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Author
Velasquez, Mauricio

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The Rural Middle Class in Colombia

A dissertation submitter in partial satisfaction of the
requirements for the degree Doctor of Philosophy
in Political Science

by

Mauricio Velasquez

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ABSTRACT OF THE DISSERTATION

The Rural Middle Class in Colombia

by

Mauricio Velasquez

Doctor of Philosophy in Political Science

University of California, Los Angeles, 2016

Professor Barbara Geddes, Chair

The dissertation has a methodological and a substantive contribution. First, it develops a method

of measurement that serves to directly test specific hypothesis about the simultaneous interaction

of classes in a multivariate regression environment. I show how compositional analysis can be

applied to the same data that are used to construct the Gini coefficient serving to further

investigate and adjudicate the class effects that are only suggested in the Gin results. I show that

because identical Gini calculations result from drastically different land distributions it is wrong

to narrow its interpretation to theories relating only the very rich and the very poor while

ignoring the middle class. Second, it shows that municipalities in Colombia with relatively large

numbers of middle-sized farmers versus large landowners provide larger proportions of their

citizens with piped water, electricity, and other public services. I argue that middle-sized

farmers play this role because they have the income and other resources needed to travel to local

urban areas to gather relevant information and to lead local Communal Action Boards in

bargaining with local elected officials, but they are poor enough to need the public provision of

such services. On the other hand, large landowners live in urban areas, and find more efficient to

pay privately for their own services than paying for everyone's via local taxes.

The dissertation of Mauricio Velasquez is approved.

Robert Brenner,

Michael Lofchie,

Ronald Rogowski,

Professor Barbara Geddes, Committee Chair.

University of California, Los Angeles

2016

To all those Colombian students
fearless to write their master's
dissertation in the humanities.

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Acknowledgments

In my family, my brother Urías thought I could be the first one to receive a PhD, then Claret, Anai, Falconery and Alexis did. María chose to take a walk with me, now for many years. Francisco, Ernesto, Marcel, Christian and Rocío offered me a place in the Colombian intellectual journey. Barbara trusted in my ideas and saw them through my inchoate prose. I owe them all more than I can express here with a humble act of gratitude.

I owe much to Professors Brenner, Rogowski, Lofchie and Lewis for devoting their time and energy to discuss my ideas. Many thanks to Joseph, and Belinda for their humane support to graduate students at the Political Science Department.

As this epoch will test the core of our convictions I say to my friends at UCLA, Sarah, Andy, George, Galen, to my comrade Cody, to Ivan, to Professor Anderson, to Adam, to Professor Mamdani, to father Roberto: I shall do my best to ceaselessly roll the rock to the top of the mountain.

It is for the Colombians who paid for my Caldas-Colciencias scholarship as well as much of my previous education to judge the significance of this dissertation. They were my imaginary readers and to whom I owe what I now know.

Biography

Before coming to UCLA, Mauricio Velásquez obtained a degree in law at the National

University of Colombia in 2006, and a one-year diploma in Economics from Andes University in

2009. He worked as researcher at the Makerere Institute of Social Sciences and served as

volunteer in Brazil and Uganda.

Introduction

Across rural areas of the developing world few aspects determine more the quality of life as having access to basic services such as clean water and electricity. Unfortunately, apart from basic considerations about the costs of expanding services in relatively dispersed areas, there are many political factors that hinder such access. On the supply side, so to speak, politicians in charge of defining projects hold as priority expanding services in denser urban areas with a better cost ratio per vote. Also, even in municipalities where such competing demands for the expansion of services from urban areas are inexistent, politicians often prefer to misappropriate rural developmental funds earmarked for the expansion of services, as projects in those areas are harder to supervise and the political costs associated with the eventual exposure of corruption is relatively less costly as the rural electorate is generally smaller. But independently of the politicians' incentives of to either ignore or illegally obstruct the expansion of services across rural areas, we should ask, what are factors that empower rural communities to offset these negative incentives? Or to use Hirschman's expression, what kind of voice on the demand-side of service provision can make a positive difference in the way rural communities push for the expansion and quality of services?

I argue that precisely as politicians face negative incentives to expand services across rural areas, those communities with the capacity to negotiate in block their vote support in exchanges for the provision of services are more likely to succeed. Nonetheless, community organizing is expensive as it demands time and resources that communal leaders have to invest

from their own private wealth in order to get information on the availability of developmental funds, and the mobilization of communities to negotiate their collective support with a preferred candidate. Such leadership can only come from rural elites with enough resources and incentives to invest in collective action in the expectation of obtaining access to public services.

In this dissertation I discuss the interests of rural elites and suggest that even if both middle-income farmers and large landowners have the economic endowments that would allow them to exert this kind of leadership, it is no less true that their interests are not always aligned with such investments. Indeed, I suggest that middle size farmers and large landowners have contradictory interests. Indeed, in contrast to large landowners, middle-income farmers live in rural municipalities and rely on local public services. I show that while the middle-income farmers generally live in rural areas, depend on community organizing for their economic reproduction, and use their local leadership to negotiate the political support of their communities in exchange for services, large landowners generally live in urban areas, do not depend on community organizing, and often find it more efficient to pay privately for their own services than paying for everyone's via local taxes. As a result, while middle income farmers would by more likely to engage in community organizing for services expansion, large landowners would benefit more from tax exceptions from local administrations. My theory also discusses the incentives of small farmers and landless peasants to show the comparative advantage that a strong elite of the middle income farming class represent to muster the collective energies of the poorer classes for local development.

Colombia offers a good case to investigate this argument. Deep reforms enacted during the late eighties mandated that independent of the existing landownership structure municipal majors had to be democratically elected and municipal governments autonomous to define

budget priorities. From 1988 onwards there was a secular increase in nationally earmarked transfers going to municipalities for the expansion of water, health and sanitation. Whereas before expenditures for local infrastructure were always defined at the national or department level, from the late eighties priorities for nationally earmarked funds as well as freely disposable funds from local taxes were defined by locally elected mayors and the municipal councils. If my theory was right, municipalities where before these reforms middle size farmers represented a sizable portion of the landowning classes capable of offsetting the negative influence of large landowners, should have been more efficacious in exchanging the electoral support of their communities for the expansion or services. Additionally, if it was true that middle income farmers were, relative to other classes, more active in organizing communities, it should be possible to show this by using rural household survey evidence combining socio-economic information and participation in communal representative associations.

Testing this argument involved a methodological challenge. Indeed, even if in Colombia, most of the qualitative literature about the relationship between different rural classes and municipal development argues for the beneficial impact of a more equitable distribution of land. Most quantitative analysis, however, shows a positive and significant correlation between the land Gini coefficient and developmental indicators such as access to clean water and electricity.

Unfortunately, it is common in the literature to interpret a positive or negative correlation between the land Gini and any other response variable as indicating the existence of effects associated with the exclusive interaction between the rich and the poor therefore ignoring the middle class (which can be located, for example, in the top 2 deciles of any land distribution). Acemoglu et al (2007) interpret the fact that the land Gini is positively associated with good outcomes as suggesting "that powerful and rich landowners may be creating checks against the

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most rapacious tendencies of politicians. Consequently, in the municipalities with major landowners, distortionary policies that could be pursued by politicians were limited, and this led to better economic outcomes". Deininger and Squire (2004) find a different effect for land Gini and conclude that "results have implications for the poor". The obvious exception is Ansell and Samuels (2014) for whom a higher income Gini may point towards the rise of the middle class as discussed in the context of income Gini time series, "It is true that different income distributions can generate similar Gini coefficients, potentially invalidating inferences about the relationship between inequality and social structure. For example, if we changed the income of the top group…and left everything else the same, the Gini would leap…However, what is possible mathematically and what occurs in the real world are two different things. In truth, real world distributions of Gini coefficients are highly constrained, giving us confidence in our inferences about the relationship between Ginis and social structure".

But this may well become an inconclusive debate as the Gini was designed to measure overall concentration rather than inter-class dynamics amongst income groups. This is why in this dissertation I suggest a method of measurement to overcome the heuristic difficulties derived from the use of the Gini coefficient. Specifically, I introduce compositional analysis developed in Geology showing that, compared with the Gini coefficient, this method represents a more efficient way test specific hypothesis about the effects of trade-offs of wealth amongst groups in a multivariate regression environment.

This dissertation is organized in five chapters, one of which is this introduction. In chapter one I develop a theory of rural leadership based on the endowments and restrictions of different classes. I argue that conditioned on their respective endowments -particularly of land- different classes present differences in the way they relate to their neighbors, require of

overcoming collective action to satisfy their economic and social needs, and perhaps less obviously but equally decisive, their capacity to communicate directly and assertively with local politicians and municipal bureaucracies in order to obtain highly relevant information or directly influence their decision making processes. I argue that because of these differences across groups, different balances of power among them cause local democracies to provide access to public services in systematically different ways.

In chapter two I apply this theory of rural leadership to the historical dynamics of communal action boards in Colombia. No other institution in Colombia's recent history has had the scope and durability of community action boards, perhaps because as no other institution, CAB's are more directly determined by rural socio-economic relationships of a relatively stable nature. Throughout the chapter I show that ever since their inception in the late fifties, academics have explained CABs' relative strength based on economic premises linking the interest groups with different levels of land access to collective action. Since 1971, when Edel sampled CABs across the country to explain their varying capacity to collectively invest in development, to 2009 when Jaramillo spent a year conducting extensive ethnographic work to understand the variation in organizing capacity of CABs, the evidence has shown that the CABs that most effective serve their communities for developmental purposes tend to be organized and led by middle size farmers.

Chapter 3 presents a first set of empirical results showing that local democratization in municipalities where the rural middle class was relatively strong (or growing) caused them to expand public services in rural areas at a faster rate. I also show that the relative amount of land held by small farmer's vis-a-vis large landowners does not explain the rate of growth in service coverage, further highlighting that the key contrast explaining rural outcomes is the

local importance of the middle versus rich rural class. I test my theory using cadastral longitudinal data from Colombia (capturing effects before and after local democratization) to compare results between identical multilevel longitudinal models in which the key independent variables are either balances calculated via compositions, or the land Gini coefficient.

Chapter 4 offers a set of empirical tests on the specific relationship between rural household income-wealth and patterns of rural political participation using survey data from 2010 and 2013, representative of the national and regional levels in Colombia. I conduct several tests to show that the rural middle class is more likely to actively participate and occupy positions of rural leadership compared to the small farming class (including the poor). Consistent with these findings I show that this rural middle class is more likely to be socially better connected with their rural neighbors. Finally, I show that inside the rural middle class there is a divergent pattern of local participation and leadership that depends on whether the household owns land or not. Those that hold land tend to participate and lead more often those whose income is not dependent on land.

Chapter 5 concludes.

Overall this dissertation contributes to debates in development in two fronts, one substantive and one methodological. In the substantive front it contributes by offering a theory of the interests and incentives faced by different classes to promote the expansion of services that reconnects with a number of longstanding debates about the role of middle size farmers in development. In the recent past class dynamics associated with Marxism gave way to models of individual rational maximization. Information replaced assets as the main factor affecting effective governance and service provision. Politicians did not deliver less because they responded to preferences of the large landowning classes, or because seemingly competitive

elections were in reality changing chair games within a single dominant class, but rather

because individuals did not have enough information about candidates when voting, or about

the size of budgets. By placing the question of the stakeholders in rural communities with the

interests and capacity to exert effective communal leadership for development, I bring the

discussion back to the class endowments and interest that explain the individuals' choice to

invest his own private resources for the acquisition of information and the setup of the

organization required to bring about effective collective action.

