A Cost-Benefit Analysis of Advocacy and Legal Advice Centers

Prepared for
Transparency International

By
Jonathan Hoechst
Rebecca McAtee
Jonathan McBride
and
Ulrike Nischan

Workshop in International Public Affairs
May 2010

ROBERT M. LA FOLLETTE
SCHOOL OF PUBLIC AFFAIRS
University of Wisconsin-Madison

For additional copies:
Publications Office
La Follette School of Public Affairs
1225 Observatory Drive, Madison, WI 53706
www.lafollette.wisc.edu/publications/workshops.html
publications@lafollette.wisc.edu

Table of Contents

List of Tables and Figures

Foreword

Students in the Master of International Public Affairs (MIPA) program in the Robert M. La Follette School of Public Affairs at the University of Wisconsin–Madison produced this report for Transparency International, represented for this project by Conrad F. Zellman, Senior Program Coordinator of Transparency International's Advocacy and Legal Advice Centers. The students are enrolled in Workshop in International Public Affairs, the capstone course in their graduate program. The workshop provides MIPA students the opportunity to improve their analytical skills by applying them to an issue with a substantial international component and to contribute useful knowledge and recommendations to their client.

The La Follette School offers a two-year graduate program leading to a Master of Public Affairs or a Master of International Public Affairs degree. In both programs, students develop analytic tools with which to assess policy responses to issues, evaluate implications of policies for efficiency and equity, and interpret and present data relevant to policy considerations.

The workshop provides practical experience applying the tools of analysis acquired during three semesters of prior coursework to actual problems clients face in the public, non-governmental, and private sectors. Students work in teams to produce carefully crafted policy reports that meet high professional standards. The reports are research-based, analytical, evaluative, and (where relevant) prescriptive responses to real-world clients. This culminating experience is the ideal equivalent of the thesis for the La Follette School degrees in public affairs. While the acquisition of a set of analytical skills is important, it is no substitute for learning by doing.

The opinions and judgments presented in the report do not represent the views, official or unofficial, of the La Follette School or of the client for which the report was prepared.

Melanie Frances Manion
Professor of Public Affairs and Political Science
May 2010

Acknowledgments

We would like to thank the folks at Transparency International for answering all of our questions and for providing us with the data that made this analysis possible. In particular, we would like to thank Conrad Zellmann for requesting the analysis and for working to get us information and feedback. The majority of our information came from the Advocacy and Legal Advice Centers in Serbia and Bosnia and Herzegovina. We are indebted to them for their hard work and quality reporting.

The authors would also like to acknowledge all of our colleagues and professors who contributed to this analysis. We are grateful for the guidance and advice given to us by our colleague Marc Ratkovic. We do not know where this analysis would be without his patience. We are also thankful for the information translated for us by Vladislav Tomic. We would like to thank David Weimer for being kind enough to look over a previous draft of the analysis. Most importantly we would like to thank Melanie Manion for overseeing us in this endeavor. Her guidance and encouragement kept us on track. Although the aforementioned people helped us substantially in conducting this analysis, the errors and inconsistencies are attributable to none other than the authors.

Executive Summary

Corruption, the abuse of entrusted power for private gain, is a significant concern, especially for developing nations. Evidence indicates that high levels of corruption can have negative political, social, and economic repercussions. Increased crime, reduced trust in government, reduced access to public services, lower tax revenues, and lower levels of investment all contribute to low rates of gross domestic product (GDP) growth. These consequences reach all levels of society, not just those directly affected by incidences of corruption. Transparency International has established Advocacy and Legal Advice Centers (ALACs) as a measure to counteract corruption in several countries. This report provides a cost-benefit analysis of ALACs by using country-specific data from Serbia and from Bosnia and Herzegovina. It creates a generalizable model to measure the effect of ALACs upon corruption. The analysis suggests that ALACs are an extremely cost-effective method of reducing corruption.

Costs attributed to ALACs include initial implementation costs, ongoing administrative costs, and opportunity costs to complainants and to volunteers working in the centers. We evaluate these costs for a 3.5-year period (years 0-3). Year 0 signifies the six-month start-up phase. During this period, only implementation costs are accrued, while all other costs are accrued in years 1-3. Total costs for the implementation and ongoing maintenance of one ALAC during this timeframe ranges from 231,200 euros to 239,200 euros.

Benefits of ALACs are measured here as the avoided costs of corruption due to a reduction in corruption. This calculation looks only at GDP, due to the high correlation of other benefits of reduced corruption (such as improved human development indicators) with GDP. To calculate the benefit of ALACs on GDP, we first measure the effect of an ALAC on corruption. One ALAC per each one million citizens is estimated to cause a 0.74 reduction in corruption, as measured by the Corruption Perceptions Index. Using this effect size in conjunction with the effect of a reduction of corruption on GDP for three countries ranging in population and GDP, we calculate the expected net benefits of one ALAC as 6.9 million euros for the low-GDP-low-population country to 97.8 million euros for the high-GDP-low-population country, with the high-GDP-high-population country falling between these two.

Introduction

Corruption ranges from petty bribery in the provision of local services to grand theft at the national level. This broad range requires a similarly broad definition of corruption as "the abuse of entrusted power for private gain," (Transparency International, 2010a) which takes into account the roles of both public and private sectors. Globally, the scope of corruption is significant, with estimates for bribes alone accounting for U.S. $1 trillion annually (Rose-Ackerman, 2004). Developing and transition countries appear to be at much greater risk for experiencing higher levels of corruption than developed countries: 18 percent of people in developing countries (but less than 1 percent in developed countries) pay bribes (Alvazzi del Frate, Hatalak, and Zvekic, 2000). This information has led officials in more than 60 developing countries to note that corruption stands as one of the greatest impediments to development in their respective nations (UN Office on Drugs and Crime, 2010).

Negative impacts attributed to corruption, including low levels of investment and economic growth, decreased productivity, and underinvestment in human capital, have contributed to the development of anticorruption reform measures. The emergence of targeted anticorruption organizations in the 1990s—most prominently Transparency International (TI)—has helped to bring the issue of corruption to the forefront of the global agenda. Despite a growing literature on the consequences of corruption, there has not been much systematic evaluation of the effect of anticorruption reforms on corruption. This report measures the effectiveness of a specific reform: Advocacy and Legal Advice Centers (here on referred to as ALACs).

Using data provided by the Corruption Perceptions Index (CPI), empirical evidence on the economic impacts of corruption, and data sourced directly from the ALACs managed by TI national chapters in Serbia (TI-Serbia) and in Bosnia and Herzegovina (Ti-BiH), this study estimates the value of ALACs through the method of cost-benefit analysis. First, we present a brief overview of TI and its ALAC program. The second and third sections discuss our methodology; this includes an introduction to cost-benefit analysis as well as the causal and theoretical framework provided in previous research. The formal cost-benefit analysis, presented in the fourth and fifth sections, addresses the direct and indirect costs of implementing and operating an ALAC as well as the benefits provided through reduced corruption, primarily as a measure of GDP. Lastly, we present a Monte Carlo model to provide a range of the expected net benefits of ALACs.

Overview of Transparency International and ALACs

Since 1993, TI has fought to reduce corruption throughout the world. TI has also been a leader in examining and attempting to measure the amount of corruption across the world. One of the most beneficial advancements has been the compilation and creation of multiple cross-country surveys to estimate the magnitude of corruption, the most influential of these being the CPI that TI now releases annually. TI has established national chapters in more than 90 countries to fight corruption through public advocacy; work with government officials, business leaders, and the media; and development of local civil society organizations.

One anticorruption strategy TI has pursued in recent years is the creation of ALACs. These centers, initially started in the Balkan countries of Romania, Macedonia, and Bosnia and Herzegovina, offer free legal advice and assistance to victims and witnesses of corruption. The centers are often the only place a victim or witness of corruption can safely turn to for information and guidance. Although established only as recently as 2003, ALACs have quickly become a popular anticorruption method adopted by several national TI chapters. ALACs operate in 38 countries, a number expected to grow.

ALACs are built around four fundamental components: a toll-free hotline, legal advice, advocacy, and capacity building. The toll-free hotline is available for victims of corruption to call in with complaints and receive initial advice about their rights. If the case is determined to be corruption, then complainants are referred for further counseling and legal advice. At this stage lawyers and volunteers (primarily law students) help clients to "articulate, develop, file and pursue" their cases. While ALACs do provide legal advice and will follow up with government institutions as to the resolution of cases, the centers emphasize a "no investigation" policy. This allows the ALACs to work constructively with citizens and institutions in promoting reform (Transparency International, 2007).

The first two components of the ALAC, the toll-free hotline and legal advice, are crucial as they allow the centers to gather data on the specific patterns of corruption in a community. This research then allows the ALACs to carry out targeted advocacy campaigns to raise awareness about the sectors and institutions most susceptible to corrupt practices and to educate the community on the negative consequences of corruption. These campaigns may include television, radio, and newspaper advertisements; town hall style meetings; and the publication of "how-to manuals" for fighting certain types of corruption. Lastly, capacity building is an integral part of the ALAC process as support from government institutions is necessary to carry out greater reforms. All services ALACs offer are free of charge.

While there is not a uniform process for handling cases, most ALACs tend to follow a process similar to that shown in Appendix A. Ideally, once a case is identified, ALACs wish clients themselves to follow up with institutions, but this is not always possible because the institutions may not be responsive to constituents. In the absence of client follow-up, ALACs will contact institutions on behalf of clients. Two important components of this process are confidentiality agreements signed by ALACs and clients and the memoranda of understanding between the ALACs and governmental institutions. Confidentiality agreements allow complainants to maintain anonymity and protect the ALAC name from being used in the prosecution of cases. Memoranda of understanding outline the areas of cooperation and mutual obligation between the ALAC and country institutions. While these agreements may not always be honored, they serve as an important component for facilitating discussion at the national level (Transparency International, 2007).

In addition to the value added by the above services, the ALACs provide a means for gathering important ground-level data on cases of corruption that may not otherwise be available.

Methodology

In this section we provide a brief overview of the methodology used in cost-benefit analysis.

Determining Standing: Standing relates to the determination of *whose* costs and benefits matter in the analysis. Depending on the scope of a project, the appropriate level of standing could be at the city level, state level, national level, or international level. A national level of standing, for example, would measure the benefits and costs of a project that affect residents of that country alone. Of important note, criminal gains do not have standing in cost-benefit analysis. Trumbull (1990) argues that placing a value on criminal acts is inconsistent with the social constraints that define the environment of a project. For example, in our measure of the costs of the ALAC anticorruption program, we do not give standing to those who benefit fiscally from the act of corruption. While a reduction in corruption represents a "cost" to bribe-takers in reduced income, this practice is an illegal activity and therefore we do not consider these losses in our analysis.

