56	1.17	1.01	0.17	0.52
Africa vs. Middle East	-	2.10	10.86***	1.22	2.50	2.50
Africa vs. Europe and North Am.	-	2.39	21.22***	1.14	0.04	0.29
A&O vs. Middle East	3.85**	2.20	0.67	0.67	1.63	2.48
A&O vs. Europe and North Am.	0.00	3.18*	1.17	0.65	2.87*	0.22
Middle East vs. Europe and North Am.	0.48	2.15	0.63	0.19	1.35	0.11

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 3. Money Laundering Measures by Size of Economy

	<i>Panel A: Money laundering measures</i>					
	Currency demand	Electricity differences	Shadow economy	Tax Evasion	ML via banks	ML non-banks
Bottom 25 percentile of GNP						
Mean	0.27	0.40	39.90	3.23	4.36	3.69
Median	0.26	0.46	39.80	3.30	4.00	3.40
Middle 50 percentile of GNP						
Mean	0.21	0.29	33.38	3.22	4.55	3.80
Median	0.16	0.32	33.85	3.00	4.50	3.60
Top 25 percentile of GNP						
Mean	0.14	0.17	20.44	3.75	5.15	4.50
Median	0.11	0.13	18.30	3.65	5.30	4.70
Sample average						
	0.19	0.26	31.32	3.40	4.71	4.00
Sample median						
	0.15	0.23	32.10	3.10	4.70	3.90
<i>Panel B: Tests of means (t-statistics)</i>						
Middle 50 vs. Top 25 percentile	1.78*	3.48***	4.57***	-1.82*	-2.66**	-2.79***
Bottom 25 vs. Top 25 percentile	2.00*	4.09***	6.19***	-1.32	-2.62**	-2.32**
Bottom 25 vs. Middle 50 percentile	0.94	1.67	1.99*	0.02	-0.67	-0.35
<i>Panel C: Tests of medians (Pearson chi2)</i>						
Middle 50 vs. Top 25 percentile	5.37**	10.00***	14.97***	3.67*	8.61***	10.55***
Bottom 25 vs. Top 25 percentile	4.73**	5.04**	26.21***	3.18*	4.07**	4.07**
Bottom 25 vs. Middle 50 percentile	4.62**	1.71	3.60	0.46	0.29	0.14

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 4. Correlation Among Money Laundering Proxies (P-values below)

	Currency demand	Electricity differences	Shadow economy	Tax Evasion	ML via banks
Electricity differences	0.3859 0.0036				
Shadow economy	0.4912 0.0002	0.8026 0.0000			
Tax Evasion	-0.3903 0.0061	-0.5582 0.0000	-0.6265 0.0000		
ML via banks	-0.5766 0.0000	-0.6139 0.0000	-0.6533 0.0000	0.788 0.0000	
ML non-banks	-0.49 0.0004	-0.5904 0.0000	-0.6475 0.0000	0.7933 0.0000	0.9325 0.0000

Table 5. Measuring Regulation of Money Laundering

	Panel A: Regulation of money laundering measures				
	Financial syst. reg. (State Dept.)	Criminalization (State Dept.)	International Coop. (State Dept.)	ML regulation (State Dept.)	ML regulation (State Dept.)
	96-04	96-04	96-04	96-04	96-00
<i>Bottom 25 percentile of GNP</i>					
Mongolia	0.00	0.00	0.13	0.04	0.00
Kyrgyzstan	0.06	0.00	0.15	0.07	0.03
Armenia	0.17	0.33	0.26	0.25	0.03
Georgia	0.17	0.33	0.22	0.24	0.04
Zambia	0.25	0.75	0.33	0.44	0.22
Namibia	0.50	0.20	0.10	0.27	0.00
Mozambique	0.57	0.71	0.45	0.58	0.15
Albania	0.39	0.78	0.24	0.47	0.20
Nicaragua	0.54	0.50	0.48	0.50	0.34
Haiti	0.57	0.57	0.33	0.49	0.06
Mauritius	0.63	0.83	0.58	0.68	0.43
Bosnia & Herzegovina	0.42	0.58	0.44	0.48	0.43
Ghana	0.58	1.00	0.69	0.76	0.75
Botswana	0.60	0.80	0.50	0.63	0.36
Estonia	0.44	0.56	0.48	0.49	0.19
Nepal	0.28	0.00	0.37	0.22	0.22
Uganda	0.00	0.40	0.23	0.21	0.06
Honduras	0.96	0.71	0.81	0.83	0.73
Ethiopia	0.46	0.00	0.17	0.21	0.06
Paraguay	0.97	0.89	0.63	0.83	0.78
Latvia	0.67	0.72	0.52	0.64	0.43
Jamaica	0.72	0.72	0.76	0.73	0.53
Trinidad & Tobago	0.92	0.78	0.85	0.85	0.73
Bolivia	0.47	0.78	0.31	0.52	0.40
Iceland	0.88	1.00	0.67	0.85	0.81
Jordan	0.38	0.50	0.44	0.44	0.11
Yugoslavia (former before split)	0.00	0.00	0.04	0.01	0.00
Yugoslavia (former before split)	0.00	0.00	0.04	0.01	0.00
Mean	0.45	0.52	0.40	0.46	0.29
Median	0.47	0.58	0.41	0.49	0.21
<i>Middle 50 percentile of GNP</i>					
Cyprus	0.97	0.94	0.83	0.92	0.88
Cameroon	0.00	0.13	0.13	0.08	0.17
Tanzania	0.60	0.50	0.50	0.53	0.39
Kenya	0.36	0.50	0.50	0.45	0.35
Cote D'Ivoire	0.67	1.00	0.63	0.77	0.70
Lithuania	0.69	0.67	0.65	0.67	0.45
Panama	0.94	0.78	0.93	0.88	0.79
Bulgaria	0.75	0.67	0.63	0.68	0.48
Belarus	0.64	0.43	0.48	0.52	0.22
El Salvador	0.93	0.86	0.74	0.84	0.70
Uzbekistan	0.36	0.67	0.41	0.48	0.27
Ecuador	0.92	0.67	0.50	0.69	0.76
Costa Rica	0.89	0.67	0.76	0.77	0.62
Sri Lanka	0.00	0.11	0.30	0.14	0.14
Lebanon	0.42	0.56	0.33	0.44	0.12
Syria	0.05	0.20	0.40	0.22	0.17
Kazakhstan	0.29	0.64	0.48	0.47	0.45
Croatia	0.75	0.78	0.67	0.73	0.53
Slovenia	1.00	1.00	0.81	0.94	0.93
Guatemala	0.44	0.50	0.48	0.48	0.10
Tunisia	0.33	0.33	0.39	0.35	
Luxembourg	1.00	0.83	0.83	0.89	0.84
Dominican Republic	1.00	0.67	0.76	0.81	0.72
Uruguay	0.78	0.72	0.48	0.66	0.48
Slovakia	0.67	0.83	0.44	0.65	0.43

