13 Corruption, crime and economic growth

*Benjamin Powell, G.P. Manish and Malavika Nair**

INTRODUCTION

The relationship between corruption, crime and economic growth seems obvious to most people. Both crime and corruption increase uncertainty and the cost of doing business, so crime and corruption must discourage entrepreneurial activities that cause growth. However, the relationship between crime and growth and corruption and growth is much more complex than it first appears.

Scholars studying corruption have theorized both how corruption can reduce growth but also how it can increase growth, for example, by avoiding bureaucratic delays. The results of cross-country empirical literature on the effect of corruption on growth are mixed. Recently a new literature has emerged controlling for the quality of institutions to examine the effect of corruption on growth. In the next section of this chapter we review the existing literature on corruption and growth, highlight some of the shortcomings in the literature, and then report on some of the newer studies that examine the interaction of institutions, corruption and growth. We believe this final strand of literature provides the most accurate view of how corruption impacts growth.

High levels of crime can undermine the security of property rights and confidence in the rule of law. Both property rights and the rule of law have been illustrated to be vital for long-run economic growth. However, although there is a large literature on the cost of crime, we find almost no cross-country evidence on the impact of crime on growth rates. This is for good reason. What is a crime in one society may not be a crime in another society, making it difficult to meaningfully compare many crime statistics across countries. Furthermore, crime, interpreted literally as breaking of government laws, could actually be growth enhancing in countries that have laws that prohibit capitalist acts between consenting adults. We review some of the existing literature on crime as it relates to growth in the third section of this chapter and then develop some suggestions for future research on the impact of crime on growth. The final section contains conclusions.

CORRUPTION AND ECONOMIC GROWTH

Corruption is difficult to define and measure precisely.[1] Corruption, whether public or private, violates a principal–agent relationship for the benefit of the agent. As a matter of development policy, most of the focus has been on problems with public corruption. Public corruption occurs when a government official uses state property or authority for their own private benefit or the benefit of their friends rather than for promoting the general interest. Defined as such, corruption can be legal, such as when campaign contributions influence legislative policy in the USA, or illegal, such as when a politician

explicitly takes a cash payment for themselves for the equivalent legislative action. The blurred line between legal and illegal corruption often makes definitions of corruption context (in particular geographic context) dependent.

Measuring corruption is equally difficult. Using hard empirical data such as the amount of bribes, or number of corruption convictions in a country, are inadequate measures because differences in exposing corruption vary greatly across countries. The leading cross-country measure of corruption is the Corruptions Perceptions Index (CPI) published by Transparency International. It is a composite index of 13 different polls and surveys that measure the perceived level of corruption in countries. The CPI currently covers 180 countries. Alternative cross-country corruption measures are available from the Institute for Management Development and the International Country Risk Guide. Despite different methodologies, all three indices are highly correlated (Mendez and Sepulveda, 2006).

General Literature Survey

Although most of the development policy community views corruption as a drag on economic growth, academic scholars reach no such consensus on either the theoretical or empirical level of analysis. We review this literature here before critiquing why we think the literature has been inconclusive in the next section.[2]

On the theoretic level, Shleifer and Vishny (1993) argue that when it is necessary to get permission from many individuals for a project, and each has veto power over approval, the cost of corruption will rise and slow economic growth. Myrdal (1968) argues that corrupt officials may use their arbitrary power to create delays and barriers that would not otherwise exist in order to collect more bribes. Krueger (1974) represents a classic study of socially inefficient rent-seeking through corrupt trade restriction enforcement. In cases of corruption such as these, the *de facto* institutional environment would restrict economic activity more than the *de jure* legal restrictions on the official books.

However, there is also reason to believe that corruption could be good for economic growth. Leff (1964) and Huntington (1968) theorize that corruption can enhance growth by allowing individuals to pay bribes to circumvent inefficient rules and bureaucratic delays. Similarly, Lui (1985) shows that corruption can shorten waiting time in queues. In the face of bureaucratic delays that slow business formation or restrictions that prevent businesses and consumers from exploiting potential gains from trade, corrupt officials who circumvent inefficient rules could actually enhance growth. Some positive level of corruption may even enhance growth in countries with relatively efficient rules. Clague (2003) draws a distinction between the types of corruption that inspire the strongest moral outrage and those that do the most damage to economic development. He argues that international agencies focus too much attention on the former, increasing their anti-corruption rhetoric to the point of often creating political instabilities that create their own economic problems. It is also possible that the optimal level of corruption for growth may be small but positive because as corruption decreases it becomes increasingly costly to eliminate it entirely, much like crime in general (Klitgaard, 1988). Colombatto (2003) also analyzes corruption theoretically in a variety of institutional environments and finds that in some cases corruption can be efficient in developed countries as well as in totalitarian ones.

The empirical literature using cross-country data to estimate how corruption affects growth is mixed, reflecting the various offsetting theoretic effects corruption may have. Mauro (1995) produced the seminal study for empirically investigating corruption's impact on growth for a wide cross-section of countries. He found that higher levels of corruption significantly reduce both investment and economic growth. Brunetti et al. (1997), Brunetti and Weder (1998), Campos et al. (1999) and Wei (2000) all also found that corruption had a negative impact on investment.