Establishing Impacts: Impacts or altered states are conditions that change due to program implementation. These impacts include both inputs (resources) and outputs of the proposed project. A compiled list of these inputs and outputs provides the basis for associated costs and benefits of the program.

Monetizing the Impacts: Cost-benefit analysis is a method of evaluation whereby all costs and benefits of a given program or project are monetized to determine the net benefits (costs) to society. Prices of inputs are based on opportunity costs—value of an input in its best alternative use. If the opportunity cost is not readily observable, then analysts employ an approach called shadow pricing. This method attempts to come as close as possible to measuring the true value of an input through adjusting observable values that can serve as proxies of the input. Shadow prices are often used when monetizing inputs not traded in markets, such as values for pollution, or impacts such as reductions in mortality.

*Discounting to Obtain Present Value***:** If a project has costs and benefits that extend past a single year, then calculations should be made to discount future costs and benefits to present values. Discounting accounts for most people's preference to consume immediately rather than in the future. When this is done, something is given up (the opportunity cost of consuming now). Unless a project has impacts extending past 50 years, a social discount rate of 3.5 percent is generally used (Moore, Boardman, Vining, Weimer, and Greenberg, 2004). Present value (PV) is calculated as follows:

(i) $$PV(B) = \sum_{t=0}^{n} \frac{B_t}{(1+s)^t}$$ (ii) $$PV(C) = \sum_{t=0}^{n} \frac{C_t}{(1+s)^t}$$

where:

n = project life in years

t = the year in which a cost or benefits occurs

s = social discount rate

B_t = benefits at time t

C_t = costs at time t

Computing Net Present Value: Once all benefits and costs are taken into consideration and discounted, the net present value is calculated. Net present value (NPV, also commonly called net social benefit) is simply the difference between the present value of the benefits and costs:

(iii) NPV = PV(B) – PV(C)

The calculation of net present value of a program or project is the ultimate objective of a cost-benefit analysis.

Performing Sensitivity and Monte Carlo Analyses: Cost-benefit analyses are inherently based on assumptions, often manifesting themselves in ranges and probabilities for variables in the study. Sensitivity analyses, which take several forms, measure the effect of altering an assumption(s) included as part of the cost-benefit analysis.

Partial sensitivity analyses vary a single assumption, often the variable believed to be the least reliable. Additionally, they can be used to calculate the level of a created variable at which net benefits of a program no longer exist.

A Monte Carlo analysis determines the distribution of net benefits resulting from representing variables as draws from probability distributions. The analysis takes each variable's unique probability distribution into account for each independent trial, ultimately producing a distribution of present value net benefits accompanied by statistical measures such as the mean and variance (Boardman, Greenberg, Weimer, and Vining, 2006).

Causal and Theoretical Framework

In this section, we provide the causal and theoretical framework within which we conduct the cost-benefit analysis.

Reform Strategy

The literature classifies anticorruption strategies into four categories: societal, legal, market, and political. The ALAC structure can be classified as a societal strategy of reform. Essentially, this type of strategy is targeted at changing people's attitudes and values from tolerance to intolerance of corruption through education, public vigilance, and empowerment. ALACs attempt to change behaviors at the individual and institutional levels to promote concrete measures to combat corruption.

Along with the goal of changing behaviors, ALACs set out to empower people to lead the fight against corruption. The educational component offered by ALACs helps ordinary people to know what they should expect from their public officials and to hold them accountable for their actions. This bottom-up approach also promotes greater participation by people through monitoring and vigilance. Several studies provide support for the use of societal approaches to reducing corruption. Two of the most fundamental of these studies deal with the concepts of trust and of voice and accountability.

Studies by Eric Uslaner and Peter Graeff examine the concept of trust and corruption. Uslaner (2005) looks at how levels of trust link people to others within their society; more trusting societies spend more on government programs that raise standards of living for the less well off. Uslaner finds that an increase in the level of trust leads to a reduction of corruption and better government performance. Graeff (2005) examines the choice to participate in a corrupt activity by using the basic assumptions of transaction cost theory and applying trust and norms to this approach. Actors weigh the potential losses and gains of participating in a corrupt act against the odds that they will be successful in their activity. Graeff posits that social norms and trust contribute substantially to the odds of being successful, as they are a function of the expected action of the actors. A shift in social norms toward intolerance of corruption also shifts the components of the equation for action, creating a riskier situation for actors.

Measurements of voice and accountability look at the extent to which citizens are able to participate in selecting a government as well as freedom of expression, freedom of association, and a free media. The higher the level of voice and accountability, the greater the pressure on the government to fulfill citizen expectations. This increases the cost of corrupt activities.

Daniel Kaufmann and colleagues have done extensive work examining the possible links between voice and accountability and good governance. These studies show that low voice and accountability is associated with poorer governance (Kaufmann, Kraay, and Mastruzzi, 2007). Several case studies also support this finding. In Bolivia, a World Bank survey found that public service delivery is negatively affected by corruption but positively associated with voice and accountability (Kaufmann, Mastruzzi, and Zaveleta, 2003). Likewise, a publicity campaign in Uganda that informed parents of corruption within the educational system led to more efficient allocation of resources within this sector (Reinikka and Svensson, 2004).

Negative Impacts of Corruption

Corruption has many negative consequences. Most, if not all, of these consequences have an impact on the GDP, directly or indirectly. An abundance of research details the causal mechanisms and calculates these impacts (Mauro, 1996; Brunetti, 1997; Li, Xu, and Zou, 2000; Abed and Davoodi, 2002; Gyimah-Brempong, 2002). Corruption affects GDP growth by altering investment, tax revenue, infrastructure spending, government spending, human development indicators, the informal economy, the exchange rate, and the environment. The following section details the most prominent causal mechanisms identified in the literature.

Investment: By creating a risky environment, corruption decreases domestic and foreign investment in a country. Corruption also leads to a higher cost of borrowing, which decreases investment and leads to lower GDP growth (Mauro, 1995; Wei, 1999).

Tax Revenue: Revenues collected by the government can be reduced by corruption in two ways. First, taxpayers may be less willing to comply with tax codes because of a lack of trust in the government, leading to lower levels of tax collection (or higher levels of tax evasion). Second, corrupt officials and bureaucrats involved in tax collection may reduce government revenue by participating in graft. Government revenue is a component of GDP; therefore, decreased levels of government revenue lead to lower GDP growth rates (Haque and Sahay, 1996; Tanzi and Davoodi, 2002a, 2002b).

Altered Expenditures: Increased levels of corruption lead to decreased spending on operations and maintenance for anything from roads to textbooks. Greater corruption can also lead to increases in military spending and spending on high-cost items. As government expenditures are diverted to sectors of the economy that are easier to manipulate, less money is spent on health and education. Because health and education are harder sectors in which to collect rents, corruption leads to higher child mortality rates and higher student dropout rates. These reductions

in a country's human capital result in lower GDP growth (Gupta, de Mello, and Sharan, 2001; Gupta, Davoodi, and Tiongson, 2002).

Larger Unofficial Economy: A larger unofficial economy can result from corruption because of the lack of trust in government institutions that regulate the formal economy and from diversion of funds from the formal economy to the informal economy. This larger unofficial economy translates into lower GDP growth in several ways. Businesses and workers in the informal economy are unlikely to pay the appropriate amount of taxes. They will also miss out on some of the social benefits available through participation in the formal economy. Businesses operating in the informal economy lack the assurances afforded by the formal economy; therefore, businesses pay a premium, in terms of self-protection, for operating in the informal economy. All of these increased costs of working and doing business contribute to lower GDP growth rates (Johnson, Kaufmann, and Zoido-Lobaton, 1998; Johnson, Kaufmann, and Shleifer, 1997).

Exchange Rates: Although research on this mechanism is mixed, some researchers have found that countries with higher corruption tend to depreciate their currencies (Al-Marhubi, 2000; Abed and Davoodi, 2002; Bahmani-Oskooee and Nasir, 2002). This change in exchange rates affects GDP by distorting trade. Higher inflation stymies long-range planning by businesses and impedes the importation of goods, especially by smaller and developing countries that are less self-sufficient and rely on imports.

International Trade: Some researchers have found that increased levels of corruption lead to distortions in international trade. Countries with strict anticorruption policies for foreign investment and business are subject to legal proceedings if they involve themselves in corrupt business proceedings. This policy distorts the benefits of comparative advantage, as the lowest-cost producer may be unable to conduct business with the corrupt government, thereby reducing GDP (Lambsdorff, 1998).

Lower Social Welfare: In addition to the impacts that corruption has on GDP, other significant costs are associated with high levels of corruption. For example, studies have shown a high correlation between corruption and the UN Human Development Index. Those countries with the highest levels of human development also had the lowest levels of corruption, while countries with high levels of corruption varied between middle to low levels of human development (Akcay, 2006). Part of this variation can possibly be explained by the impacts of corruption upon GDP. However, the Human Development Index also includes statistics on life expectancy and education. As noted, higher corruption has been associated with lower levels of spending on health and education. Lower levels of spending within these sectors could translate to poorer outcomes for health and education. Lower spending on public services also fosters inequality by

reducing access of poor people to these resources. Inequality is also fostered through the collection of bribes in countries with high corruption. Although wealthier households are more likely to pay bribes, the poor pay a higher percentage of overall income in bribes (Kaufmann, Pradhan, Ryterman, and Anderson, 1998). This has significant implications for the general welfare of society.

Political Costs: Corruption also has negative effects within the political system. Two important factors are rule of law and political legitimacy. In countries where governments are corrupt, written law is most often not enforced fairly and consistently, which contributes to high rates of crime as people deem legal, judicial, and enforcement institutions ineffective. Corruption therefore can lead not only to political and corporate crime but also to the establishment of organized crime syndicates (Sullivan and Shkolnikov, 2004; World Bank, 2000). High corruption tends to be correlated with low levels of political legitimacy. Studies in Latin America show that people exposed to corruption have lower levels of belief in the political system (Seligson, 2002). Decreased levels of legitimacy can lead to lower political participation and greater political instability.

Cost Estimation

We estimate the direct costs of ALACs with calculations using figures provided in questionnaire responses from TI-Serbia and TI-BiH. Indirect costs of ALACs are also associated with the opportunity costs of clients who choose to pursue corruption cases, as well as the opportunity costs of volunteers at the centers. As noted, we do not give standing to those who benefit fiscally from accepting bribes, so lost income for these individuals due to reduced corruption is not considered within our cost calculations.