Vietnam	0.40	1.00	0.47	0.62	0.61
Morocco	0.25	0.06	0.31	0.21	0.14
Romania	0.67	0.67	0.37	0.57	0.36
Nigeria	0.83	0.78	0.76	0.79	0.72
Hungary	1.00	1.00	0.78	0.93	0.91
Bangladesh	0.25	0.50	0.36	0.37	0.11
Peru	0.89	0.78	0.61	0.76	0.63
Algeria	0.11	0.00	0.36	0.15	0.09
Czech Republic	0.86	0.89	0.74	0.83	0.74
New Zealand	0.72	1.00	0.81	0.84	0.69
United Arab Emirates	0.50	0.33	0.52	0.45	0.14
Pakistan	0.36	0.50	0.43	0.43	0.42
Chile	0.67	0.67	0.46	0.60	0.44
Philippines	0.53	0.44	0.67	0.55	0.23
Colombia	0.83	1.00	0.70	0.85	0.81
Malaysia	0.50	0.83	0.67	0.67	0.31
Singapore	1.00	0.83	0.67	0.83	0.76
Ireland	1.00	1.00	0.83	0.94	0.94
Iran	0.00	0.00	0.33	0.11	0.11
Egypt	0.31	0.33	0.61	0.42	0.12
Portugal	0.94	0.89	0.83	0.89	0.83
Greece	1.00	1.00	0.65	0.88	0.83
Israel	0.47	0.56	0.70	0.58	0.28
Finland	1.00	1.00	0.83	0.94	0.94
Venezuela	1.00	0.50	0.80	0.77	0.76
Thailand	0.58	0.67	0.56	0.60	0.34
South Africa	0.50	0.81	0.58	0.63	0.40
Indonesia	0.29	0.43	0.48	0.40	0.09
Mean	0.62	0.64	0.58	0.62	0.49
Median	0.67	0.67	0.61	0.65	0.45
<i>Bottom 25 percentile of GNP</i>					
Denmark	1.00	1.00	0.76	0.92	0.90
Hong Kong	0.92	1.00	0.83	0.92	0.89
Poland	0.86	1.00	0.74	0.87	0.83
Norway	0.78	0.89	0.78	0.81	0.67
Saudi Arabia	0.75	1.00	0.50	0.75	0.69
Austria	1.00	1.00	0.72	0.91	0.89
Turkey	0.89	0.89	0.67	0.81	0.73
Belgium	1.00	1.00	0.83	0.94	0.94
Sweden	0.97	0.94	0.63	0.84	0.80
Switzerland	0.97	1.00	0.69	0.89	0.88
Russia	0.44	0.78	0.43	0.55	0.30
Netherlands	1.00	1.00	0.83	0.94	0.94
Australia	1.00	1.00	1.00	1.00	1.00
India	0.78	0.50	0.76	0.68	0.52
Korea (Republic of)	0.33	0.50	0.46	0.43	0.13
Spain	1.00	1.00	0.98	0.99	0.99
Mexico	0.92	0.94	0.89	0.92	0.85
Brazil	0.83	0.67	0.72	0.74	0.53
Canada	0.93	1.00	0.95	0.96	0.91
Italy	1.00	1.00	1.00	1.00	1.00
China (PRC)	0.33	0.78	0.48	0.53	0.37
France	1.00	1.00	0.98	0.99	0.99
United Kingdom	1.00	1.00	0.87	0.96	0.97
Germany	0.94	1.00	0.76	0.90	0.88
Japan	1.00	0.83	0.83	0.89	0.84
United States	1.00	1.00	1.00	1.00	1.00
Mean	0.87	0.91	0.77	0.85	0.79
Median	0.96	1.00	0.77	0.63	0.51
Sample average	0.64	0.68	0.58	0.90	0.88
Sample median	0.67	0.75	0.61	0.67	0.48

Panel B: Tests of means (t-statistics)

Middle 50 vs Top 25 percentile -3.74*** -4.53*** -4.43*** -4.64*** -4.58***

Bottom 25 vs Top 25 percentile	-6.07***	-5.55***	-6.67***	-7.14***	-6.64***
Bottom 25 vs Middle 50 percentile	-2.40**	-1.81*	-3.90***	-3.08***	-2.76***

Panel C: Tests of medians (Pearson Chi2)

Middle 50 vs Top 25 percentile	11.77***	15.29***	14.09***	11.31***	11.77***
Bottom 25 vs Top 25 percentile	29.67***	21.37***	18.99***	18.99***	24.03***
Bottom 25 vs Middle 50 percentile	5.08**	0.07	5.78**	5.49**	5.09**

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 6. Measuring Regulation of Money Laundering (II)

	Panel A: Regulation of money laundering measures				
	Financial syst. reg. (FATF Convergence)	Criminalization (FATF Convergence)	International Coop. (FATF Convergence)	Administrative Authority (FATF Convergence)	ML regulation FATF convergence index
<i>Bottom 25 percentile of GNP</i>					
Ghana	0.13	0.38	0.75	0.00	0.31
Estonia	1.00	0.88	0.75	0.75	0.84
Honduras	0.50	0.50	0.50	0.50	0.50
Latvia	0.75	0.38	0.75	0.75	0.66
Bolivia	0.50	0.38	0.38	0.50	0.44
Jordan	0.25	0.13	0.25	0.00	0.16
Mean	0.52	0.44	0.42	0.56	0.48
Median	0.50	0.38	0.50	0.63	0.47
<i>Middle 50 percentile of GNP</i>					
Cameroon	0.00	0.13	0.00	0.00	0.03
Tanzania	0.25	0.25	0.25	0.25	0.25
Kenya	0.25	0.38	0.25	0.25	0.28
Cote D'Ivoire	0.38	0.25	0.25	0.00	0.22
Lithuania	0.63	0.75	0.75	0.75	0.72
Bulgaria	0.63	0.50	0.50	0.50	0.53
Uzbekistan	0.25	0.38	0.25	0.25	0.28
Ecuador	0.25	0.38	0.50	0.25	0.34
Sri Lanka	0.13	0.25	0.13	0.00	0.13
Lebanon	0.50	0.50	0.00	0.50	0.38
Syria	0.00	0.00	0.00	0.00	0.00
Kazakhstan	0.25	0.13	0.50	0.25	0.28
Croatia	0.63	0.75	0.75	0.50	0.66
Slovenia	0.75	0.75	0.75	0.75	0.75
Guatemala	0.50	0.50	0.50	0.50	0.50
Tunisia	0.38	0.25	0.13	0.25	0.25
Luxembourg	0.75	0.75	0.75	0.75	0.75
Dominican Republic	0.50	0.50	0.75	0.75	0.63
Uruguay	0.50	0.63	0.50	0.50	0.53
Slovakia	0.63	0.63	0.50	0.75	0.63
Vietnam	0.00	0.25	0.25	0.00	0.13
Morocco	0.00	0.00	0.38	0.00	0.09
Romania	0.75	0.75	0.75	0.75	0.75
Nigeria	0.50	0.38	0.38	0.50	0.44
Hungary	0.75	0.50	0.63	0.75	0.66
Bangladesh	0.38	0.13	0.00	0.25	0.19
Peru	0.63	0.50	0.50	0.50	0.53
Algeria	0.13	0.13	0.00	0.00	0.06
Czech Republic	0.75	0.75	0.75	0.75	0.75
New Zealand	1.00	1.00	1.00	1.00	1.00
United Arab Emirates	0.50	0.50	0.25	0.50	0.44
Pakistan	0.38	0.13	0.25	0.25	0.25

Chile	0.25	0.50	0.25	0.50	0.38
Philippines	0.50	0.50	0.50	0.50	0.50
Colombia	0.50	0.50	0.75	0.50	0.56
Malaysia	0.50	0.50	0.50	0.50	0.50
Singapore	0.63	0.75	0.63	0.75	0.69
Ireland	0.75	0.75	0.75	0.75	0.75
Iran	0.13	0.00	0.25	0.00	0.09
Egypt	0.50	0.50	0.25	0.50	0.44
Portugal	0.75	0.88	0.75	0.75	0.78
Greece	0.75	0.75	0.75	0.75	0.75
Israel	0.75	0.75	0.75	0.75	0.75
Finland	0.63	0.88	0.63	0.75	0.72
Venezuela	0.63	0.25	0.63	0.25	0.44
Thailand	0.63	0.63	0.50	0.75	0.63
South Africa	0.50	0.50	0.25	0.50	0.44
Indonesia	0.25	0.38	0.00	0.00	0.16
Mean	0.47	0.47	0.45	0.44	0.46
Median	0.50	0.50	0.50	0.50	0.47