Mauro's (1995) finding that corruption negatively affects growth has been less universally supported. Mauro's own findings were sensitive to his choice of specification. Poirson (1998) and Leite and Weidmann (1999) found that corruption has a negative effect on growth. Mo (2001) found that corruption reduces growth after controlling for investment but that the effect of corruption becomes insignificant once education is controlled for. Gyimah-Brempong (2002) studied only African countries and found that corruption reduced growth rates and increased income inequality. However, Brunetti et al. (1997) found inconclusive results and Wedeman (1997) found that many corrupt countries have rapid growth rates. In Svensson's (2005) survey article on corruption he updated Mauro's calculations, and although he found that corruption did have a negative coefficient, it was not statistically significant. Svensson concluded that 'to the extent we can measure corruption in a cross-country setting, it does not affect growth' (p. 39).[3]

Problems with Regressing Corruption on Growth

We believe that one important reason that cross-country studies have been unable to consistently find a predictable relationship between corruption and growth is that they have not adequately controlled for institutions, and that the quality of institutions will determine whether corruption is beneficial or harmful. We believe both negative and positive theoretical predictions of growth resulting from corruption can be correct. However, we think which is correct will depend on the quality of the economic institutions.

Anyone who has spent much time in a Third World Country has often witnessed that corruption is simply necessary to 'get things done'. If official rules were obeyed, transactions costs would be prohibitively high and many growth-enhancing exchanges would never occur. Corruption helps circumvent these inefficient rules. The key to corruption's beneficial effect is that inefficient rules are in place and they need to be circumvented. Even in the presence of inefficient rules, corruption is not a first-best outcome. The elimination of inefficient rules would be best. However, when the elimination of bad rules is not politically feasible, corruption becomes a second-best outcome that is growth enhancing compared to the *status quo*.

When rules are 'good', there should be no need for corruption. When we observe corruption in countries with relatively good institutional rules, it is likely that government officials are abusing their discretionary power and making the *de facto* institutional environment that individuals face worse than the official institutional environment. An example could be when a police officer pulls someone over for no reason and threatens to issue fines or bring them to jail in order to extract bribes. In these cases the corrupt act itself is growth retarding.

The literature on corruption and growth has started controlling for institutional

quality to investigate this hypothesis. Scholars have investigated how, as the quality of political or economic institutions varies, corruption has different impacts on growth.

Corruption Institutions and Growth

Recent empirical studies have begun to examine corruption's impact on economic growth contingent on a country's institutional environment. Typically political, rather than economic, institutions have been the focus. Mendez and Sepulveda (2006) use the Freedom House democracy index, which measures civil liberties and political rights. After splitting countries into groups classified as 'free' or 'not-free', they find no relationship between corruption and growth in 'not-free' countries but a small, positive, growth-maximizing level of corruption in 'free' countries. This finding is consistent with Klitgaard's (1988) hypothesis that there is a small growth-maximizing level of corruption, but not consistent with the idea that corruption mitigates some of the impact of poor institutions.

Aidt et al. (2008) control for political institutions using the voice and accountability index, one of five indicators of governance constructed by Kaufmann et al. (1999). This index attempts to measure the degree to which citizens participate in the selection of their government and have the ability to hold government officials responsible for policy outcomes. Aidt et al. also find a non-linear relationship between corruption and growth once political institutions are controlled, but the pattern is somewhat different from the findings of Mendez and Sepulveda (2006). Aidt et al. conclude that when political institutions are of 'low quality', corruption has little impact on growth. However, unlike Mendez and Sepulveda, they find that 'high-quality' political institutions result in corruption being harmful to growth.

Méon and Sekkat (2005) examine whether corruption 'greases the wheels' or 'sands the wheels' of economic growth when institutional quality and corruption interact. Their measure of institutional quality combines both political and some economic institutions. They use all five of Kaufmann et al.'s (1999) indicators of governance, namely:(a) a 'voice and accountability' indicator that measures 'the extent to which citizens of a country are able to participate in the selection of governments' (this is the indicator used by Aidt et al., 2008); (b) 'lack of political violence', which measures 'perceptions of the likelihood that the government in power will be destabilized or overthrown by possibly unconstitutional and/or violent means'; (c) 'government effectiveness', which measures 'perceptions of the quality of public service provision, the quality of bureaucracy, the competence of the civil servants, the independence of the civil service from political pressures, and the credibility of the government's commitment to policies'; (d) 'regulatory burden', which measures 'the incidence of market unfriendly policies such as price controls or inadequate bank supervision, as well as perceptions of the burden imposed by excessive regulation'; and (e) 'rule of law', which measures 'the extent to which agents have confidence in and abide by the rules of society'. Méon and Sekkat find that the 'regulatory burden' and 'voice and accountability' measures are not significant in any of their specifications when they interact them with corruption. They find, however, that the 'rule of law' and 'government effectiveness' measures are consistently statistically significant when interacted with corruption, and that as institutional quality decreases, corruption becomes more harmful to growth. They conclude that, on net, corruption

'sands the wheels' of economic growth, supporting the conventional view, rather than 'greasing the wheels' by allowing individuals to circumvent bad governance.