Those who bring complaints to the ALACs may face additional costs in the form of retaliation. Depending upon the type and sector of corruption, retaliation could come in the form of loss of employment, imprisonment, harassment, or even death. We do not have figures from Serbia or BiH on the amount of retaliation ALAC clients face. However, we can assume that levels of retaliation are low due to the ability of the complainant to remain anonymous within the ALAC process (Dyck, Morse, and Zingales, 2008). Likewise, levels of retaliation will be lower in countries that have laws, such as whistleblower laws in the United States, protecting those that who file complaints.

We estimate costs over a timeframe of 3.5 years, with the half year of implementation defined as year 0. The primary costs we take into account are the administrative and start-up costs associated with running an ALAC. Start-up is defined as the time needed to establish the foundation of the ALAC before opening doors to clients and is estimated to take six months (Transparency International, 2007). The costs of this period include recruitment of staff, purchase of equipment, workshops and training, set-up of the database, purchase of an ALAC law library, and initial advertising and media campaigns. The costs of the media campaign may account for one of the largest components of the total figure.[1] Our estimate using ALAC grant proposal documents is that ALACs face start-up costs of approximately €95,600[2] (Transparency International, 2004). In our estimate, start-up costs are attributed to year 0 only. (Calculations are in Appendix B.)

We estimate ongoing costs of ALAC maintenance using annual budgets provided by TI-Serbia and TI-BiH.[3] The budget is divided into three broad categories: human resources, office costs, and "other" costs (e.g., marketing, hotline maintenance). Net present value of ongoing costs over years 1 through 3 is

[1] In Zimbabwe, costs for advertising were noted as "exorbitant and prohibitive" (Transparency International, 2009)
[2] Unless otherwise noted, all sums are in 2010 euros.
[3] Data were provided through responses to a questionnaire created by the authors and submitted to TI-Serbia and TI-BiH.

estimated at approximately €131,300. (Calculations of direct operating costs can be found in Appendix C.)

For clients who choose to pursue their corruption cases, the time they spend on their cases is time they forgo working or engaging in leisure activities. To monetize this cost, we use average wage rates within Serbia. These rates are calculated at approximately €2.60 per hour (Statistical Office of the Republic of Serbia, 2010). At this rate, total opportunity costs (of time) for all complainants is approximately €3,360 during three years of operation. (See Appendix D for calculations.)

Once a case is initiated, clients often have to travel to ALAC offices for consultation. The costs for travel are calculated for claimants in rural and urban areas using data on the national railway system and Belgrade public transportation (Serbian Railways, 2010; Public Transport Company "Belgrade," 2010). As shown in Appendix E, our estimates of travel costs are relatively low, approximately €795 for the three-year timeframe (years 1-3) in which they accrue.

In addition to the costs complainants face, there are opportunity costs for volunteers, as these workers are not being fiscally compensated for their services. We base our estimates of the value of volunteer time on previous work by Handy and Srinivasan (2004). Over three years, the costs for volunteers totals approximately €3,600 (calculated in Appendix F).

Benefit Estimation

Benefits in this analysis are calculated as the avoided costs of corruption. These avoided costs are derived from the theoretical framework on the costs of corruption introduced in a previous section. Within our analysis, we specifically focus on the benefits attributed to GDP growth due to reduced corruption. Our reasoning for this approach is twofold. First, reduction in some costs attributed to corruption (for example, political legitimacy) are extremely difficult to monetize. Second, by including other measures of benefits, such as factors included in the Human Development Index, we run the risk of double-counting benefits as impacts may be captured by increased GDP.[4] Due to this correlation as well as difficulties in monetizing, we use GDP as our primary measure of benefit.

In short, the most accessible way to value the societal effect of decreases in corruption is by evaluating its relationship with GDP growth. To use this relationship, it is necessary to calculate the change in corruption attributed to having ALACs operating in a country. As a measure of corruption we employ the CPI. Through statistical analysis we are able to generate an average effect size of the presence of an ALAC within a country on corruption. The operation of one ALAC per one million people produces a 0.74 reduction in corruption as measured by the adjusted CPI. (For detailed information on this calculation, see Appendix G.) To translate this effect into changes in the growth rate, we use estimates reported in established studies as proxies. From these numbers, we are able to calculate the percent change in GDP attributed to ALACs. This is calculated as shown in equation (iv).

(iv)

$$(\%\Delta GDP\big|_{\#ALAC/mil} =$$

$$(\Delta Corrupt\big|_{\#ALAC/mil} \times \#ALAC/mil + \downarrow returns\big|_{\#ALAC/mil} \times \#ALAC^2/mil) \times \%\Delta GDP\big|_{\Delta Corrupt}$$

where:

$\%\Delta GDP\big|_{\#ALAC/mil}$ = the estimated average percent change in GDP attributed to having X number of ALACs per million people operating in a country.

[4] We realize that society significantly benefits from the provision of free legal advice. However, we do not include this benefit as a part of our analysis, primarily because legal services are considered an intermediate product leading to GDP change. As part of the benefit of legal advice will ultimately be captured in the change to GDP, we risk double-counting benefits by including this in our model. We have included information on how to calculate the benefits of legal advice in Appendix I, should another study choose to calculate benefits of ALACs other than GDP.

$\Delta Corrupt\big|_{\#ALAC/mil}$ = the change in the corruption measure attributed to the operation of one ALAC per million people.

$\#ALAC/pop$ = the number of ALACs operating in a country over the population (population is divided by a million to make number easier to work with)

$\#ALAC^2/pop$ = the number of ALACs operating in a country over the population squared

$\downarrow returns\big|_{\#ALAC/mil}$ = a calculation of the diminishing returns of having multiple ALACs operating in a country.

$\%\Delta GDP\big|_{\Delta Corrupt}$ = the percent change in GDP attributed to a change in corruption.

We then calculate the monetary value of this change for our case study country by multiplying the GDP of the country by the average change in corruption attributed to an ALAC per one million multiplied by the percent change in GDP due to a change in corruption. The calculation is as follows:

(v) $\$\Delta GDP_{CountryX}\big|_{\#ALAC/mil} = \%\Delta GDP\big|_{\#ALAC/mil} \times GDP_{CountryX}$

We used the estimates obtained in an empirical study by Pellegrini and Gerlagh (2004); GDP increases by 0.38 percent for every one-point change in the corruption measure. Therefore,

(vi) $\%\Delta GDP\big|_{\Delta Corruption} = 0.38\% = 0.0038$

Using a generic Country X as an example, we can demonstrate how to calculate benefits. In the calculation below, Country X has a population of 2 million people, a GDP of €5 billion, and one operational ALAC. Benefits are calculated accordingly.

(vii) $\Delta Corrupt\big|_{\#ALAC/mil} \times \#ALAC/pop + \downarrow returns\big|_{\#ALAC/mil} \times \#ALAC^2/pop =$
$-0.88 \times 1/2 + 0.14 \times (1/2)^2 = 0.475$

(viii) $\%\Delta GDP\big|_{\#ALAC/mil} = 0.475 \text{ x } 0.0038 = 0.0018$

(ix) $\$\Delta GDP_{CountryX|_{\#ALAC/mil}} = \%\Delta GDP\big|_{\#ALAC/mil} \times GDP_{CountryX} = 0.0018 \times €5$ bil. = $9 mil.

For the results of these equations using actual country data, see the section on the Monte Carlo analysis below.

Results

Using the costs derived from TI-Serbia and TI-BiH and the GDP benefits discussed above, we calculate the expected net benefits of implementing an ALAC in a given country. As a measure of demonstration, we have chosen three specific countries to evaluate: Turkey, Hungary, and Cameroon. These three countries illustrate the benefits of opening an ALAC in countries with varying populations and GDP levels. Turkey has a population of more than 71 million and a GDP of €533 billion. Hungary has a population of just less than 10 million and a GDP of €109 billion. Cameroon has a population of more than 20 million with a GDP of €17 billion (International Monetary Fund, 2010). Another justification for these choices is that the TI national chapters of each country have expressed interest in or secured funding for establishing an ALAC.

Varying the Discount Rate

In addition to using the standard 3.5 percent discount rate, the net benefits are calculated using 1.5 percent and 5.5 percent. The calculations as shown in Tables 1, 2, and 3 below use point estimates derived from the data.

Table 1: Net Benefits Calculation: Turkey

Discount Rate	Net Benefits (millions)
0.015	65.5
0.035	63.6
0.055	61.8

Source: Authors

Table 2: Net Benefits Calculation: Hungary

Discount Rate	Net Benefits (millions)
0.015	102.0
0.035	98.7
0.055	95.9

Source: Authors

Table 3: Net Benefits Calculation: Cameroon

Discount Rate	Net Benefits (millions)
0.015	7.5
0.035	7.2
0.055	7.0

Source: Authors

The net benefits results shown in Tables 1, 2, and 3 make clear that ALACs provide significant benefits to society: the impact of the reduced corruption upon GDP is in the millions for each country. The costs are marginal in comparison to the benefits. The largest cost driver is the initial start-up cost associated with establishing an ALAC, roughly €96,500. After re-calculating the net benefits using a 5.5 percent and a 1.5 percent discount rate, we determine that any range of reasonable discount rate would still result in significant benefits.

Monte Carlo Analysis

To take account of the uncertainties in the point estimates made above, we conducted a Monte Carlo analysis. The analysis above was recalculated 100,000 times using ranges for variables whose estimates are uncertain. Results are shown in Table 4. (See Appendix H for an explanation of the ranges for variables.)

Table 4: Net Benefits (in Millions of Euros)

Country	Average Net Benefits	Low	High	Below Zero
Turkey	63	-251	518	8%
Hungary	97.8	-275	653	8%
Cameroon	6.9	-28.9	51.9	9%

Source: Authors

The Monte Carlo simulation confirms that even when accounting for uncertainty in our estimates, the net benefits ALACs provide remain significantly large. Generating negative results from the presence of an ALAC is possible; however, as shown in Table 4, this possibility is low. The results do suggest that ALACs may provide a larger impact in countries that are smaller in population but have a greater GDP. (See Figures H.1, H.2, and H.3 in Appendix H for the complete distribution of results.)

Conclusion and Limitations

Corruption, the abuse of entrusted power for private gain, is a significant concern, especially for developing nations. Evidence indicates that high levels of corruption can have negative repercussions politically, socially, and economically. Negative outcomes include lack of rule of law, increased crime, reduced trust in government, reduced access to public services, lower tax revenues, and lower levels of investment—all contributing to low levels of GDP growth. These consequences reach all levels of society, not just those directly impacted by incidences of corruption.

To fight corruption, TI has established ALACs in several countries. These centers attempt to reduce the levels of corruption within a country by employing a societal approach toward anticorruption reform. Through processing client complaints about corruption, offering legal advice, and providing educational campaigns, ALACs attempt to change social perceptions of corruption and increase the costs of participating in corrupt activities. These services are offered free of charge to clients, and the work is completed primarily by volunteers, keeping budgets low.