In the methodological front this dissertation shows how compositional analysis can be

applied to the same data that are used to construct the Gini coefficient serving as a useful

alternative to the Gini index, or at the very least serving to further investigate and adjudicate

the class effects that are only suggested in results based on the Gini coefficient.

CHAPTER ONE

Development and the leadership of rural elites

Colombia democratized municipal government nearly 30 years ago. Since then we observe large variation in the rate at which local government have improved local provision of much needed goods and services in their rural areas, What accounts for the differences? Although there is a long tradition studying rural development and politics through the lenses of its class divisions and conflict,[1] the more contemporary theory of governance in rural environments tends to focus on explanations based on voters' information and politicians' accountability.[2] We thus speak of disseminating information to help rural voters select better candidates,[3] or organizing events to inform voters about the size of budgets therefore updating expectations of service delivery.[4] This focus may reflect the interests of a predominantly post-Cold War tradition in North American scholarship considering Marxists approaches outdated or

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[1] Marc Bloch (1978, original 1930) talks of clearly distinct rural classes dating "at least from the XIII century". Interestingly he also notes three main cleavages. "Let us leave aside the lord, the bourgeoisie, who living in the villa or near city, controls his land and obtains rents from it. These people, properly speaking, do not form part of the peasant society. Let us stick to this one, formed by growers living directly of the land they till". Then he further distinguishes in the peasant society between small farmers and the farmer (*fermier*): "The farmer who has leased from the noble or bourgeois capitalist lands (…), a true capitalist of the people, taking advantage of numerous fields and large herds, often exceeds wealth and prestige the small owner". (p442-447)

[2] See WDR: Making services work for the poor (2004). Also, Vicente and Wantchekon (2009);

[3] See Banerjee, Abhijit, et al (2010)

[4] See Gottlieb (2015) also See Bjorkman and Svensson (2007)

excessively deterministic. It may be the result of the assumption that voters in developing countries are relatively less well informed about their politicians than their northern counterparts. Or simply that these ideas reflect the dominance of economists in the study of development. Whatever the reason, however, these approaches turn out to be less straightforward than anticipated because accessing information and then acting upon it seems to be determined, among other things, by class specific capacities. Indeed, if acquiring relevant information to select better candidates is cost-efficient in terms of obtaining better provision of, for example, public services at least in the medium to long term, then why don't people invest their own resources in acquiring it?

Across rural areas of the developing world few aspects determine more the quality of life as having access to basic services such as clean water and electricity. Unfortunately, apart from basic considerations about the costs of expanding services in relatively dispersed areas, there are many political factors that hinder such access. On the supply side, so to speak, politicians in charge of defining projects hold as priority expanding services in denser urban areas with a better cost ratio per vote. Also, even in municipalities where such competing demands for the expansion of services from urban areas are inexistent, politicians often prefer to misappropriate rural developmental funds earmarked for the expansion of services, as projects in those areas are harder to supervise and the political costs associated with the eventual exposure of corruption is relatively less costly as the rural electorate is generally smaller. But independently of the politicians' incentives of to either ignore or illegally obstruct the expansion of services across rural areas, we should ask, what are factors that empower rural communities to offset these negative incentives? Or to use Hirschman's expression, what kind of voice on the demand-side

of service provision can make a positive difference in the way rural communities push for the expansion and quality of services?

I argue that precisely as politicians face negative incentives to expand services across rural areas, those communities with the capacity to negotiate in block their vote support in exchanges for the provision of services are more likely to succeed. Nonetheless, community organizing is expensive as it demands time and resources that communal leaders have to invest from their own private wealth in order to get information on the availability of developmental funds, and the mobilization of communities to negotiate their collective support with a preferred candidate. Such leadership can only come from rural elites with enough resources and incentives to invest in collective action in the expectation of obtaining access to public services.

My argument will suggest that influence in rural areas is deeply connected with land ownership, as different rural classes push for different interests. I develop and test an argument identifying differences in trajectories of rural development to patterns of land ownership in which a larger farming middle class is systematically found to have a positive role in the advocacy and development of rural infrastructure, while the large landowning class is not. This is not an argument that denies the importance of accessing information about budgets and developmental priorities. It does, however, suggest that different rural groups access, use and manipulate this information with differing aims and that the rural middle class is the most interested in using it to press politicians for purposes of collective development. I argue that it is because of these differences across rural classes that different balances of power among them cause local democratic governments to provide access to public services in systematically different ways.

My argument builds on primary and secondary sources, as well as cadastral and survey

data, showing middle size farmers' differentiated role as both leaders as well as active

participants in *Communal Action Boards (CAB's)* across the country [6]. CAB's are spaces of

programmatic participation and representation that villages across the country have to discuss the

needs of the community and interact with both politicians and bureaucrats. Although loosely

regulated and rarely officially supervised, CABs are the consultative institution with the largest

reach in even the remotest parts of the country. CAB's are the only universal institution for rural

programmatic participation across the country and therefore the single most decisive platform for

negotiation with politicians. Jaramillo (2009) describes how "in many cases the CAB is the only

organization in rural areas and due to its faculties to be the intermediary between rural people

and the government, being an affiliate to the CAB means the possibility of getting access to

benefits [such as public services, free health coverage, subsidies to plant certain crops, etc.],

which transforms the act of affiliation in something akin to obtaining citizenship." The overall

picture shows an active role in these boards by middle size farmers who organize communities to

push for the expansion of public services (see Chapter 2). At the opposite end, large landowners,

who rarely live in rural areas, not only do not participate in these deliberations, but sometimes

actively oppose the organization of rural communities. Orjuela (1990) shows the contrast

between "El Salitre", a community with large ranchers and a nascent industry of flowers, and

"Chicú": "…formed by farmers, micro-farmers (*microfundio*), and home growing arrangements

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[6] Communal Action Boards –CABs- according to the Colombian Electoral Commission are "non for profit community based organizations with legal capacity and own proprietorship, formed by local resident for the promotion of their interests under the premises of participatory democracy." http://www.registraduria.gov.co/descargar/jac-jal.pdf. Jaramillo (2009) highlight the importance of CABs: "in many cases the CAB is the only organization in rural areas and due to its faculties to be the interlocutor of the state, being an affiliate to the CAB means the possibility of getting access to benefits, which transforms the act of affiliation in something akin to obtaining citizenship." [63]

(*huertas*)."[10] And continues: "These are sectors [in Chicú] characterized by channeling their needs through the CAB, something that gives great importance to the CAB of this community. This is different in El Salitre due to the presence of socio-economic sectors one [large ranchers] and four [industry of flowers], that given their strong weight do not consider the CAB to channel their needs, thus the CAB in Salitre loses its importance at the participatory level and as representative of the community"[11].

In Chicú voting behavior in the rural community is influenced by communal CAB leaders who invest their own time and money (travelling to urban areas) to access information about the interests of the community. My argument shows how these same leaders selectively transmit this information to the community in order to mobilize it for demands vis-à-vis the local politician. But not everyone can be or is actually interested in being a CAB president. Also, not everyone participates in these CABs. According to the evidence I have collected, small and middle sized farmers participate actively, large landowners do not (see Chapter 2 and 4). Why?

I offer an explanation indicating that gains from engaging in spaces of rural leadership such as CAB's are linked to cost-benefit analysis. Specifically, I find that rural middle classes are more likely to engage in such activities because of their unique combination of incentives for overcoming collective action challenges –especially by organizing communities and holding the members of the community accountable to the agreements of supporting specific candidates with their vote during elections- to obtain public services such as electricity and aqueducts. Active participation in organizations such as CAB's require private investments in constant travelling to

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[10] Orjuela, 273

[11] Orjuela, 274

the urban centre to acquire information of budgets for rural development at the premises of the

municipal administration, use this information to organize the community, enforce the collective

agreements reached to support specific candidates, and press local politicians for the delivery of

public goods in exchange for rural political support. In other words, it will be in the interest of

middle size farmers to disseminate information to small farmers as well as landless peasants on

aspects such as municipal tax reforms, the timely inclusion of rural improvements in public

services delivery in the drafting and approval of municipal development plans, accessing funds

for the expansion of public services using national or department transfers, inclusion in

programs of rural road improvements, and even registration for the allocation of subsidies for

house improvements. Small farmers can rarely afford such investments in accessing and using

strategically this information by organizing the local community, while large landowners will

rarely require collective action to get access to such services. They can pay in the private market

for the services they need. It is the rural middle class that can afford such investments, have a

strategic positioning in the rural community, and desperately need to overcome community

collective action problems to obtain these services because they cannot afford to buy them

privately.

Explanations of good governance based on average differences in access to information

offer little leverage for explaining how rural communities relate to democratic municipal

government and the role of the middle class to promote local development. Without theories of

strategic decision-making producing differences in incentives to access and disseminate

information, we perceive differences in governance as challenges to be solved via greater

incentives for participatory democracy. I show, however, that participatory institutions such as

the CABs only work as their designers envisioned when municipal societies include a reasonably

large group of individuals rich enough to acquire information but poor enough to need government services. In municipalities with more unequal distribution, the poor lack the resources to invest in information gathering, but the rich, who may have adequate information, lack incentives to organize their poorer neighbors to demand services from political leaders because either do not need the services that could be obtained through the active organization of CAB's, or do not want to pay higher taxes to pay for their public provision.

This chapter contributes to building theories of rural politics. In it I develop an argument about rural leadership by studying the endowments and interests of large landowners, middle size farmers, small farmers and landless peasants to then draw out the implications for how inter-class competition affects voting behavior. I argue that conditioned on their respective endowments -particularly of land- different classes present differences in the way they relate to their neighbors, require of overcoming collective action to satisfy their economic and social needs, and perhaps less obviously but equally decisive, their capacity to communicate directly and assertively with local politicians and municipal bureaucracies in order to obtain highly relevant information or directly influence their decision making processes. I argue that because of these differences across groups, different balances of power among them cause local democracies to provide access to public services in systematically different ways.

1. Rural leadership
    Differences in land endowments have historically determined the fundamental distinction between lords and landless peasants.[12] This is probably why the literature studying the effects of land concentration on democratization do not pay careful attention to the relatively more

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[12] See Moore (1966)

nuanced division of classes or interests groups in rural environments.[13] What matters to the

current argument, however, is not just the canonical difference in interests between landless

peasant and lords. This is obviously anachronistic if not entirely irrelevant in most rural areas of

Latin America. Instead, what I study is the mode in which differences in endowment –especially

land– affect the way in which different socio-economic groups relate to one another. In

particular, I investigate the way in which dependency on overcoming collective action is

experienced by different groups depending on their private wealth and dependence on the land

for their livelihoods. In my simple model, and following much of the literature on the effect of

land inequality on development (see for example, Galor, 2009) I distinguish between the

interests of small farmers and the landless poor, middle size farmers and large landowners to

investigate both their relative dependence as well as their capacities for the collective advocacy

vis-à-vis the political class of public services to satisfy their needs. I argue that it is because of

these differences across groups that different balances of power among them cause

municipalities to provide access to public services in systematically different ways.