Each of these three studies furthers our knowledge of how political institutional quality impacts the relationship between corruption and growth. Mendez and Sepulveda (2006) and Aidt et al. (2008) both find no relationship between corruption and growth in countries with low-quality political institutions but they reach conflicting conclusions in countries with high-quality political institutions. Méon and Sekkat (2005) find that corruption is harmful for growth overall and that it is even more harmful in countries with low-quality political institutions. None of these studies supports the view that corruption can increase growth in countries with low quality institutions.

However, none of these studies directly controls for the role of economic institutions while investigating the interplay between corruption and democracy. Furthermore, only Méon and Sekkat (2005) examine the connection between economic institutions and the effect of corruption on growth, but their measure of economic institutions is quite limited.

Yet economic institutions have been shown to be an important cause of corruption. Paldam (2002), Graeff and Mehlkop (2003), and Goel and Nelson (2005) have used the indexes of economic freedom to examine how economic freedom impacts corruption. They have generally found that the more economic freedom a country has, the lower the level of corruption present; however, their studies did not examine how this relationship affects growth. This inverse relationship between corruption and economic freedom is important for predicting the impact corruption will have on growth. If it is bad institutions (lack of economic freedom) causing corruption, and we know that lack of freedom harms growth, then corruption may mitigate some of the harm that lack of economic freedom causes.

Heckelman and Powell (2009) investigate how corruption impacts growth as both economic and political freedom vary. They use the Polity IV database to measure the quality of democratic political institutions and Gwartney and Lawson's (2006) *Economic Freedom of the World* annual report to measure the quality of economic institutions. Gwartney and Lawson's index measures five individual areas of economic freedom: size of government; legal structure and property rights; access to sound money; freedom to trade internationally; and regulation of credit, labor and business. Heckelman and Powell examine how the overall index and each of the individual areas interact with corruption to effect growth.

Heckelman and Powell find that when economic freedom is totally absent, corruption has a positive and significant impact on economic growth. They find that as economic freedom improves, the beneficial effect of corruption on growth shrinks and eventually disappears at very high levels of economic freedom. When they investigate each of the five individual areas of economic freedom they find that when the size of government is large or when there are many regulations, corruption is a beneficial way to circumvent growth-retarding government presence and regulations that would otherwise hinder productivity. When government size is small or freedom from regulation is already high, corruption becomes harmful to growth. The interpretation for their result on regulation is straightforward. As hypothesized by Leff (1964) and Huntington (1968), when there are pervasive regulations that limit potential gains from trade, corruption allows entrepreneurs to bypass official regulations and further capitalize on growth opportunities.

As economies become freer from regulation, corruption serves this beneficial purpose less often. The interpretation of the result for government size is less straightforward. One might theorize that corruption in this area of government would divert government spending away from the optimal provision of public goods and toward private interests, and reduce growth in the process. The results do not support such a view. Alternatively, if the political process predominantly serves private interests anyway, perhaps the introduction of explicit corruption actually enhances the process of allocating government funds by directing funds to those most willing to pay for the transfer rather than to the most politically connected or largest voting bloc. If the highest bidder is best able to make efficient use of the resource, then corruption when government transfers and spends a lot might actually move resources to their higher-valued uses and thus promote growth.

Although this line of research on corruption is new, it appears that one reason the empirical literature on corruption and growth has not found consistent results is that it has not adequately controlled for the quality of institutions that, when bad, will allow corruption to be beneficial for growth, as some economists have long theorized. Even in these cases, though, it should be realized that corruption is a second-best outcome. Also, further empirical work should address why the bad institutions are created in the first place. It could be that in many cases policy-makers intentionally limit economic freedom to create the opportunity to gain revenue for themselves through corruption.

CRIME AND ECONOMIC GROWTH

The relationship between crime and corruption can be represented by an ellipse in a Venn diagram. Corruption can be legal, such as making campaign contributions to secure a grant of monopoly privilege, or it can be an illegal payment of a bribe. Although not all forms of corruption are a crime, some activities are both corrupt and criminal. Crime includes not only some forms of corruption but also a wide range of other activities such as larceny, burglary, theft, murder, rape, 'organized crime', drug possession and distribution, tax evasion and so on. Although there is considerable overlap between crime and corruption, there is enough distinct about each that they need not have the same empirical effect on economic growth.

General Empirical Findings

Intuitively, most crime should have a negative impact on economic growth. Crime, like corruption, should reduce growth by raising the cost of doing business and increasing uncertainty. This impact on economic growth, however, is not well documented in cross-country studies. Cross-country empirical studies on the determinants of growth do not explicitly control for crime. Studies sometimes include explanatory variables such as the 'rule of law', 'political stability' and 'civil liberties', which, though related to crime, do not fully measure what is generally thought of as crime.