The cost-benefit analysis of ALACs presented here uses data provided by TI-Serbia and TI-BiH, as well as incorporating evidence presented in previous research on the relationship between corruption and GDP. The analysis suggests that ALACs are an extremely cost-effective method of reducing corruption. In this conclusion, we point to some considerations that need to be taken into account when interpreting these results.

The first consideration is that costs are calculated based on figures from Serbia and BiH only. Some characteristics of these countries that may affect costs may not be generalizable to other countries, such as the availability of volunteers, the availability of a free press and relatively free speech, accessibility of public transportation, and political willingness to fight corruption. Additionally, estimates are calculated based on wage ratios within the countries. This could be a problem, particularly in the case of opportunity costs of volunteers, as there may not be the same ratio of college graduates to non-graduates, and therefore the wages for students may be overestimated.

The nature of corruption makes it difficult to measure. In addition, data may be imprecise. For example, the CPI predominantly relies on the aggregation of third-party survey data, which may not provide accurate information on true levels of corruption. Likewise, the use of GDP as the sole measure of benefits in this analysis may not account for the impacts of other benefits of reduced corruption. As ALACs are young organizations, this analysis may not capture a lag effect to benefits (or costs) of these programs.

Despite these limitations, this study shows that ALACs provide significant benefits to their host countries without a large financial investment. We acknowledge that ALACs are relatively new reform strategies, which means data may be imprecise or incomplete. However, this analysis offers a first attempt at creating a cost-benefit model for evaluating anticorruption reforms and provides an empirical model to give an expected average effect for the presence of an ALAC, accounting for GDP and population. As such, it provides a good starting point for other studies.

References

Abed, George T., and Davoodi, H. R. (2002). Corruption, structural reforms, and economic performance in the transition economies." George T. Abed and Sanjeev Gupta (Eds.), *Governance, Corruption, & Economic Performance* (pp. 489-537). Washington, D.C.: International Monetary Fund Publication Services.

Advokatska Kancelarija. 2010. "Republic of Serbia: Official lawyer tariff – prices – costs." Retrieved on April 20, 2010, from http://www.advokatsimic.rs/html/tarifa_-_cene.html

Akcay, S. (2006). Corruption and human development. *CATO Journal*, *26*, 29-48.

Al-Marhubi, F.A. (2000). Corruption and inflation. *Economics Letters*, *66*, 199-202.

Alvazzi del Frate, A., Hatalak, O., and Zvekic, U. (Eds.). (2000). Surveying crime: A global perspective. Proceedings of the international conference. Rome, November 19-21, 1998. Rome, National Institute of Statistics.

Bahmani-Oskooee, M., and Nasir, A. (2002). Corruption, law and order, bureaucracy and real exchange rate. *Economic Development and Cultural Change*, *50*, 1021-1028.

BDO International. (2009). *Doing Business in Serbia*. Brussels: Author.

Boardman, A., Greenberg, D., Vining, A., and Weimer, D. *Cost-Benefit Analysis: Concepts and Practice* (New Jersey: Pearson Prentice Hall, 2006).

Brunetti, A. (1997). Political variables in cross-country growth analysis. *Journal of Economic Surveys, 11*, 163-190.

Dyck, I. J. Alexander, Morse, Adair, and Zingales, Luigi. (2008). Who blows the whistle on corporate fraud? AFA 2007 Chicago Meetings Paper. Retrieved on April 22, 2010, from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=891482

European Central Bank. 2010. "Measuring inflation–the Harmonized Index of Consumer Prices." Retrieved on April 28, 2010, from http://www.ecb.int/stats/prices/hicp/html/index.en.html

Graeff, Peter. (2005). Why should one trust in corruption? The linkage between corruption, norms and social capital. In Johann Graf Lambsdorff, Markus Taube, and Matthias Schramm (Eds.), *The New Institutional Economics of Corruption* (pp.40-58). New York: Routledge.

Gupta, S., Davoodi, H. R., and Tiongson, E. R. (2002). Corruption and the provision of health care and education services. In George T. Abed and Sanjeev Gupta (Eds.), *Governance, Corruption, & Economic Performance* (pp. 254-279). Washington D.C.: International Monetary Fund Publication Services.

Gupta, S., de Mello, L., and Sharan, R. (2001). Corruption and military spending. European Journal of Political Economy, 17, 749-777.

Gyimah-Brempong, K. (2002). Corruption, economic growth, and income inequality in Africa. *Economics of Governance, 3*, 183-209.

Handy, Femida, and Srinivasan, Narasimhan. (2004). Valuing volunteers: An economic evaluation of the net benefits of hospital volunteers. *Nonprofit and Voluntary Sector Quarterly, 33*, 28-54.

Haque, N. U., and Sahay, R. (1996). Do government wage cuts close budget deficits? A conceptual framework for developing countries. IMF Working Papers 96/19, International Monetary Fund.

International Center for Corruption Research. 2008. "Transparency International (TI) 2008 Corruption Perceptions Index (CPI)." Retrieved on April 23, 2010, from http://www.icgg.org/corruption.cpi_2008.html

International Monetary Fund. (2010). *World Economic Outlook 2010*. Washington, D.C.: Author.

Johnson, S., Kaufmann, D., and Shleifer, A. (1997). The unofficial economy in transition. *Brookings Papers on Economic Activity, 27*, 159-239.

Johnson, S., Kaufmann, D., and Zoido-Lobaton, P. (1998). Regulatory discretion and the unofficial economy. *American Economic Review, 88*, 387-392.

Kaufmann, D., Kraay, A., and Mastruzzi, M. (2007). Governance matters VI: Aggregate and individual governance indicators 1996-2006. Policy Research Working Paper 4280, World Bank, Washington, D.C.

Kaufmann, D., Mastruzzi, M., and Zaveleta, D. (2003). Sustained macroeconomic reforms, tepid growth: a governance puzzle in Bolivia. In D. Rodrik (Ed.), *In Search of Prosperity: Analytic Narratives on Economic Growth* (pp. 334-398). Princeton: Princeton University Press.

Kaufmann, Daniel, Pradhan, Sanjay, Ryterman, Randi, and Anderson, James. (1998). *Diagnosing and Combating Corruption: A Framework with Application to Transition Economies*. Washington D.C., World Bank.

Knack, S., and Keefer, P. (1995). Institutions and economic performance: cross-country tests using alternative institutional measures. *Economics and Politics, 3*, 207-227.

Lambsdorff, J. F. (1998). An empirical investigation of bribery in international trade. European Journal of Development Research, 10, 40-59.

Li, Hongyi, Xu, Lixin, and Zou, Heng-Fu. (2000). Corruption, income distribution, and growth. *Economics and Politics, 12*, 155-182.

Mauro, P. (1995). Corruption and growth. *Quarterly Journal of Economics, 60*, 681-712.

Mauro, P. (1996). The effects of corruption on growth, investment, and government expenditure. International Monetary Fund, IMF Working Paper WP/96/98, Washington, D.C.

Mendez, Fabio, and Sepulveda, Facundo. (2006). Corruption, growth and political regimes: Cross country evidence. *European Journal of Political Economy, 22*, 82-98.

Moore, Mark, Boardman, Anthony, Vining, Aiden, Weimer, David, and Greenberg, David. (2004). Just give me a number! *Journal of Policy Analysis and Management, 23*, 789-812.

Pellegrini, L., and Gerlagh, R. (2004). Corruption's effect on growth and its transmission channels. *Kyklos*, 57(3): 429-456.

Public Transport Company "Belgrade." 2010. "Assortment of fares." Retrieved on April 22, 2010, from http://www.gsp.rs/english/assortmentoftickets.htm

Reinikka, R., and Svensson, J. (2004) The power of information: evidence from a newspaper campaign to reduce corruption. Policy Research Working Paper Series, World Bank, Washington D.C.

Rose-Ackerman, Susan. (1999). *Corruption and Government: Causes, Consequences, and Reform.* Cambridge: Cambridge University Press.

Rose-Ackerman, Susan. (2004) Governance and corruption. In Bjørn Lomborg (Ed.), *Global Crises, Global Solutions* (pp. 301-344). New York: Cambridge University Press.

Seligson, M. (2002). The impact of corruption on regime legitimacy: A comparative study of four Latin American countries. *Journal of Politics, 64*, 408-433.

Serbian Railways. 2010. "Fares." Retrieved on April 22, 2010, from http://www.serbianrailways.com/active/en/home/glavna_navigacija/putnicki_saobracaj/unutrasnji_saobracaj/cene_prevoza.html

Statistical Office of the Republic of Serbia. 2010. "Average salaries and wages paid in February." Retrieved April 10, 2010, from http://webrzs.stat.gov.rs/axd/en/index1.php?SifraVesti=401&Link=

Sullivan, John and Shkolnikov, Alexsandr. (2004, September). Combating corruption: Private sector perspectives and solutions. *Economic Reform*. Reprinted on *America.gov* web site by ejournalsUSA. Retrieved April 3, 2010, from http://www.america.gov/st/democracy-english/2008/May/20080601223451SrenoD0.4410364.html

Tanzi, V., and Davoodi, H. R., and Hamid, R. (2002a). Corruption, public investment, and growth. In Abed, T. and Gupta, S. (Eds.), *Governance, Corruption, & Economic Performance* (pp. 280-299). Washington D.C.: International Monetary Fund Publication Services.

Tanzi, V., and Davoodi, H. R. (2002b). Corruption, growth, and public finances. In George T. Abed and Sanjeev Gupta (Eds), *Governance, Corruption, & Economic Performance* (pp. 197-222). Washington D.C: International Monetary Fund Publication Services.

Transparency International. (2004). CARDS Democratic Stabilisation and Civil Society Programme. Berlin: Author.

Transparency International. (2007). *Advocacy and Legal Advice Centres: Start-Up Manual*. Berlin: Author.

Transparency International. 2009. "TI-Zimbabwe successfully launches the ALAC project amidst high public enthusiasm to fight corruption." Retrieved February 10, 2010, from http://www.transparency.org/news_room/latest_news/press_releases_nc/2009/2009_03_28_zimbabwe_alac

Transparency International. 2010a. "About Transparency International." Retrieved March 10, 2010, from http://www.transparency.org/about_us

Transparency International. 2010b. "Bribe Payer's Index." Retrieved April 20, 2010, from http://www.transparency.org/policy_research/surveys_indices/bpi

Transparency International. 2010c. "CPI: Frequently Asked Questions." Retrieved March 13, 2010, from http://www.transparency.org/policy_research/surveys_indices/cpi/2009/faqs

Transparency International. 2010d. "Global Barometer: Frequently Asked Questions." Retrieved April 28, 2010, from http://www.transparency.org/policy_research/surveys_indices/gcb/2009/gcb_2009_faq

Trumbull, William. (1990). Who has standing? *Journal of Policy Analysis and Management*, *9*, 201-218.

