2 Institutions, violence and illicit crops

(Fergusson, 2012). Secure property rights enable individuals to invest in their land and production assets around it, innovate, and increase productivity (Besley, 1995; Johnson, McMillan, and Woodruff, 2002; Field, 2003; Goldstein and Udry, 2008). Without these rights, people are simply not willing to devote any resources to their land if they think it can be taken away from them by the government, or individuals or groups around them. However, due to the inability or unwillingness of the one’s in power, behavior of individuals which could lead to economic prosperity is blocked, through which certain others can profit (Acemoglu, Ticchi, and Vindigni, 2006). In Colombia, the democratic government lacks control over the political and economic institutions in large parts of the country. This pattern of law and order is however highly scattered. In some parts, governments have firm control over law and order, being able to provide security and public services, while securing the functioning of the economic institutions. In other areas state authority is largely absent, with local left-wing guerillas and right-wing paramilitaries filling this void in their struggle over control with the accompanying violence. According to Acemoglu and Robinson (2012), this tension between national politicians with power over the functional part of society on the one hand, and violence and the absence of centralized state institutions on the other, got caught in a viscous circle in Colombia. Both national politicians as well as guerilla and paramilitary groups, use to lawlessness in certain parts of the country in their own benefit.

An increasing number of studies analyze the effects of property rights on a wide range of social and economic outcomes. Important is also how property rights are measured in these studies, since this is not as straightforward as one might think. Besley (1995) looks at the effects property rights might have on land investments in Ghana. Three theoretical models are developed and empirically tested, which are based on the security of tenure, using land as collateral, and obtaining gains from trade. Clear from this study however is that property rights are subject to endogeneity as well, since farmers might invest resources to enhance their rights on the land. Notwithstanding the acknowledgement of no necessary link between the establishment of property rights and increased investment, the author finds quite supportive evidence of this relationship. However, the results also suggest more is at play in explaining the variance. Furthermore, in contrast to widely used proxy for strength in property rights constructed by the Political Risk Services (i.e. the risk of expropriation), property rights were measured through declared transfer rights of the households, which were further divided in rights to rent, sell, mortgage, pledge, bequeath and give away land. Findings suggest that this proxy did not fully capture what the household consider as important when making investment decisions. Endogeneity is also the primary argument in the study by Fergusson (2012) and Haber *et al.* (2003), in which the argument by Acemoglu and Robinson (2012) that the political elite in charge of the economic institutions install weak property rights or enforce the property rights selectively for their own benefit.

Other studies followed on this path by taking more economic outcomes into account. Goldstein and Udry (2008) find in Ghana that the political power of individuals is correlated with more secure tenure rights, which in turn increases investment in land fertility with higher outputs as a result. Using similar measures of the transferability and security of property rights as Besley (1995), Deininger *et al.* (2008) find in Uganda that recognition of customary land laws considerably increases the already positive effects of the tenure regime and the transfer rights on investment, productivity, and land values. Enlarging the body of evidence to land reforms, both Besley and Burgess (2000) and Deininger *et al.* (2007) find a positive effect of introducing more formal property rights through land reforms on income, consumption, wages, and physical and human capital, by use of panel data.

Although the studies above show positive effects of more secure property rights, several studies look at the opposite effects as well. In the political science literature, several studies have looked empirically at the effect of natural resources on the incidence and duration of civil wars (Collier, Hoeffler, and Soderbom, 2004; Ross, 2003). Following the literature on civil war, Ross (2004) finds that illegal resources such as drugs can increase the duration of the conflict. In Sierra Leone, anthropologist Richards (1998) finds similar evidence on the roots, causes, and duration of the civil war and the fighting over the resources in the rain forest. Questioning the ‘New Barbarism’ thesis of Robert D. Kaplan (which is related to the thesis of the ‘Resource Curse’ of Sachs and Warner (2000)), Richards (1998) argues against the idea that the roots of the civil war were to be found in the apparent social breakdown caused by population pressure and environmental collapse, and the youth grabbing the abundant natural resources of the country as a form of human greed. More so, political failures were reported by the rebel youth to be the cause, with the violence of the conflict also having its roots culturally. Of course, primitive accumulation of forest and mineral resources has fed politics. However, although not the cause of the war as in Colombia, due to several reasons the state's capacity to control some of its peripheral regions was weakened, which enabled the rebel groups to take advantage of the abundant natural resources.

Other studies pointing in a similar direction stem from Colombia. Many of these studies focus on the relationship between certain levels of property rights, and the apparent violence in the country. Velásquez (2007) looks into this relationship with data on the municipal level of massacre rates, attacks made by illegal armed groups and number of forced displaced people. The measure for property rights is constructed by the level of security in land ownership, as defined in Colombian legislation. This study identifies that a clear causal relationship between violence and the level of property rights in not straightforward. Through the instrumentation of lagged values, the authors do find that more secure property rights lead to a significantly lower number of attacks made by illegal armed groups and the total number of displaced people. Proving the complex causality direction between violence and property rights, Fernández (2010) studies the exact opposite relationship. Using a similar proxy for property rights as Velásquez (2007), this author uses the instruments of past values of literacy rates and an index of electoral competition (both of which are argued to be correlated with violence and exogenous to property rights) to assess the effects on the endogenous variable, violence. Findings point to a negative effect of violence on the level of security of property rights. Interesting in this study is the introduction of the average extension of coca fields per municipality as control variable, which also show a negative sign on the level of property rights.