Barro (1991) finds that political instability negatively influences growth. He uses the number of political revolutions per year and the number of political assassinations per million of population per year as measures of political instability. He finds that both variables are significant and negatively related to growth across countries. In their

cross-country analysis of growth, Barro and Sala-i-Martin (1995) find that political instability exerts a negative though marginally significant influence on growth, whereas a stronger rule of law has a positive and significant influence. The authors interpret their finding as an indication that a better legal and political framework promotes growth by encouraging investment. Their measure of the rule of law was taken from the International Country Risk guide, and examines 'the extent to which institutions provide effectively for implementation of laws, adjudication of disputes, and orderly succession of power'. Neither of these studies fully captures how crime impacts growth. Although political revolutions would be expected to be generally correlated with increased crime against people and their property, and political assassinations are clearly a form of murder, these are hardly all-encompassing measures. Most crime committed against persons and property throughout the world would not fall into these two categories. The rule of law appears to be a good proxy for crime. When property rights are not well defined and enforced, people have to resort to violence to enforce contracts rather than the court system. So lack of rule of law would tend to increase crime. This relationship, however, is not strong enough to warrant its use as representative of all crime in a country. Countries with relatively stronger judicial institutions have crime rates equalling or higher than countries with weaker ones. For example, the homicide rate in the USA is higher than the homicide rate in some developing countries, which have weaker legal systems, and higher than most developed countries, which have comparable legal systems.

Poirson (1998) finds that enhanced economic security contributed significantly to private investment and growth in a sample of 53 developing countries from 1984 to 1995. Included in economic security are variables such as government leadership, external conflict risk, corruption, rule of law, risk of expropriation, repudiation of contracts and racial tensions. He finds that reductions in expropriation risk and terrorism influence growth most prominently in the short run, while corruption and contract repudiation affect growth in the long run. Poirson's measure of economic security comes closest to a measure of crime's effect on growth in a cross-country setting, but this measure includes things that are not crime, like government leadership, and excludes many traditional forms of crime.

There is a sizable literature on the microeconomic impact of crime. As suggested by its 'micro' nature, this literature typically focuses on the local effects of various kinds of crime. There has been an attempt, however, to aggregate these local effects and arrive at a 'macro' picture of the impact of crime. In his comprehensive study, Anderson (1999) estimates the annual burden of crime to be around $1 trillion for the USA in 1997 dollars. Crime is taken to mean any illegal behavior as specified under existing US law at the time. Unlike previous studies, Anderson incorporates the indirect costs of crime into his estimate, in addition to the conventional direct costs of crime. This leads to a substantial upward revision of the aggregate dollar cost of crime as compared to previous studies. Along with the costs of a crime prevention system, legal system and direct victim losses, Anderson includes private crime deterrence costs, psychic costs to victims, as well as opportunity costs of time spent on crime prevention, criminal activity, serving jail sentences for criminal activity, and recovering from criminal assault. He uses data from various sources such as the National Crime Victimization Survey, US Bureau of the Census, Federal Bureau of Investigation and Insurance Information Institute. Previous

studies such as Collins (1994) and Miller et al. (1995) do not include these indirect costs of crime and their estimate of the aggregate burden is lower at $728 billion and $472 billion, respectively.[4]

Some economists have estimated the cost of crime in other countries as well. Olavarria-Gambi (2007), for example, estimates an aggregate burden of crime for Chile at $1.35 billion for the year 2002, representing 2.06 percent of the GDP. Cardenas (2002) attempts to explain the fall in Colombia's average annual GDP growth rate from 5 percent between 1950 and 1980 to 3 percent from 1980 through 2000 as a result of increased criminality. He argues that the fall of GDP growth can be wholly attributed to productivity losses stemming from a substantial increase in criminality that is directly correlated with Colombia emerging as a major producer of illegal drugs.

The microeconomic studies mentioned above claim that people 'vote with their feet' in response to a high level of crime risk by moving to neighborhoods where they perceive this risk to be lower. Thus an attempt is made to estimate the impact of changes in crime rates on house prices in a neighborhood or city and thereby arrive at an estimate of the cost of crime. Naroff et al. (1980) estimate the elasticity of property value with respect to crime to be −1.67 for Boston, while Lynch and Rasmussen (2001) find the figure to be −0.05 for Jacksonville, Florida. Gibbons (2004) finds that when visible crime records a one-tenth standard deviation increase, it leads to a decrease of 0.94 percent in property values in the Inner London area, and Linden and Rockoff (2008) find that the prices of homes within a 0.1-mile radius of a sex offender decrease by around 4 percent in Macklenburg County, North Carolina.[5]

The above micro studies all attempt to measure the impact of crime on economic outcomes, but they all do it in a static setting to estimate the current cost to an economy. In other words, they ask how far the economy is from its production possibilities frontier because of crime. With the exception of Cardenas (2002), they do not examine how crime impacts the expansion of the frontier over time.

Although crime has not been directly used as an explanatory variable in cross-country studies on growth, there are studies that attempt to establish the effect of growth on crime in a cross-country setting. Fajnzylber et al. (1998) and (2002) use a data set of crime rates for a large sample of countries and find that while the level of GDP per capita is an insignificant determinant of crime, the GDP growth rate has a significant negative impact on crime rates. The intuition is that with an expanding economy there will be increasing opportunity cost of committing crime.