To facilitate the analysis of these differences I classify rural groups as large landowners,

middle size farmers, small farmers and landless peasants. Large landowners generally live in

urban centers, hire others to administer their properties and, depending on their entrepreneurial

capacity and capital, develop agricultural enterprises. Middle size farmers live in rural areas but

often travel to the urban center near their municipalities in order to commercialize their products.

They use the labor force of their families to cultivate the land, often hire labor from outside the

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[13] Another reason for the assumption of such dichotomous existence of interests in rural areas, as I argue below, may have to do with the fact that using the Land Gini coefficients for measuring inequality necessarily forces a strong level generalization.

family, and produce some surplus that is often either reinvested in the land on in the education of their children. Small farmers live in rural areas and rarely travel to urban centers, they often divide their family labor between cultivating their own plots and working for either large landowners or middle size farmers. Small farmers rarely produce surpluses and have a subsistence economy. Landless peasants do not own land, exhibit a pattern of constant migration following harvesting seasons or urban work opportunities, and their levels of subsistence are generally precarious.

Although it is important to emphasize that none of these groups develop opposition to the provision of public goods in rural areas (schools, drinking waters, roads, or electricity), it is a central aspect of my argument that municipalities where large landowners hold more land in relationship to middle size farmers will tend to exhibit a poorer provision of these services due to the large landowners' own capacity for private satisfaction of the needs covered by most of these goods, their preference for low property taxes, and their capacity for capturing local politics for their own benefit.[14] Additionally and for reasons I discuss below, municipalities where large landowners own most of the land are also characterized by a large population of landless peasant which relative to other groups are easier to buy during elections. In contrast, municipalities where middle size farmers hold a larger share of the land exhibit better provision of public services, not because middle size farmers prefer higher property taxes -who does?- but because

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[14] I discuss below cases supporting Olson´s (1965) prediction that the richest could end up providing public access to services from their own funds when they just don't have better alternatives. This happens in Colombia in cases where large landowners develop agrarian industries requiring cooperation with farmers' cooperatives. Also, I do not assume that once a specific service has been made available for the community it will benefit some groups more than others which seems unrealistic to me. Foster and Rosenzweig (2001) think roads, primarily benefit the poor by raising wages, irrigation facilities benefit landowners, and schools have neutral effects.

they are, on the one hand, sufficiently rich to pay from their own pockets the expenses involved in acquiring information about projects and laws benefiting their communities -and lobbying for them-, but also because middle size farmers are not rich enough to satisfy privately their needs and so are critically dependent on overcoming local collective action problems in order to acquire publicly provided services. I argue small farmers communities critically depend on the middle size farmers' leadership to obtain public services, otherwise, they succumb to the negative influence of large landowners and remain relatively dormant, unable to enforce their rights vis-a-vis local administrations. Relatively homogeneous communities of small farmers can achieve more than communities of highly polarized land structures in which a substantial share of the land is held by Large Landowners. I define as rural elites both the large landowners and the middle size farmers. That large landowners are elites does not need major explanations, for the middle size farmers suffice here to cite Jaramillo (2009) who indicates that "a group of landowners who live in the rural settlement [*vereda*]", who "earn enough to sustain their families and additionally generate economic surpluses" have "a lot of influence in the social and political life of the *vereda*."[36] In the rest of this chapter I elaborate these arguments and in the subsequent chapters demonstrate they are consistent with evidence.

To show how the provision of local public services is affected by the landownership structure I focus on the contrast between the type of relationship developed by large landowners, on the one hand, and middle size farmers, on the other, vis-a-vis local politicians. Although this relationship is only part of the complex picture of local politics in rural environments, I think is

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[36] Jaramillo, 82

critical to understand the incentives politicians face to expand the provision of services in rural areas.

Thirty years of local democratization across Colombian municipalities offers a prolific scenario for testing alternative explanations of service provision across the country. The presence of armed groups, levels of local political competition, bureaucratic competence, all seem relevant in explaining municipal differences. However, while I will test my argument simultaneously accounting for these other possible causes, by focusing on the land ownership structure my intention is to show precisely how local class interests affect service provision across municipalities in a developing country.

It is important to refine as much as possible that range of landownership that will be considered in order to classify the different rural classes. Much of the literature arbitrarily choose ranges of hectares of land assuming a perfectly uniform landscape with equal climate and distance to markets. In a country with vast regional differences such as Colombia, even after controlling for factors such weather and distances to markets, we would still need at least some information linking land size with income. Such measure is known in Colombia as the UAF (Family Agricultural Unit) indicating the number of hectares per municipality that presumably a family requires to obtain two monthly minimum wages.[17] Therefore, throughout this dissertation I will define as large landowners as those owning plots of land that according to UAF criteria would produce more than six monthly minimum wages (more than 3 UAFs), middle size farmers owners of plots ranging between two and six monthly minimum wages (between 1 and 3 UAFs),

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[17] According to the Colombian Ministry of Agriculture a UAF is: "The extension of land for a basic unit of agricultural production that allows, with appropriate technology, generating at least two monthly minimum salaries."

and small farmers owners of plots with less than two minimum monthly wages (less than one UAF).

2. Land inequality and service provision in the literature.

The importance of different patterns of landownership for economic and political development has been long emphasized. Brenner (1982) links it with the rise of capitalism in England when describing how in order to respond to an increasing demand for food, which vastly increased the price of land, a significant portion of landlords could not rely on serfs or tied labor thus beginning a system of renting plots of substantial size to peasants who could only survive by producing a profit. Whereas landlords in the past had relied on serfdom and other forms of forced work for their economic reproduction, this was no longer possible in late fifteenth-century England due to very strict rules enforced by the royal government. Landlords were thus faced with the decision to either produce with their own resources and labor in small portions of their land or actually use the fallow land by renting it to some of the peasants that were willing to run the risk. After some decades of successful renting and increasing food prices, these peasants had acquired significant power and their economic interests were increasingly represented in a political class that demanded limited government and better provision of public goods, such as security and roads on which their access to markets depended. For Brenner, this class of yeomen was responsible for the transformation of English political institutions.

Similarly, Engerman and Sokoloff (2002) found that the formation of limited government in the northern colonies of the United States was a function of a strong middle size farmers' class with a special need for the collective provision of public goods. What they describe is a situation in which it was impossible for a single family to concentrate large estates. In a land in which only grains could be cultivated, there were not possibilities for using large amount of slave labor

to produce (unlike cotton and sugar rich southern states, not to mention the Caribbean) and thus a sort of organic community of Middle-size farmers emerged whose interests more easily converged to produce limited government especially responsive to the entire community in terms of provision of public goods such as roads, predictable law enforcement, education and banking.

The idea that a more equitable distribution of land was associated with relatively more vibrant localities in Colombia dates back to at least the late 1950s when Parsons (1961) noted a better pattern of rural development in the coffee-growing areas as well as certain areas of the department of Santander compared to other parts of the country. Parsons suggested that given the requirements of the coffee agriculture and the relatively scarce availability of labor - indigenous communities were very small in comparison with other parts of the country- plots of middle size family-based farming predominated, leading to a more equitable distribution of wealth and political power. Instead of the "hacienda" economy observed in other parts of the country, coffee lands exhibited a more economically and politically independent class of farmers that were better organized and more efficient providers of basic public services. Following Parsons' conclusions, the largest study in Colombia conducted under the "Alliance for Progress" on the conditions of rural areas (CIDA, 1966) suggested that the "inadequate" political and administrative institutions observed in many parts of the country were likely affected by the inequitable agrarian structure. "In general, it is observed that in areas where land distribution is equitably distributed and where there is a greater number of family-size farms, institutions, community and social services are more advanced and better organized. On the other hand, in areas where there prevails a strong concentration of land ownership and where most of the rural population subsists as laborers or in small farms, these institutions and services are more backward."

To this set of studies comparing regions in Colombia, a number of municipal monographs were added with extensive ethnographic research in the late sixties and early seventies. They offered close examinations of social dynamics allowing a more nuanced description of rural classes, something that served to gain a better understanding of the specific role of the rural middle class. They suggested, for example, that a more equitable pattern of land holding led to a better organizing capacity via the more active participation of residents in local associations. Havens (1966) suggested that voluntary associations were one of the characteristic distinguishing Tamesis in Antioquia -Where middle size farmers held most of the land- from other municipalities where most of the land was held in large haciendas. In Tamesis "where most of the land is held in farms of middle size (..) [there was] the anomaly of a democratic society of small owners in a continent of traditional latifundismo". And he continues, "One of the most notable differences that is immediately perceived in Tamesis is the relative absence of a divided pattern of social classes. There is a marked distinction between Tamesis and the Colombian regions where latifundio-hacienda are predominant". Havens concludes indicating how as a general rule people of Tamesis consider themselves to be "members of the middle class", in an environment of upward and downward social mobility determined by "income and education". Few years later Edel (1971) built on Havens' intuitions by applying his ideas to the study of patterns of participation of rural classes in associations known as Communal Action Boards (CABs). Edel suggested that "communities with small farms were more active in CAB's than those with rural wage workers or large farms. The middle farmer would be expected to have more income above subsistence to invest and more stake in the permanent betterment of his community than a landless laborer", and then he highlights the differences of these middle size farmers with landless laborers and large landowners: "Extension agents

working in areas with considerable wage-earning populations state that the unstable pattern of residence impedes community work. On the other hand, big landowners often live in cities part of the time, and send their children to urban schools, rather than investing in community projects near their farms. In communities for which information was available, it was shown that owners of farms of more than 100 hectares almost never took part in community action programs". In the next section I build on this literature to investigate the interests and incentives of different rural classes for the expansion of services.

3. How Land Ownership Patterns Affect Interests

In this section, I show how the sometimes subtle interests of different rural groups affect municipal politics and hence the provision of goods and services in rural areas.

3.1. The interests of Large Landowners

Research on the interests of large landowners in Latin America has mostly focused on the national political level where they are frequently observed acting as adversaries of land reform, supporters of lower land taxes and greater subsidies for specific agro industries (Albertus, 2015). At this level large landowners are also normally organized in interest groups that frequently lobby and even determine legislation through their influence in the congress.[18] At the local level, however, generalizations about large landowners' interest can be only made based on ethnographic materials, interviews and the comparative literature. Fortunately, Colombia has a large literature of regional studies from a wide variety of sources, including the Center for

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[18] See Smith (2009), Sloan (1984) and McGuire (in Rhodes et al, 2008).

Historical Memory[19] has made available an extensive literature. There is a fairly well established

consensus that most large landowners do not live in rural areas, which is often referred as

ausentismo (absenteeism) in the literature. In a large N study conducted in Colombia, Edel

(1971) stressed how "big landowners often live in cities part of the time, and send their children

to urban schools, rather than investing in community projects near their farms.[20]". large

landowners thus do not experience ownership as belonging to rural communities "...they [LL]

come to visit, sometimes just for the weekend with other families from the city. Furthermore, it´s

quite clear that there is no interest in establishing a social relationship between them and the rest

of the population in rural areas.[21]" This absenteeism implies a marked disparity between the large

landowners' perception of their own needs and those of the communities where their farms are

located, something that produces a pattern of self-exclusion of large landowners from the

everyday activities of rural communities. Orjuela (1991), who lived in a Colombian rural

community for six months and analyzed the structure of its social network in detail, summarized

the distance between large landowners and the rest of the community. "In the network one can

observe a group of relatively isolated units corresponding to absentee landowners who do not

have relationships with neighbors of different socio-economic sectors and only sporadic contact

with other *absentista* landowners. However, in contrast to other links [by other types of

landowners] in the network, there is no constant interchange of favors.[22]" This absenteeism is

particularly felt in spaces of common decision making:

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[19] The Historical Memory Center (HMC) is a publicly funded center for the study of the causes and consequences of the Colombian Conflict.

