

Article

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Accounting for Legal Pluralism: The Impact of Pre-colonial Institutions on Crime

Abstract: This article investigates the impact of non-state legal institutions on crime by exploiting differences in pre-colonial legal institutions. In relation to criminal law, it is suggested that colonisation can be best characterised as the imposition of almost identical criminal law on a diverse set of pre-existing legal institutions; in this sense, this analysis inverts the legal origins and institutions literature. Given that remnants of pre-colonial institutions persist, it is suggested that the type of pre-colonial legal institution should have a direct effect on state crime control and the crime rate. This is so, as societies that were relatively stateless prior to colonisation are more likely to have high magnitude non-state sanctions that can act as substitutes for state punishments, but the presence of such non-state legal institutions also reduces the productivity of state enforcement, contributing to an overall increase in crime. This is tested using a measure for pre-colonial institutions on a dataset of 86 post-colonial states. Private enforcement of high magnitude punishments, despite the deterrent effect, results in a net increase in crime.

Keywords: pre-colonial institutions, legal pluralism, legal dissonance, criminal law, non-state enforcement

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1 Introduction

Inspired by the research of La Porta, Lopez-de-Silanes, Shleifer and Vishny (LLSV)¹ and Acemoglu, Johnson and Robinson,² there has been a multitude of cross-country empirical papers over the last 15 years that exploit differences

1 R. La Porta, F. López de Silanes, A. Shleifer, and R. Vishny, *Law and Finance*, 106 *Journal of Political Economy*, no. 6 (1998), 1113-1155.

2 See D. Acemoglu, S. Johnson, and J.A. Robinson, *The Colonial Origins of Comparative Development: An Empirical Investigation*, 91 *The American Economic Review*, no. 5 (2001), 1369-1401; D. Acemoglu, S. Johnson, and J.A. Robinson, *Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution*, 117 *The Quarterly Journal of Economics*, no. 4 (2002), 1231-1294.

in *state* institutions that were brought about by colonisation and their effect on a range of development indicators. This article takes a different approach by exploiting differences in *pre-colonial institutions* to investigate the impact of non-state crime enforcement on state crime enforcement and the overall level of crime.

While there is a complex relationship between crime and economic development, many developing countries suffer from high crime rates that act as an impediment to investment and economic growth.³ Perhaps more importantly, however, high crime rates can seriously undermine the personal security and the quality of life of those living in developing nations, and in this sense lower crime can be seen as a development goal in itself.⁴

While much has been made of differences between civil and common law legal transplants, comparative lawyers such as Michaels⁵ have argued that there were often far bigger differences between the pre-colonial legal institutions they aimed to replace. In relation to Western criminal law, all transplants were based on individual responsibility, consistency of procedure, proportionality, concepts of intent and disinterested state enforcement of punishments. This is in contrast to the diverse range of pre-colonial legal institutions that were encountered, and which are outlined below. Therefore, in relation to criminal law, it is suggested that colonisation is better characterised as the imposition of almost identical legal transplants on a diverse range of pre-colonial legal institutions.

Based on the idea that elements of pre-colonial legal institutions continue to persist in post-colonial societies, this article investigates the net effect of interactions between state and non-state law enforcement – that is, legal pluralism. This is done by exploiting differences in pre-colonial legal institutions using a

³ For a discussion of variations of crime rates across the world and their link to economic development see R. Soares, *Development, Crime and Punishment: Accounting for the International Differences in Crime Rates*, 73 *Journal of Development Economics*, no. 1 (2004), 155-184; J.H. Cole and A.M. Gramajo, *Homicide Rates in a Cross Section of Countries: Evidence and Interpretations*, 35 *Population and Development Review*, no. 4 (2009), 749-776.

⁴ For an account of crime and its effects in the post-colonial world see J. Comaroff and J.L. Comaroff (eds.), *Law and Disorder in the Postcolony* (Chicago: Chicago University Press, 2006).

⁵ R. Michaels, *The Second Wave of Comparative Law and Economics*, 59 *University of Toronto Law Journal* (2009), 1003-1069.

dataset of 86 African, Asian and Pacific nations compiled by Müller *et al.*⁶ in their Atlas of Pre-Colonial Societies. This research contributes to the small but growing literature on pre-colonial institutions and economic development.⁷ In this sense, it also adds to that of Berkowitz, Pistor and Richard who considered the possibility of receptive and unreceptive legal transplants.⁸

The remainder of this article is organised as follows. First, there is a discussion of legal pluralism and the persistence of pre-colonial institutions. Then there is a description of different types of pre-colonial legal institutions and a discussion of the potential interactions between state and non-state enforcement activity and the likely overall effect on crime. Following on from this is an outline of the empirical strategy and description of the data, followed by a discussion of the econometric results. The conclusion highlights the key insights gained from this investigation; the enduring importance of pre-colonial institutions and the potential for negative interactions between state and non-state law enforcement – a phenomenon termed *legal dissonance*.

⁶ H.P. Müller, C.K. Marti, E.S. Schiedt, and B. Arpagaus, *Atlas vorkolonialer Gesellschaften: Kulturelles Erbe und Sozialstrukturen der Staaten Afrikas, Asiens und Melanesiens* (Berlin: Reimer, 2000), available at: <<http://www.ethnomaps.ch/hpm-e/atlas-e.html>>, accessed December 2012.

⁷ On pre-colonial institutions and economic development literature, see P. Ziltener and H. Müller, *The Weight of the Past Traditional Agriculture, Socio-Political Differentiation and Modern Development in Africa and Asia: A Cross-National Analysis*, 48 *International Journal of Comparative Sociology*, no. 5 (2007), 371-415; N. Gennaioli and I. Rainer, *The Modern Impact of Precolonial Centralization in Africa*, 12 *Journal of Economic Growth*, no. 3 (2007), 185-234 and S. Michalopoulos and E. Papaioannou, *Pre-Colonial Ethnic Institutions and Contemporary African Development*, 81 *Econometrica*, no. 1 (2013), 113-152. It is suggested that this analysis makes a significant extension to this growing literature, not only by analysing crime as opposed to economic and governance indicators, but more importantly, by focusing on the *interactions* between pre-colonial and (post) colonial institutions and their net effect. On the private enforcement of crime literature, see W.M. Landes and R.A. Posner, *Private Enforcement of Law*, 4 *The Journal of Legal Studies*, no. 1 (1975), 1-46; D. Friedman, *Efficient Institutions for the Private Enforcement of Law*, 13 *The Journal of Legal Studies*, no. 2 (1984), 379-397; O. Ben-Shahar and A. Harel, *Blaming the Victim: Optimal Incentives for Private Precautions Against Crime*, 11 *Journal of Law, Economics and Organisation*, no. 2 (1995), 434-455; K.N. Hylton, *Optimal Law Enforcement and Victim Precaution*, *The Rand Journal of Economics* (1996), 197-206; A.K. Dixit, *Lawlessness and Economics: Alternative Modes of Governance* (Princeton, NJ: Princeton University Press, 2007) and M.M. Coşgel, H. Etkes, and T.J. Miceli, *Private Law Enforcement, Fine Sharing, and Tax Collection: Theory and Historical Evidence*, 80 *Journal of Economic Behaviour & Organization*, no. 3 (2011), 546-552.

⁸ D. Berkowitz, K. Pistor, and J. Richard, *Economic Development, Legality, and the Transplant Effect*, 47 *European Economic Review*, no. 1 (2003), 165-195. Based on their definition of a receptive transplant and their classification of a sample of countries, they found a negative relationship between unreceptive transplants and their constructed index of *legality*, which in turn they found has an impact on economic development.

2 Legal pluralism and the persistence of pre-colonial institutions

All societies, both across space and time, have had institutions to order social relations and control anti-social behaviour. The work of Maine,⁹ Malinowski,¹⁰ Diamond¹¹ and others suggests that human behaviour was often tightly regulated prior to the waves of European colonisation, which peaked in the late nineteenth century and swept much of the world. This is despite many of these pre-colonial societies being stateless prior to colonisation. Posner¹² even suggests that crime rates in stateless societies were equivalent to modern Western states, despite the use of privately enforced sanctions and very different rules and procedures including the use of violent retribution, compensation payments, the use of supernatural divination, and the principles of group liability and strict liability.

Over the millennia, non-state legal institutions that permitted high magnitude sanctions mostly disappeared in Western societies. Tamanaha¹³ suggests that in Europe these legal institutions gradually lost their potency and were eventually downgraded and labelled “norms” or “custom” due to the growth in state power. However, not long after the state successfully claimed a monopoly on both law and violence in Europe, colonisation led to a new form of legal pluralism in many parts of the world, whereby European (criminal) law was overlaid on pre-existing legal institutions in colonised societies.