Soares (2004) finds that across countries the available evidence for inequality as a determinant of crime is weak, while the evidence for development as a determinant of crime is strong. However, he contends that these results are not reliable because nearly all the previous studies do not control for the underreporting of crime rates. He overcomes this bias by constructing a corrected data set using both official records and previously unused victimization survey data. With this corrected data set, he finds that the level of development (as measured by per capita income) previously thought to have a positive effect on crime in fact has no explanatory power and concludes that all previous studies that found such a relationship were inaccurate due to underreporting bias in the data. He also finds that inequality tends to have a positive effect on crime, while economic growth has a negative influence on theft only.

Existing studies on the cross-country determinants of growth do not fully capture

the impact of crime. By including variables that control for political stability and legal environment, they explain only a part of the impact crime has on growth. They do not account for crime that is not of a political nature, which is what constitutes a large part of the crime in any country. The heavy annual dollar impact of crime, however, strongly suggests an adverse effect on economic growth, via lost productivity and the opportunity cost of money spent on the legal and crime deterrence systems. In the next section, we examine this gap in the literature on the cross-country determinants of growth. If crime is in fact harmful to growth, why is it not used as an explanatory variable in studies on the determinants of growth across countries?

Why are there not more Cross-Country Studies on Crime's Impact on Growth?

There are two general reasons why there are not more cross-country studies on how crime impacts growth. The first is that crime data are often inaccurate. The second is that what is defined as a crime in one place is not a crime in another, making generalizations about the effect of 'crime' on growth difficult. Even homicide, which is nearly universally illegal, is not measured consistently across countries.

Cross-country data on crime are both inaccurate and inconsistent. Data gathered from official sources, i.e. from reports issued by national agencies such as the FBI, suffer from rampant underreporting. Victims often fail to report crimes to the police, especially when the offenses are minor, when certain offenses carry a social stigma as in the case of rape or domestic violence, or when victims have no faith in the authorities. Given that faith in the local authorities can vary considerably between countries and jurisdictions, variations in underreporting between countries can make meaningful cross-country comparisons difficult.

The recording procedures of the various official agencies are also flawed. They may fail to include in their estimates data from all the law enforcement agencies in the country or may be selective in their recording of crimes. In El Salvador, for example, only crimes that involve an accused suspect are recorded, while the others are ignored. Japan includes a broad class of vehicular deaths in the category of homicide deaths while other countries do not. Dutch homicide rates are highly inflated when compared to those of other countries because the former include attempted homicide in their estimates. To make matters worse, the extent of these inaccuracies varies across countries. Soares (2004) finds that the extent of the reporting bias has a strong negative correlation with the level of development of a country. Thus the extent of underreporting is found to be far larger in less developed countries where the police and judicial systems are weak. It is for these reasons that Fajnzylber et al. (2000, p. 282) state, 'one of the reasons cross-country crime studies are uncommon is that it is difficult to compare crime rates across countries'.

The International Crime Victims Survey (ICVS) is the most promising attempt to deal with crime measurement problems. The survey covers 78 different countries and interviews citizens to establish whether they have had certain crimes committed against them or their family. It asks the same questions across countries. The survey covers common crimes that the general public is exposed to, including minor offenses such as petty theft. However, because of sample size limitations, the survey does not include less prevalent crimes, such as rape, aggravated assault, or murder. This is one of the main limitations of the survey as a measure for overall crime and its effect on growth.

The types of crime the ICVS asks about are largely in accord with the legal definitions of the common offenses in most countries, but the survey does have the advantage of not relying exclusively on legal definitions of crime by letting citizens interpret crime and ownership for themselves. For example, the survey asks, 'Did anyone get into *your* house or flat without permission, and steal or try to steal something?' (emphasis ours). In some countries, governments do not recognize the private property rights of many citizens and such trespasses and thefts might not constitute a legal crime. The survey allows respondents to decide for themselves whether the home was theirs independent of any legal codification of their property rights. This helps the survey avoid the next problem we find in measuring crime across countries.

There is a fundamental conceptual problem involved in comparing crime rates across countries. The generally accepted definition of crime is whatever the state deems a crime to be. As a result, what is considered a crime in one country is not necessarily considered a crime in another.

In addition to activities like homicide that are almost universally illegal but have differing definitions in different countries, there is an another entire class of crime that differs substantially between countries. These 'crimes' are not committed against another person or their property but are crimes because they violate a state legislative mandate. Such legislation makes some mutually beneficial exchanges between consenting adults crimes or mandates bureaucratic hoops people must jump through to engage in economic transactions. As more and more such acts become defined as crimes, growth is slowed because of increased enforcement cost, lost gains from trade, and spillover crime used to enforce contracts in the illegal market.

Once an activity is declared criminal in a society, resources have to be utilized for its deterrence. Police need to be deployed to ensure that nobody smokes marijuana or to ensure that nobody engages in certain businesses without government license. The judicial system needs to deal with cases where people are suspected of indulging in these criminal activities. When voluntary transactions between consenting adults are made illegal, it requires greater enforcement efforts to deter the 'crime' because private parties will not have an incentive to report them or aid in their prosecution. Growth should slow as societies devote more resources to enforcement because these resources are not available for other private sector activities.