[20] Edel, 213

[21] Orjuela, 181

[22] Orjuela, 175

"People affiliated to the communal action board often lack sufficient resources, they see the needs every day, there in their place, but a person that comes every eight days can't notice much of the actual needs.[23]"

"It is important to note that the families directly promoting the social and organizational dynamism in the *vereda* are owners of middle size of small plots of land. The large landowners and henceforth the ones with more economic power do not participate in the CAB or in any of the collective actions promoted there.[39]"

In addition to their absenteeism, it is relatively well established in the literature that large landowners are, relative to other rural groups, less exposed to the worst consequences of the failure to overcome difficulties accessing services such as education, drinking water, roads, etc.[24] Their children's education and household health services are covered in urban centers, "they own resources allowing them to solve many needs that small farmers have, and solve through their nuclear or extensive families. Overall they satisfy their needs in the city, a space of such degree of specialization that it demands other kinds of social strategies to successfully navigate.[25]" More specifically related to their rural estates, large landowners will often prefer to privately satisfy their needs of electricity, drinking water or even roads used for marketing their products than paying higher taxes for the uncertain public provision of the same services. Dean MacCannell at UC Davis has come to similar conclusions in his studies relating agricultural structure and social conditions in California:

"Everyone who has done careful research on farm size, residency of agricultural landowners and social conditions in the rural community finds the same relationship: as farm size and absentee ownership increase, social conditions in the community deteriorate." [26]

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[23] Orjuela, 265

[39] Jaramillo, 244

[24] See Engerman and Sokoloff (2002), also Brenner (1982)

[25] Orjuela, 170-1

[26] Cited in Strange (2008), See also, Galor et al (2009)

The conflict between community and large landowners' interests may be acute as large landowners may monopolize access to resources such as water by denying the access to others. Referring to a conflict in which the extraordinary presence of large landowners in a CAB was explained as a concerted effort to avoid the organization of the community needing the expansion of the rural aqueduct at the expense of the water usage of the large landowners, Orjuela (1991) notes how "in general some of the members of the CAB that already have access to water are not interested in opposing the group of members that do not authorize the expansion of access. This is because the latter enjoys great economic power and have owned land in the community for a long time, is formed of large landowners for whom it is inconvenient to grant greater access to water to others"[27]. Earlier on she noted how "[the large landowners'] use the water for non-domestic purposes such as cultivation, pastures, and swimming pools".[28] Almost twenty years later Osorio (2009) found a strikingly similar situation in a different part of the country:

> "In 1995 a project was approved by the CAB for the construction of an aqueduct for the houses that still lacked access [to piped water] (...). Even though the CAB received the materials to initiate the project, the owner of one of the large cattle ranching estates in the rural settlement (*vereda*) opposed it as, he argued, an aqueduct would imply a reduction in water needed for his animals."[29]

In Valle del Cauca, to the south west of the country the monopolization of water sources by large landowners is described by Cardona:

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[27] Orjuela, 327

[28] Orjuela, 326

[29] According to Rojas (1992) the *vereda* is "The smallest territorial units linking peasants to a given territory. Cultural, economic or political determinants explain their origin (a hacienda, the opening of the agrarian frontier, the parceling of large ranches, a refugee place)."

"(...) Of the Vanegas brook in the township of Costa Rich city of Geneva-Valle del Cauca. This water source had a permanent flow and was used to supply the locals, a common practice thirty years ago when the source of the brook became immersed within a plantation of eucalyptus, thereafter the flow started to decrease, and today is nonexistent. In terms of quality of access, we can cite the case of the Bombóná brook in the settlement of Cumbarco in the municipality of Sevilla. This brook is part of the water sources that supply the rural aqueduct in the area, but as in other cases, its source is now in the midst of a plantation forest, clearly violating Law 99 of 1993.[30]"

Finally, it is worth noting that Large landowners own more resources than other rural groups to contribute to political campaigns. Consequently, their interests are generally well represented by elected mayors and members of the municipal council. The logic is the same for large landowners to elect a member of their own group as mayor. According to Kalmanovitz (2006) "Given their overwhelming power of the [large] landowners (*terratenientes*) in the [municipal] councils it is not surprising that so little is done against their interests (*se den tan pasito*)."[31] Orjuela (1990) notes how a "characteristic" of the large landowners in her study is that "their relationship with the municipal government is directly with the mayor"[32] and she also notes "the great number of *ausentista* landowners participating in the national political life or who maintain close relationships with political leaders at the national level."

3.2. The interests of Middle Size Farmers.

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[30] Cardona (2009) cited in Rincón,96

[31] Kalmanovitz (2006), cited in Uribe (2009) [1]. In Punjab, Pakistan, Alavi (1973) summarizes his views of the local political influence of LL: "The framework so far presented about the structural conditions determining the political alignment at the village level, dominated by the political and economic power of large landowners, their links with the bureaucracy and the dominant political parties, questions common assumptions about how representative and electoral democracy (and its electoral results) works in predominantly rural areas."[119]

[32] Orjuela 187

The preferences of middle size farmers are more closely related to their direct economic dependence from their land than large landowners. Most cultivate it with the help of their families and occasionally hire other workers, particularly during harvest seasons. Given their economic needs and the fact that most of their income depends on the land, they cannot afford to leave large portions of their land fallow in the expectation of obtaining rents from future valorization. The evidence available suggests that they often travel to urban centers nearby, and may own a house there, but most of the time remain in the rural areas administering their land and thus maintain close relationships with their neighboors.[34] For Orjuela (1990) next to small farmers, middle size farmers "are the most numerous in localities and have such a sense of attachment to their rural settlements [veredas] that they almost seem part of the rural landscape (...). As a consequence of frequent encounters in the rural area a relationship of mutual favors among neighbors is established, with a certain level of solidarity that varies depending on the case. This is a relationship that is also nourished by the mutual support shown in times of hardships, when they are sought after as one of the families living in the rural area."[35]

Middle size farmers' willingness to invest in collective action may be explained by how accessing markets and public services affect their profits. In a clear contrast to large landowners, middle size farmers do not own sufficient resources for self-provision via private roads, electricity generators, and their own irrigation systems. After more than three decades of work in agencies for rural development in Colombia, Balcazar is emphatic: "in general prosperous peasants tend to be the ones paying more dearly the additional cost imposed on production by the

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[34] See Tapia (2012) who shows that the existence of a wide layer of middle size farms facilitated the emergence of the cooperative movement in rural areas of Spain.

[35] Orjuela, 179

absence or malfunctioning of territorial goods such as public services and infrastructure. He [the middle size farmer] lives in a rural town, close to the farm, or actually, on the farm, his children are also there and he is concerned for their good education. These are direct reasons that weight on him.[37]" This description largely coincides with Wolf's striking image:

> "His is a balancing act in which his balance is continuously threatened by population growth; by the encroachment of rival landlords; by the loss of rights to grazing, forest, and water; by falling prices and unfavorable conditions of the market; by interest payments and foreclosures. Moreover, it is precisely this stratum which most depends on traditional social relations of kin and mutual aid between neighbors...[38]"

Relative to large landowners, middle size farmers own less resources to contribute to political campaigns and therefore enjoy less influence on the local political class. Compared to small farmers and landless peasants, however, middle size farmers fare better at lobbying for their own interests in municipal administrations. While attending to their own businesses in central areas of the municipality, which would often coincide with days of public attendance at the mayor's office, middle size farmers lobby for crop subsidies, rural aqueducts or road improvements (see chapter four). They talk to municipal councilors to get direct access to planning or infrastructure secretaries. Also, given their greater economic facilities to travel to urban centers as well as offer their economic solidarity with neighbors, it is generally accepted by local dwellers that middle size farmers are called to exert leadership in their communities, especially vis-à-vis local politicians and bureaucracies. "It is seen as very important that whomever is serving as CAB president would have the time to 'represent' it. The further the rural settlement is located from the urban center the more critical is the economic position of the

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[37] Balcázar, interview.

[38] Wolf, 292

president. Really, it is required to own enough resources to establish relationships with institutions, representing the CAB in scenarios that so demand, and even maintaining relationships with social and political actors of the municipality.[41]" It is similarly put by rural dwellers themselves:

"...generally there is a lot of work in the countryside and that requires a lot of time, [taking the seat of president in the CAB requires you] often to leave your plot of land from Fridays, a meeting somewhere, go to the mayor's office, already it is Saturday and that is time that nobody will restore for you, there is no bonus...that is why many people avoid such position...they don't have the time or economically they don't have the means to go to town every now and then. You need the [economic] means to attend those meetings at public institutions at short notice...”[42]

3.3. The interests of Small Farmers

Small farmers own small plots of land on which they work part of the time. The rest of their working time is available to work in neighbors' plots. Given their relative poverty, they rarely leave rural areas unless it is to migrate for better living conditions in urban ones. Their safety net depends on the gifts and favors exchanged with their nuclear and extended families. It is common that a large percentage of the households in the *vereda* belong to only some few extended families. In times of severe drought, low prices, health crisis, or any other calamity small farmers depend on the rural wealthy - who often will be their employers -, whom depending on the prevailing pattern of landownership will be either predominantly middle size farmers or large landowners (the latter living in urban areas while their managers administer their

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[41] Jaramillo, 177

[42] Jaramillo, 95

land). Rural areas are networks of survival for small farmers, which leads to a need to preserve solidary relationships with other members in the community.

It is no less true for small farmers than middle size farmers that they strongly depend on coordination (reaching community consensus as well as guaranteeing its fulfillment by the majority) for both the definition of service priorities as well as the successful negotiation of political support for the expansion of services with the local political class. Unlike middle size farmers, however, small farmers do not own sufficient resources to spend on advocacy vis-à-vis municipal administrations, including travelling to urban areas to lobby for their interests, more so, given their limited travelling to town. Also, given the relative poverty of small farmers, it is especially hard to avoid free riding (vote selling) in the absence of strong leadership by middle size farmers (see below) enforcing agreements of collective political support in exchange for the expansion of basic services.

Indeed, small farmers' influence over local politicians and bureaucracies is limited. During elections candidates may attend CAB meeting presenting their political platforms and future projects for the *vereda*. The evidence suggests, however, that in the absence of strong CABs led by middle size farmers (see Chapter 2), the capacity of small farmers to demand public goods in exchange for votes is reduced. There is some consensus in the literature that poorer rural dwellers are more likely to exchange their votes for private benefits.[44]

3.4. The interests of Landless Peasants

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[44] See for example Stokes et al (2013): "The decline of electoral bribery in Britain and the United States tells us a good deal about how it worked, at the time when it remained vital in both countries. Vote buying focuses on the poor; when the poor and vulnerable among the electorate shrank and the middle class grew, relatively fewer votes could be purchased with cash or minor consumption goods."[340] See also, Sandholt et al (2014).