In stateless societies, the colonial legal transplants led to a completely new legal order overlaid on existing tribal (or kinship) structures. In societies that already had the principles of state (or central) organisation in place, colonisation often involved co-opting and adapting existing legal structures. For instance, despite the transplant of English criminal law to the former British colonies of Papua and Pakistan, their pre-colonial legal systems were very different: Papua was made up of completely stateless societies where kinship ties and the private enforcement of retributive sanctions played a central role¹⁴; whereas Pakistan,

9 H. Sumner Maine, *Ancient Law*, 8 The Crayon, no. 4 (1861), 77-80.

10 B. Malinowski, *Crime and Custom in Savage Society* (London: Rowman & Littlefield, 1926).

11 A.S. Diamond, *The Evolution of Law and Order* (London: Watts & Co., 1951) and A.S. Diamond, *Primitive Law, Past and Present* (London: Methuen & Co., 1971).

12 R.A. Posner, *The Economics of Justice* (Cambridge: Harvard University Press, 1983), p. 174 *et seq.*

13 B.Z. Tamanaha, *Understanding Legal Pluralism: Past to Present, Local to Global*, 30 *Sydney Law Review* (2008), 375-411.

14 P. Lawrence, “The State versus Stateless Societies in Papua and New Guinea”, in P.J. Brown (ed.), *The Fashion of Law in New Guinea* (Sydney, NSW: Butterworths, 1969), p. 17 *et seq.*

despite being extremely diverse and with tribal regions of its own, had been part of the Mogul Empire for more than three centuries before English colonisation. The Mogul Empire had its own complex, albeit decentralised, legal order where, for instance, executions required approval from central authorities.¹⁵

There is considerable evidence that substantive elements of these pre-colonial institutions persist in many post-colonial states, whether they are given formal acknowledgement by the state or not.¹⁶ Acemoglu *et al.*¹⁷ highlight the fact that in many parts of Africa, the rule of chiefs and their administration of justice remains a powerful institutional force. Indeed, in some societies non-state legal institutions continue to play the primary role in the control of crime.¹⁸ However, the persistence of non-state legal institutions is not confined to Africa or even poorly resourced post-colonial states. Knight,¹⁹ Bicchieri,²⁰ Greif,²¹ Aoki,²² and Basu²³ have all documented the persistence of powerful non-state

15 H.H. Dodwell, *The Cambridge History of India: British India 1497–1858*, vol. V (Cambridge: Cambridge University Press, 1929).

16 For a discussion of “surface law” see W. Twining, *General Jurisprudence: Understanding Law from a Global Perspective* (Cambridge: Cambridge University Press, 2009), p. 293 *et seq.*

17 D. Acemoglu, T. Reed, and J.A. Robinson, *Chiefs: Elite Control of Civil Society and Economic Development in Sierra Leone*, National Bureau of Economic Research, no. w18691 (2013).

18 There is a long list documenting this phenomenon. For instance see E.P. Stringham and C.J. Miles, *Repelling States: Evidence from Upland Southeast Asia*, 25 *The Review of Austrian Economics*, no. 1 (2011), 17-33; C. Rautenbach and M. Jacques, *Common Law Crimes and Indigenous Customs: Dealing with the Issues in South African Law*, 61 *Journal of Legal Pluralism and Unofficial Law* (2010), 109-144; M. Forsyth, *A Bird that Flies with Two Wings: Kastom and State Justice Systems in Vanuatu* (Canberra, ACT: ANUE-Press, 2009); D.A. Donovan and G. Assefa, *Homicide in Ethiopia: Human Rights, Federalism, and Legal Pluralism*, 51 *The American Journal of Comparative Law*, no. 3 (2003), 505-552; S.H. Bukurura, *Combating Crime among the Sukuma and Nyamwezi of West-Central Tanzania*, 24 *Crime, Law and Social Change*, no. 3 (1995), 257-266 and S. Larcum, *Taking Customary Law Seriously: A Case of Legal Re-Ordering in Kieta*, 45 *The Journal of Legal Pluralism and Unofficial Law*, no. 2 (2013), 190-208.

19 J. Knight, *Institutions and Social Conflict* (Cambridge: Cambridge University Press, 1992).

20 C. Bicchieri, *The Grammar of Society: The Nature and Dynamics of Social Norms* (New York: Cambridge University Press, 2006).

21 A. Greif, *Institutions and the Path to Modern Economy: Lessons from Medieval Trade* (Cambridge: Cambridge University Press, 2006).

22 M. Aoki, *Toward a Comparative Institutional Analysis* (Cambridge: The MIT Press, 2001).

23 K. Basu, *Prelude to Political Economy: A Study of the Social and Political Foundations of Economics* (Oxford: Oxford University Press, 2000).

institutions within states. They can survive despite efforts to dismantle them, even under a powerful totalitarian state.²⁴ Massell²⁵ documented Soviet attempts to introduce “revolutionary” state laws and ideals to Soviet Central Asia in the late 1920s and concluded:

If we consider that the Soviet campaign took place under almost “ideal” conditions – a determined commitment to revolutionary purposes by a radical modernizing elite; the incumbent’s undisputed and centralized political power, overwhelming superiority of force, and authoritarian dispositions coupled with the absence of democratic constraints; isolated and small target populations denuded, in large part, of their traditional elites; the incapacity or unwillingness of neighboring states to intervene in the affairs of their ethnic brethren; and, therefore, the sponsor-regime’s relative freedom both to initiate and to retreat from a revolutionary experiment – then there are grave questions about the utility of law as an autonomous strategic instrument of rapid, administered social change under less favorable circumstances.

Massell went on to report that Soviet authorities subsequently retreated from their attempts to eliminate the pre-existing institutions by winding back enforcement efforts and making both official and unofficial concessions to the non-state legal orders of the region.

It is noteworthy that in colonial times more generally, while the transplanted law was usually applied to the whole colony, in practice, it was often enforced selectively. In addition to making formal concessions to pre-existing legal institutions, colonial governments usually made important informal concessions, primarily to maintain public order.²⁶ Tamanaha²⁷ argues that one of the main ways that post-colonial states continue to deal with persisting elements

24 In some senses this is in opposition to the law and norms literature which often assumes the omnipotence of the state and rapid evolution. For instance, Posner and Rasmusen (R.A. Posner and E. Rasmusen, *Creating and Enforcing Norms, with Special Reference to Sanctions*, 19 International Review of Law and Economics, no. 3 (1999), 382) reach a similar conclusion to Bentham (J. Bentham, “Place and Time”, in P. Schofield and S.G. Engelmann (eds.), *Selected Writings: Jeremy Bentham* (New Haven, CT: Yale University Press, 2011) suggesting that “bad norms” can simply be changed by the state by “diminishing the benefits of compliance with such norms by creating effective legal remedies”. Dharmapala and McAdams (D. Dharmapala and R.H. McAdams, *The Condorcet Jury Theorem and the Expressive Function of Law: A Theory of Informative Law*, 5 American Law and Economics Review, no. 1 (2003), 1-31) and Geisinger (A. Geisinger, *A Belief Change Theory of Expressive Law*, 88 Iowa Law Review, no. 1 (2002), 35-73) also highlight the “expressive” function of state law and suggest the state is able to create and perpetuate norms through its ability to signal good and bad behaviour and change internalised beliefs.

25 G. Massell, *Law as an Instrument of Revolutionary Change in a Traditional Milieu: The Case of Soviet Central Asia*, 2 Law and Society Review, no. 2 (1968), 226.

26 B. Morse and G. Woodman (eds.), *Indigenous Law and the State: The Struggle for Indigenous Rights* (Dordrecht: Foris, 1988).

27 See Tamanaha (2008), *supra* note 13.

of pre-colonial legal institutions which are either crimes or deemed to breach human rights is to explicitly condemn them but provide little or no enforcement effort.

Numerous theories attempt to explain why pre-colonial legal institutions should persist regardless of state activity directed towards them. Hart²⁸ highlights the importance of the internalisation of rules, while Carbonara, Parisi and Von Wangenheim²⁹ provide a model suggesting that state interventions aimed at punishing activities that are socially acceptable can be counterproductive and entrench them through the creation of protest movements. The literature on clubs, inspired by Buchanan,³⁰ also provides a rationale for the persistence of non-state institutions, even when they rival or oppose the state.³¹

3 Types of pre-colonial legal institutions

Drawing on the work of numerous legal scholars and anthropologists, Diamond³² described and categorised different legal orders from different historical and geographical settings. His work suggests that the role of the state in sanctioning wrongdoing varies along a continuum. At one end of his spectrum were the stateless food gathering societies, while at the other end was the modern Western state. While suffering from some cultural biases, Diamond³³ analysed different legal orders in terms of a number of factors, including: enforcement, culpability, sanctions, role of the state, and recognition of property.