Top 25 percentile of GNP

Denmark	1.00	1.00	1.00	1.00	1.00
Hong Kong	0.63	0.63	0.75	0.50	0.63
Poland	0.50	0.50	0.50	0.50	0.50
Norway	1.00	0.88	0.75	0.75	0.84
Saudi Arabia	0.75	0.75	0.75	0.75	0.75
Austria	0.75	1.00	0.75	0.75	0.81
Turkey	0.63	0.50	0.50	0.75	0.59
Belgium	0.75	0.75	0.75	0.75	0.75
Sweden	0.75	0.88	0.75	0.75	0.78
Switzerland	0.75	1.00	0.75	1.00	0.88
Russia	0.50	0.63	0.63	0.75	0.63
Netherlands	1.00	1.00	0.75	1.00	0.94
Australia	0.75	0.88	0.75	0.75	0.78
India	0.50	0.50	0.50	0.50	0.50
Spain	0.75	0.75	0.75	0.75	0.75
Mexico	0.75	0.63	0.75	0.75	0.72
Brazil	0.75	0.63	0.75	0.75	0.72
Canada	0.75	0.88	0.75	0.75	0.78
Italy	1.00	0.88	0.88	1.00	0.94
China (PRC)	0.50	0.25	0.38	0.50	0.41
France	0.63	0.88	0.75	0.75	0.75
United Kingdom	0.88	0.88	0.88	0.75	0.84
Germany	0.75	0.75	0.75	0.75	0.75
Japan	0.75	0.88	0.75	0.75	0.78
United States	0.75	1.00	0.88	0.75	0.84
Mean	0.74	0.77	0.75	0.73	0.75
Median	0.75	0.88	0.75	0.75	0.75

Sample average	0.56	0.56	0.54	0.54	0.55
Sample median	0.63	0.50	0.50	0.63	0.63
Panel B: Tests of means (t-statistics)					
Middle 50 vs Top 25 percentile	-5.03***	-5.10***	-4.95***	-4.92***	-5.37***
Bottom 25 vs Top 25 percentile	-2.51**	-3.55**	-3.79***	-2.33**	-3.51***
Bottom 25 vs Middle 50 percentile	0.47	-0.31	-0.25	1.04	0.25
Panel C: Tests of medians (Pearson Chi2)					
Middle 50 vs Top 25 percentile	18.20***	11.37***	4.99**	18.58***	14.56***
Bottom 25 vs Top 25 percentile	0.03	2.44	1.10	1.10	1.95
Bottom 25 vs Middle 50 percentile	0.09	0.69	0.00	0.49	0.00

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 7. Correlations among the Sub-Indices of Money Laundering Regulation (P-values below)

	Criminalization (State Dept.) 96-04	Financial syst. reg. (State Dept.) 96-04	International Coop. (State Dept.) 96-04	ML regulation (State Dept.) 96-04	Criminalization (FATF Convergence)	Financial syst. reg. (FATF Convergence)	Admin. Authority (FATF Convergence)	International Coop. (FATF Convergence)
Financial syst. reg. (State Dept.) 96-04	0.818 0.000							
International Coop. (State Dept.) 96-04	0.780 0.000	0.865 0.000						
ML regulation (State Dept.) 96-04	0.929 0.000	0.957 0.000	0.928 0.000					
Criminalization (FATF Convergence)	0.682 0.000	0.730 0.000	0.665 0.000	0.747 0.000				
Financial syst. reg. (FATF Convergence)	0.647 0.000	0.728 0.000	0.667 0.000	0.733 0.000	0.864 0.000			
Admin. Authority (FATF Convergence)	0.640 0.000	0.718 0.000	0.608 0.000	0.710 0.000	0.884 0.000	0.915 0.000		
International Coop. (FATF Convergence)	0.692 0.000	0.767 0.000	0.706 0.000	0.777 0.000	0.809 0.000	0.808 0.000	0.799 0.000	
ML regulation FATF convergence index	0.707 0.000	0.781 0.000	0.701 0.000	0.787 0.000	0.946 0.000	0.953 0.000	0.958 0.000	0.906 0.000

Table 8. OLS Regressions for Money Laundering Measures, Controlling by Log (Duration check collection)

<i>Panel A: ML regulation (State Dept. indices) 96-00</i>						
	Currency demand	Electricity differences	Shadow economy	Tax Evasion	ML via banks	ML non-banks
ML regulation (State Dept. indices) 96-00	-0.138 (0.063)**	-0.145 (0.059)**	-10.608 (4.770)**	1.404 (0.373)***	1.113 (0.405)***	0.986 (0.435)**
log GDP 2000	-0.006 (0.014)	-0.028 (0.013)**	-3.950 (0.800)***	0.047 (0.065)	0.043 (0.067)	0.084 (0.074)
Log (Duration check collection)	0.019 (0.023)	0.036 (0.023)	3.060 (1.579)*	-0.604 (0.184)***	-0.455 (0.128)***	-0.515 (0.145)***
Constant	0.320 (0.380)	0.858 (0.363)**	119.743 (22.747)***	4.520 (2.226)**	5.367 (1.905)***	4.028 (2.172)*
Observations	49	62	77	66	69	69
R-squared	0.13	0.32	0.45	0.34	0.29	0.28
<i>Panel B: ML regulation (State Dept. indices) 96-04</i>						
ML regulation (State Dept. indices) 96-04	-0.250 (0.082)***	-0.183 (0.081)**	-15.429 (6.192)**	2.059 (0.551)***	1.355 (0.583)**	1.148 (0.602)*
log GDP 2000	-0.002 (0.013)	-0.030 (0.013)**	-3.957 (0.778)***	0.051 (0.064)	0.050 (0.064)	0.091 (0.071)
Log (Duration check collection)	0.016 (0.022)	0.025 (0.017)	2.531 (1.252)**	-0.565 (0.183)***	-0.471 (0.104)***	-0.547 (0.117)***
Constant	0.349 (0.351)	1.010 (0.314)***	127.502 (19.977)***	3.561 (2.172)	4.964 (1.635)***	3.812 (1.860)**
Observations	49	63	78	66	70	70
R-squared	0.18	0.30	0.45	0.33	0.29	0.29
<i>Panel C: ML regulation FATF convergence index</i>						
ML regulation FATF convergence index	-0.234 (0.088)**	-0.266 (0.061)***	-11.708 (6.108)*	1.702 (0.518)***	1.612 (0.469)***	1.443 (0.477)***
log GDP 2000	-0.006 (0.013)	-0.022 (0.011)*	-3.840 (0.742)***	0.058 (0.068)	0.051 (0.057)	0.087 (0.062)
Log (Duration check collection)	0.001 (0.019)	0.025 (0.017)	2.664 (1.351)*	-0.565 (0.214)**	-0.435 (0.107)***	-0.517 (0.125)***
Constant	0.488 (0.340)	0.826 (0.291)***	119.205 (19.858)***	3.910 (2.498)	4.785 (1.575)***	3.726 (1.816)**
Observations	46	57	69	58	60	60
R-squared	0.18	0.37	0.41	0.33	0.38	0.38

Robust standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 9. OLS Regressions for Money Laundering Measures, Controlling by Court Formalism*Panel A: ML regulation (State Dept. indices) 96-00*