The contrast between small farmers and landless peasants is described by Alejandro

Reyes (2015) - who has studied the Colombian countryside for more than four decades:

> "The contrast is big between zones where the people own the land, as is the case of small farming agriculture in Boyacá, and zones where landless peasants predominate next to LL. In the first place we are talking of small farmers belonging to more conservative societies that are more demanding of local democracies. Not only there is more participation in the interest of the provision of public goods, but also there is more social rootedness due to a less prominent migration compared to regions where the lack of landownership forces entire communities to migrate. In other words, we are talking of a semi-normal population where land is scarce[45]."

Landless peasants depend on richer farmers for their economic survival. They can be

workers on large plots of land, or they may receive land tenancy through sharecropping

arrangements -whereby the landowner receives half of the harvest- or in exchange for periodic

payments. They also combine local labor activities with travelling to other regions according to

harvesting seasons. Consequently, and paradoxically, landless peasant share with large

landowners their relative rural rootlessness and thus lack of strong links with local neighbors, the

exception being their extended families. Jaramillo (2009) found that many of those that rarely

participated in CABs "belong to [poor] families working in large cattle ranches, *los agregados*.

This [lack of participation], explained by their mobility, lack of identity with the CAB and the

vereda, and the relative absence of linkages with collective projects of the community.[46]" In

Guayabal Río Arma, one of the rural settlements of her study, Jaramillo concluded:

> "The high migration pattern of families in Guayabal and therefore on the one hand an important number of families without land ownership who get access to it through sharecropping or as laborers, and, on the other the presence of families arriving to work for a period of time as administrators of cattle ranching estates is a factor impeding the creation of solidarity links

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[45] Reyes, Interview.

[46] Jaramillo, 198

amongst inhabitants, neighboring relationships or even family relationships, as well as the sentiment of belonging."[47]

Although the provision of public services and roads benefit landless peasants, they lack, relative to other groups, the incentives of land ownership to organize collectively and lobby for their provision. "Their participation is less stable and more determined by the specific problem affecting them presently, this is why their presence in the CAB is short and very direct, if a need such as water access is solved, they don't come again.[48]" landless peasant represent the poorest group in rural areas and thus also lack the resources required to organize effectively to lobby for their interests with local administrations.

Landless peasants' influence over local politicians and bureaucracies is the lowest of all rural groups. Apart from the vote itself, the electoral period is about the only time they can express their concerns to candidates visiting the CAB, something that they may prefer to avoid in case their opinions contradict those of their landlords.[49] landless peasants is of all groups the most likely to exchange their votes for private benefits.

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[47] Jaramillo, 175.

[48] Orjuela, 257

[49] In his study on peasant wars in the Twentieth Century, Wolf (1969) summarizes the levels of dependency typical of small farmers and landless peasants: "The poor peasant or the landless laborer who depends on a landlord for the largest part of his livelihood, or the totality of it, has no tactical power: he is complete within the power domain of his employer, without sufficient resources of his own to serve him as resources in the power struggle." (290)

	Permanent residence in rural areas	Dependence on Collective Action	Organizing capacity	Capacity to influence local elections
large landowners	*Absenteeism*	*Low*	*High*	*High*
middle size farmers	*Between rural and urban areas*	*High*	*High*	*Moderate*
small farmers	*Rural residences*	*High*	*Low*	*Low*
landless peasants	*Rural residences*	*High*	*Very Low*	*Very low*

4. Rural interests and local politics

Aggregate levels of service provision at the municipal level shall depend on the relative size of forces between these different groups with different and often conflicting interests. In particular, we shall be interested in the tradeoff between middle size farmers and large landowners. Indeed, depending on their relative balance of forces we shall expect to see contrasting balances of local power causing local democracies to provide access to public services in systematically different ways. Because large landowners don't live in rural areas but enjoy a strong influence over local political elites, it is reasonable to expect that politicians offering reductions -or the maintenance of already low- land taxes, which are defined at the municipal level, will be preferred in municipalities where large landowners hold more land and therefore more power relative to middle size farmers. Specifically, in municipalities where the leadership of rural areas lies in the hands of large landowners, we should expect low levels of effective programmatic organizations –such as CAB's- promoting the exchange of collective electoral suport in exchange for the expansion of services that have to be paid with higher taxes, particularly over land. As a result, candidates with preferences for programmatic exchanges with

CAB's will be less likely to win or even run. In other words, both the selection of candidates and public policy choice will be negatively influenced by patterns of concentrated landownership in the hands of the large landowning class.

A different set of expectations emerge from the existence of a relatively strong middle size farming class. Given their strong dependence on the public provision of public services it is expected that in choosing between candidates offering public goods, versus reductions in land taxes, middle size farmers would use their rural influence -gained through their constant leadership in the rural community- to mobilize support for the former. Incumbents will face a more severe lobby for the provision of rural public services by a more robust middle size farming class who will use their local influence to affect policy choice. These differences in the effects of rural elites on local politics illustrate the basic contradiction noticed by Havens (1966) in his observations of different municipalities across Colombia. He suggested that voluntary associations were one of the characteristics distinguishing Tamesis -where middle size farmers held most of the land- from municipalities with a predominantly hacienda economy. In Tamesis "where most of the land is held in farms of middle size (...) [there was] the anomaly of a democratic society of small owners in a continent of traditional latifundismo.[50]" And he continues, "One of the most notable differences that is immediately perceived in Tamesis is the relative absence of a divided pattern of social classes. There is a marked distinction between Tamesis and the Colombian regions where latifundio-hacienda are predominant.[51]" And he concludes indicating how as a general rule people of Tamesis consider themselves to be

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[50] Havens, 56

[51] Havens, 108

"members of the middle class", [52] in an environment of upward and downward social mobility determined by "income and education.[53]"

In the light of this conflict of interests between large landowners and middle size farmers it is easier to understand why Engerman and Sokoloff expected that Pennsylvania and New York offered more investment on public goods and access to opportunities:

> "Efforts to implant a European-style organization of agriculture based on concentrated ownership of land combined with labor provided by tenant Middle size farmers or indentured servants, as when Pennsylvania and New York were established, invariably failed: the large landholdings unraveled because even men of rather ordinary means could set up independent farms when land was cheap and scale economies were absent(...) The logic is that great equality or homogeneity among the population led, over time, to more democratic political institutions, to more investment in public goods and infrastructure, and to institutions that offered relatively broad access to economic opportunities (...) Between 1825 and 1850, nearly every northern state that had not already done so enacted a law strongly encouraging or requiring localities to establish free schools open to all children and supported by general taxes."[54]

But the conflict of interest between large landowners and middle size farmers is insufficient to show how either of them mobilize to obtain rural majorities in municipal elections. Therefore, we need to consider the interests of both small farmers and landless peasants as well. Because of their relative seclusion in rural areas where highly relevant information is less easily accessed, the capacity for direct political influence of small farmers as well as landless peasants depends on the predominant type of rural elite in their communities. Indeed, if middle size farmers are robust in the community it will be in their own interests to disseminate information to small farmers as well as landless peasants on municipal tax reforms, the timely inclusion of rural improvements in public services delivery in the drafting and

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[53] Havens, 111

[54] Engerman, Stanley L., and Kenneth L. Sokoloff, circa 2001.

approval of municipal development plans, inclusion in programs of rural road improvements, and even registration for the allocation of subsidies for house improvements[55] Additionally given their set of interests a relatively robust middle size farmer class will be especially interested in inviting candidates with programmatic platforms of rural improvements for the community to present them at locally organized bazaars at which they persuade small farmers and landless peasants to participate. This activism at disseminating highly relevant information, negotiating the collective support for a candidate in exchange for services, and the effective coordination of the community to deliver during elections, is less likely to occur in rural areas where large landowners represent the most powerful elite for the reasons already mentioned.

It is also reasonable to expect a stronger synergy for collective action demanding public services between small farmers and middle size farmers, than between landless peasant and middle size farmers as the fundamental difference between small farmers and landless peasant lies in the formers' stronger rural roots and incentives as owners for the provision of public services -especially given the subsequent valorization of their properties. In other words, given the ownership incentive we should expect a stronger marginal disposition to overcome collective action problems by small farmers than landless peasants, and this to be strengthened in the presence of a robust middle size farmers class. Finally, we should observe that as long as there is

[55] In his description of the peasant in rural China, Wolf makes the same point: "…past exclusion of the peasant from participation in decision-making beyond the bamboo hedge of his village [a striking similarity with CABs in Colombia] deprives him all too often of the knowledge needed to articulate his interests with appropriate forms of action. Hence, peasant are often merely passive spectators of political struggles…" 290. Alavi (1973) describes how rural elites play the role of political intermediaries: "Influential owners act as political intermediaries between the members of the village, either individually or collectively, and the government. They establish an extensive network of ties with officials that allows them to extend their role as mediators. The government, moreover, has traditionally entrusted them with establishing such links with local power structures."[112-3]

a strong middle size farmers group, small farmers would reduce their marginal disposition vis-a-vis landless peasant for the exchange of their votes for private benefits as they can join forces with middle size farmers to demand public services increasing the prices of their properties.

It is important to note that this argument about the contrasting effect of rural elites over rural communities is probabilistic. It does not seem like it would take more than one large landowner to influence local politicians through contributions. And it also does not seem like there would need to be very many middle-sized farmers for them to exercise community leadership. Nonetheless, if the argument developed in these pages is correct, ceteris paribus more middle size farmers are more likely to offset the negative effect of any given large landowning class. But also the reverse is true. Any reduction in the share of land owned by large landowners, which is equivalent to a ratio increase of land in the hands of the middle size farming class, is likely to have a positive effect on the expansion of services.

These expectations rely, at a more fundamental level, on three findings in the literature studying rural politics: (a) because rural communities are relatively isolated from each other and extensive family relationships are strong, individuals develop high levels of mutual dependence that can be symmetric –between relatives- and asymmetric –between the rich and the poor, (b) because social interaction is especially dense in rural areas (the "community" as a "small world" or "*pueblo pequeño, infierno grande*") surveillance of political behavior as well as vote intention is easier to implement there (Cox and Kousser, 1981; Lehoucq, 2007; Finan and Schechter, 2011; Stokes et al, 2013)[56], and (c) because of (a)&(b) it is more frequent that political

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[56] Discussing rural politics in Taiwan and Thailand Lahouch (2007) describes how "Candidates circumvented the secret ballot by working with local brokers, who, in the context of small and tightly knit rural communities, could reasonably predict the behavior of voters." [39]. Using experimental evidence for rural areas in Paraguay, Finan and Schechter use (2011) Cox's (2007) and Sobel's (2005)

mobilization takes the form of multi-class factionalism led by rural elites than inter-class antagonism (Alavi, 1973; Shanin, 1972; Wolf, 1966)[57]. Although I present evidence in subsequent chapters corroborating these claims for the Colombian case, it is important to discuss here the specific ways in which these findings in the literature support my expectations.

Rural relative isolation and dependence relationships help us understand why access to local, highly relevant information is first monopolized by rural elites with enough resources for obtaining it, and then selectively distributed to the rest of the community according to dependence relationships and the interests of specific rural elites. Also, dependence on the rich by the poor, often translates into relationships of gratitude and consequently political loyalty. Finally, if we add to the above the fact that political surveillance is easier in rural areas, it becomes plausible that political preferences of rural elites are likely to be represented in voting patterns of poorer segments of the rural population, namely small farmers and landless peasants.