²⁸ H.L.A. Hart, *The Concept of Law* (Oxford: Clarendon Press, 1961).

²⁹ E. Carbonara, F. Parisi, and G. Von Wangenheim, *Unjust Laws and Illegal Norms*, 32 *International Review of Law and Economics*, no. 3 (2012), 285-299.

³⁰ J.M. Buchanan, *An Economic Theory of Clubs*, 32 *Economica*, no. 125 (1965), 1-14.

³¹ For example, Iannaccone (L.R. Iannaccone, *Sacrifice and Stigma: Reducing Free-Riding in Cults, Communes, and Other Religious Collectives*, 100 *Journal of Political Economy*, no. 2 (1992), 271-291) suggests groups may maintain rules that are in direct opposition to the state in an effort to encourage commitment and reduce defection by members. If members have broken state laws, defection is less likely as they will likely face punishment by the state coupled with a loss of protection from the group. Therefore, resisting convergence of rules makes participation in state-related activities more costly and can lead to a corner solution on group members.

³² Diamond (1951, 1971), *supra* note 11.

³³ Diamond (1951, 1971), *supra* note 11.

A summary of Diamond's³⁴ analysis of the evolution of law is presented in Box 1.³⁵ His analysis highlights the evolutionary nature of legal institutions and how they adapt to social and economic circumstances, while also suggesting that the evolution of legal institutions is slow.³⁶ Most relevant for the analysis in this article is the relationship between the magnitude and enforcement of non-state sanctions with the growth of the state. In short, non-state enforcement of high magnitude sanctions, primarily through kinship ties, slowly gave way to state control both in scope of wrongs and type of sanction.

Diamond's³⁷ analysis also suggests that high magnitude state sanctions substituted for and crowded out non-state sanctions. This was achieved by a significant increase in the scope of public (criminal) wrongs and the state eventually outlawing (or tightly regulating) high magnitude non-state sanctions, the most notable being privately enforced violent retribution. During this evolution, sanctions moved from being seen as righting a wrong for the individual and kin concerned to being seen as punishments for offences against the state and society. Zasu³⁸ suggests that this occurred due to changes in the relative cost of state versus non-state enforcement. He suggests that as the intensity of kinship ties fall, the relative costs of non-state law enforcement rise, and so there is an optimal move towards state enforcement. In summary, this literature suggests that there is a relationship between the ability of non-state enforcement to substitute with state enforcement and the degree of statelessness.

³⁴ *Ibid.*

³⁵ Box 1 presents an abbreviated version of Diamond's (1951, *supra* note 11) nine different categories for social and legal institutions prior to what he considered the modern age: The Food Gatherers, The First Agricultural Grade, The Second Agricultural Grade, The Hunters, the Cattle Keepers, The Early Codes, The Central Codes, and The Late Codes.

³⁶ Interestingly Diamond (1951, 1971, *supra* note 11) suggests a strong relationship between population density and type of legal institution which is of relevance to Acemoglu, Johnson, and Robinson (2002, *supra* note 2) as it questions the validity of their instrument for *state* institutions.

³⁷ Diamond (1951, 1971), *supra* note 11.

³⁸ Y. Zasu, *Sanctions by Social Norms and the Law: Substitutes or Complements?* 36 *Journal of Legal Studies* (2007), 379-396.

Box 1: Summary of Diamond's Evolution of Legal Institutions (before the modern Western State)

	Food gatherers	Agricultural grades	Cattle keepers	The early codes	The central and late codes
Description	Food gatherers live in small bands in a semi-nomadic existence with a high degree of isolation.	The local group has become the village. Agriculture as a subordinate means of livelihood.	Communities keep live animals in addition to horticulture and hunting.	Towns have increased in density and size. Districts/tribes make up nations led by a king or paramount chief.	Class stratification is significant, capital cities develop where court is held and government is administered.
Population density	0.14 persons per square mile	2 persons per square mile	Kenya used as an example (15 persons per square mile).	3.5–12 persons per square mile.	20–40 persons per square mile.
Existence and strength of state	State non-existent. Communities very small. Community elders can only influence others.	State non-existent. Organisation based on kinship. Community takes an interest in preventing feuds.	Some central authority, but it is weak. Kinship loyalty remains essential to all aspects of social life.	Central authority is stronger and governance is stratified. Districts (geography) gaining prominence over tribes (kin).	The state has considerable power, but much less power and reach than modern Western states.
Courts	No courts	No courts	Presence of courts.	Presence of courts and rudimentary codes.	Presence of courts and ornate codes.

(Continued)

Box 1: (Continued)

	Food gatherers	Agricultural grades	Cattle keepers	The early codes	The central and late codes
Wrongs	<p>Most wrongs, including homicide, seen as private matter.</p> <p>Only exceptions incest (sexual relations with a person with whom it is not permitted) and sorcery.</p>	<p>Similar to food gatherers.</p>	<p>Wrongs divided into public (criminal) and private (civil). However, most wrongs remain civil.</p>	<p>Similar to cattle keepers.</p>	<p>Culpability (and magnitude of sanction) distinguished by guilt (intention).</p> <p>More wrongs seen as against king and community and not merely against the individual and clan.</p> <p>Homicide becomes a purely criminal offence. Treason is considered a grave crime that requires execution.</p>
Sanctions	<p>Homicide and adultery can result in violent retribution, compensation or regulated fight.</p>	<p>Similar to Food Gatherers.</p>	<p>Death the default punishment for all crimes (although small in scope). However, payment of blood-wealth (in lieu of retribution) common. Sum based on the extent of loss to the clan of the slain and not on the extent of guilt of the offender (i.e. intention not important).</p>	<p>Similar to cattle keepers.</p>	<p>Codes often specify fixed sanctions for a variety of defined circumstances</p> <p>Pecuniary compensation less common. Sanction seen more as compensation and more of a punishment.</p> <p>Diamond suggests this is may be due to larger wealth disparities in these societies.</p>

Enforcement	Private (individual and kin), except for incest and sorcery where community may sanction wrongdoer. Enforcement irregular however. No sanction may be enforced if it is thought that someone deserved what was suffered	Similar to food gatherers.	Minimal role for central authority. Court proceedings initiated by kin and sanctions enforced by kin.	Similar to cattle keepers. However, the reach and power of the state is greater.	Central government does not recognise “self-help” or places strict limits on it. However, kin still play an important role in initiating court proceedings and executing court-approved sanctions.
Property	Little or no private property of land.	Private property rights in existence, especially proceeds of one's own toil.	Property rights extend to the wrong of trespass of land	Similar to cattle keepers.	Currencies are used for some transactions and goods and services are hired out as well as being bought and sold.
Examples	Australian Aborigines, Andanese, Sakai of Malaya, Bushmen of the Kalaharhi Desert; the Chono, Alacaluf, and Yahgan of the South Chilean Archipelago; and the Puri, Botocudo and Patsho of Eastern Brazil	Much of the pre-colonial Americas, Melanesia, and Polynesia, and Pockets throughout Asia.	The pre-colonial structures of the Hamites, Bantu, Nuer, and Dinka people of Africa. Much of pre-colonial north east Africa, the Sinai Peninsula.	Zululand, the Franks at the time of Charles the Great, and eleventh Century England	Medieval Europe, Old Testament Palestine, Rome in the Period of the Twelve Tables. Athens eighth and seventh Centuries. Middle Assyrian Code of 1400 B.C., Much of Indian subcontinent since ninth Century B.C., China for much of the last 3,000 years.

4 Expected interaction of state and non-state institutions in the control of crime

The previous two sections aimed to highlight the fact that pre-colonial institutions can persist into the post-colonial period and that they varied considerably from society to society. This section aims to provide a theoretical framework on how non-state and state institutions are likely to interact with each other in the control of wrongdoing (crime). This is done to inform the empirical analysis of the next section.

It is suggested that in almost every society, wrongdoing is punished by both state and non-state sanctions, but this is especially so in a post-colonial society subject to a criminal law transplant (a legally pluralistic society).³⁹ In such a case, the criminal law is not autochthonous, but instead is generated externally and transplanted.⁴⁰

In such a legally pluralistic society, we can expect that there will be a list of wrongs that the two legal orders may wish to sanction. This is likely include the gravest of all wrongs, such as homicide and rape, but also many other lesser wrongs, such as petty theft and parking infringements. We can also expect the two legal orders to have some differences in the conception of wrong, in terms of magnitude of gravity, and even cases where some behaviour deemed wrong by one legal order is not deemed to be wrong by the other (idiosyncratic wrongs). For instance, the state legal order may deem tax evasion and official corruption to be grave wrongs that attract high magnitude sanctions, while the non-state legal order may consider such behaviour as legally neutral and attach no sanction. Similarly, the non-state legal order may deem sorcery or marriage to certain proscribed persons as grave wrongs with high magnitude sanctions attached, while the state legal order may consider them legally neutral and attach no sanction. Therefore, when there are idiosyncratic

³⁹ See Tamanaha (2008), *supra* note 13 and Zasu (2007), *supra* note 38.