	Currency demand	Electricity differences	Shadow economy	Tax Evasion	ML via banks	ML non-banks
ML regulation (State Dept. indices) 96-00	-0.128 (0.059)**	-0.141 (0.049)***	-10.846 (4.542)**	1.162 (0.341)***	0.870 (0.380)**	0.710 (0.415)*
Log GDP 2000	0.002 (0.012)	-0.013 (0.009)	-3.548 (0.700)***	0.028 (0.069)	0.012 (0.069)	0.058 (0.081)
Court formalism	0.044 (0.013)***	0.062 (0.014)***	3.746 (1.166)***	-0.419 (0.113)***	-0.368 (0.094)***	-0.385 (0.100)***
Constant	0.047 (0.317)	0.446 (0.242)*	112.416 (17.521)***	3.492 (1.988)*	5.237 (1.883)***	3.558 (2.180)
Observations	50	63	77	67	70	70
R-squared	0.24	0.45	0.50	0.36	0.34	0.31

Panel B: ML regulation (State Dept. indices) 96-04

ML regulation (State Dept. indices) 96-04	-0.230 (0.079)***	-0.171 (0.066)**	-14.745 (5.839)**	1.776 (0.472)***	0.830 (0.578)	0.548 (0.627)
Log GDP 2000	0.005 (0.012)	-0.014 (0.010)	-3.525 (0.681)***	0.027 (0.069)	0.022 (0.068)	0.067 (0.080)
Court formalism	0.041 (0.013)***	0.061 (0.014)***	3.731 (1.174)***	-0.407 (0.113)***	-0.363 (0.093)***	-0.383 (0.100)***
Constant	0.077 (0.305)	0.506 (0.237)**	115.938 (16.674)***	2.872 (2.003)	4.938 (1.808)***	3.395 (2.089)
Observations	50	64	78	67	71	71
R-squared	0.28	0.44	0.51	0.36	0.29	0.26

Panel C: ML regulation FATF convergence index

ML regulation FATF convergence index	-0.195 (0.086)**	-0.222 (0.060)***	-9.394 (6.051)	1.450 (0.515)***	1.140 (0.512)**	0.906 (0.546)
Log GDP 2000	-0.000 (0.013)	-0.011 (0.010)	-3.186 (0.662)***	0.029 (0.073)	0.020 (0.052)	0.059 (0.059)
Court formalism	0.034 (0.014)**	0.051 (0.014)***	4.526 (1.199)***	-0.484 (0.143)***	-0.410 (0.088)***	-0.448 (0.097)***
Constant	0.185 (0.332)	0.475 (0.232)**	98.940 (17.299)***	3.535 (2.204)	5.044 (1.444)***	3.634 (1.682)**
Observations	47	58	69	59	61	61
R-squared	0.24	0.46	0.48	0.38	0.41	0.38

Robust standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 10. Tobit Regressions for Money Laundering Measures, Controlling by Log (Duration check collection)

<i>Panel A: ML regulation (State Dept. indices) 96-00</i>						
	Currency demand	Electricity differences	Shadow economy	Tax Evasion	ML via banks	ML non-banks
ML regulation (State Dept. indices) 96-00	-0.147 (0.070)**	-0.146 (0.062)**	-10.913 (4.752)**	1.457 (0.429)***	1.184 (0.375)***	0.995 (0.413)**
Log GDP 2000	-0.005 (0.012)	-0.029 (0.011)**	-4.200 (0.829)***	0.043 (0.073)	0.034 (0.062)	0.080 (0.068)
Log (Duration check collection)	0.022 (0.027)	0.037 (0.026)	3.301 (1.806)*	-0.619 (0.167)***	-0.467 (0.143)***	-0.526 (0.158)***
Constant	0.297 (0.370)	0.898 (0.340)**	124.786 (23.466)***	4.679 (2.196)**	5.625 (1.823)***	4.187 (2.012)**
Observations	49	62	77	66	69	69
Log likelihood	29.58	34.54	-286.77	-87.04	-82.80	-89.73
Wald Chi2	7.31	24.03	48.85	26.88	22.53	21.88
<i>Panel B: ML regulation (State Dept. indices) 96-04</i>						
ML regulation (State Dept. indices) 96-04	-0.260 (0.095)***	-0.185 (0.086)**	-15.946 (6.549)**	2.115 (0.633)***	1.441 (0.527)***	1.161 (0.580)**
Log GDP 2000	-0.002 (0.012)	-0.031 (0.011)***	-4.200 (0.827)***	0.048 (0.072)	0.042 (0.062)	0.087 (0.068)
Log (Duration check collection)	0.018 (0.026)	0.026 (0.022)	2.733 (1.569)*	-0.578 (0.166)***	-0.480 (0.124)***	-0.556 (0.136)***
Constant	0.332 (0.350)	1.050 (0.304)***	132.766 (21.693)***	3.677 (2.152)*	5.152 (1.662)***	3.943 (1.831)**
Observations	49	63	78	66	70	70
Log likelihood	30.96	34.96	-290.15	-87.22	-84.72	-91.51
Wald Chi2	10.06	23.28	49.54	26.50	22.72	23.35
<i>Panel C: ML regulation FATF convergence index</i>						
ML regulation FATF convergence index	-0.243 (0.092)**	-0.265 (0.078)***	-11.274 (6.681)*	1.730 (0.650)**	1.677 (0.476)***	1.501 (0.551)***
Log GDP 2000	-0.006 (0.012)	-0.023 (0.011)**	-4.169 (0.974)***	0.055 (0.087)	0.046 (0.066)	0.076 (0.076)
Log (Duration check collection)	0.003 (0.027)	0.026 (0.020)	2.931 (1.615)*	-0.580 (0.186)***	-0.443 (0.119)***	-0.575 (0.143)***
Constant	0.473 (0.366)	0.870 (0.291)***	125.734 (25.350)***	4.052 (2.577)	4.921 (1.808)***	4.284 (2.130)**
Observations	46	57	69	58	60	60
Log likelihood	27.65	36.64	-255.89	-79.47	-67.67	-75.65
Wald Chi2	9.02	26.48	38.34	22.65	28.37	27.77

Robust standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

**Table 11. Tobit Regressions for Money Laundering Measures,
Controlling by Court Formalism**

Panel A: ML regulation (State Dept. indices) 96-00

	Currency demand	Electricity differences	Shadow economy	Tax Evasion	ML via banks	ML non-banks
ML regulation (State Dept. indices) 96-00	-0.135 (0.064)**	-0.142 (0.055)**	-11.079 (4.622)**	1.217 (0.417)***	0.929 (0.353)**	0.715 (0.398)*
log GDP 2000	0.003 (0.011)	-0.014 (0.010)	-3.791 (0.801)***	0.022 (0.072)	0.004 (0.061)	0.054 (0.068)
Court formalism	0.045 (0.016)***	0.062 (0.015)***	3.711 (1.162)***	-0.433 (0.104)***	-0.372 (0.089)***	-0.387 (0.100)***
Constant	0.033 (0.306)	0.481 (0.281)*	118.655 (20.393)***	3.665 (1.937)*	5.426 (1.604)***	3.646 (1.810)**
Observations	50	63	77	67	70	70
Log likelihood	33.79	41.79	-283.79	-86.85	-81.07	-89.54
Wald Chi2	13.86	37.78	55.36	29.82	28.16	24.98

Panel B: ML regulation (State Dept. indices) 96-04

ML regulation (State Dept. indices) 96-04	-0.238 (0.088)***	-0.172 (0.076)**	-15.093 (6.278)**	1.834 (0.617)***	0.904 (0.517)*	0.556 (0.583)
log GDP 2000	0.005 (0.011)	-0.015 (0.011)	-3.762 (0.800)***	0.022 (0.072)	0.014 (0.063)	0.063 (0.071)
Court formalism	0.042 (0.016)**	0.062 (0.015)***	3.694 (1.155)***	-0.420 (0.104)***	-0.367 (0.094)***	-0.385 (0.106)***
Constant	0.068 (0.294)	0.541 (0.278)*	122.141 (19.806)***	3.006 (1.908)	5.099 (1.650)***	3.488 (1.863)*
Observations	50	64	78	67	71	71
Log likelihood	35.05	42.27	-287.06	-86.72	-85.72	-94.28
Wald Chi2	16.37	37.17	56.28	30.08	22.94	20.57