Conclusion.
This chapter presents a theory of rural leadership based on the endowments and restrictions of different classes. It suggests that different rural groups access, use and manipulate information with differing aims and that the rural middle class is the most interested in using it to

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definition of intrinsic reciprocity - a person's willingness to sacrifice his own material wellbeing in order to increase the payoffs of someone who has been kind to him- to find "that in rural Paraguay vote-buying is sustained, in part, by intrinsic reciprocity" [879]. For the United States and England, Stokes et al (2013) indicate how "even before the official ballot was introduced (...) when party agents could more easily monitor voters' actions, the interconnectedness of rural and small-town social relations meant that party agents - themselves community members - commanded detailed information about individuals, families, and work relationships" [335].

[57] Alavi summarizes this literature indicating how "political divisions of peasant societies are usually vertical divisions that cut across class boundaries, rather than horizontal divisions of class conflict. The faction leaders see themselves as local power brokers or political manipulators that organize political groups with their dependent laborers, sharecroppers and other dependents". [89-90].

press politicians for purposes of collective development. I argue that it is because of these differences across rural classes that different balances of power among them cause local democratic governments to provide access to public services in systematically different ways.

I find that rural middle classes are more likely to engage in community organizing, particularly through participatory spaces such as communal action boards, because of their unique combination of incentives for overcoming collective action challenges to obtain public services such as electricity and aqueducts, particularly by organizing communities and holding the members of the community accountable to the agreements of supporting specific candidates with their vote during elections.

This is therefore a demand-side argument indicating that independently of the negative incentives that politicians have to offer the expansion of services across rural areas of developing countries, there are class dynamics across communities that determine the strength of their voice as they push for development.

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Chapter Two

Rural politics, community action boards and the landownership structure in Colombia

Rural politics in Colombia cannot be understood in the absence of a careful understanding of the evolution of Community Action Boards (CABs) and the mechanisms linking them as the foci of rural communal organization with the state. Indeed, as spaces of programmatic participation to discuss the needs of the community and interact with the political class especially during elections, CABs are the institution with the widest reach in even the remotest parts of the country. In this chapter I explore in detail CABs as political spaces whose strength is conditioned by the agrarian structure, especially the existence or absence of a rural middle class.

My theory suggests that rural politics -and therefore service provision mediated by politics- are fundamentally driven by the relative presence of two types of landowning elites with differing preferences, the middle size farming and the large landowners class. Specifically, the kind of rural leadership advanced by middle size farmers is conditioned on overcoming collective action problems to solve their needs for basic services. I did not posit that the fundamental difference between middle size farmers and large landowners is their relative preference for public services, all elites prefer to use improved services. What distinguishes the type of leadership advanced by large landowners from middle size farmers is that the former can provide privately for them, while middle size farmers must use public services. In other words, middle size farmers are too poor to provide privately for basic services or to live outside rural

areas while making a living from their farms, but nonetheless, rich enough to understand local politics and organize their communities for negotiations with local officials. They can organize their poorer neighbors to demand the provision of public services in exchange for votes. CAB's are the spaces where such collective organizing for development takes place, as I show in this chapter.

In chapters 1 I presented a general theory about the divergence in endowments (particularly land) and interests of different rural classes. In this chapter, I want to show how specifically in Colombia CAB's are the most important space in rural areas where the differences in interests amongst rural elites emerges most clearly and where rural leadership is most clearly transformed in development outcomes. "CAB's are effectively", says Orjuela (1990) "a space shared by families of different socio-economic sectors, representatives of governmental institutions, municipal politicians, the municipal administration, and regional politicians.[1]"

This chapter is divided in two parts. The first part explores in two sections the institutional evolution of CAB´s to distinguish between the period before and after local democratization (before and after 1988) to further support statements advanced in chapter two. Specifically, I show how a changing local institutional environment modified the mode in which CAB's demanded services from politicians and how a greater level of local political voice for the rural middle class became available after local democratization. With this institutional background in mind, the second part of the chapter explores in detail CAB´s as "the parameter to measure the explicit world of politics [linking] the actual needs and expectations of the village in relationship to local governments".[2] In this part I use multiple sources from Colombia, including

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[1] Orjuela, 1990. p198

[2] Orjuela, 1990. p2

master theses, interviews with rural dwellers, politicians and experts, to build a narrative about rural leadership via CAB's in the Colombian post-democratization period.

In summary, the purpose of this chapter is to explore in depth the qualitative evidence linking the leadership role of rural middle classes in local politics through their role in CAB's. It uses primary and secondary sources to flesh out in a qualitative manner the hypotheses tested in previous chapters and further advance the intuitions about aspects that could not be tested using conventional large-n methods.

1. Fifty years of local institutions and rural political voice.

This part explores the formation and evolution of CAB's as the most important institution of deliberation in rural areas of Colombia. In the first section I describe the wave of institutional reforms that started in 1957 and was instrumental in restoring order after a devastating partisan civil war within the regime of power-sharing democracy established between Liberals and Conservatives. Next I show how after 1988, under the new order of local democratization and administrative decentralization, these CAB's became the principal foci for the voice of rural dwellers.

1.1. Post-civil war reforms and the structure of rural politics before 1991

One of the five points in the 1957 peace plebiscite that approved the peace agreement between the Liberal and Conservative parties was to assign ten percent of the national budget for investment in education. As a result of this, and for the first time in Colombian history, Community Action Boards were created at the village level across the country for the purposes of organizing communities that together with other levels of government could help in the rapid

expansion of schools (Borrero, 1989).[3] Therefore, the organization in charge of the promotion of CAB's across the country was initially a dependence of the Ministry of Education.[4] The law assigned to municipal councils the regulation of CAB's, recommending that among other functions they could serve as controlling and administrative bodies for the provision basic services (Borrero, 1989). As such, CAB's represented the first nationwide attempt at organizing rural communities for the specific purposes of serving as partners in development.

According to López (1976) part of the CABs' success rested in the fact that they were the first nationwide attempt at organizing rural communities on a non-partisan way. The violence of the civil war was still fresh amongst the signatory parties as well as in the memory of rural dwellers, and CAB's were seeing as a pragmatic answer to solve community issues in a nonpoliticized way. Their relative success and rapid growth led, two years later, to the transfer en bloc of the division in charge of CAB's from the Ministry of Education to the Ministry of Government, effectively defining CAB's as central mechanisms for the implementation of the first National Development Plan of 1961.

As CAB's were founded across the country, Colombia also embarked on a series of attempts to relaunch land reform. Indeed, the sixties marked the largest attempt by the Colombian government to implement an ambitious land reform under the auspices of the Alliance for Progress and other American Initiatives such as Peace Corps. In 1960 about forty-five per cent of land was owned by 1.2 percent of the population with 65 percent of the

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[3] The concept of "village" closer Spanish translation is "vereda" which is described by Orjuela (1990) as "A conglomerate of families living in adjacent farms and whose members not only have frequent personal contacts but also develop and certain group consciousness" (p172-3). CAB's are the only elected body at the village level.

[4] Law Number 19 of 1958.

population owning only 5.5 percent (López, 1976). The strategy of President Lleras Camargo was therefore to redistribute land counting on the active participation of CAB's.

Unfortunately, CAB's proved insufficient to serve as partners in land reform. As a result, they were carefully studied by academics who linked the structure of land ownership with the local capacity for organization, state partnering and development (Havens, 1966; Borda, 1968; Edel, 1971). Their diagnosis of the situation of rural areas described causal chains connecting the predominance of latifundio land ownership patterns with poverty, lack of social cohesion, and more generally, social backwardness. Back then land reform was understood as equivalent to political reform across rural areas dominated by the Latifundio, and CAB's were seen as conditioned by the predominant land structure.

Camargo's nephew in Congress -Carlos Lleras Restrepo- had been the architect of the law on land reform of 1961. When he himself became president in 1966, CAB's were already seen as arenas for clientelistic exchange rather than engines of rural reform. It became evident that CAB's were quickly coopted by politicians –particularly congressmen and their representatives at the local level- for their electoral reproduction as access to development resources from the national government were delivered based on local political alliances. In his message to Congress of 1967 Lleras Restrepo? denounced as "fatal that political *jefes* used their political power in regional assemblies and Congress to vote *auxilios* (budget amendments) for the benefit of specific CAB's" in towns controlled by their partisan allies (cited in Borrero, 1989). Lleras Restrepo decided that If land reform was to be supported by the mobilization of the masses, a more radical organization was necessary to organize landless peasants to mobilize.

ANUC, the 'associations of user peasants' was founded in an ambitious project[5] to push from

below for land reform (Zamosc, 1983).

CAB's and ANUC grew in tandem. However, given its clear antagonism against large

landowners, ANUC was to exhibit a more active militancy versus the large landowning class.

CAB's became a symbol of moderation in rural areas while ANUC was increasingly seen as a

wild beast that threatened the rural status quo. Little surprise that as a new Conservative

government shelved land reform from the early seventies ANUC took a radicalized path,

whereas CAB's continued growing in the thousands. Acerbically, López (1976) criticized the

government for hypocritically abandoning land reform while embracing clientelistic CAB's: "It

is easy then to respond with a policy of little [public] investment, without touching the pillars of

the agrarian structure, the dominant class structure and power relations (…)". By the late

seventies, CAB's were effectively the only survivors of the institutional reforms of the early

sixties serving as the most important –if tamed- interlocutors of the state across rural areas.

The horrific violence of Colombia's partisan civil war was ended by a peace accord that

included provisions for sharing political offices equally between the two major parties. The

National Front, the label for this political agreement, divided political power equally between

Conservatives and Liberals, with alternating periods of exclusive executive power, four years

each. Meanwhile, Congress was divided equally between the two parties regardless of popular

vote. This political mechanism that has been credited for being both effective in pacifying the

country but also for rendering political competition ideologically vacuous. Since parties could

run multiple candidates, voting for president became essentially an intra-party dispute between

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[5] See decree 755 and 815 of 1967.

national family "dynasties".

At the local level this system led to intra-party factionalism and personalism. Since parties could run multiple congressional lists, local and regional political leaders tried to maximize their own chances of election to national office by creating lists of candidates led by themselves. This logic resulted in the proliferation of intra-party factions distinguished from each other only by the personalities of their leaders and their effectiveness as distributors of patronage and other private goods. CAB's as the most durable and widespread institutional product of the National Front was quickly recognized also as the cornerstones of the expansion of its clientelistic system. Rural communities were governed by appointed mayors (appointed by governors, themselves appointed by the president) and congressmen. Municipal councilors were the only elected representatives at the municipal level. Minimal municipal budgets, in which councilors have only a small say, were discretionarily complemented with external resources allocated unilaterally by governors, congressmen, or the president. Before local democratization and decentralization, the system of rural development depended on the central government, which supplied needed funding, with Congressmen playing the largest part in allocation decisions. Funds could be directed to CAB's in specific municipalities by the Ministry of Government or by pork-barrel amendments proposed by Congressmen. Under such system, CAB's experienced intense pressure to affiliate their loyalty to local politicians whose connection with these congressmen guaranteed access to resources. Under these system decisions on the construction of infrastructure were rarely consulted with communities and better connected politicians had the lion's share in resources for their respective communities.