⁴⁰ This section provides a stylised analysis of legal pluralism in a post-colony with the aim of informing the empirical analysis; however, there are two important caveats to this account: (1) Most majority Muslim states (or states within states, such in the Muslim majority states of Nigeria) have adopted Islamic criminal law (or principles) in their post-colonial period (M. Badar, *Islamic Law (Shari'a) and the Jurisdiction of the International Criminal Court*, 24 *Leiden Journal of International Law* (2011), 411-433). This factor is explicitly controlled for in the empirical analysis by the inclusion of a variable capturing the percentage of Muslims for each state. (2) There are also some notable examples of states who *adopted* a foreign legal order rather than having it imposed upon on them by a colonial power, most notably Japan (Berkowitz, Pistor, and Richard (2003), *supra* note 8); however, it should be pointed out that it was still a small elite who imposed the transplant, albeit a local one.

wrongs, we can expect that only the legal order that considers the behaviour wrong would engage in enforcement activity, and this alone would constitute the aggregate level of deterrence for this given behaviour.⁴¹

For those wrongs that both legal orders consider wrong (common wrongs), we can expect that the sanction of both legal orders should be non-zero – as they both seek to punish what they deem to be wrong. How each legal order responds to the enforcement activity of the other should depend on both the magnitude and type of sanctions used. When state sanctions and non-state sanctions are the same or of a similar magnitude, we can expect each legal order's sanctions to substitute for one another in providing a deterrent against wrong doing.⁴² If each legal order is aiming to provide optimal deterrence (rather than maximal), it implies that the optimal behaviour (in terms of providing deterrence) of each legal order is to withdraw enforcement effort when the other one increases it, and vice versa. This result should occur because the marginal cost of a legal order's enforcement efforts will remain the same with increased enforcement effort of the other, while the marginal benefit will have fallen. In short, one legal order will respond to replace efforts not supplied by the other, and the more cost-effective of the two systems is likely to supply the greater amount of enforcement effort.⁴³

However, from the previous discussion in Section 3 on the types of pre-colonial institutions we know that while a stateless society may have had sanctions that were of a similar magnitude for common wrongs, they often took a very different form and were privately enforced. State sanctions generally consist of fines, imprisonment, and in some places executions, while non-state sanctions are likely to consist of large compensation payments and retributive violence. These differences suggest that enforcement activity of the two legal orders also has the potential to negatively affect the other. For example, the

⁴¹ This is of course unless one legal order adopts the wrongs of the other. When the state does this, it is often referred to as *state legal pluralism*. See Morse and Woodman (1988, *supra* note 26) and Tamanaha (2008, *supra* note 13) for discussions of the different stances the state can take towards a non-state legal order.

⁴² See Black (D. Black, *The Behaviour of Law: Special Edition* (Bingley: Emerald Group Publishing, 2010) on the substitutability of “legal” and non-legal sanctions. Zasu (2007, *supra* note 38) suggests that over long periods of time the sanctions of internally generated non-state legal orders should move from being substitutes to complements, that is, they reduce in magnitude.

⁴³ See Larcom and Swanson (S. Larcom and T. Swanson, *Documenting Legal Dissonance: Regulation of (and by) Payback Killing in Papua New Guinea*, Cambridge Land Economy Working Paper (2013), available at: <<http://www.landecon.cam.ac.uk/staff/publications/slarcom/DocumentingLegalDissonance25March-1.pdf>>) for a formal derivation of this result.

most potent non-state sanctions, retributive violence and compensation demands, are usually considered crimes by the state and therefore should increase the costs of both state and non-state enforcement. In addition, for instance, a police officer may face non-state obligations to protect kin from state prosecution, meaning that he or she is committing a wrong under one legal order or the other no matter what s/he does.⁴⁴ Therefore, while the sanctions might substitute for one another, the contemporaneous existence of the state and non-state legal order that generates these high magnitude sanctions is likely to provide negative interaction effects – legal dissonance. Where these net negative externalities are present, it may be rational for the enforcement levels of both legal orders to be reduced due to the costs that are imposed on each by the other. This interaction effect can result in an aggregate decline in enforcement and consequently a higher crime rate.⁴⁵

5 Empirical analysis

5.1 Empirical strategy

First, the relationship between pre-colonial institutions and the current level of state enforcement is estimated. The theoretical discussion in Section 4 above suggests that in countries where pre-colonial institutions were relatively stateless, non-state sanctions for a given crime should be higher in magnitude, as there were no state sanctions available. If these institutions persist, at least to some degree, non-state sanctions in these countries are more able to substitute for state sanctions in controlling crime but the potential for legal dissonance is also greater, due to higher enforcement costs for both legal orders and/or lower enforcement productivity. For both reasons of substitutability and dissonance, we would expect to see lower state enforcement in countries that were relatively stateless in pre-colonial times.

Second, while a relationship between the measure for pre-colonial institutions and current state enforcement may suggest that pre-colonial institutions

⁴⁴ For instance, see Bierschenk's (T. Bierschenk, *The Everyday Functioning of an African Public Service: Informalization, Privatization and Corruption in Benin's Legal System*, 57 *Journal of Legal Pluralism and Unofficial Law* (2008), 101-139, at 132) account of the formal justice system in Benin that suggests many instances of official "corruption" are actually "the mobilization of social relations" or non-state obligations being imposed on government officials.

⁴⁵ For a formal derivation of this result Larcom and Swanson (2013), *supra* note 43.

continue to affect current state crime enforcement it does not provide any insight as to whether this is due to the ability of non-state sanctions to substitute for state sanctions or whether it is due to dissonance effects. In relation to dissonance, states can be expected to have more difficulty in enforcing the law in countries that were relatively stateless due to kinship networks diluting its effectiveness, the fact that some pre-colonial practices and sanctions are crimes themselves, and because the state criminal law may lack legitimacy among the populace. In addition, as discussed above, the fact that most high magnitude non-state sanctions in stateless societies are also crimes (labelled homicide, assault and extortion) the cost of non-state enforcement should be higher due to the presence of the state criminal law. Therefore, to gain greater insight on the net effect of state and non-state enforcement, the relationship between pre-colonial institutions and the measure for crime is estimated. If pre-colonial legal institutions and the measure for crime have a significant relationship, this provides an indicator of whether legal dissonance (or consonance) is present. Importantly, the estimations both include and exclude the measure for state law enforcement which helps determine the transmission mechanism of these effects. If there is a relationship between higher crime and pre-colonial institutions, but this no longer holds once state enforcement is included in the estimation, it suggests that this relationship is being driven by the interactions between non-state and state enforcement. Indeed, it suggests that it is being driven primarily by changes in state enforcement beyond what would be expected by substitutability.

5.2 Data

To examine the effects of different types of non-state sanctions on state enforcement and crime control; measures for crime, state enforcement activity, various controls and pre-colonial institutions are required. The descriptive statistics for the variables used in the estimations are presented below and the data used in the estimations can be forwarded on request.

5.2.1 Pre-colonial institutions

The variable *pre-colonial* measures the degree of centralised authority prior to colonisation. This is sourced from Müller *et al.*'s⁴⁶ Atlas of Pre-colonial Societies: Cultural Heritage and Social Structures of African, Asian and Melanesian

⁴⁶ Müller, Marti, Schiedt, and Arpagaus (2000), *supra* note 6.

Table 1: Description of data and sources

Variable	Obs	Mean	Std. Dev.	Min	Max	Description	Source
Homicides	84	12.6048	11.26808	0.5	52.5	Homicides per 100,000 (2008)	World Health Organisation (WHO) (2011)
Pre-colonial	86	2.21314	1.008629	0.03	3.98	Degree of centralised power in pre-colonial society	Muller <i>et al.</i> (2000)
Prison	80	111.663	92.87762	22	604	Prisoners per capita (2008)	Inter. Centre for Prison Studies (ICPS) (2009)
relprison	78	38.0134	69.04573	0.6748	476	Prisoners per homicide (2008)	WHO (2011) and (ICPS) 2009
legor_uk	86	0.38372	0.489143	0	1	United Kingdom lega1 origin	La Porta <i>et al.</i> (1999)
legor_fr	86	0.5	0.502933	0	1	French legal origin	La Porta <i>et al.</i> (1999)
Govtexp	43	20.7812	10.3383	0.3347	51.1285	Government expenditure/GDP (2008)	World Bank (2013)
Income	81	7572.22	13037.42	290	74,220	Gross national income (PPP) per capita (2008)	World Bank (2013)
Urban	85	45.2764	22.75912	10.135	98.216	Urban population (% of total) (2008)	World Bank (2013)
Gini	72	41.0907	8.191318	24.85	63.9	Gini inequality index (2008)	World Bank (2013)
Avelf	77	0.49003	0.30541	0	0.89025	Ethnic fractionalisation (average of 5 indices)	La Porta <i>et al.</i> (1999)
Africa	85	0.54118	0.501259	0	1	Dummy for Africa (Africa = 1)	The Times Atlas of the World (2000)
Catholic	86	14.657	20.63361	0	84.1	Catholic as percent of population 1980	La Porta <i>et al.</i> (1999)
Muslim	86	39.0035	40.67902	0	99.8	Muslim as percent of population 1980	La Porta <i>et al.</i> (1999)
RoI	85	-0.56541	0.726629	-2.67	1.32	Rule of law index (2008)	Kaufmann <i>et al.</i> (2010)

Note: All time varying data were collected for 2008 or closest year.