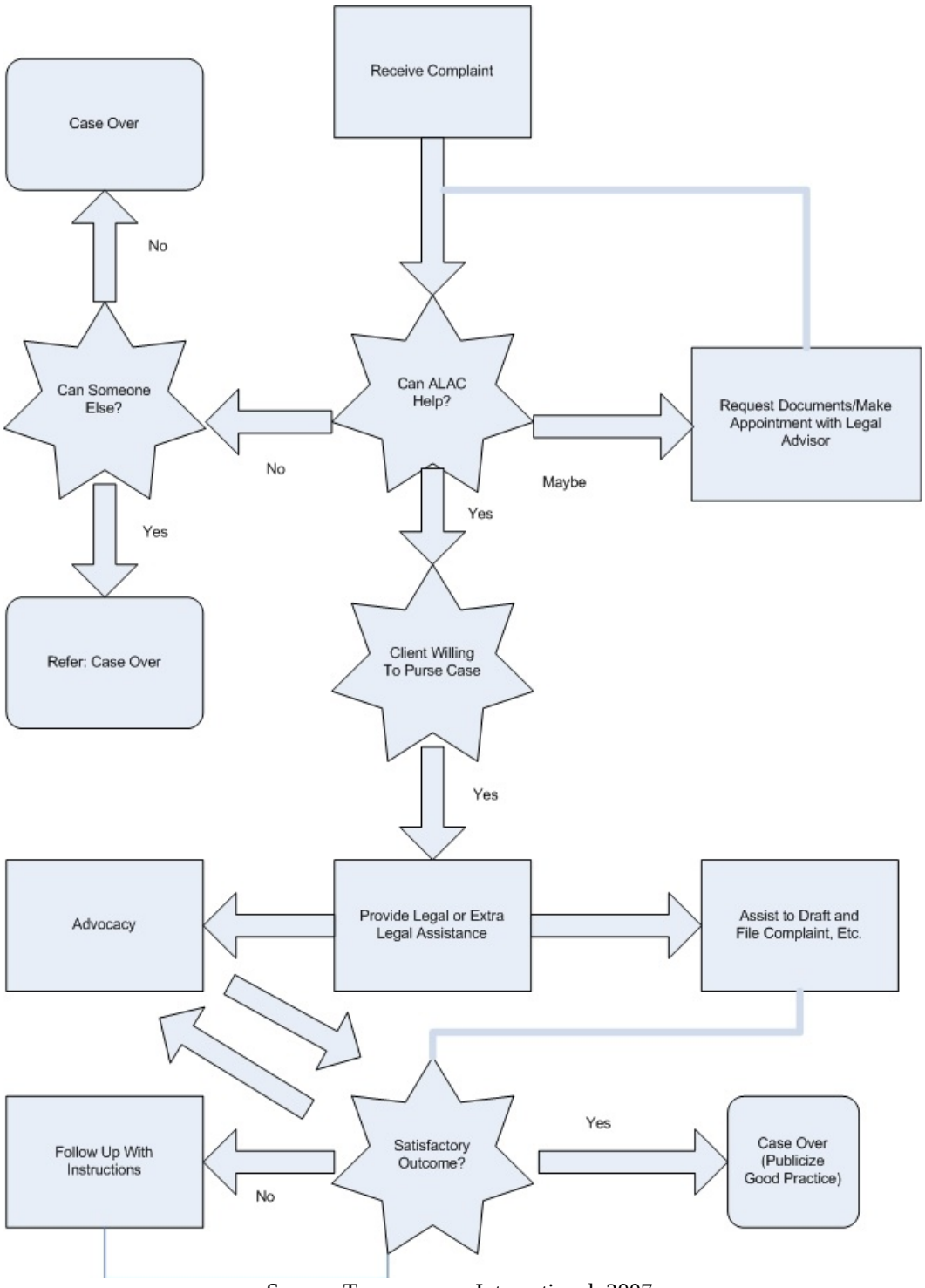
UN Office on Drugs and Crime. 2010. "The costs of corruption." Retrieved March 13, 2010, from http://www.un.org/events/10thcongress/2088b.htm

Uslaner, Eric. (2005). Trust and corruption. In Johann Graf Lambsdorff, Markus Taube, and Matthias Schramm (Eds.), *The New Institutional Economics of Corruption* (pp.76-92). New York: Routledge.

Wei, Shang-Jin (1999). Does corruption relieve foreign investors of the burden of taxes and capital controls? World Bank, Policy Research Working Paper No. 2209, Washington D.C.

World Bank (2000) Anticorruption in transition, a contribution to the policy debate, Chapter 2 in *The Economic and Social Consequences of Corruption in Transition Countries*, available at http://lnweb18.worldbank.org/eca/eca.nsf/Attachments/Anticorruption2/$File/chapter2.pdf

Appendix A: ALAC Decision Tree



Source: Transparency International, 2007

Appendix B: Start-Up Costs

To determine the costs of establishing an ALAC, we used information from a grant proposal Transparency International filed with the European Commission in 2004. The grant provides a start-up budget of €341,537 for three ALACs in Bosnia and Herzegovina, Croatia, and the Former Yugoslav Republic of Macedonia. This amount represents 90 percent of the total start-up costs and covers 18 months, as noted in the funding application. We adjust this number to reflect the total.

$$(100/90)(€341,537) = €379,486$$

We inflate the 2004 budget number into 2010 euros using the January Seasonally Adjusted Harmonized Indices of Consumer Prices (HIPC) of each year respectively (European Central Bank, 2010).

$$2004\ HIPC = 96.79$$

$$2010\ HIPC = 108.72$$

$$Index = (108.72)/(96.79) = 1.12$$

$$(€379,486)(1.12) = €425,024$$

Since this total represents the start-up costs for three ALACs, we divided the total by three to obtain the start-up costs per ALAC for 18 months.

$$(€425,024)/(3) = €141,675$$

Lastly, to calculate the start-up cost during the first six months of operation, we subtracted a year of operation costs from this total.[5]

$$\text{Low Estimate: } €141,675 - €43,500 = €98,175$$

$$\text{High Estimate: } €141,675 - €48,625 = €93,050$$

$$\text{Average Estimate: } €141,675 - €46,063 = €95,612$$

This gives the costs associated with establishing an ALAC.

[5] See Appendix C for operation costs.

Appendix C: Direct Operating Costs of ALACS

The Serbian ALAC has an annual operating budget of €43,500, detailed in Table C.1.

Table C.1: Serbia ALAC Annual Budget

Item	Amount
Human Resources	€18,450
Office Costs, Equipment & Supplies	€9,300
Other Costs/Services/Marketing/Hotline	€15,740
Total	€43,500

Source: Data from TI-Serbia

Discounting this budget to cover three years, the present value of the direct operating cost of the Serbian ALAC is €123,986. We use this as our low estimate.

$$\left(\frac{43{,}500}{(1+0.035)^{0.5}}\right)+\left(\frac{43{,}500}{(1+0.035)^{1.5}}\right)+\left(\frac{43{,}500}{(1+0.035)^{2.5}}\right)=123{,}986$$

The ALAC in Bosnia and Herzegovina has an annual operating budget of €48,625, detailed in Table C.2.

Table C.2: Bosnia & Herzegovina Annual Budget

Item	Amount
Human Resources	€30,000
Office Costs, Equipment & Supplies	€1,875
Other Costs/Services/Marketing/Hotline	€16,750
Total	€48,625

Source: Data from TI-BiH

Discounting this budget to cover three years, the present value of the direct operating costs of the ALAC in BiH is €138,593. We use this as our high estimate.

$$\left(\frac{48{,}625}{(1+0.035)^{0.5}}\right)+\left(\frac{48{,}625}{(1+0.035)^{1.5}}\right)+\left(\frac{48{,}625}{(1+0.035)^{2.5}}\right)=138{,}593$$

Lastly, we used the average of the operating costs in Serbia and BiH to calculate the present value of the operating costs of ALACs. We use this value, €131,291, as our average estimate.

$$\left(\frac{46{,}063}{(1+0.035)^{0.5}}\right)+\left(\frac{46{,}063}{(1+0.035)^{1.5}}\right)+\left(\frac{46{,}063}{(1+0.035)^{2.5}}\right)=131{,}291$$

Appendix D: Opportunity Costs of Complainants

Using the data provided by TI-Serbia, we calculate the number of complaints processed annually by an ALAC as 217. We then calculate the average monthly Serbian[6] wage in euros (Statistical Office of the Republic of Serbia, 2010).

$$(\text{RSD } 44{,}871)(0.01009\ €/\text{RSD}) = €452$$

We multiply this number by 12 months to calculate the average annual Serbian wage.

$$(€452)(12 \text{ months}) = €5{,}422$$

We then divide the average annual Serbian wage by 2,080 hours, the total number of hours an employee works in a year to obtain the average hourly Serbian wage.[7]

$$(€5{,}422)/(2{,}080 \text{ hours}) = €2.60/\text{hour}$$

Multiplying the number of complaints by each ALAC, 217, by the average hourly Serbian wage, €2.60, we obtain the opportunity cost of complainants.

$$(217)(€2.60) = €564.20$$

Finally, we multiply this number by the average hours spent by each complainant per ALAC interaction, 2 hours.[8]

$$(€564.20)(2 \text{ hours}) = €1128.40$$

To account for the fact this represents only one year's workload, we calculate the net present value for three years of operation.

$$\left(\frac{1{,}128.4}{(1+0.035)^{0.5}}\right)+\left(\frac{1{,}128.4}{(1+0.035)^{1.5}}\right)+\left(\frac{1{,}128.4}{(1+0.035)^{2.5}}\right)=3{,}368$$

This gives the total net present value of complainant opportunity cost of €3,368.

[6] The dinar is Serbia's currency.
[7] Serbians work a 40-hour week (BDO International, 2009).
[8] The estimate on hours spent with clients with open cases was provided through communication with TI-Serbia at three to four hours. As several calls to the ALACs do not result in case openings, we adjusted this number down slightly to account for complainants who spend time on the phone with ALAC staff.

Appendix E: Travel Costs

Although ALACs provide two methods of reporting corruption, in-person and using the toll-free hotline, any complaints of corruption that result in opening a case require travel to the ALAC itself. Therefore, travel costs are associated with these interactions. To properly value travel costs, we categorize each case as rural or urban using data provided by TI. We then use the price of public transportation to calculate the cost of traveling to the ALAC for each complainant. For rural cases, we use a price of €7.18 per round trip (Serbian Railways, 2010). For urban cases, we use a price of €1.31 per roundtrip (Public Transport Company "Belgrade," 2010). We then multiply the respective number of open cases by the relevant roundtrip travels cost to obtain travel costs.