Panel C: ML regulation FATF convergence index

ML regulation FATF convergence index	-0.203 (0.089)**	-0.221 (0.074)***	-8.921 (6.311)	1.473 (0.621)**	1.193 (0.465)**	0.959 (0.553)*
log GDP 2000	0.000 (0.012)	-0.013 (0.010)	-3.474 (0.929)***	0.024 (0.084)	0.015 (0.066)	0.053 (0.078)
Court formalism	0.035 (0.018)*	0.051 (0.015)***	4.629 (1.288)***	-0.502 (0.123)***	-0.414 (0.098)***	-0.471 (0.117)***
Constant	0.177 (0.318)	0.515 (0.281)*	105.476 (23.627)***	3.711 (2.248)	5.146 (1.755)***	3.864 (2.082)*
Observations	47	58	69	59	61	61
Log likelihood	30.60	41.47	-251.89	-78.03	-67.31	-77.34
Wald Chi2	13.06	35.21	46.85	28.20	31.31	27.24

Robust standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

**Table 12. 2SLS Regressions for Money Laundering Measures, Controlling by Log
(Duration check collection)**

<i>Panel A: ML regulation (State Dept. indices) 96-00</i>						
<i>Panel A.1: Second Stage regressions</i>						
	Currency demand	Electricity differences	Shadow economy	Tax Evasion	ML via banks	ML non-banks
ML regulation (State Dept. indices) 96-00	-0.174 (0.102)*	-0.206 (0.055)***	-11.782 (7.847)	1.899 (0.680)***	1.664 (0.494)***	1.502 (0.598)**
log GDP 2000	-0.005 (0.016)	-0.035 (0.013)***	-3.710 (0.937)***	0.047 (0.071)	0.030 (0.077)	0.062 (0.088)
Log (Duration check collection)	0.024 (0.023)	0.031 (0.023)	4.306 (1.552)***	-0.684 (0.177)***	-0.578 (0.125)***	-0.606 (0.152)***
Constant	0.294 (0.446)	1.136 (0.382)***	107.782 (23.562)***	4.613 (2.240)**	5.964 (2.174)***	4.723 (2.448)*
Observations	45	56	69	61	63	63
F test	1.32	15.59	24.02	19.49	17.95	14.36
Hansen J statistic	4.89	19.13	16.09	18.49	17.12	14.64
<i>Panel A.2: First Stage regressions</i>						
Dependent variable: ML regulation (State Dept. indices) 96-00						
log GDP 2000	0.024 (0.022)	0.031 (0.018)*	0.052 (0.015)***	0.040 (0.014)***	0.051 (0.014)***	0.051 (0.014)***
Log (Duration check collection)	-0.038 (0.059)	-0.009 (0.048)	-0.036 (0.043)	-0.028 (0.040)	-0.007 (0.039)	-0.007 (0.039)
Common law	0.166 (0.098)*	0.194 (0.077)**	0.094 (0.075)	0.140 (0.072)*	0.125 (0.067)*	0.125 (0.067)*
Latitude	0.560 (0.185)***	0.426 (0.169)**	0.285 (0.144)*	0.345 (0.146)**	0.282 (0.144)*	0.282 (0.144)*
Ethno linguistic fractionalization	-0.210 (0.227)	-0.281 (0.144)*	-0.152 (0.134)	-0.244 (0.162)	-0.323 (0.157)**	-0.323 (0.157)**
% Catholics	0.004 (0.001)***	0.004 (0.001)***	0.003 (0.001)***	0.004 (0.001)***	0.003 (0.001)***	0.003 (0.001)***
% Muslim	-0.001 (0.002)	-0.003 (0.001)*	-0.001 (0.001)	-0.002 (0.002)	-0.002 (0.001)	-0.002 (0.001)
% Protestant	0.002 (0.002)	0.002 (0.001)	0.003 (0.001)*	0.002 (0.001)*	0.002 (0.001)	0.002 (0.001)
Constant	-0.148 (0.736)	-0.393 (0.567)	-0.761 (0.505)	-0.487 (0.443)	-0.831 (0.447)*	-0.831 (0.447)*
Observations	45	56	69	61	63	63
Centered R-squared	0.51	0.58	0.54	0.52	0.56	0.56
F test for excluded instruments	9.47	17.11	7.19	8.78	10.31	10.31
<i>Panel B: ML regulation (State Dept. indices) 96-04</i>						
<i>Panel B.1: Second Stage regressions</i>						
	Currency demand	Electricity differences	Shadow economy	Tax Evasion	ML via banks	ML non-banks
ML regulation (State Dept. indices) 96-04	-0.233 (0.136)*	-0.260 (0.077)***	-16.826 (10.319)	2.628 (0.923)***	2.116 (0.724)***	1.839 (0.822)**
log GDP 2000	-0.005 (0.016)	-0.036 (0.013)***	-3.807 (0.913)***	0.054 (0.069)	0.037 (0.077)	0.069 (0.086)
Log (Duration check collection)	0.018 (0.021)	0.025 (0.016)	3.354 (1.292)***	-0.631 (0.181)***	-0.577 (0.098)***	-0.628 (0.119)***
Constant	0.390 (0.424)	1.255 (0.317)***	120.346 (20.801)***	3.384 (2.217)	5.268 (1.875)***	4.262 (2.096)**
Observations	45	57	70	61	64	64
F test	1.41	16.10	24.74	17.52	17.84	15.54
Hansen J statistic	4.89	19.98	14.89	17.74	17.38	15.30

Panel B.2: First Stage regressions

	Dependent variable: ML regulation (State Dept. indices) 96-04					
log GDP 2000	0.019 (0.015)	0.025 (0.013)*	0.040 (0.010)***	0.027 (0.009)***	0.037 (0.011)***	0.037 (0.011)***
Log (Duration check collection)	-0.056 (0.044)	-0.018 (0.023)	-0.017 (0.026)	-0.040 (0.030)	-0.015 (0.025)	-0.015 (0.025)
Common law	0.106 (0.067)	0.131 (0.053)**	0.055 (0.050)	0.101 (0.052)*	0.103 (0.046)**	0.103 (0.046)**
Latitude	0.439 (0.146)***	0.267 (0.129)**	0.191 (0.099)*	0.260 (0.099)**	0.184 (0.099)*	0.184 (0.099)*
Ethno linguistic fractionalization	-0.112 (0.136)	-0.176 (0.083)**	-0.100 (0.092)	-0.138 (0.100)	-0.210 (0.103)**	-0.210 (0.103)**
% Catholics	0.003 (0.001)***	0.002 (0.001)***	0.002 (0.001)***	0.003 (0.001)***	0.002 (0.001)***	0.002 (0.001)***
% Muslim	-0.001 (0.002)	-0.003 (0.001)***	-0.002 (0.001)*	-0.001 (0.001)	-0.002 (0.001)*	-0.002 (0.001)*
% Protestant	0.001 (0.001)	0.001 (0.001)	0.002 (0.001)**	0.002 (0.001)**	0.002 (0.001)*	0.002 (0.001)*
Constant	0.293 (0.495)	0.018 (0.341)	-0.333 (0.311)	0.058 (0.287)	-0.262 (0.297)	-0.262 (0.297)
Observations	45	57	70	61	64	64
Centered R-squared	0.52	0.64	0.57	0.53	0.59	0.59
F test for excluded instruments	7.53	21.60	7.55	8.73	9.72	9.72