Under this regime of the *national front* it was not unusual that the rural areas where land was heavily concentrated were actually better connected politically. Indeed, the large

landowning class could reliably offer the electoral support of their largely impoverished communities in exchange for resources that although officially appropriated for development projects, could be spent with cost overruns that permitted the private enrichment and the maintenance of the clientelistic network (see Reyes, 1978). This is not to suggest that regions where land was more equally distributed commanded no political influence, only that their capacity to deliver votes was less predictable. Under such system, CAB's served essentially as pipes whose irrigation with funds depended on their relative capacity for partnering with regional or national political bosses, but their influence was probably no larger than the one commanded by large landowners manipulating their dependent base where CAB's played only nominal roles.

In the absence of democratic accountability, rural communities organized in CAB's could only hope to gain resources to pay for public services by affiliating themselves –often unconditionally as rural Colombians had very strong party loyalties- with political bosses who had connections to those higher in the political foodchain. To this dependency on distant connections for resources we should add the fact that party alternation in the executive often led to long periods of abandonment of CAB's affiliated with the outsider party.

Although little headway was made in terms of improvement of service coverages for rural areas, by1984, 83% of the national communal development funding was appropriated by congress in direct pork-barrel projects, and additional funds -exceeding in 124% that of the original one- were also appropriated via congress leaders for specific CAB's (Borrero, 1989). Interestingly, rural aqueducts and electricity were the two biggest lines in the budget of the national communal funds.

1.2. Local democratization and decentralization.
By the early eighties massive civic strikes made evident the crisis of the centralized model of clientelism. Organized across multiple regions of the country, such strikes

systematically demanded the expansion of basic public services and denounced the mechanism of national clientelistic centralism. Indeed, between 1984 and 1986 three fourths of mobilizations were about basic services, most of them affecting municipalities with less than fifty thousand people (Cárdenas, 1989). Roads were often blocked and government buildings across several regions occupied demanding attention from the central government. "The provision of vital clean water was often depressingly used for political clientelism" and the struggle for the provision of public services was seen as the central aspect of the "conflict between the center and the periphery" (Calderón, 1989). A former minister of planning considered these mobilizations as "nothing but the announcement that the community will exercise the right of "initiative" and "direct action" in building its own development" and insisted that it would be a "fatal error to interpret differently the 'civic strikes', community fronts, and popular demonstrations that express the will of ordinary citizens to participate in decisions that affect their development" (Vallejo, 1989).

Threatened on several fronts –including the increasing strength of FARC and the exponential growth of narcotraffic- several reforms were enacted to replace the system of centralized clientelism with a process of democratization and decentralization. Participatory democracy took center stage in the government's discourse as a way to give voice to the regions whose principal mode of voice no longer was through the local politicians but through "civic strikes". By the end of his mandate president Betancourt had initiated the process that led to the first election of mayors in 1988 plus the devolution of autonomy in the administration of funds to municipalities.

In a national conference organized to discuss the situation of public services attended by the President and several ministers Corchuelo (1989) summarized the connection between the

nationwide crisis in the provision of public services and local democratization. "The lack of public services for a large percentage of the population and the same inefficiency of these, can be seen as a product of the lack of citizen participation, a lack of participation that has meant the operation of an allocation process only responsive to those social groups whose interests have managed to permeate the State", and continued "To break this state of affairs, there have been a number of reforms, particularly those concerning political, administrative and fiscal decentralization that give municipalities autonomy in managing their local affairs. The decentralization process to open new democratic allowing the emergence of new social actors, is conceived as an instrument of participation whereby the citizens have the opportunity and the right to decide on local affairs."[6]

Indeed, as of 1991, all municipalities were administering their own resources, received a defined portion of the proceeds from the exploitation of natural resources in their territories, and had relatively few restrictions in the administration of transfers from the central government (notably they have to prioritize health, education and basic sanitation). From 1980 to 1994 resources administered by municipalities almost tripled from 2.6 percent to 5.5 percent of GDP (World Bank, 1995). Today municipalities administer almost a quarter of the national budget (Penning, 2003)[7] and are the principal territorial units responsible for the provision of public services such as water, sewerage, electricity, health, and secondary roads. Although municipalities coordinate their actions with governors and can share the cost of some of the investment projects under the criterion of concurrence of jurisdictions with other municipalities,

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[6] Corchuelo, 1989. p73-4

[7] The subnational share of revenues passed from 18 percent in 1980 to 28 percent in 1995 whereas their participation in the

subnational share of expenditures moved from 28 to 40 percent (Falleti, 2005).

the fundamental principle of the role of higher administrative units is subsidiarity.

Such demands gave rise to local democratization and decentralization reforms under the explicit expectation that a closer form of democracy would bring service improvements, particularly by bringing budgets and planning closer to local communities. The upshot was a transition to a system of local clientelism whereby mayor candidates now used CAB's as political platforms linking campaign promises and rural communities.

When these reforms were implemented the expectations could not be higher on its effects, particularly on the role that local democracy was going to have on the expansion of basic services. As the Minister of the treasury put it "The National Government has made a large transfer of resources to municipalities that will serve as the base for the citizenry to demand of those responsible for their administration a careful and good use. (…) In the end the thesis that has been endorsed is that the solution to the problems has to emerge from the local communities' own efforts" (Alarcón, 1989). Specifically, it was claimed "that the widening the fiscal power of municipalities would lead to a marked efficiency in the provision of services by the municipality and to a decrease of civic protests that have become the most effective mechanism to demand changes in the delivery of public services" (Archer and Esguerra, 1990).[8] This theory was summarized by Rojas (1994):

> "As the structures of local power open, the peasantry can participate in the definition and construction of their future. This is what has been technically defined as the democratization of the municipal political life. That is how we got the sacramental formula: *decentralization = participatory democracy*."[9]

Fernan Gonzalez -one of the most respected voices about local politics in the country-

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[8] See also, Castro, 1987 "Consecuencias Políticas y Administrativas de la elección popular de alcaldes", en Reforma Política, No. 5. Fescol, 1987, page. 7.

[9] Rojas (1994), p21

summarized thirty years of the institution of CAB's describing them as vehicles of clientelism

representing nonetheless "the needs of popular sectors to demand the provision of basic services

vis-a-vis the state". In his view, "the real problem is how local politics work and how a

democracy from below can be built."[10] And although *democracy from below* hardly describes

what happened with CAB's after local democratization, it is no less true that as key spaces of

political contestation in rural municipalities, CAB's were to play a more direct and dynamic role.

Archer and Esguerra (1990) suggested that these reforms represented a fundamental

challenge to local *caciques*. Before, they used "the poverty of the municipality and their political

connections to form a dependent clientele [as] local politics were directed to the exterior (…) due

to the necessity of guaranteeing economic resources [from the central government] for the

provision of basic services and works". Clientelism now, so to speak, descended from the

national to the local level and better organized CAB's has a more direct pathway to negotiate

their electoral support in exchange for public services with mayor candidates.[11] None of the

previous mayors had to campaign in rural areas as they were simply appointed by governors, or

as Archer and Esguerra (1990) put it "The mayor was a representative of the governor who was

seeking to carry out the departmental and national plans at municipal level", but "it is possible to

say that the municipal administration is now more likely to respond to local interests with

broader citizen participation.".

The upshot was that as mayoral candidates had to actively campaign for election, CAB's

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[10] Prologue to the book "Communal Action and state policy" (Borrero, 1989).

[11] In 1994, six years after local democratization and three since the 1991 constitution, a diagnostic of the situation of CAB's for the Interior Ministry still read: "The work of community leader must evolve from asking gifts (*dádivas*), favors or support for some infrastructure works in particular, to the real participation in planning" (Restrepo, 1994).

became central platforms to disseminate their development plans and promise the expansion of services in exchange for political support. With "the popular election of mayors, the relationship between them and CAB's has increased" wrote Orjuela in 1990, just two years after the first election, "whereas before such relationships were minimal, basically reduced to red tape and the administration of some help, today the municipal administration seems committed to strengthen the relationship with villages (…) principally with CAB's.[12]" Here is how the mayor of Tabio, a municipality in Cundinamarca, described the transition:

> "Before there was very little connection between mayor and CAB's because mayors were appointed (…) Today there is a different relationship thanks to the popular election. There is mutual commitment as the relationship is direct. To this we should add all the propaganda promoting civic action helping people to understand that the solution to communal problems is often in their own hands (…) here in my [mayor's] office you can tell there is renewed interest in CAB's..."[13]

A nationwide census of CAB's was launched in 1993 showing their continuous growth since the local democratization reforms. It shows 42,582 CAB's with 2.5 million members/organized in 455 municipal associations, the majority of them in rural areas (Restrepo, 1994). Furthermore 67 per cent of the leaders surveyed indicated CAB's were strong or mildly strong in their respective municipalities with an additional 59 per cent believing CAB's had increased their influence since their creation (Restrepo, 1994). Orjuela (1990) also describes a more direct political protagonist of CAB´s after local democratization. "The set of policies that gave rise to the need of promoting political "community participation" have placed CAB's at the center of the attention of governmental institutions as well as political parties, especially as an

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[12] Orjuela, 1990, p189.

[13] Orjuela, p267

important option for implementing the decentralization policy".[14]

Almost as important as local democratization was the fact that municipal development plans became more predictable and information more accessible. Adding to this momentum, national transfers earmarked for water, health and sanitation, as well as funds from local taxes, kept expanding as a mandate of the newly enacted constitution of 1991.[15] Whereas before expenditures for local infrastructure were always defined at the national or department level, now priorities for nationally earmarked funds as well as freely disposable funds from local taxes were defined by locally elected mayors and the municipal councils. Rural communities that were better organized and whose leaders had the capacity to acquire budget information as well as discuss with candidates de inclusion of works for their communities had an advantage. In Jaramillo´s comparative analysis of four CAB´s she found that those most active had constructed aqueducts with the support of mayors during the nineties.[16] Indeed, the "popular election of mayors in principle allows for greater control of the local community over its own authorities" says Ramirez (1987), but this is "provided they are properly prepared for it and actively participate in the creation of alternatives and the choice between them".[17]

2. Rural classes and local participation

In part I, we saw that CAB's represented the basic political unit of rural areas at the village level. Since their foundation, after the midcentury intensive civil war period, CAB's

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[14] Orjuela, 1990, 151

[15] According to Law 12 of 1986 municipalities had to invest 50% of the sale taxes in rural areas when the majority of the population lived in rural areas, a major boost to the negotiating capacity of rural CAB's.

[16] See Jaramillo, 83 and 125

[17] Ramírez, 1987. P12 ¿Para qué sirve la reforma municipal? Revista: texto y contexto. No 12. Bogotá. Uniandes. p12

crystallized a social contract of centralized clientelism whereby local gamonales promised national resources to be spent on local services in exchange for votes. The crisis of such system became obvious by the early eighties as extremely poor services coverage rates led to massive 'civic strikes' across the country demanding services. In this part I rely primarily on findings of Colombian anthropologist and sociologists who have studied rural communities as well as their political organization. I also use my own interviews that confirm some of those findings. Specifically, I highlight the relationship of different rural classes to CAB's and the impact this has in the capacity of rural communities to overcome collective action problems to improve access to services. I show that evidence from areas with contrasting patterns of landownership point towards a significant contrast between middle size farmers and other rural classes in exercising effective leadership for rural development.