Countries which also sources data on cultural units from Murdock's⁴⁷ Ethnographic Atlas. The specific aim of these measures is to provide quantitative data on institutions, social organisation, and production prior to colonisation. Importantly therefore, anything deemed to be "imposed" by colonial regimes were explicitly excluded in the measurement.⁴⁸ In this sense, the measures should be exogenous in terms of any mutations caused by European colonisation; however, it must be acknowledged that unpicking pre-colonial from post-colonial non-state institutions can be a difficult task.⁴⁹ In a further effort to isolate pre-colonial institutions, Mueller *et al.*'s⁵⁰ dataset also excludes Europe and the European settler colonies and the whole of the Americas.⁵¹ Specifically, it only includes countries where people of European origin make up less than 10% of the population, with the exception of South Africa (with 18% of the population). In addition dependent territories, city states, and micro-countries are also excluded. In total, data on pre-colonial institutions are available from 86 current African, Asian and Pacific countries.

Specifically, the variable *pre-colonial* measures jurisdictional hierarchy beyond the local community. The categorical variables are as follows: 0. No levels (no political authority beyond community); 1. One level (for example, petty chiefdoms); 2. Two levels (for example, larger chiefdoms); 3. Three levels (for example, states or kingdoms); 4. Four levels (for example, more powerful states with multiple tiers of governance). In terms of social and ethnic groups, it is well known that colonisation led to the creation of nation states with arbitrary borders. Indeed, this has been exploited by Sachs and Warner⁵² and Brock and Durlauf⁵³ to suggest that ethnic conflict may be an important determinant of economic growth. Therefore, to account for internal diversity within nations,

47 G.P. Murdock, *Ethnographic Atlas* (Pittsburgh, PA: University of Pittsburgh Press, 1969).

48 *Ibid.*, at 52. The local group level data are generated from Murdock's documentation of 1267 societies is generated by descriptions of anthropologists during colonial times, mainly between 1890 and 1950.

49 For instance, see Chanock's (M. Chanock, *Law, Custom and Social Order* (Cambridge: Cambridge University Press, 1998)) criticism of the very concept of customary law.

50 Müller, Marti, Schiedt, and Arpagaus (2000), *supra* note 6.

51 Ziltener and Müller (2007, *supra* note 7, p. 385) conclude that "the dominant social institutions [in Central and South America] are predominately western."

52 J.D. Sachs and A.M. Warner, *Fundamental Sources of Long-Run Growth*, 87 *The American Economic Review*, no. 2 (1997), 184-188.

53 W.A. Brock and S.N. Durlauf, *What Have We Learned from a Decade of Empirical Research on Growth? Growth Empirics and Reality*, 15 *The World Bank Economic Review*, no. 2 (2001), 229-272.

Muller *et al.*'s⁵⁴ pre-colonial institutions data are measured at the local group level: individual tribes, communities, and cultural units, which are then weighted by population, and aggregated at the national level.⁵⁵ The population weighted measure for each country is therefore a continuous variable with the range of 0 to 4. The theoretical discussion predicts that the lower the degree of centralised authority (the closer the rank is to zero), the higher the magnitude of non-state sanctions and the propensity to use them.

5.2.2 Crime

The measure for crime, *homocides*, is homicides per capita. This measure is chosen for both conceptual and practical reasons. Conceptually, homicide (when not used as a punishment or during war) is assumed to be a wrong under both state and non-state legal institutions, that is, it is a common wrong across the dataset.⁵⁶

The data source for homicides per capita is the World Health Organisation's (WHO) estimated homicide rate for member countries from their Burden of Disease data. This is an estimate of total deaths per population ('000) by intentional injury (violence) for 192 member states and excludes deaths from both war (including civil war) and suicide. Measuring crime across countries is notoriously difficult; however, these data represent WHO estimates and aim to reconcile data from multiple sources, primarily from medical practitioners (death certificates) and state law enforcement sources, with the explicit aim of allowing for cross-country comparability. The WHO data are used in preference to state law enforcement data due to a potential bias in the latter generated from

54 Müller, Marti, Schiedt, and Arpagaus (2000), *supra* note 6.

55 The weightings use populations for the year 1965.

56 While it is true that some non-state legal institutions do consider homicide as a legitimate sanction, so do many state legal regimes in this sample of countries. According to Amnesty International (Amnesty International, *Abolitionist and Retentionist Countries* (2009), available at: <<http://www.amnesty.org/en/death-penalty/abolitionist-and-retentionist-countries>>, accessed 1 June 2013) these include Afghanistan, Bahrain, Bangladesh, Botswana, Chad, China, Democratic Republic of the Congo, Egypt, Equatorial Guinea, Ethiopia, Gambia, Guinea, India, Indonesia, Iran, Iraq, Japan, Jordan, Kuwait, Lebanon, Lesotho, Libya, Malaysia, Nigeria, North Korea, Oman, Pakistan, Qatar, Saudi Arabia, Singapore, Somalia, Sudan, Syria, Taiwan, Thailand, Uganda, United Arab Emirates, Yemen, and Zimbabwe. Given the lack of empirical support for state sanctioned homicides leading to lower crime rates (see S.D. Levitt and T.J. Miles, *Empirical Study of Criminal Punishment*, in A.M. Polinsky and S. Shavell (eds.), *Handbook of Law and Economics*, vol. I (Amsterdam: Elsevier, North-Holland) the use of the death penalty by the state was not included in the estimations.

under-reporting where non-state enforcement is higher.⁵⁷ While consistent victimisation studies across countries would be the ideal measure (for example van Dijk *et al.*'s⁵⁸ *International Crime Victimisation Surveys (ICVS)*), it would restrict the scope of the data analysis to a handful of countries given their focus on developed countries.

5.2.3 State enforcement

The measure of the intensity of state law enforcement used is, *relprison*, which is prisoners per homicide. Incarceration statistics collated by the International Centre of Prison Studies⁵⁹ are used. This dataset contains the number of prisoners held in 218 independent countries and dependent territories and therefore provides a measure for enforcement that accounts for both probability and magnitude.⁶⁰ Importantly, this is a measure for state law enforcement *output* rather than *input* (such as policing). To account for the relative enforcement output given the level of crime (to measure enforcement intensity), the variable *relprison* is constructed which is the number of incarcerations divided by the crime rate (as measured by homicides). Clearly, unless homicides make up the same proportion of crime per capita in each country, this is only a proxy for relative enforcement effort and likely to be noisy. However, disaggregated crime data and prison data are unavailable so this is unavoidable.⁶¹ While this variable

57 It should be noted that data from medical practitioners might also vary with the reach of the state. Cole and Gramajo (2009, *supra* note 3) suggest that if there is a bias it is not significant as many of the poorest countries (with relatively smaller states) in the dataset have high homicide rates. However, if there is a bias in regard to the reach of the state, it provides an additional control on the estimations as it would effectively provide homicides given the reach of the state.

58 J. van Dijk, J. van Kesteren, and P. Smit, *Criminal Victimization in International Perspective, Key Findings from the 2004–2005 ICVS and EU ICS* (The Hague: Boom Legal Publishers, 2008).

59 International Centre of Prison Studies, *World Prison Population List* (8th ed., 2009), available at: <<http://www.prisonstudies.org/publications/list/40-world-prison-population-list-8th-edition.html>>, accessed March 2013.

60 While policing per capita would provide a measure for enforcement *input*, consistent data that overlap with the sample countries for pre-colonial institutions data are unavailable. The United Nations, *Survey for Crime Trends and the Operations of Criminal Systems* (2011), available at: <<http://www.unodc.org/unodc/en/data-and-analysis/United-Nations-Surveys-on-Crime-Trends-and-the-Operations-of-Criminal-Justice-Systems.html>>, accessed December 2012 overlaps with less than 30 countries from this sample.