Panel C: ML regulation FATF convergence index

Panel C.1: Second Stage regressions

	Currency demand	Electricity differences	Shadow economy	Tax Evasion	ML via banks	ML non-banks
ML regulation FATF convergence index	-0.231 (0.135)*	-0.413 (0.080)***	-26.247 (9.270)***	3.174 (1.009)***	2.476 (0.598)***	2.377 (0.704)***
log GDP 2000	-0.003 (0.018)	-0.019 (0.013)	-2.729 (1.146)**	-0.043 (0.098)	-0.005 (0.073)	0.008 (0.084)
Log (Duration check collection)	0.005 (0.019)	0.021 (0.016)	3.438 (1.369)**	-0.618 (0.226)***	-0.520 (0.093)***	-0.579 (0.120)***
Constant	0.368 (0.459)	0.865 (0.320)***	95.237 (27.623)***	5.883 (2.929)**	6.150 (1.857)***	5.518 (2.177)**
Observations	42	52	62	53	54	54
F test	1.48	19.21	19.13	15.65	25.37	18.83
Hansen J statistic	4.19	12.13	7.35	10.75	10.72	11.90

Panel C.2: First Stage regressions

	Dependent variable: ML regulation FATF convergence index					
log GDP 2000	0.019 (0.019)	0.032 (0.013)**	0.042 (0.012)***	0.034 (0.014)**	0.032 (0.014)**	0.032 (0.014)**
Log (Duration check collection)	-0.097 (0.044)**	-0.046 (0.024)*	-0.035 (0.024)	-0.057 (0.036)	-0.042 (0.025)	-0.042 (0.025)
Common law	0.078 (0.060)	0.070 (0.048)	0.084 (0.049)*	0.084 (0.060)	0.105 (0.055)*	0.105 (0.055)*
Latitude	0.473 (0.124)***	0.322 (0.112)***	0.375 (0.119)***	0.407 (0.124)***	0.368 (0.126)***	0.368 (0.126)***
Ethno linguistic fractionalization	-0.160 (0.112)	-0.194 (0.085)**	-0.159 (0.078)**	-0.146 (0.094)	-0.133 (0.089)	-0.133 (0.089)
% Catholics	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)*	0.001 (0.001)*	0.001 (0.001)	0.001 (0.001)
% Muslim	-0.003 (0.001)**	-0.004 (0.001)***	-0.002 (0.001)**	-0.002 (0.001)	-0.003 (0.001)***	-0.003 (0.001)***
% Protestant	0.001 (0.001)	0.001 (0.001)	0.002 (0.001)	0.001 (0.001)	0.002 (0.001)	0.002 (0.001)

Constant	0.461 (0.634)	-0.062 (0.379)	-0.443 (0.371)	-0.152 (0.509)	-0.178 (0.439)	-0.178 (0.439)
Observations	42	52	62	53	54	54
Centered R-squared	0.66	0.74	0.73	0.65	0.71	0.71
F test for excluded instruments	10.97	14.06	11.85	9.00	14.97	14.97

Robust standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 13. 2SLS Regressions for Money Laundering Measures, Controlling by Court Formalism*Panel A: ML regulation (State Dept. indices) 96-00*

<i>Panel A.1: Second Stage regressions</i>						
	Currency demand	Electricity differences	Shadow economy	Tax Evasion	ML via banks	ML non-banks
ML regulation (State Dept. indices) 96-00	-0.177 (0.088)**	-0.180 (0.050)***	-11.923 (7.381)	1.449 (0.658)**	1.236 (0.484)**	1.040 (0.590)*
log GDP 2000	0.001 (0.014)	-0.020 (0.008)**	-3.357 (0.736)***	0.046 (0.070)	0.017 (0.076)	0.049 (0.092)
Court formalism	0.042 (0.013)***	0.063 (0.013)***	4.182 (1.156)***	-0.412 (0.111)***	-0.365 (0.094)***	-0.382 (0.101)***
Constant	0.115 (0.362)	0.652 (0.214)***	106.637 (16.052)***	2.839 (1.915)	4.881 (2.022)**	3.564 (2.400)
Observations	45	56	69	61	63	63
F test	5.65	25.02	24.96	18.77	15.46	14.92
Hansen J statistic	2.72	8.18	14.62	6.68	10.19	8.06

Panel A.2: First Stage regressions

Dependent variable: ML regulation (State Dept. indices) 96-00						
log GDP 2000	0.020 (0.022)	0.027 (0.017)	0.048 (0.015)***	0.033 (0.014)**	0.040 (0.013)***	0.040 (0.013)***
Court formalism	-0.056 (0.041)	-0.025 (0.038)	-0.070 (0.039)*	-0.066 (0.037)*	-0.062 (0.032)*	-0.062 (0.032)*
Common law	0.094 (0.114)	0.161 (0.089)*	0.013 (0.086)	0.045 (0.089)	0.036 (0.076)	0.036 (0.076)
Latitude	0.483 (0.214)**	0.401 (0.185)**	0.198 (0.171)	0.275 (0.167)	0.242 (0.163)	0.242 (0.163)
Ethno linguistic fractionalization	-0.150 (0.221)	-0.266 (0.141)*	-0.139 (0.133)	-0.190 (0.163)	-0.264 (0.153)*	-0.264 (0.153)*
% Catholics	0.004 (0.001)***	0.004 (0.001)***	0.004 (0.001)***	0.004 (0.001)***	0.004 (0.001)***	0.004 (0.001)***
% Muslim	-0.001 (0.002)	-0.002 (0.001)	-0.001 (0.001)	-0.002 (0.002)	-0.002 (0.001)	-0.002 (0.001)
% Protestant	0.002 (0.001)	0.002 (0.001)	0.002 (0.001)*	0.002 (0.001)*	0.002 (0.001)	0.002 (0.001)
Constant	0.005 (0.567)	-0.236 (0.472)	-0.549 (0.437)	-0.192 (0.3611)	-0.350 (0.347)	-0.350 (0.347)
Observations	45	56	69	61	63	63
Centered R-squared	0.52	0.59	0.56	0.54	0.58	0.58
F test for excluded instruments	8.48	16.6	9.62	9.20	10.61	10.61

Panel B: ML regulation (State Dept. indices) 96-04

<i>Panel B.1: Second Stage regressions</i>						
	Currency demand	Electricity differences	Shadow economy	Tax Evasion	ML via banks	ML non-banks
ML regulation (State Dept. indices) 96-04	-0.256 (0.123)**	-0.215 (0.071)***	-16.142 (9.633)*	1.938 (0.902)**	1.064 (0.817)	0.688 (0.953)
log GDP 2000	0.003 (0.014)	-0.020 (0.008)**	-3.344 (0.717)***	0.052 (0.071)	0.035 (0.075)	0.070 (0.090)
Court formalism	0.039 (0.013)***	0.063 (0.013)***	4.175 (1.168)***	-0.402 (0.113)***	-0.361 (0.092)***	-0.382 (0.100)***
Constant	0.161 (0.347)	0.706 (0.210)***	110.723 (14.871)***	2.105 (1.969)	4.425 (1.900)**	3.234 (2.246)
Observations	45	57	70	61	64	64
F test	6.04	25.31	26.92	18.19	12.72	11.98
Hansen J statistic	2.54	9.84	13.88	7.07	10.56	8.83