When legislation creates classes of victimless crimes, it discourages welfare-enhancing trades. If more trades took place, the total economic pie would grow larger. Thus this form of 'crime' could actually increase growth. However, criminalizing such activities consigns them to the black market, where even the trades that do occur are often no longer included in the estimates of GDP growth.

Finally, making a class of mutually beneficial trades illegal creates spillover crimes that are not victimless. As Miron states, 'prohibitions often give rise to black markets, and in black markets participants cannot easily use the courts to resolve commercial disputes. One obvious alternative is violence' (1999, p. 1).[6] Classic illustrations of this are the prohibition of alcohol in America during the 1920s and early 1930s and the current war on drugs. In the empirical work that he has done on the subject, Miron finds that the prohibition of drugs and alcohol in America has been associated with increased levels of crime as measured by the homicide rate. He notes that 'the homicide rate was high in the 1920–1933 period, when constitutional prohibition of alcohol was in effect, as it was

in the 1970–1990 period, when drug prohibition was enforced to a relatively stringent degree' (ibid, p. 13). He finds a strong, positive relationship between the expenditure incurred in the enforcement of prohibition of both drugs and alcohol and the homicide rate.[7] Both these variables are found to rise during the years of the alcohol prohibition, then recede and remain relatively low during the 1940s and 1950s and then rise again post-1960 as the drug prohibition began to be enforced more vigorously. This sort of violence and efforts to avoid it surely are a drag on economic growth.

Differences in data collection and differences in underreporting make it difficult to study crime's impact on economic growth in a cross-country analysis. At a more fundamental level, different countries define different activities as crime. Some activities, like theft that makes property rights insecure, likely reduces growth. But other acts defined as crime, such as outlawed mutually beneficial exchanges, likely increase growth despite the fact they are illegal (albeit possibly unmeasured in traditional GDP statistics); yet these same activities often create spillover crime that is growth detracting. Because each country classifies different acts as crimes, the bundle of growth-enhancing and growth-detracting crime will be different for each country, making it impossible to find any overall relationship between 'crime' and growth in a cross-country setting. In the next section we suggest a couple of paths forward.

Suggested Paths Forward

Substantial difficulties are involved in using crime as a variable to explain economic growth across countries. How can we understand the causal connections between economic growth and crime if we do not have a universal definition of crime? How can we understand the connection between growth and crime if different activities are deemed criminal in different countries? One path forward would be to distinguish between law, which in the words of F.A. Hayek is 'something given independently of human will, something to be discovered, not made' (1973, p. 83), and legislation, which he termed 'the deliberate making of law' (ibid., p. 72). If we define crime as only violations of law, not legislation, then we can begin to approach measuring crime consistently across countries.

However, defining crime as violations of law hardly gets us out of the woods. Philosophers have long debated what 'natural' law is and how far our culture has progressed in discovering this law. What constitutes theft is particularly problematic because of differing views on the legitimacy of existing property titles. Despite differing interpretations, some marginal steps could be achieved. Murder, rape and assault are almost all considered against natural law and even legislation. Although measurement heterogeneity problems would remain between countries, some progress could be made in assessing how the crimes of murder, rape and assault impact economic growth by examining only these universal crimes' impact on growth. Similarly, the ICVS can be used to estimate the effect of common crimes on economic growth. As mentioned above, the survey avoids measurement heterogeneity and legal definitions of crime. The index does include a question on 'drug-related problems', which could be edited out to achieve a measure of only crimes against person and property that is more consistent with natural law.

Another research path forward might consider how variations in the institutional environment impact crime and growth. Although murder is against natural law, how does murder (and growth) vary as legislation expands to cover things not included

under natural law? Miron (1999) shows how homicide rates increase as the war on drugs expands. Drug prohibition is one concrete example of how legislation that itself violates natural law can lead to spillover crimes.

More generally, the *Economic Freedom of the World* (*EFW*) report approximates a measure of how well what Hayek referred to as law is respected. The original report defined economic freedom in the following terms:

> Individuals have economic freedom when property they acquire without the use of force, fraud, or theft is protected from physical invasions by others and they are free to use, exchange, or give their property as long as their actions do not violate the identical rights of others. An index of economic freedom should measure the extent to which rightly acquired property is protected and individuals are engaged in voluntary transactions. (Gwartney et al., 1996, p. 12)

To some extent, then, the index itself is a measure of crimes committed against natural law by both governments and private parties. However, it does not directly measure many forms of crime, such as murder, oppression of freedom of the press, rape and other crimes. Perhaps future research could build on the methodology of the economic freedom index to construct a more general freedom-from-crime index. Much research has shown that economic freedom is important for promoting growth (see Berggren, 2003 for a survey). Perhaps supplementing the index with additional measures of crime could yield more knowledge about how violations of natural law more generally impact growth. A marginal step in this direction could be to combine the some of the ICVS data with some of the data in the *EFW* report. Although such a composite would still miss major private crimes like murder, it would be an improvement in measuring violations of natural law relative to any existing measure.