61 There is evidence that violent crime and other types of crime are highly correlated over time (see A.K. Dills, J.A. Miron, and G. Summers, "What Do Economists Know about Crime?" in R. di Tella, S. Edwards, and E. Schargrodsky (eds.), *The Economics of Crime: Lessons for and from Latin America* (Chicago: University of Chicago Press, 2010), p. 269 *et seq.*).

is expected to contain some noise, there is no apparent reason for it to be biased in relation to state and non-state enforcement. As can be seen in Figure A1, there is a clear negative relationship between (log) prisoners per homicide and the (log) homicide rate for all the data points available for these variables. This is the relationship to be expected under standard deterrence models (see Becker, 1968 and Polinsky and Shavell, 2000) and incapacitation effects, noting however the potential for endogeneity.

5.2.4 Control variables

Based on the literature (see Soares⁶² and Cole and Gramajo⁶³), a number of the control variables used have been found to be significant in previous cross-country studies. These include income inequality (*Gini*), logged gross national income per capita (*lincome*), percent of urbanised population (*Urban*), ethnic fractionalisation (*Avelf*), and religious variables (*Catholic* and *Muslim*). In addition, an Africa dummy (*Africa*) and measure for the relative size of the state (*Govtexp*) were also included in the estimations. Finally, controls for legal origins were also included (*legalor_uk* and *legalor_fr*).

5.3 Econometric results

5.3.1 Relationship between pre-colonial legal institutions and state enforcement

The theoretical discussion earlier suggests that countries that had pre-colonial institutions that were relatively stateless should have lower levels of current state law enforcement, while controlling for other factors. Table 2 presents the OLS estimations for the model of best fit.⁶⁴ As can be seen, there is a strong significant positive relationship between the measure for pre-colonial institutions, *pre-colonial* and intensity of state enforcement, *lrelprison* (log prisoners per homicide). This suggests that a higher degree of centralised authority prior

⁶² Soares (2004), *supra* note 3.

⁶³ Cole and Gramajo (2009), *supra* note 3.

⁶⁴ Consistent with the literature, the variables measuring state enforcement (*relprison*), homicides per capita (*homicides*) and income per capita (*income*) are logged, which also helps to minimise the effect of outliers. The robustness of the results, including functional form, is discussed following a discussion of the results.

Table 2: Relationship between pre-colonial institutions and state enforcement

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(8)	(9)
	irelprison	irelprison	irelprison	irelprison	irelprison	irelprison	irelprison	irelprison
Pre-colonial	0.752*** (0.179)	0.720*** (0.195)	0.404** (0.165)	0.243*** (0.0897)	0.270*** (0.0894)	0.292*** (0.0834)	0.300** (0.128)	0.297** (0.133)
legor_uk	-0.294 (0.468)	-0.294 (0.468)	-0.244 (0.429)	0.210 (0.282)	0.329 (0.336)	0.277 (0.345)	0.133 (0.439)	0.163 (0.435)
legor_fr	-0.277 (0.452)	-0.277 (0.452)	-0.160 (0.433)	0.101 (0.263)	0.221 (0.357)	0.131 (0.371)	0.140 (0.476)	0.153 (0.470)
Lincome	0.797*** (0.0864)	0.341*** (0.0722)	0.797*** (0.0864)	0.341*** (0.0722)	0.339*** (0.0691)	0.358*** (0.0677)	0.340*** (0.0945)	0.402** (0.153)
Ihomicides				-0.831*** (0.0588)	-0.914*** (0.0579)	-0.971*** (0.0644)	-0.832*** (0.100)	-0.847*** (0.109)
Catholic					0.00666 (0.00617)	0.00658 (0.00566)	-0.000844 (0.00563)	-0.00131 (0.00547)
Muslim					-0.00233 (0.00281)	-0.00253 (0.00266)	-0.00342 (0.00368)	-0.00418 (0.00364)
Africa						0.305* (0.169)	0.371 (0.241)	0.411 (0.270)
Govtexp							0.0172 (0.0103)	0.0167 (0.0109)
Rol								-0.137 (0.266)
Constant	0.835* (0.448)	1.162 (0.717)	-4.639*** (0.840)	0.669 (0.562)	0.673 (0.565)	0.495 (0.541)	0.131 (0.816)	-0.383 (1.263)
Observations	78	78	76	76	76	76	42	42
R-squared	0.231	0.234	0.577	0.856	0.867	0.873	0.894	0.895

Note: Robust standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

to colonisation sees higher current levels of state law enforcement. Conversely, countries that were relatively stateless in pre-colonial times have lower levels of state enforcement. This relationship holds when controlled for by income, level of crime, religious/cultural and geographical factors, legal origins, and size of government. It is also noteworthy that the measures for income and crime all have a statistically significant relationship, as would be expected. Perhaps the only surprising result is the variable *Africa* which is positive and significant at the 10% level when not controlling for the size of government.

In relation to legal origins, it can be seen that these variables are consistently insignificant across these estimations and those presented below. From the theoretical discussion above, this is not surprising. Indeed, it supports the claim made here that in relation to *criminal law*, colonisation led to almost identical legal regimes being imposed on a diverse set of pre-existing legal institutions. As this inquiry focuses on crime control, these results should not be taken to be inconsistent with LLSV⁶⁵ as their transmission mechanism related to investor protection, a very different area of law. However, it does suggest some limitations to the explanatory power of common versus civil law transplants.

Most importantly, these estimations suggest that where the propensity for the enforcement of high magnitude non-state sanctions is higher, government enforcement is relatively lower. However, they do not provide any insight into whether this relationship capturing substitutability between state and non-state sanctions or dissonance effects. To shed more light on this result, the relationship enforcement and the crime rate is estimated.

5.3.2 Crime and punishment

In order to gain a better understanding of what is behind the decrease in state crime enforcement in countries that had relatively stateless legal institutions, the relationship between *pre-colonial* and *lhomicides* (log homicides per capita) is estimated. First, the relationship between *pre-colonial* and *lhomicides* is estimated *without* state enforcement and then *with* state enforcement.

The reason for this approach is that if states are merely withdrawing enforcement due to the availability of a costless substitute (high magnitude non-state sanctions), the measure for pre-colonial institutions should have no relationship

⁶⁵ La Porta, López de Silanes, Shleifer, and Vishny (1998), *supra* note 1; R. La Porta, F. Lopez-De-Silanes, and A. Scheifer, *The Economic Consequences of Legal Origins*, 46 *Journal of Economic Literature*, no. 2 (2008), 285-332.

on the crime rate, once controlled for other relevant variables. However, the fact that countries that were relatively stateless have lower levels of state enforcement also has to be taken into account. Therefore, the relationship between pre-colonial institutions and homicides per capita that *includes* the state enforcement is also estimated. If the relationship between homicides per capita and state enforcement is significant, but the measure for pre-colonial institutions is no longer significant, this suggests that the crime rate is primarily determined through state enforcement and the interaction effect with non-state enforcement. That is, it would suggest the role of non-state enforcement in relation to crime is primarily an indirect one, given we already know that there is a strong relationship between the degree of pre-colonial statelessness and the intensity of state crime enforcement.

As can be seen from the estimations presented in Table 3, the measure for pre-colonial institutions has a significant negative relationship with homicides per capita when the measure for state enforcement is absent. The first equation suggests that, on the whole, countries that were relatively stateless in pre-colonial times have higher homicides per capita. The following estimated equations suggest that this relationship is quite robust even when controlling for other factors that are known to be related to cross-country crime rates, including inequality, income and ethnic fractionalisation. However, the coefficient for pre-colonial institutions halves in magnitude once these other variables are taken into account. In Equation 8 that includes all controls (except measures for state enforcement) only *pre-colonial* and *gini* remaining statistically significant at the 10% level.

Interestingly, the measure for ethno-linguistic fractionalisation (*avelf*) is insignificant in the presence of a measure for pre-colonial institutions despite often being linked to conflict and a lack of trust (see Easterly and Levine,⁶⁶ Alesina *et al.*⁶⁷ and Ruddell⁶⁸). These two variables are closely related with a correlation coefficient of 0.62. As can be seen from Equations 4 and 5, when ethnic fractionalisation is included in the estimations, while the coefficient for pre-colonial increases slightly, so does the standard error, reducing its significance to the 10% level. While not reported, when the measure for pre-colonial institutions is excluded from the estimations, the measure for ethnic

⁶⁶ W. Easterly and R. Levine, *Africa's Growth Tragedy: Policies and Ethnic Divisions*, 112 *The Quarterly Journal of Economics*, no. 4 (1997), 1203-1250.

⁶⁷ A. Alesina, A. Devleeschauwer, W. Easterly, S. Kurlat, and R. Wacziarg, *Fractionalization*, 8 *Journal of Economic Growth*, no. 2 (2003), 155-194.