Year 1: (€7.18)(12 rural cases) + (€1.31)(132 urban cases) = €259

Year 2: (€7.18)(10 rural cases) + (€1.31)(149 urban cases) = €267

Year 3: (€7.18)(18 rural cases) + (€1.31)(140 urban cases) = €313

Finally, we discount these values to calculate the total net present value of travel costs, €795.

$$\left(\frac{259}{(1+0.035)^{0.5}}\right)+\left(\frac{267}{(1+0.035)^{1.5}}\right)+\left(\frac{313}{(1+0.035)^{2.5}}\right)= \quad 795$$

Appendix F: Opportunity Costs of Volunteers

To calculate the opportunity costs of volunteers' time, we use a study of the value of volunteer time in the United States (Handy and Srinivasan 2004). Using estimates from this study, the opportunity cost of working in the United States is €12.48 for employed people and €8.78 for volunteers. This converts to a volunteer/worker ratio of .703.

$$(€8.78)/(€12.48) = .703$$

We multiply this ratio by the average hourly wage of employed people in Serbia to obtain the hourly opportunity cost of volunteers' time.

$$(.703)(€2.60) = €1.83$$

Finally, we multiply the hourly opportunity cost of volunteers' time by the total hours worked by volunteers in each year to obtain the total opportunity cost of volunteers.

Year 1: (€1.83/hour)(725 hours) = €1,327

Year 2: (€1.83/hour)(723 hours) = €1,323

Year 3: (€1.83/hour)(735 hours) = €1,345

Discounting these costs, we obtain the final opportunity cost of volunteers, €3,632.

$$\left(\frac{1,327}{(1+0.035)^{0.5}}\right)+\left(\frac{1,323}{(1+0.035)^{1.5}}\right)+\left(\frac{1,345}{(1+0.035)^{2.5}}\right)= \quad 3,632$$

Appendix G:
Valuing the Economic Effect of ALAC Impact on Corruption

Following the established research on the economic consequences of corruption, we value the societal effect of ALACs on Serbia by evaluating GDP growth changes due to changes in corruption. To calculate and monetize this effect we first need to assess the economic impact of corruption on GDP and the effect of ALACs on corruption.

Measuring the Economic Impact of Corruption on GDP

We look at several studies on corruption and GDP using various indices as proxies for corruption (Knack and Keefer, 1995; Li et al., 2000; Mauro, 1995; Pellegrini and Gerlagh, 2004; Mendez and Sepulveda, 2006). Although each uses different corruption indexes in their regression models, the results of the estimated coefficient of corruption on GDP coincide very closely. In their 2004 article, Lorenzo Pellegrini and Reyer Gerlagh (2004) report that a one-point increase in the CPI had a 0.38 percent increase in GDP. The article identifies four main corruption transmission routes and their share of this GDP change: investment, human capital, trade openness, and political instability. Pellegrini and Gerlagh's estimates show that these transmission routes account for approximately 80 percent of the effect of corruption on GDP growth. We use the estimate Pellegrini and Gerlagh report as a measure of the effect of corruption on GDP primarily for its use of the CPI and the similarity of the results of the coefficient with that found in other empirical research.

Measuring the ALAC Effect on Corruption

We conduct our own statistical analysis on the effect of ALACs on corruption.

Model

We use a panel dataset consisting of 961 observations using 183 countries over the years 2003-2008. Because our only concern is with the relationship between the number of ALACs and corruption, we use a two-way fixed effects model. This model specification enables us to hold constant differences that vary over time and/or across countries by giving each country and year a separate intercept. This allows us to measure the variation within the countries and time. The assumption is that the slope on our dependent variables is the same across time and country and that the unobservable effects that are absorbed by our country-level fixed-effects specification are time invariant. While this method can lower the risks of misspecification due to omitted variable bias, there is still a risk that our assumption does not hold.

Variables

Corruption: We choose to use the CPI as our dependent variable. We subtracted the index from ten to allow changes in corruption to move logically, i.e., the adjusted CPI variable increases when corruption increases.

The decision to use CPI is based on the fact that it is easily accessible and is the most comprehensive index available. Our ideal index would be something based on incidences of corruption similar to the Global Corruption Barometer, which is a survey of ordinary people's experience and perception of corruption. However, this survey information is only reported for a small set of countries, 69 in 2009, and we were unable to find studies that use it to determine corruption's effect on GDP (Transparency International, 2010d). Other possible choices were the International Country Risk Guide (ICRG), an index developed by business experts, and the Institute for Management Development (IMD)–World Competitiveness Report, a survey of business people. Both of these reports are highly correlated with the TI index (see Table G.1 below). Because both of these indicators are based on expert opinion, we felt that the CPI, as an aggregate of several professional experts and businesspeople, would be a more reliable indicator. For all six years of our analysis, a question on corruption from the Institute for Management Development is included in the CPI.

Table G.1: Correlation Matrix of Corruption Indexes

	IMD	CPI	ICRG
IMD	1		
CPI	0.96	1	
ICRG	0.82	0.91	1

Source: Mendez and Sepulveda 2006: 24

The CPI is created through a process of averaging survey data obtained from third-party sources. These sources range from expert opinions to surveys of businesspeople. From 2003 to 2008, the years included in our model, 21 different surveys were used to calculate the CPI (these are listed in Table G.2). Due to the availability and coverage of these surveys and opinion data, the actual list of sources used to calculate the CPI changes from year to year. The minimum number of surveys needed for a country to be included in the CPI is three. Surveys were weighted evenly and, where available, opinion surveys were smoothed by including multiple years. We do not feel that this is a problem for comparison over a single year, as the surveys in the 2008 index had an average correlation of 0.78 and all years prior have similar correlation averages (Transparency International, 2010c).

Table G.2: Survey and Opinion Data Sources Used in 2003-2008 CPI Indexes

Africa Competitiveness Report of the World Economic Forum
Country Performance Assessment Ratings by the Asian Development Bank
Country Policy and Institutional Assessment by the African Development Bank
Business Environment and Enterprise Performance Survey
Bertelsmann Transformation Index
Country Policy and Institutional Assessment by the World Bank
Columbia University
Economist Intelligence Unit
Freedom House, Nations in Transit
Global Competitiveness Report of the World Economic Forum
Global Insights (formerly World Markets Research Centre)
Information International
World Competitiveness Report of the Institute for Management Development
A Multinational Development Bank
Merchant International Group
Political and Economic Risk Consultancy, Hong Kong
PricewaterhouseCoopers, Opacity Index
Gallup International on behalf of Transparency International
United Nations Economic Commission for Africa, African Governance Report
World Business Environment Survey of the World Bank
Global Competitiveness Report of the World Economic Forum

Source: Internet Center for Corruption Research, 2008

Some criticisms of using the indicator to compare across time and countries is that the methodology used to create the indicator changes and the sources used to create the survey change from year to year. TI states, “Year-to-year changes in a country’s score can either result from a changed perception of a country’s performance or from a change in the CPI’s sample and methodology. The only reliable way to compare a country’s score over time is to go back to individual survey sources, each of which can reflect a change in assessment” (Transparency International, 2010c). We took the survey critique into account when we developed our models. (See Equations 2 and 3, and Table G.4.)

During the span of our model, TI’s methodology did change for 2006 and for 2007-2008. In 2006 TI reduced the number of years used to smooth opinion

surveys from 3 to 2. In 2007 and 2008 they used a different technique for converting survey and opinion data into the 0-10 CPI scoring. Because TI used this method for all countries in the index, we feel it is safe to assume that any impact on the score due to the change in methodology would be pulled out across the board by the 2006, 2007, and 2008 year dummies. For this reason, we did not alter our model further to account for these changes in methodology.

ALACs: This is a count variable for the number of ALACs in a country each year from 2003-2008. Information on ALACs is provided by Transparency International's Secretariat in Berlin.

Population: This is the population for all the countries in each year in the survey, used to calculate the number of ALACs per million.

Descriptive statistics of the variables as presented in the data are shown in Table G.3 below.

Table G.3: Descriptive Statistics of Variables

Variable	Observation	Mean	Std. Dev.	Min	Max
corruption	961	5.91	2.16	0.3	9
alac	961	0.08	0.41	0	5
population	955	40 million	138 million	72,395	1.3 billion

Source: Authors

Functional Form

We calculate three equations.[9] The first is specified as follows:

Equation 1:

$$Corruption_{it} = a_o + \delta year_t + \delta country_i + \beta\# alac_{it} + \beta\# alac^2{}_{it} + \varepsilon_{it}$$

Where the dependent variable, $Corruption_{it}$, is ten minus the CPI. The independent variables are:

$\delta year_t$ is a dummy variable for each year and *t* is the index for the year. $\delta country_i$ is a dummy variable for each country and *i* is the index for each country.

[9] We also tried other methods, such as adding one-year time lags. We do not include the results of these models, as we do not feel confident with our specification. Even without considering the possible lag effect of ALACs, our models show that ALACs have a significant effect on corruption.

$\beta\#alac_{it}$ is a count variable for the number of ALACs per million in country *i* at each time *t*. $\beta\#alac^2_{it}$ is the number of ALACs per million in country *i* at each time *t* squared. This variable accounts for the diminishing returns for having multiple ALACs in one country. We include this variable because we assume that each additional ALAC will have less effect than the one before it. ε_{it} is the error associated with our model.

Equation 2:

$$Scorruption_{it} = a_o + \delta year_t + \delta country_i + \beta\#alac_{it} + \beta\#alac^2_{it} + \varepsilon_{it}$$

This equation is the same as Equation 1, except that the dependent variable, $Scorruption_{it}$, is a three-year moving average of years 2004-2008. This reduces the number of observations to 767. We choose this method in order to address the CPI survey and methodology issue noted above. By using a three-year moving average, we dampen the impact of divergent surveys on the corruption trend. This adjustment should create a more accurate estimate of the effect on corruption attributable to ALACs.

Equation 3:

$$Corruption_{itj} = a_o + \delta year_t + \delta country_i + \delta survey_j + \beta\#alac_{itj} + \beta\#alac^2_{itj} + \varepsilon_{itj}$$

This equation is the same as Equation 1, except we added a dummy variable, $\delta survey_j$, for each of the possible surveys used to create the corruption perception index. A value of one indicates that the survey was used and zero indicates that it was not. Our reasoning behind adding these dummy variables is that this will control for the pull an individual survey has on the corruption index. By controlling for this pull, our coefficients will more accurately reflect the change in the CPI actually attributed to ALAC presence.