Much remains to be done to understand crime's impact on economic growth. The first crucial step in making progress in understanding how crime impacts growth is to come up with a definition of crime that can be applied and measured consistently across countries. We believe that distinguishing violations of law as forms of crime rather than violations of legislation (and recognizing that legislation itself can be crime against natural law) is the most fruitful avenue to pursue.

CONCLUSION

Most people believe that crime and corruption both reduce economic growth. However, in surveying the literature on corruption we find theoretical predictions of how corruption could either increase or reduce growth. Most empirical studies have conflicting results. More recently, scholars have examined how the effect of corruption on growth differs, contingent on the institutional environment. We find that in places where economic freedom is limited, corruption improves growth by circumventing growth-retarding government policies. However, even in these cases corruption is a second-best outcome. If the inefficient policies themselves were eliminated, growth could likely improve even more.

We find little evidence of the impact of crime on economic growth in cross-country studies. There are several proxies for crime, such as the rule of law, political stability and economic freedom, that have been shown to be important for promoting growth. The main limitation of the literature is that there is not a universal and comprehensive defini-

tion of crime that is used consistently for all countries. We believe progress can be made by in understanding how crime impacts growth by creating such a measure. We suggest building on top of the existing economic freedom measures to include other violations of individuals' rights as a step in this direction.

NOTES

* The authors thank Fred McChesney and the participants at the Economics of Crime Symposium sponsored by the Devoe Moore Center at Florida State University for helpful comments on an earlier draft of this chapter.

1. See McChesney, Chapter 9 in this volume.
2. The following two subsections draw on the literature review in Heckelman and Powell (2009).
3. For earlier surveys of the literature on corruption see Bardhan (1997), Rose-Ackerman (1999), Jain (2001) and Aidt (2003).
4. Lynch, Chapter 11 in this volume, reviews literature on the cost of crime.
5. See Ihlanfeldt and Mayock, Chapter 12 in this volume, for discussion and extension of this general literature.
6. See Shepard and Blackley, Chapter 10 in this volume, regarding the relationship between prohibition and crime. Also see Benson, Chapter 8 in this volume, for related discussion.
7. Dills et al. (2008) similarly find that drug enforcement better explains increasing crime rates than other standard predictors of crime.

REFERENCES

Aidt, T. (2003), 'Economic analysis of corruption: a survey', *Economic Journal*, **113**, 632–52.
Aidt, T., J. Dutta and V. Sena (2008), 'Governance regimes, corruption and growth: theory and evidence', *Journal of Comparative Economics*, **36**, 195–220.
Anderson, D. (1999), 'The aggregate burden of crime', Journal of Law and Economics, **42**, 611–42.
Bardhan, P. (1997), 'Corruption and development: a review of issues', *Journal of Economic Literature*, **35**, 1320–46.
Barro, R.J. (1991), 'Economic growth in a cross section of countries', *The Quarterly Journal of Economics*, **106**, 407–43.
Barro, R.J. and X. Sala-i-Martin (1995), *Economic Growth*, Cambridge, MA: MIT Press.
Berggren, N. (2003), 'The benefits of economic freedom: a survey', *The Independent Review*, **8**, 193–211.
Brunetti, A. and B. Weder (1998), 'Investment and institutional uncertainty: a comparative study of different uncertainty measures', *Review of World Economics*, **134**, 513–33.
Brunetti, A., G. Kisunko and B. Weder (1997), 'Credibility of rules and economic growth – evidence from a world wide private sector survey', Background Paper for the World Development Report 1997, Washington, DC: The World Bank.
Campos, J., D. Lien and S. Pradhan (1999), 'The impact of corruption on investment: predictability matters', *World Development*, **27**, 1059–67.
Cardenas, M. (2002), 'Economic growth in Colombia: a reversal of "fortune"?', Departmento Nacional de Planeacion, Archives de Economia, 002402.
Clague, C. (2003), 'The international campaign against corruption: an institutionalist approach', in J.C. Heckelman and D. Coates (eds), *Collective Choice: Essays in Honor of Mancur Olson*, Berlin: Springer-Verlag, pp. 187–217.
Collins, S. (1994), 'Cost of crime: 674 billion', *US News and World Report*, 17 January.
Colombatto, E. (2003), 'Why is corruption tolerated?', *Review of Austrian Economics*, **164**, 363–79.
Dills, A., J. Miron and G. Summers (2008), 'What do economists know about crime?', NBER Working Paper, 13579.
Fajnzylber, P., D. Lederman and N. Loayza (1998), 'Determinants of crime rates in Latin America and the world: an empirical assessment', *Viewpoints*, World Bank.
Fajnzylber, P., D. Lederman and N. Loayza (2000), 'Crime and victimization: an economic perspective', *Economia*, **1**, 219–302.