Other related studies have looked into the determinants of coca fields presence in Colombia, or the decision to plant these illicit crops. Moreno-Sánchez *et al.* (2003) were the first to study this topic in Colombia, through which the authors identified significant positive effects of the coca base price and total eradicated area, and significant negative effects of the level of other agricultural prices and the total area of coca fields in Peru and Bolivia. As elaborated in the introduction, a difficulty with studying this topic arises through the nature and life cycle of illicit coca leaf planting. This persistency would ideally require modeling of an autoregressive process, which this study lacks. Instead, the model is estimated using lags of the explanatory variables and current levels of the dependent variable.

A different approach is chosen in the study by Ibañez (2010), who looks more closely to the actual decision of farmers to grow coca crops in Colombia. Although considering many control variables such as eradication programs, moral standards, participation in communitarian programs, as well as others, the main result shows that the decision to cultivate coca crops is based on the profit difference compared to other legal activities. Other determinants that have a positive effect on the decision to plant the illicit coca crops are the proportion of coca fields, the number of years cultivating coca crops, and the number of hectares per landowner.

Some studies have persevered on this difficult topic of the determinants of illicit coca crop fields, with a prime focus on the relationship between violence and illegal armed groups. These studies all incorporate a large number of potential control variables, of which many show a significant effect on coca crop presence. Rocha and Ramírez (2005) find a positive and significant effect of violence on coca crops, controlled for many variables including land controls, economic controls, and social controls. However, as brought forward by many studies (Vélez, 2001; Diáz and Sanchez, 2004; Angrist and Kugler, 2008; Fernández, 2010), one has to be very cautious with the double causality relationship issue around violence and topics such as the presence of illicit crops, and property rights. It remains difficult to determine in which direction the causal relationship flows, and even more difficult, to disentangle the direction after both factors are present. It could be the case that violence was used by armed groups to pursue farmers to grow illicit coca crops. However, once these crops have been planted, a viscous circle could arise between maintaining the fields and violence. When such a pattern is established, it remains difficult to whether violence is caused by the presence of illicit crops or the other way around, for which one possibility would be to find clever instruments. In order to tackle the issue, Diáz and Sanchez (2004) use matching estimators to disentangle the direction of the relationship between the territorial expansion of illegal armed groups and violence. Apart from the common control variables, these authors do find a positive and significant effect of illegal armed group activities and coca crop field presence. However, handling the endogeniety issue through matching estimators does come at a price. The matching estimators approach includes a conditional bias term, which is in general not consistent unless particular bias-correction procedures are specified, which are absent in this study (Abadie and Imbens, 2006).

Other studies have reversed this relationship by analyzing the effects the presence of coca crop fields can have on a wide variety of economic outcomes. By looking in the other dirtection, Angrist and Kugler (2008) find self-employment income as well as homicide rates to increase significantly in coca growing regions in Colombia. Also child labor and schooling can be effected by this illicit economy. Dammert (2008) uses a difference in difference approach to estimate these effects in Peru, which shows that the presence of these coca fields does seem to suggest a rise in child. However, they shift of the coca production from Peru to Colombia did not have an effect on the enrollment rates in Peru. More in line with the studies on violence and the presence of armed groups in Colombia, Vélez (2001) focuses on the determinants of the territorial expansion of illegal left-wing guerrillas in Colombia, which the author finds to be influenced positively by the presence of the coca crops.

Although all of the studies above do touch upon the topics of the current study partly, they do show the niche that still exists to look further into the role of the property rights regime in a country and its effects on illicit behavior, controlled for the widely apparent violence in Colombia. Furthermore, disentangling all three variables and the causal directions has never been attempted in one coherent study. To put this in a larger perspective, economic institutions such as a certain property rights regime or climate experienced in practice by individuals (i.e. the security of the rights, and being able to execute the rights) could both have large effects on positive behavior such as increasing investments and productivity, but also especially have negative implications when these institutions are absent. A slight derivation from several studies presented above would be to argue that this would block people from investing in their future, causing inactive behavior. We aim to take this argument of Acemoglu and Robinson (2012) one step further, by arguing that the absence of certain institutions does not only cause inactive investment behavior of certain individuals, but simply active behavior of others on a rather different path. This active behavior could be by individuals or groups moving in from other areas who are already showing illicit behavior elsewhere, and who derive their newly obtained power from the absence of central authority. Or, it could be argued that local people do not stop to invest in their future at all. These individuals simply keep on investing their resources in a bright future, switching their investment to other opportunities but nonetheless maximizing their utility, although this might not be an investment in a legal activity or an activity which would be held legal by the one’s in power (i.e. the local or central government). Furthermore, it is exactly the one’s in power who cannot provide any security or services to their citizens in the first place. Examples of this are indeed illicit coca crop growing, but also illegal lumbering in a tropical rainforest, blood diamonds, and opium production in Afghanistan (Angrist and Krugel, 2008). Therefore, the type of economic institutions installed by the one’s in power over the political institutions could evoke behavior what would be commonly held as illicit behavior by the large community or just the one’s in power. This argument does not only hold for the local farmers switching their farming activities to coca crops, but also for paramilitary groups. These groups were founded because the government could not protect them from the violence of the left-wing guerilla groups, after which these groups moved into the coca crop business exactly because of the absence of authority of the government. In the following chapter, this hypothesis will be further decomposed.