Results

Regressions run using Equations 1, 2, and 3 as specified above, produce the results shown in Table G.4.

Table G.4: Regression Results, Corruption as Dependent Variable

	Equation (1)	Equation (2)	Equation (3)
Constant	8.11	8.50	8.09
	(0.18)	(0.22)	(0.24)
ALAC	-1.27***	-0.75***	-0.88**
	(0.44)	(0.35)	(0.45)
ALAC Diminishing Returns	0.20***	0.10	0.14*
	(0.08)	(0.07)	(0.08)
Number of observations	955	767	955
Adjusted R-squared	0.984	0.99	0.981

Standard errors are in parenthesis
***significant at 1 percent **significant at 5 percent *significant at 10 percent
Source: Authors

From our results we see that the second equation gives us a slightly higher adjusted R-squared measure. In all of the equations our ALAC variable is significant and in all but equation 2 the ALAC diminishing returns variable is significant. For this reason, we narrow our choice to models 1 and 3. Although model 1 has the best adjusted R-squared and significance on the coefficients, it does not take into account the problems with the dependent variable described above. For this reason, we choose equation 3.

Addressing Endogeneity

Endogeneity is a concern with most empirical models. For example, ALACs may be established in countries where governments are more prone to fight corruption. To address this issue, we run a one-year regression on the year 2008 dataset. The results show that ALACs tend to be implemented in countries that are actually *more* corrupt. ALACs are not implemented by the government; rather they are established by TI national chapters, which are separate from the political processes of the countries in which they function. National chapters from countries with varying levels of corruption as reported by the CPI (as low as 1.8 to as high as 8.9) have shown interest or secured funding for the establishment of an ALAC.[10]

Data Sources

Table G.5 provides information on the variables used in our equations.

[10] This information was provided via correspondence with TI secretariat based in Berlin.

Table G.5: Data Sources

Variable	Code	Data Source	Notes
Corruption	corruption	Transparency International Corruption Perceptions Index 2003-2008	Variable was subtracted from ten to allow the coefficient to move logically
Number of ALACs in a country	alac	Provided by Transparency International 2003-08	Only updated through October 2008
Country	country		Limited to countries with CPI data. During 2003-08 timeframe, there were 954 observations.
Population	population	From World Bank's World Development Indicators	
Year	year		2003-2008

Appendix H: Monte Carlo Analysis

To take into account uncertainties in estimating certain variables used to calculate the net benefits of ALACs, we conducted Monte Carlo simulations. The simulation modeled 100,000 trials. Table H.1 lists the uncertain variables and their ranges.

Table H.1: Monte Carlo Variable Ranges I

	Min Value	Max Value	Distribution
Start-up Costs	€93,050	€98,175	Uniform
Hours the Clients Spend Working with the ALAC	0.5	4	Uniform
Yearly Caseload an ALAC Processes	154	158	Uniform
Operating Costs	€43,500	€48,625	Uniform
Rural Travel Costs	€3	€12	Uniform
Urban Travel Costs	€0.81	€1.81	Uniform

Source: Authors

We chose a uniform distribution for determining the values of the uncertain variables because we had no basis to assume that the variables would be distributed in anything other than a random fashion over these ranges.

The range for the hours the clients spent working with the ALAC while pursuing their cases was derived from a survey completed by TI-Serbia. The range for the yearly caseload was derived by analyzing case level data provided by TI-Serbia for 2007 through 2009.

The minimum and maximum operating costs are from the budgets provided by TI-Serbia and TI-BiH, respectively. Details can be found in Appendix C.

Both rural and urban transportation ranges are from separate methods of public transportation in Serbia. The minimum and maximum values represent the lowest and highest cost roundtrips available via Serbia's rail network and Belgrade's public transportation system. (See Appendix E for calculations.)

Costs are calculated over a 3.5-year time period (years 0-3). In year 0, only start-up costs accrue. The remainder of costs accrue in years 1-3.

Table H.2 provides the ranges for benefits in the Monte Carlo. Benefits are calculated for years 1-3. Explanations of the variables affecting benefits can be found in Appendix G.

Table H.2: Monte Carlo Variable Ranges II

	Median	St. Dev.	Distribution
Marginal ALAC Impact	-0.88	0.45	Bivariate Normal
Marginal ALAC Impact Squared	0.14	0.08	Bivariate Normal
Corruption's Effect on GDP	0.38	0.13	Normal

Source: Authors

To correctly gauge the robustness of our results, we perform the Monte Carlo analysis using three discount rates (Moore et al., 2004). All three rates produce positive net benefits. Tables H.3, H.4 and H.5 provide the results of the Monte Carlo analyses for Turkey, Hungary, and Cameroon, respectively.

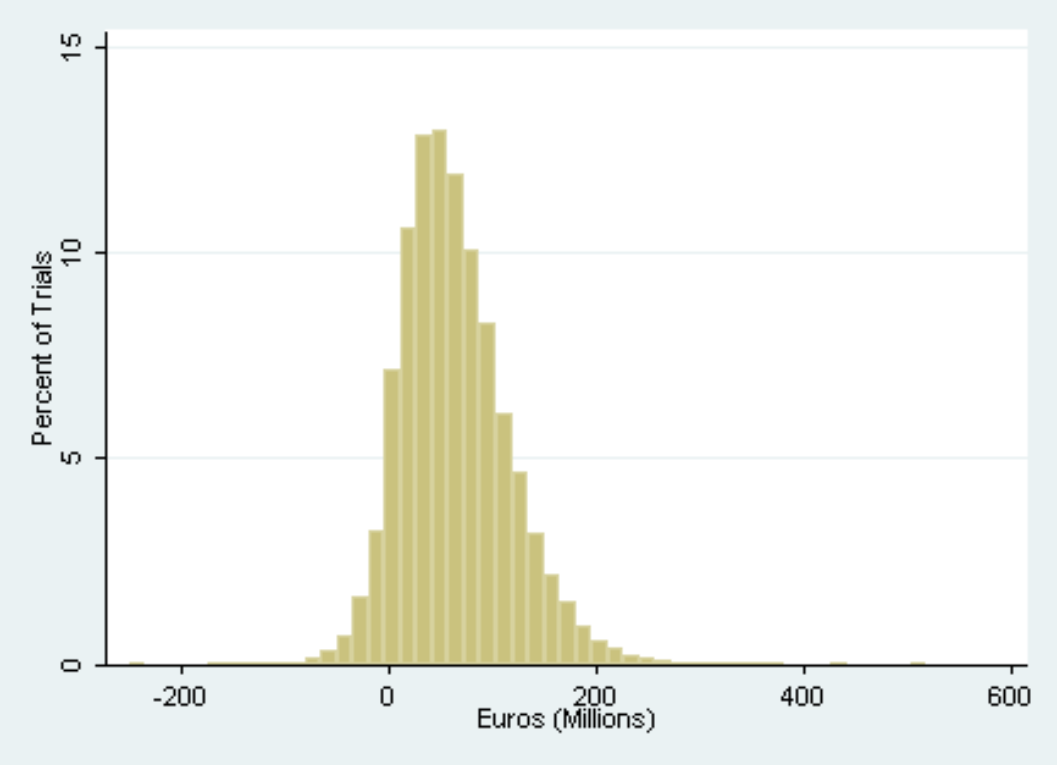
Table H.3: Monte Carlo Statistics Turkey

NPV with 1.5 Percent Discount Rate			
Benefits	Average	Costs	Average
GDP Increase	€65.1 million	Start-Up	€95,611
Net Benefits	€64.9 million	Operating	€135,147
		Client Opportunity	€3,730
		Client Travel	€841
Percentage Below Zero	8%	Volunteer Opportunity	€3,907
		Total	€239,236
NPV with 3.5 Percent Discount Rate			
Benefits	Average	Costs	Average
GDP Increase	€63.2 million	Start-Up	€95,611
Net Benefits	€63 million	Operating	€131,291
		Client Opportunity	€3,624
		Client Travel	€817
Percentage Below Zero	8%	Volunteer Opportunity	€3,795
		Total	€235,138
NPV with 5.5 Percent Discount Rate			
Benefits	Average	Costs	Average
GDP Increase	€61.5 million	Start-Up	€95,611
Net Benefits	€61.2 million	Operating	€127,647
		Client Opportunity	€3,523
		Client Travel	€795
Percentage Below Zero	8%	Volunteer Opportunity	€3,690
		Total	€231,266

Source: All GDP and population estimates obtained from the International Monetary Fund (2010). U.S. dollars were converted to euros using the April 30, 2010, rate of €0.751324 per dollar from www.xe.com. All other data are described in the preceding appendices.

The distribution of the Monte Carlo results at the 3.5 percent discount level are shown in Figure H.1. Of important note, there is an 8 percent chance that ALACs will have a negative effect on GDP as shown in this distribution.

Figure H.1: Distribution of Monte Carlo Results Turkey



Source: Authors

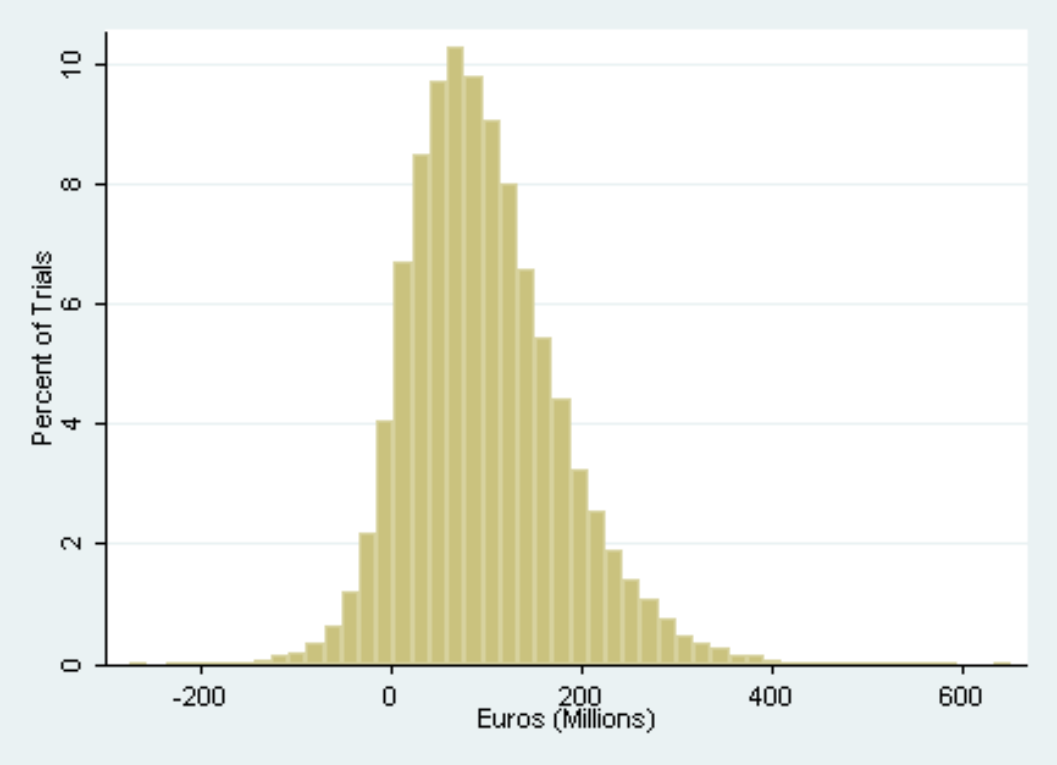
Table H.4: Monte Carlo Statistics Hungary