⁶⁸ R. Ruddell and M.G. Urbina, *Minority Threat and Punishment: A Cross-National Analysis*, 21 *Justice Quarterly*, no. 4 (2004), 903-931.

Table 3: Crime and punishment: excluding state enforcement

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Ihomicides	Ihomicides	Ihomicides	Ihomicides	Ihomicides	Ihomicides	Ihomicides	Ihomicides
Pre-colonial	-0.469*** (0.146)	-0.445*** (0.155)	-0.282** (0.128)	-0.204* (0.108)	-0.252* (0.136)	-0.225** (0.110)	-0.279** (0.122)	-0.280* (0.153)
legor_uk		0.247 (0.418)	0.184 (0.368)	0.555 (0.456)	0.610 (0.469)			0.441 (0.514)
legor_fr		0.151 (0.420)	0.00224 (0.368)	0.385 (0.494)	0.466 (0.507)			0.370 (0.521)
Lincome			-0.497*** (0.100)	-0.350*** (0.0977)	-0.302*** (0.106)	-0.379*** (0.0911)	-0.197 (0.160)	-0.154 (0.168)
Gini			0.0583*** (0.0106)	0.0259* (0.0132)	0.0261* (0.0137)	0.0343*** (0.0125)	0.0306** (0.0131)	0.0252* (0.0136)
Catholic				0.00646 (0.00563)	0.00651 (0.00581)	0.00660 (0.00468)	0.00763 (0.00464)	0.00707 (0.00565)
Muslim				-0.00787** (0.00390)	-0.00750* (0.00399)	-0.00664** (0.00282)	-0.00549* (0.00275)	-0.00643 (0.00397)
Africa				0.414 (0.291)	0.358 (0.299)	0.415 (0.288)	0.465 (0.317)	0.403 (0.328)
Avelf				-0.0957 (0.482)				0.0429 (0.477)
Urban							-0.0108 (0.00719)	-0.00882 (0.00851)
Constant	2.972*** (0.351)	2.747*** (0.590)	4.190*** (0.975)	3.784*** (0.948)	3.537*** (1.117)	4.078*** (0.858)	3.295*** (0.989)	2.812** (1.163)
Observations	84	84	70	70	67	70	70	67
R-squared	0.140	0.144	0.579	0.662	0.623	0.649	0.662	0.631

Note: Robust standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

fractionalisation is significant at the 10% level. This result suggests at least four possibilities: first that the measure for pre-colonial institutions is actually a proxy for ethno-linguistic fractionalisation, second that ethno-linguistic fractionalisation is actually a proxy for persistent pre-colonial institutions, third that the two variables are randomly correlated, or fourth that the two variables are different but related concepts. It is suggested that the two variables are indeed different but that they should be related. As highlighted by Diamond⁶⁹ previously stateless communities were smaller and more tightly knit and therefore we would expect a state comprising a collection of such communities to be more heterogeneous in terms of identity and language. This reasoning suggests that ethnic fractionalisation may be capturing elements of persistent pre-colonial institutions. Importantly, when both measures are included, *pre-colonial* dominates in terms of both magnitude and statistical significance. It should also be noted that in Equation 7 (log) income per capita is no longer significant when urbanisation (urban) is taken into account, suggesting multicollinearity between these variables, which is not surprising given that urbanisation and population density is sometimes used as a proxy for income (for example, Acemoglu, Johnson and Robinson⁷⁰).

As can be seen from Table 4, once the measure for the intensity of state enforcement is accounted for, the relationship between *pre-colonial* and *lhomicides* is no longer statistically significant and that the coefficient for *pre-colonial* does switch from negative to positive. While this suggests that the measures for non-state enforcement and state enforcement are negatively correlated, which we already know, it also provides two other important insights.

First, it suggests that the type of non-state legal institution primarily affects the homicide rate indirectly through its impact on state enforcement, as predicted by the theoretical discussion above. That is, in countries where pre-colonial institutions were more stateless, current state enforcement is lower, and beyond what would be expected by substitutability, as crime is higher in these countries in an absolute sense. We can also see, and as predicted by the law and economics literature, the intensity of state enforcement has a strong negative relationship on homicides per capita, which may be delivered by either deterrence or incapacitation, or most likely a combination of the two (see Levitt and Miles⁷¹ for a theoretical and empirical discussion on these two effects). Endogeneity surrounding estimations of law enforcement and crime rates is notorious, given that higher crime rates may also lead to increased enforcement

69 Diamond (1951, 1971), *supra* note 11.

70 Acemoglu, Johnson, and Robinson (2002), *supra* note 2.

71 Levitt and Miles, *supra* note 56.

Table 4: Crime and punishment: including state enforcement

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Ihomicides	Ihomicides	Ihomicides	Ihomicides	Ihomicides	Ihomicides	Ihomicides	Ihomicides	Ihomicides	Ihomicides
Pre-colonial	0.0937 (0.0911)	0.123 (0.106)	0.104 (0.109)	0.127 (0.0786)	0.0330 (0.0812)	0.122 (0.0780)	0.0805 (0.0776)	0.0122 (0.0848)	0.0342 (0.143)	0.00843 (0.128)
irelprison	-0.752*** (0.0477)	-0.749*** (0.0490)	-0.662*** (0.0679)	-0.609*** (0.0713)	-0.632*** (0.0716)	-0.619*** (0.0660)	-0.611*** (0.0666)	-0.627*** (0.0717)	-0.722*** (0.0956)	-0.710*** (0.0879)
legor_uk		0.292 (0.239)	0.0668 (0.215)	0.280 (0.309)	0.420 (0.294)			0.313 (0.288)	0.138 (0.354)	0.299 (0.346)
legor_fr		0.105 (0.202)	0.0285 (0.190)	0.330 (0.334)	0.330 (0.336)			0.270 (0.325)	0.371 (0.428)	0.489 (0.414)
Lincome			-0.0373 (0.102)	0.0256 (0.0918)	0.0705 (0.0895)	0.0170 (0.0922)	0.135 (0.109)	0.166 (0.114)	0.126 (0.159)	0.230 (0.184)
Gini			0.0450*** (0.00999)	0.0245** (0.0114)	0.0243** (0.0118)	0.0286*** (0.0107)	0.0261** (0.0104)	0.0236** (0.0116)	0.0498*** (0.0158)	0.0461*** (0.0150)
Catholic				0.00541 (0.00412)	0.00489 (0.00339)	0.00563 (0.00339)	0.00629* (0.00318)	0.00524 (0.00402)	0.000772 (0.00553)	0.000835 (0.00575)
Muslim				-0.00433 (0.00281)	-0.00486* (0.00279)	-0.00355* (0.00197)	-0.00286 (0.00195)	-0.00419 (0.00260)	-0.00388 (0.00403)	-0.00539 (0.00372)
Africa				0.301** (0.150)	0.280* (0.149)	0.305** (0.145)	0.338** (0.163)	0.310* (0.171)	-0.0695 (0.261)	-0.0196 (0.276)
Avelf				-0.443* (0.248)				-0.349 (0.284)	-0.308 (0.329)	-0.453 (0.360)
Urban							-0.00735 (0.00458)	-0.00582 (0.00520)	-0.00243 (0.00684)	-0.00141 (0.00727)
Govtexp									0.00125 (0.00784)	-0.000136 (0.00926)
Rol										-0.226 (0.244)
Constant	3.597*** (0.163)	3.360*** (0.292)	1.780** (0.696)	1.684** (0.650)	1.749** (0.669)	1.791*** (0.649)	1.296* (0.693)	1.285 (0.799)	0.876 (0.816)	0.0995 (1.282)
Observations	78	78	68	68	65	68	68	65	38	38
R-squared	0.782	0.788	0.832	0.866	0.865	0.863	0.869	0.868	0.897	0.901

Note: Robust standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

activity; however, these results are plausible and correctly signed. They suggest that a 1% increase in prisoners per homicide leads to an approximately 0.7% decrease in the homicide rate. Most importantly, these results provide strong suggestive evidence that negative interaction effects generated by high magnitude non-state sanctions (and the institutions that accompany them) leads to an overall increase in the homicide rate, primarily driven by reduced state enforcement which is in itself effective in reducing crime.

Second, while *pre-colonial* is no longer statistically significant when state enforcement is included in the estimations, due to both a fall in the magnitude of the coefficients and an increase in their standard errors, the coefficients for this variable move from being negative to positive. This suggests that once the effect of state enforcement is controlled for, which albeit itself depends on *pre-colonial*, the degree of relative statelessness has a negative effect on crime (*lhomicides*). This result is consistent with the theoretical discussion as relatively stateless societies had relatively higher magnitude privately enforced sanctions, which if they persist to some degree, should provide a greater deterrent against the measure for crime. However, as stated earlier the results also suggest that the net effect of these type of legal institutions is an increase in crime due to lower levels of state enforcement.