Panel B.2: First Stage regressions

Dependent variable: ML regulation (State Dept. indices) 96-04						
log GDP 2000	0.018 (0.016)	0.021 (0.012)	0.034 (0.011)***	0.023 (0.009)**	0.028 (0.009)***	0.028 (0.009)***
Court formalism	-0.059 (0.027)**	-0.033 (0.025)	-0.05302 (0.028)*	-0.056 (0.026)**	-0.05 (0.023)**	-0.05 (0.023)**

Common law	0.031 (0.081)	0.087 (0.065)	-0.009 (0.059)	0.023 (0.065)	0.026 (0.054)	0.026 (0.054)
Latitude	0.34 (0.152)**	0.232 (0.132)*	0.137 (0.107)	0.187 (0.105)*	0.144 (0.106)	0.144 (0.106)
Ethno linguistic fractionalization	-0.044 (0.129)	-0.158 (0.086)*	-0.093 (0.090)	-0.093 (0.103)	-0.161 (0.100)	-0.161 (0.100)
% Catholics	0.003 (0.001)***	0.003 (0.001)***	0.002 (0.001)***	0.003 (0.001)***	0.003 (0.001)***	0.003 (0.001)***
% Muslim	-0.001 (0.001)	-0.003 (0.001)***	-0.001 (0.001)	-0.001 (0.001)	-0.002 (0.001)**	-0.002 (0.001)**
% Protestant	0.001 (0.001)	0.001 (0.001)	0.002 (0.001)**	0.002 (0.001)**	0.001 (0.001)	0.001 (0.001)
Constant	0.289 (0.405)	0.172 (0.322)	-0.075 (0.303)	0.172 (0.239)	0.103 (0.227)	0.103 (0.227)
Observations	45	57	70	61	64	64
Centered R-squared	0.54	0.64	0.59	0.55	0.62	0.62
F test for excluded instruments	7.00	23.82	10.61	8.22	12.63	12.63

Panel C: ML regulation FATF convergence index

<i>Panel C.1: Second Stage regressions</i>						
	Currency demand	Electricity differences	Shadow economy	Tax Evasion	ML via banks	ML non-banks
ML regulation FATF convergence index	-0.220 (0.133)*	-0.334 (0.085)***	-21.970 (9.260)**	2.422 (1.030)**	1.526 (0.815)*	1.333 (0.949)
log GDP 2000	0.002 (0.017)	-0.013 (0.011)	-2.426 (0.974)**	-0.017 (0.094)	0.014 (0.060)	0.030 (0.079)
Court formalism	0.031 (0.016)**	0.047 (0.015)***	4.324 (1.268)***	-0.453 (0.149)***	-0.398 (0.090)***	-0.435 (0.099)***
Constant	0.150 (0.400)	0.620 (0.245)**	87.652 (21.857)***	4.026 (2.332)*	4.949 (1.448)***	4.112 (1.879)**
Observations	42	52	62	53	54	54
F test	4.83	26.55	24.35	17.71	18.15	15.85
Hansen J statistic	3.60	7.22	7.46	5.38	8.21	7.92

Panel C.2: First Stage regressions

Dependent variable: ML regulation FATF convergence index						
log GDP 2000	0.029 (0.015)*	0.030 (0.011)**	0.041 (0.011)***	0.038 (0.013)***	0.038 (0.013)	0.038 (0.013)
Court formalism	-0.067 (0.028)**	-0.043 (0.025)*	-0.034 (0.024)	-0.03202 (0.029)	-0.03202 (0.027)	-0.03202 (0.027)
Common law	-0.005 (0.082)*	0.017 (0.062)	0.041 (0.061)	0.051 (0.079)	0.051 (0.073)	0.051 (0.073)
Latitude	0.308 (0.142)**	0.268 (0.117)**	0.330 (0.127)**	0.342 (0.138)**	0.342 (0.137)	0.342 (0.137)
Ethno linguistic fractionalization	-0.083 (0.112)	-0.168 (0.097)*	-0.142 (0.082)*	-0.121 (0.103)	-0.121 (0.097)	-0.121 (0.097)
% Catholics	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)*	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)
% Muslim	-0.003 (0.001)	-0.003 (0.001)***	-0.002 (0.001)**	-0.002 (0.001)	-0.002 (0.0009969)	-0.002 (0.0009969)
% Protestant	0.001 (0.001)	0.001 (0.001)	0.002 (0.001)	0.002 (0.001)	0.002 (0.001)	0.002 (0.001)
Constant	0.004 (0.410)	-0.091 (0.325)	-0.457 (0.321)	-0.410 (0.404)	-0.410 (0.398)	-0.410 (0.398)
Observations	42	52	62	53	54	54
Centered R-squared	0.64	0.73	0.72	0.63	0.70	0.70
F test for excluded instruments	6.97	13.96	12.44	6.78	13.36	13.36

Robust standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 14. OLS Regressions for Each State Department Sub-Index (1996-2004)

<i>Panel A: Financial syst. reg. sub-index</i>						
	Currency ratio	Electricity differences	Shadow economy	Tax Evasion	ML via banks	ML non-banks
Financial syst. reg. sub-index	-0.117 (0.061)*	-0.102 (0.061)	-9.067 (4.670)*	1.189 (0.375)***	0.864 (0.416)**	0.675 (0.414)
log GDP 2000	-0.010 (0.013)	-0.035 (0.011)***	-4.276 (0.750)***	0.092 (0.064)	0.082 (0.059)	0.120 (0.065)*
Log (Duration check collection)	0.015 (0.023)	0.024 (0.018)	2.570 (1.309)*	-0.571 (0.190)***	-0.461 (0.105)***	-0.536 (0.117)***
Constant	0.454 (0.367)	1.099 (0.298)***	130.829 (20.215)***	3.182 (2.220)	4.466 (1.570)***	3.354 (1.780)*
Observations	49	63	78	66	70	70
R-squared	0.11	0.28	0.44	0.29	0.27	0.28
<i>Panel B: Criminalization sub-index</i>						
Criminalization sub-index	-0.225 (0.067)***	-0.209 (0.062)***	-14.807 (4.670)***	2.054 (0.514)***	1.372 (0.521)**	1.287 (0.585)**
log GDP 2000	-0.005 (0.012)	-0.027 (0.012)**	-4.155 (0.652)***	0.051 (0.061)	0.046 (0.058)	0.080 (0.068)
Log (Duration check collection)	0.014 (0.022)	0.027 (0.016)	2.294 (1.214)*	-0.548 (0.180)***	-0.470 (0.105)***	-0.551 (0.120)***
Constant	0.426 (0.354)	0.978 (0.291)***	134.011 (17.611)***	3.401 (2.095)	4.997 (1.535)***	3.940 (1.811)**
Observations	49	63	78	66	70	70
R-squared	0.18	0.34	0.46	0.36	0.31	0.32
<i>Panel C: International cooperation sub-index</i>						
International coop. sub-index	-0.372 (0.112)***	-0.152 (0.120)	-13.784 (8.979)	1.783 (0.646)***	0.978 (0.645)	0.751 (0.621)
log GDP 2000	0.007 (0.014)	-0.032 (0.014)**	-4.062 (0.932)***	0.055 (0.066)	0.066 (0.067)	0.108 (0.070)
Log (Duration check collection)	0.017 (0.020)	0.022 (0.018)	2.349 (1.319)*	-0.558 (0.190)***	-0.447 (0.102)***	-0.524 (0.113)***
Constant	0.162 (0.343)	1.047 (0.341)***	129.152 (22.530)***	3.753 (2.202)*	4.778 (1.636)***	3.585 (1.816)*
Observations	49	63	78	66	70	70
R-squared	0.25	0.28	0.44	0.29	0.25	0.27

Robust standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 15. OLS Regressions for Each FATF Sub-Index*Panel A: Financial syst. reg. sub-index*