NPV with 1.5 Percent Discount Rate			
Benefits	Average	Costs	Average
GDP Increase	€101.2 million	Start-Up	€95,611
Net Benefits	€101 million	Operating	€135,147
		Client Opportunity	€3,730
		Client Travel	€841
Percentage Below Zero	8%	Volunteer Opportunity	€3,907
		Total	€239,236
NPV with 3.5 Percent Discount Rate			
Benefits	Average	Costs	Average
GDP Increase	€98.1 million	Start-Up	€95,611
Net Benefits	€97.8 million	Operating	€131,291
		Client Opportunity	€3,621
		Client Travel	€817
Percentage Below Zero	8%	Volunteer Opportunity	€3,795
		Total	€235,135
NPV with 5.5 Percent Discount Rate			
Benefits	Average	Costs	Average
GDP Increase	€95.3 million	Start-Up	€95,611
Net Benefits	€95.1 million	Operating	€127,647
		Client Opportunity	€3,521
		Client Travel	€795
Percentage Below Zero	8%	Volunteer Opportunity	€3,690
		Total	€231,264

Source: All GDP and population estimates obtained from the International Monetary Fund (2010). U.S. dollars were converted to euros using the April 30, 2010, rate of €0.751324 per dollar from www.xe.com. All other data are described in the preceding appendices.

The distribution of the Monte Carlo results at the 3.5 percent discount level are shown in Figure H.2. Of important note, there is an 8 percent chance that ALACs will have a negative effect on GDP as shown in this distribution.

Figure H.2: Distribution of Monte Carlo Results Hungary



Source: Authors

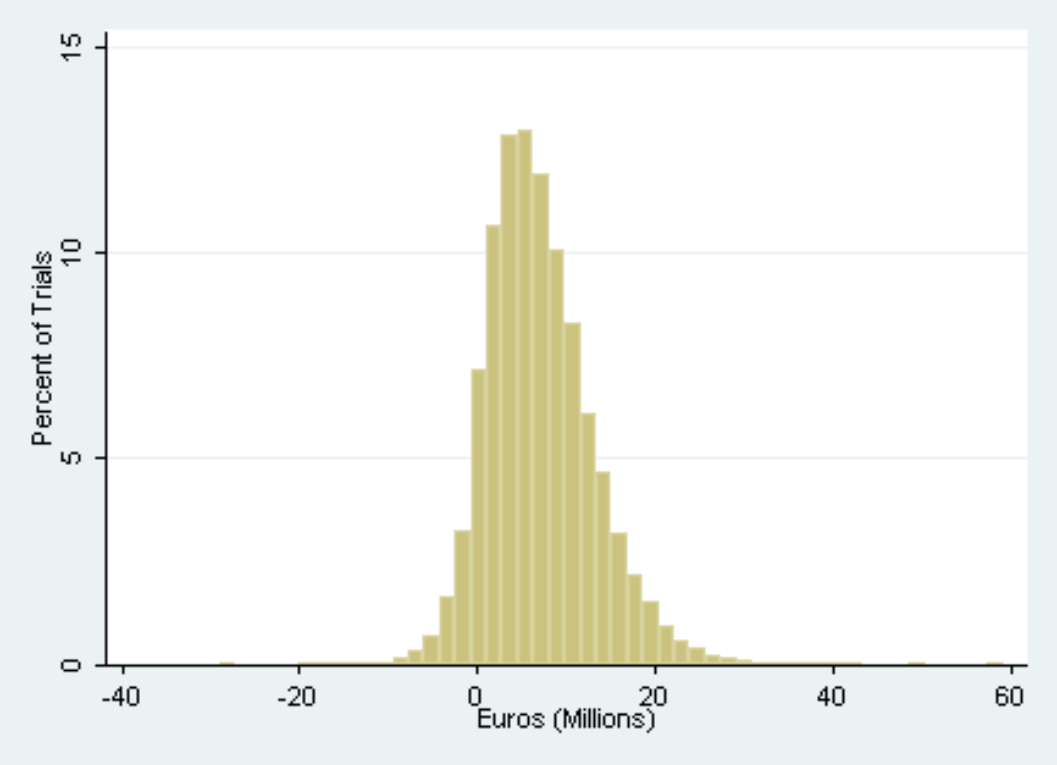
Table H.5: Monte Carlo Statistics Cameroon

NPV with 1.5 Percent Discount Rate			
Benefits	Average	Costs	Average
GDP Increase	€7.4 million	Start-Up	€95,611
Net Benefits	€7.2 million	Operating	€135,147
		Client Opportunity	€3,730
		Client Travel	€841
Percentage Below Zero	9%	Volunteer Opportunity	€3,907
		Total	€239,236
NPV with 3.5 Percent Discount Rate			
Benefits	Average	Costs	Average
GDP Increase	€7.2 million	Start-Up	€95,611
Net Benefits	€7 million	Operating	€131,291
		Client Opportunity	€3,624
		Client Travel	€817
Percentage Below Zero	9%	Volunteer Opportunity	€3,795
		Total	€235,138
NPV with 5.5 Percent Discount Rate			
Benefits	Average	Costs	Average
GDP Increase	€7 million	Start-Up	€95,611
Net Benefits	€6.8 million	Operating	€127,647
		Client Opportunity	€3,523
		Client Travel	€795
Percentage Below Zero	9%	Volunteer Opportunity	€3,690
		Total	€231,266

Source: All GDP and population estimates obtained from the International Monetary Fund (2010). U.S. dollars were converted to euros using the April 30, 2010, rate of €0.751324 per dollar from www.xe.com. All other data are described in the preceding appendices.

The distribution of the Monte Carlo results at the 3.5 percent discount level are shown in Figure H.3. Of important note, there is a 9 percent chance that ALACs will have a negative effect on GDP as shown in this distribution.

Figure H.3: Distribution of Monte Carlo Results Cameroon



Source: Authors

Appendix I: Alternative Benefits Calculation: Benefits of ALAC Legal Services

Because it would be considered double counting, we did not include the value of legal services in our benefits calculation. However, we are presenting a method to calculate this benefit as an alternative to the GDP change method. Our example of the process to follow is outlined below.

Some of the entries in the dataset were undefined in terms of the complaint level. Using Table I.1 below, we changed the entries from undefined to one of five levels: Local, National, Private Sector, Regional, or State Enterprise.

Table I.1: Workload, 2007–Present

Level	Hours	Total Hours	Cumulative
Local	3,080	60.6%	60.6%
National	627	12.3%	72.9%
Private Sector	242	4.8%	77.7%
Regional	803	15.8%	93.5%
State Enterprise	330	6.5%	100.0%

Source: Authors calculations based on data provided by TI-Serbia

Using a random number generator, we categorized each undefined complaint level in the following way:

- All undefined complaints whose random number was less than 0.606 were redefined as local;
- All undefined complaints whose random number was between 0.606 and 0.729 were redefined as national;
- All undefined complaints whose random number was between 0.729 and 0.777 were redefined as private sector;
- All undefined complaints whose random number was between 0.777 and 0.935 were redefined as regional; and
- All undefined complaints whose random number was greater than 0.935 were defined as state enterprise.

Next, since the data do not list action taken at the case level, a similar approach as above was taken, summarized in Table I.2.

Table I.2: Distribution of Action Taken

Action Taken	Complaints	Cumulative
Case Opened	63.6%	63.6%
Invitation for Meeting/Sending Documents	4.5%	68.2%
Referred to Other Institution/NGO	13.6%	81.8%
Rejected - Insufficient Evidence	4.5%	86.4%
Rejected - Not Related to Corruption	13.6%	99.8%

Source: Authors calculations based on data provided by TI-Serbia

These percentages held across complaint levels – each level had the exact same distribution of action taken. Once again we used a (separate) random number generator to assign actions taken to each complaint:

- All complaints whose random number was less than 0.636 were defined as having a case opened;
- All complaints whose random number was between 0.636 and 0.682 were defined as having an invitation sent for a meeting;
- All complaints whose random number was between 0.682 and 0.818 were defined as having been referred to other institutions;
- All complaints whose random number was between 0.818 and 0.864 were defined as having been rejected due to insufficient evidence; and
- All complaints whose random number was greater than 0.864 were defined as having rejected due to the complaint not being related to corruption.

To account for the ALAC's mixture of paid and volunteer staff, we use the distribution shown in Table I.3 to allot staff and volunteer hours. The data in Table I.3 are consistent for each complaint level. For example, 87.5 percent of all staff hours were devoted to opened cases, regardless of the level (local, national, etc.) of the complaint.

Table I.3: Distribution of Hours by Staff and Volunteer

Action Taken	Staff	Volunteer
Case Opened	87.5%	0.0%
Invitation Sent	0.0%	16.7%
Referred to Other Institution	12.5%	16.7%
Rejected - Insufficient Evidence	0.0%	16.7%
Rejected - Not Related to Corruption	0.0%	50.0%

Source: Authors calculations based on data provided by TI-Serbia

We sum the number of cases at each complaint level to obtain the total number of cases by complaint level and action taken. Next, we multiply the average number of cases opened per year by the cost per case to obtain the benefit of free legal service. The average cost per case is estimated using data from a Serbian law site (Advokatska Kancelarija, 2010). The calculation of benefits per case is shown in Table I.4.

Table I.4: Legal Advice Benefits

Cases Opened	x	Cost per Case	=	Benefit
158	x	€111.62	=	€17,636

Source: Authors

Using this number as a proxy for the annual legal benefits over the three year time period, we discount each year back to year 0 to get the present value of the direct legal benefits accrued through the operation of an ALAC.

$$\left(\frac{€17{,}636}{(1+0.035)^{0.5}}\right)+\left(\frac{€17{,}636}{(1+0.035)^{1.5}}\right)+\left(\frac{€17{,}636}{(1+0.035)^{2.5}}\right)=€50{,}267$$

The Serbian ALAC provides benefits of €50,267 over a three-year timeframe.