One caveat to this analysis is that *pre-colonial* could also be capturing preferences (or tolerance levels) towards homicide and if this was the case, it would provide an alternative explanation for reduced government enforcement other than negative interaction effects. However, there are two reasons why this explanation is unlikely. The first is that there is some evidence (see Posner⁷²) to suggest that stateless societies had similar crime rates to those in Western states during the twentieth Century, although this is contested.⁷³ The second reason is that while the desired level of crime is not known, this should be captured by the various control variables, including income, income inequality and religious/cultural and geographical factors. Of these control variables, it is also noteworthy that they are consistent with the literature, with the measure for inequality *gini* having a significant positive relationship. Also, consistent with the findings of Soares⁷⁴ the religious variables show some degree of significance, while income does not.

⁷² Posner (1983), *supra* note 12.

⁷³ Pinker (S. Pinker, *The Better Angels of Our Nature: The Decline of Violence in History and Its Causes* (Penguin: London, 2011)) argues that stateless societies had higher levels of violence (but includes both crime and war to get this result). Even so, he suggests that this was due to the state's lack of monopoly on violence and not a result of socialisation or genetics (that is, not preferences).

⁷⁴ Soares (2004), *supra* note 3.

Finally, while there may be a temptation to use the measure for pre-colonial legal institutions as an instrumental variable for state enforcement, this is ruled out on both theoretical and empirical grounds. The theoretical underpinnings of this article are that both state and non-state sanctions can both be an effective source of crime control, but that presence of each will affect the other. In particular, it is found that state enforcement is lower where high magnitude privately enforced sanctions should be more present. However, for the variable *pre-colonial* to be a valid instrument for state enforcement, there must be no reason that non-state institutions should directly affect the level of crime, other than through the effect on state enforcement. Theoretically, this is not the case given that non-state enforcement should influence the level of crime through its own deterrence effects. Empirically, there is some weak support for this, as once controlling for state enforcement *pre-colonial* is correctly signed, suggesting it may have an effect, albeit a statistically insignificant one.

5.3.3 Robustness of results

As can be viewed from Tables 2, 3 and 4, the relationship between pre-colonial institutions, state enforcement and the homicide rate is resilient across a range of estimations, control variables and number of observations. While logged versions of *relprison*, *homicides*, and *income* are used, as a test for robustness, different functional forms were also estimated with broadly similar results, however in some estimations *pre-colonial* lost its significance when logged. While the analysis of Diamond⁷⁵ is silent on the functional form, this analysis suggests that the relationship takes a linear-log form. Given that there may be some scepticism about the constructed variable *lrelprison*, as a further test for the robustness, the variable of *lprisoners* (prisoners per capita) was also estimated as an alternative and the estimations can be found in the Appendix. While the measure for state enforcement no longer has relationship with homicides per capita (which is to be expected as it is not a relative measure), it can be seen that the pre-colonial variable remains highly significant in terms of both state enforcement and crime. Overall the relationship between the variable *pre-colonial* has a robust relationship with measures for state crime enforcement and crime.

⁷⁵ Diamond (1951, 1971), *supra* note 11.

6 Conclusion

The key finding of this article is that the type of pre-colonial legal institution has a clear relationship with current state crime control and crime rates. In particular, countries that were relatively stateless prior to colonisation have lower levels of state enforcement and higher crime rates, with a variety of controls in place. This provides suggestive evidence that negative interaction effects generated by high magnitude non-state sanctions (and the institutional infrastructure that accompanies them) leads to an overall increase in the crime rate, primarily driven by reduced state enforcement.

This result is achieved by exploiting differences in pre-colonial institutions and, in effect, making the assumption that colonial institutions were identical. In taking this approach, the study inverts the legal origins and institutions literature, which assumes that pre-colonial institutions were identical and exploits differences in colonial institutions. However, as in the legal origins and institutions literature, it has been assumed that the institutions of interest, pre-colonial legal institutions, persist. The fact that legal institutions varied considerably across societies prior to colonisation and persist today is well known in the legal pluralism literature.

While non-state legal institutions are shown to play an important role, the results suggest that state criminal enforcement is a more powerful force than private enforcement in controlling homicides. However, if negative interaction effects are indeed driving lower levels of state and non-state enforcement output, this is not something that may be easily solved. Indeed where there are high negative interaction effects generated by private enforcement, it may be both rational and optimal for the state to withdraw enforcement. If this were the case, it provides for the possibility for a “high crime-low enforcement trap” generated by persistent pre-colonial institutions – *legal dissonance*.

Given that the variable for pre-colonial institutions is to some degree exogenous, in that the measure aims to exclude any colonial influences on non-state institutions, a degree of causality can be claimed from these results. However, some caution is necessary, given that the data were compiled by colonial scholars and anthropologists, at different times, with their own cultural biases. Nonetheless, this approach of accounting for the persistent non-state legal institutions, and legal pluralism more generally, helps provide an explanation for the well-known large variations in state crime control and crime across countries.

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Appendix

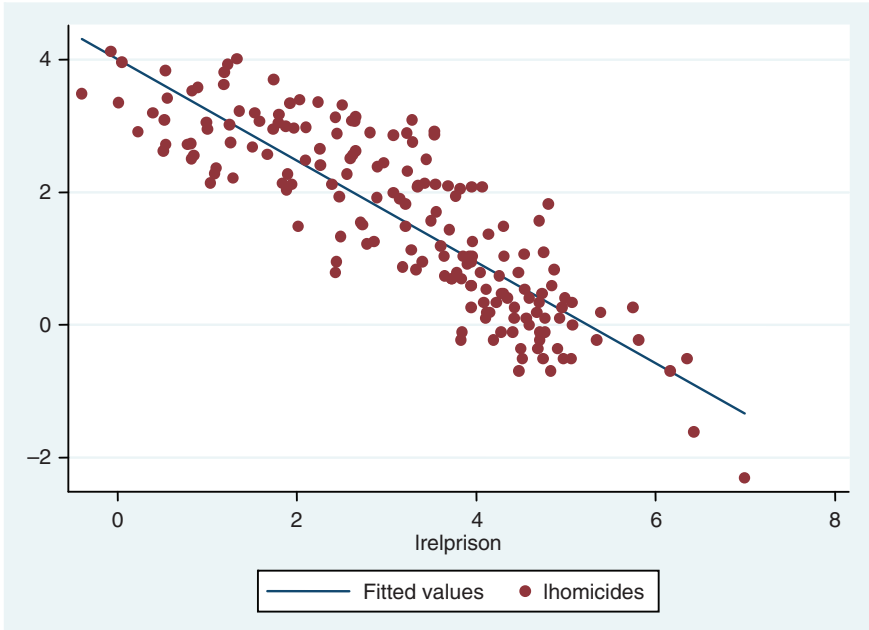


Figure 1: Relationship between the variables relprison and homicides (log)

Table A1: Relationship between pre-colonial institutions and state enforcement (lprison)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	lprison	lprison	lprison	lprison	lprison	lprison	lprison	lprison
Pre-colonial	0.294*** (0.0782)	0.307*** (0.0938)	0.203** (0.0956)	0.243*** (0.0897)	0.270*** (0.0894)	0.292*** (0.0834)	0.300** (0.128)	0.297** (0.133)
legor_uk		0.128 (0.263)	0.264 (0.281)	0.210 (0.282)	0.329 (0.336)	0.277 (0.345)	0.133 (0.439)	0.163 (0.435)
legor_fr		-0.0472 (0.215)	0.140 (0.256)	0.101 (0.263)	0.221 (0.357)	0.131 (0.371)	0.140 (0.476)	0.153 (0.470)
lnincome			0.238*** (0.0711)	0.341*** (0.0722)	0.339*** (0.0691)	0.358*** (0.0677)	0.340*** (0.0945)	0.402** (0.153)
lhomicides				0.169*** (0.0588)	0.0856 (0.0579)	0.0292 (0.0644)	0.168 (0.100)	0.153 (0.109)
Catholic					0.00666 (0.00617)	0.00658 (0.00566)	-0.000844 (0.00563)	-0.00131 (0.00547)
Muslim					-0.00233 (0.00281)	-0.00253 (0.00266)	-0.00342 (0.00368)	-0.00418 (0.00364)
Africa						0.305* (0.169)	0.371 (0.241)	0.411 (0.270)
Govtexp							0.0172 (0.0103)	0.0167 (0.0109)
Rol								-0.137 (0.266)
Constant	3.781*** (0.191)	3.728*** (0.347)	1.865*** (0.507)	0.669 (0.562)	0.673 (0.565)	0.495 (0.541)	0.131 (0.816)	-0.383 (1.263)
Observations	80	80	77	76	76	76	42	42
R-squared	0.159	0.171	0.295	0.356	0.409	0.431	0.519	0.525

Note: Robust standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

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