	Currency ratio	Electricity differences	Shadow economy	Tax Evasion	ML via banks	ML non-banks
Financial syst. reg. sub-index	-0.266 (0.077)***	-0.250 (0.061)***	-7.172 (6.328)	1.058 (0.568)*	1.303 (0.497)**	1.075 (0.446)**
log GDP 2000	-0.007 (0.013)	-0.025 (0.011)**	-4.224 (0.777)***	0.097 (0.070)	0.081 (0.055)	0.118 (0.058)**
Log (Duration check collection)	0.003 (0.018)	0.025 (0.019)	2.653 (1.453)*	-0.586 (0.221)**	-0.424 (0.105)***	-0.506 (0.122)***
Constant	0.525 (0.333)	0.906 (0.280)***	126.383 (20.890)***	3.408 (2.541)	4.153 (1.490)***	3.091 (1.726)*
Observations	46	57	69	58	60	60
R-squared	0.22	0.36	0.39	0.28	0.35	0.35

Panel B: Criminalization sub-index

Criminalization sub-index	-0.187 (0.071)**	-0.226 (0.065)***	-16.986 (5.219)***	2.251 (0.471)***	1.826 (0.425)***	1.748 (0.516)***
log GDP 2000	-0.006 (0.014)	-0.021 (0.013)	-3.264 (0.788)***	0.006 (0.067)	0.017 (0.060)	0.048 (0.072)
Log (Duration check collection)	0.002 (0.020)	0.024 (0.017)	2.672 (1.238)**	-0.532 (0.204)**	-0.425 (0.105)***	-0.509 (0.123)***
Constant	0.430 (0.359)	0.796 (0.312)**	107.841 (20.515)***	4.690 (2.405)*	5.450 (1.606)***	4.463 (1.948)**
Observations	46	57	69	58	60	60
R-squared	0.16	0.36	0.45	0.41	0.45	0.45

Panel C: International cooperation sub-index

International coop. sub-index	-0.163 (0.084)*	-0.235 (0.061)***	-9.119 (5.003)*	1.465 (0.498)***	1.235 (0.459)***	1.115 (0.441)**
log GDP 2000	-0.010 (0.014)	-0.024 (0.011)**	-4.183 (0.679)***	0.076 (0.068)	0.082 (0.059)	0.113 (0.061)*
Log (Duration check collection)	0.003 (0.021)	0.029 (0.017)*	2.522 (1.372)*	-0.582 (0.210)***	-0.448 (0.114)***	-0.529 (0.128)***
Constant	0.533 (0.370)	0.860 (0.288)***	127.035 (19.537)***	3.695 (2.496)	4.317 (1.621)**	3.317 (1.816)*
Observations	46	57	69	58	60	60
R-squared	0.12	0.36	0.41	0.32	0.34	0.35

Panel D: Administrative authorities sub-index

Admin. authority sub-index	-0.183 (0.084)**	-0.201 (0.054)***	-4.938 (5.457)	1.047 (0.434)**	1.154 (0.422)***	0.998 (0.413)**
log GDP 2000	-0.008 (0.013)	-0.026 (0.011)**	-4.331 (0.745)***	0.091 (0.072)	0.076 (0.058)	0.111 (0.060)*
Log (Duration check collection)	0.002 (0.021)	0.025 (0.018)	2.656 (1.451)*	-0.574 (0.220)**	-0.427 (0.106)***	-0.509 (0.124)***
Constant	0.493 (0.342)	0.890 (0.294)***	127.706 (20.674)***	3.527 (2.579)	4.406 (1.590)***	3.349 (1.788)*
Observations	46	57	69	58	60	60
R-squared	0.24	0.45	0.50	0.36	0.34	0.31

Robust standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 16. Horse Race among the Sub-Indices, OLS Regressions*Panel A: State Department indices(96-00)*

	Currency ratio	Electricity differences	Shadow economy	Tax Evasion	ML via banks	ML non-banks
Financial syst. reg. sub-index	0.119 (0.091)	0.142 (0.091)	5.569 (7.463)	-0.787 (0.727)	-0.416 (0.579)	-0.905 (0.616)
Criminalization sub-index	-0.083 (0.084)	-0.240 (0.077)***	-9.100 (6.190)	1.490 (0.487)***	1.465 (0.475)***	1.636 (0.552)***
International coop. sub-index	-0.313 (0.138)**	-0.110 (0.155)	-11.800 (13.466)	1.273 (0.981)	0.170 (0.753)	0.631 (0.845)
log GDP 2000	0.004 (0.014)	-0.021 (0.013)	-3.713 (0.986)***	-0.002 (0.062)	0.026 (0.061)	0.047 (0.072)
Log (Duration check collection)	0.018 (0.023)	0.034 (0.021)	2.785 (1.598)*	-0.596 (0.186)***	-0.447 (0.128)***	-0.502 (0.151)***
Constant	0.140 (0.378)	0.752 (0.351)**	117.977 (26.307)***	5.378 (1.996)***	5.668 (1.715)***	4.665 (2.009)**
Observations	49	62	77	66	69	69
R-squared	0.22	0.38	0.47	0.38	0.34	0.35

Panel B: State Department indices(96-04)

Financial syst. reg. sub-index	0.139 (0.077)*	0.063 (0.084)	3.989 (7.047)	-0.434 (0.643)	0.110 (0.507)	-0.311 (0.537)
Criminalization sub-index	-0.225 (0.106)**	-0.221 (0.103)**	-12.964 (7.001)*	1.905 (0.664)***	1.302 (0.674)*	1.430 (0.744)*
International coop. sub-index	-0.277 (0.136)**	-0.095 (0.166)	-10.472 (13.646)	1.120 (0.978)	0.023 (0.767)	0.471 (0.850)
log GDP 2000	0.005 (0.014)	-0.023 (0.015)	-3.723 (0.996)***	0.014 (0.064)	0.049 (0.066)	0.073 (0.075)
Log (Duration check collection)	0.013 (0.024)	0.030 (0.023)	2.609 (1.587)	-0.549 (0.191)***	-0.417 (0.134)***	-0.468 (0.153)***
Constant	0.235 (0.385)	0.876 (0.393)**	123.533 (27.260)***	4.063 (2.125)*	4.599 (1.882)**	3.475 (2.086)
Observations	49	62	77	66	69	69
R-squared	0.26	0.34	0.47	0.37	0.30	0.30

Panel C: FATF regulation indices

Financial syst. reg. sub-index	0.191 (0.120)	0.095 (0.120)	1.551 (7.680)	-0.354 (0.848)	0.192 (0.703)	-0.037 (0.734)
Criminalization sub-index	-0.200 (0.117)*	-0.275 (0.119)**	-14.035 (7.532)*	1.957 (0.653)***	1.337 (0.629)**	1.472 (0.738)*
International coop. sub-index	-0.425 (0.180)**	-0.045 (0.203)	-4.501 (14.585)	0.930 (1.180)	-0.243 (1.040)	-0.319 (1.045)
log GDP 2000	0.010 (0.014)	-0.026 (0.014)*	-4.021 (0.895)***	0.025 (0.064)	0.053 (0.062)	0.090 (0.068)
Log (Duration check collection)	0.014 (0.022)	0.026 (0.016)	2.286 (1.233)*	-0.546 (0.188)***	-0.471 (0.110)***	-0.546 (0.125)***
Constant	0.149 (0.359)	0.959 (0.318)***	131.931 (21.789)***	3.740 (2.050)*	4.876 (1.528)***	3.777 (1.740)**
Observations	49	63	78	66	70	70
R-squared	0.30	0.34	0.46	0.36	0.31	0.32

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%