Fajnzylber, P., D. Lederman and N. Loayza (2002), 'Inequality and violent crime', *Journal of Law and Economics*, **45**, 1–40.
Gibbons, S. (2004), 'The costs of urban property crime', *The Economic Journal*, **114**, 441–63.
Goel, R. and M. Nelson (2005), 'Economic freedom versus political freedom: cross-country influences on corruption', *Australian Economic Papers*, **44**, 121–33.
Graeff, P. and G. Mehlkop (2003), 'The impact of economic freedom on corruption: different patterns for rich and poor countries', *European Journal of Political Economy*, **19**, 605–20.
Gwartney, J. and R. Lawson (2006), *Economic Freedom of the World: 2006 Annual Report*, Vancouver, Canada: The Fraser Institute.
Gwartney, J., R. Lawson and W. Block (1996), *Economic Freedom of the World 1975–1995*, Vancouver, Canada: The Fraser Institute.
Gyimah-Brempong, K. (2002), 'Corruption, economic growth, and income inequality in Africa', *Economics of Governance*, **3**, 183–209.
Hayek, F.A. (1973), *Law*, *Legislation and Liberty*, vol. 1, Chicago, IL: University of Chicago Press.
Heckelman, J. and B. Powell (2009), 'Corruption and the institutional environment for growth', Working paper, http://ideas.repec.org/p/suf/wpaper/2008-6.html.
Huntington, S. (1968), *Political Order in Changing Societies*, New Haven, CT: Yale University Press.
Jain, A.K. (2001), 'Corruption: a review', *Journal of Economic Surveys*, **15**, 71–121.
Kaufmann, D.A., A. Kraay and P. Zoido-Lobaton (1999), 'Governance matters', Policy Research Working Paper 2195, The World Bank, Washington, DC.
Keefer, P., N. Loayza and R. Soares (2008), 'The development impact of the illegality of drug trade', World Bank Policy Research Working Paper 4543.
Klitgaard, R. (1988), *Controlling Corruption*, Berkeley, CA: University of California Press.
Krueger, A. (1974), 'The political economy of the rent seeking society', *American Economic Review*, **64**, 291–303.
Leff, N. (1964), 'Economic development through bureaucratic corruption', *American Behavioral Scientist*, **82**, 337–41.
Leite, C. and J. Weidmann (1999), 'Does mother nature corrupt? Natural resources, corruption and economic growth', International Monetary Fund Working Paper, 99/85.
Linden, L. and J. Rockoff (2008), 'Estimates of the impact of crime risk on property values from Megan's laws', *American Economic Review*, **98**, 1103–127.
Lui, F.T. (1985), 'An equilibrium queuing model of bribery', *Journal of Political Economy*, **93**, 760–81.
Lynch, A. and D. Rasmussen (2001), 'Measuring the impact of crime on house prices', *Applied Economics*, **33**, 1981–89.
Mauro, P. (1995), 'Corruption and growth', *Quarterly Journal of Economics*, **110**, 681–712.
Méon, P.G. and K. Sekkat (2005), 'Does corruption grease or sand the wheels of growth?', *Public Choice*, **122**, 69–97.
Mendez, F. and K. Sepulveda (2006), 'Corruption, growth and political regimes: cross country evidence', *European Journal of Political Economy*, **22**, 82–98.
Miller, T., M. Cohen and B. Wiersema (1995), *Crime in the United States: Victim Costs and Consequences*, Final Report to the National Institute of Justice.
Miron, J. (1999), 'Violence and the US prohibition of drugs and alcohol', NBER Working Paper 6950.
Mo, P. H. (2001), 'Corruption and economic growth', *Journal of Comparative Economics*, **29**, 66–79.
Myrdal, G. (1968), *Asian Drama: An Enquiry into the Poverty of Nations*, vol. 2,
New York: The Twentieth Century Fund.
Naroff, J., D. Hellman and D. Skinner (1980), 'Estimates of the impact of crime on property values', *Growth and Change*, **11**, 24–30.
Olavarria-Gambi, M. (2007), 'The economic cost of crime in Chile', *Global Crime*, **8**, 287–310.
Paldam, M. (2002), 'The big pattern of corruption, economics, culture and the seesaw dynamics', *European Journal of Political Economy*', **18**, 215–40.
Poirson, H. (1998), 'Economic security, private investment, and growth in developing countries', International Monetary Fund Working Paper, 98/4.
Rose-Ackerman, S. (1999), *Corruption and Government, Causes, Consequences and Reform*, Cambridge: Cambridge University Press.
Shleifer, A. and R.W. Vishny (1993), 'Corruption', *Quarterly Journal of Economics*, **108**, 599–617.
Soares, R. (2004), 'Development, crime and punishment: accounting for the international differences in crime rates', *Journal of Development Economics*, **73**, 155–184.
Svensson, J. (2005), 'Eight questions about corruption', *Journal of Economic Perspectives*, **19**, 19–42.
Wedeman, A. (1997), 'Looters, rent-scrapers, and dividend-collectors: corruption and growth in Zaire, South Korea, and the Philippines', *Journal of Developing Areas*, **31**, 457–78.
Wei, S.J. (2000), 'How taxing is corruption on international investors?', *Review of Economics and Statistics*, **82**, 1–11.