2.1. Methodology and sources.

I conducted twenty long interviews with a variety of people including communal leaders, former municipal mayors, and secretaries of social integration in three regions with contrasting landowning patterns in the country (South -Nariño-, Central -Caldas-, and North -Bolivar, Atlántico, Magdalena). I also conducted four extensive interviews with experts on rural politics in Colombia, including former high raking advisors of the Colombian government. During the interviews I used a questionnaire that served to guide the discussion, though I did allow for digression onto matters pertaining local politics and service provision in rural areas. The interviews for experts differed in that they were both more general and historically more comprehensive.

To select the pool of interviewees, I first chose regions of Colombia that according to cadastral data from 2010 had contrasting landownership patterns and public service coverage. In each region I visited municipalities that, according to my data, presented intra-regional variation

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in both landownership patterns and service coverage and ask interviewees to explain such contrasts. In the end I went to Nariño in the southern part of the country as it exhibited one of the denser patterns of small farming; Caldas due to a more mixed presence of middle size farmers, and finally Sucre, Bolivar, Atlántico and Magdalena in the Coast for the relative prevalence in them of large landowners. Although in chapter two I tested systematically how these patterns of landownership were related with service provision, I used the interviews to understand better these mechanisms.

In each municipality I used snowball sampling after the initial interview, most of the times with a member of the mayor's office. Even though I did not always express my interest of interviewing presidents of Community action boards, I was often referred to them, notably with the exception of the Coast where CAB's are significantly weaker. Such interviews were both extensive and rich in detail. Presidents of CAB´s play a tremendous role in organizing their communities. I was struck by how much of their capacity for organizing depended on their own private means and the relative access to land of the members in the CAB.

Although my interviews clarify and confirm some of the intuitions of my research, my line of reasoning fundamentally depends on two excellent ethnographic master's theses conducted in 1990 (Orjuela) and 2009 (Jaramillo) that studied the political and social dynamics of CAB's in two distinct regions of Colombia. As I rely heavily on them I describe them here.

The first dissertation by Orjuela (1990), was conducted during the first year after local democratization and explored during six months the contrasting dynamics of two different CAB's belonging to villages with contrasting pattern of landownership in the municipality of Tabio (Cundinamarca). The second one by Jaramillo (2009), involved more than a year of extensive fieldwork in the municipality of Sonsón (Antioquia) where she also used a

comparative perspective to study four CAB's in communities with contrasting landownership patterns. It is revealing that even as none of the authors conducted research investigating hypotheses linking socio-economic groups with effective community organizing in CAB's, nonetheless many of their principal findings actually confirm the line of reasoning pursued throughout this dissertation.

Orjuela's four-hundred-page detailed description of rural participation attempts to exhaustively explore the multiple motivations of rural dwellers to participate in collective decision making processes. Gender, family, religion, and even race are discussed as aspects explaining the patterns of participation that she observes. Two rural communities with contrasting landownership patterns are compared in her study. Whereas Salitre has a dominant class of absentee landowners that mostly dedicated their land to extensive ranching, Chicú was a community where small and middle size farmers held most of the land. What she finds at the village level is that the aspect that seems to matter the most for the capacity of communities to effectively organize had to do with household landownership and the existence of a class with sufficient education and income to serve as effective bridges between the local political class and their poorer neighbors.[18] Consistent with this observation she finds household level participation in CABs in Chicú close to 90 percent, whereas in Salitre she finds it only at 14 percent. Whereas in Chicú every house has access to water, she finds that 11.6 percent have no access in Salitre.[19] In following sections I elaborate on her extensive evidence.

Jaramillo's equally detailed study involved extensive interviewing both at the individual

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[18] "I have defined socio-economic status taking into account principally the area of land occupied and its uses", and she defines this status as "the set of opportunities and resources to act in specific spheres" Orjuela, 377-8

[19] Orjuela, 57-8

and at the community level in meeting of the CABs in which all the attendees reflected on the organization of the community, the challenges of the day to day organizing, the requisites they thought were required for CAB leaders to exert effective leadership, and off course, the mutual interests linking CAB's participants and local politicians. Jaramillo is interested in the concept of power and she explores the multiple ways in which power is projected in CAB's day to day, covering how social power is brought to CAB's, how is it projected in CAB's proceedings, and off course, how is it negotiated between the community organized in CAB's and the local political class. Similarly, to Orjuela, Jaramillo attempt to exhaust the set of relationships that seemingly matter as she explores the deployment of power in CAB's. In her account landownership plays a crucial role. Not only it seems to define relationships of dependence and reciprocity, but also seems to represent -together with historic lineage- the fundamental principle of legitimacy accepted across communities to define those call to exert leadership at CAB's. "The agrarian structure influences how villages organize in two ways" says Jaramillo. "First, it largely determines the scope and even the existence of the community action board, and also defines inside such board the very structure of power relations".[20] Notably she finds that communities whose landownership patterns are dominated by large farms lack a strong local leadership as absentee ownership predominates and only administrators stay who often come from other parts of the country and therefore lack social bonding with the community. In her account middle size farmers play a crucial role in organizing communities for development as I pass to describe.

My interviews add to this picture by showing that the dynamic they describe are not only

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[20] Jaramillo, 10

relevant today, but also apply in other regions of the country. The next section (2.2) describes the importance of CAB's in rural community organizing across the country, next (2.3) I explored the relationships between municipal administrations and CAB's as they cope with day to day development challenges. I focus on the dynamics linking the electoral interests of politicians and the collective organization of CAB's (2.4), which organically leads to discuss in the final section (2.5) the different roles played –if any- by rural elites (middle size farmers and large landowners) in CAB's organizing.

2.2. Community Action Boards and rural communities.

CAB's are central spaces for deliberation in rural communities across the country. Although much of the literature highlights their role as links between the communities' need of services and politicians demanding political support, the truth is that throughout my interviews and the secondary sources consulted they are also seen as fundamental spaces for the convergence of members of communities on almost any issues of communal interest.

CAB's, according to Jaramillo (1990) cannot be simply subsumed as elements of the clientelistic structure as "there are many [non-clientelistic] initiatives in which participation has been as important in scope and show the force that CAB's have as representative bodies of their communities and territories.[21]"

A CAB president from a municipalities close to Popayan describes CAB as "the primary cell [of rural society] (…) what matters in the work that one does at the grassroots level.[22]" As a leader in a CAB in Samaná (Caldas) told me: "The most important organization here is the CAB,

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[21] Jaramillo, 238

[22] Cited by Orjuela, 299.

and next to it, the committee in charge of the rural aqueduct.[23]" Orjuela (1990) goes as far as suggesting that CAB's cannot be studied "independently from the village" as (a) "relationships between neighbors is limited and most active when people meet in CAB meetings",[24] (b) "most of the time members are representing entire families, including extended ones", and (c) "even if members don't go to all the meetings, nonetheless they affirm their rights to express their opinions and participate.[25]" Jaramillo (2009) finds similar patterns of family representation as "kinship among families in the village define and strengthen the social links for the consolidation of the collective both generally and at the CAB level, (…) this is what cements power relationships in the village and forms the "us" constituting the scenario for the deployment of power.[26]"

But even if CAB's are foremost spaces for rural sociability, it is still true that their central role in development has been the quest of the expansion of services across rural areas. "Access to water is the most frequent conversation topic, also the situation of roads and sanitation.[27] (…) [this is why] practically the needs most often manifested in CAB's are about public services that in many cases -such as access to water- need to be followed through with the assistance of the mayor's office.[28]" In "El Brasil", one of the *veredas* studied by Jaramillo, the CAB's was founded shortly after the occupation of land in the village which partly explains why "most of the significant memories of its inhabitants have to do with intervention promoted by the CAB".

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[23] Interview in the municipality of Samaná, Caldas.

[24] Orjuela,187

[25] Orjuela, 1990, 356. See also 261.

[26] Jaramillo, p217 and 233. See also p 76

[27] Orjuela, p185

[28] Orjuela, 191

"The CAB was part of the construction of the rural school in the sixties. In the next decade (…) is was part of the construction of roads and an extra classroom for the school. (…) In the eighties it was instrumental for the process of electrification, a kindergarten (…) the building of the aqueduct, the sport's centre (…) and the implementation of the rural secondary school.[29]"

And from another case:

"The rural aqueduct was the result of the initiative of the community, they paid for a piece of land to put it. With the efforts of the CAB and the help of the municipality we will renew the aqueduct.[30]"

As a naturally dispersed community, the village meets every month or twice a month to discuss their community problems in the CAB. Reports of the situation the village aqueduct are presented, disputes between neighbors solved, and plans to organize a bazaar to collect some funds for the repair of a tertiary road discussed.

"In rural communities the unity is more visible [compared to urban communities]. They are smaller, people know each other, they can be cited on relatively short notice, and they see the problem that is affecting all. Unlike urban areas, CAB's in rural areas take the lead to fix, for example, a road in a poor state.[31]"

Jaramillo's contrast between two villages is illustrative of the relative importance of active community involvement for rural development. "El Brasil", led by families of middle size farmers (see section 2.6.2) has "Activities to raise funds such as snacks, raffles, festivals and the collection of funds among members of the vereda, are made to support the work of the sports, health, and social work committees. (...) These are activities that enjoy a large consensus.[32]" On

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[29] Jaramillo, p83

[30] Interview in the municipality of Samaná, Caldas.

[31] Interview conducted in Samaniego, Nariño.

[32] Jaramillo, 91

the other hand in vereda Guayabal -where absentee large landowners leave administrators behind and rural dwellers are quite poor- "meeting spaces, interaction and communication are scarce. Indeed, meetings, the main space for meeting others are performed only occasionally and under the sole initiative of the CAB president. Three months have passed without members of the board ever meeting and on the day of the meeting up to an hour can pass without a quorum.[33]" Obviously when CAB's are weak, inactive or non-existent, communities don't have alternative spaces for organizing and their capacity to press collectively for development is weak both during election times and in the day to day relationships with the municipal administration.

2.3. Community action boards and local administrations

In the day to day the administration of the CAB, business relies on the leadership of the elected President.[34]

"The way people proceed to solve their difficulties across villages is to present the problem to the leader of their village, then he talks about it with the municipal administration.[35]"

Indeed, during the week, and especially on Saturdays the president goes to town to talk with a member of the municipal council, someone who may have previously served as CAB president[36], or even the mayor "who is often interested in talking directly to them about issues in their villages.[37]"

"The community elected me [as CAB president], I have to defend the community. 'I come to this office [mayor's office]', I said 'to claim the rights of my community. But if you

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[33] Jaramillo, 162

[34] Elections happen every four years

[35] Interview if official at the mayor's office of Mallama, Nariño.

[36] Orjuela, 268

[37] Orjuela, 268

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don't want to help, I can go to other levels of government. I may have little education, but I know there are laws'.[38]"

In these visits the CAB president would try to talk to mayor's secretaries of public works, rural extension, security, water and sanitation, and social integration.[39] In these conversations he will be informed of funds CAB's can apply to in order to improve a road or to buy land for the future aqueduct.

> "We are close to getting a solution on sewage, and the road is well maintained, not so much due to my leadership, people helped a lot, but nonetheless I have to deal with town hall to get help"

Subsidies are often distributed to households in need from lists collected by presidents of CAB's. Finally, through visits to the mayor's offices the president of the CAB can get information about incentives for productive projects that as leaders of the rural community he can apply for. "As a leader, one has to put pressure.[40]" A member of a CAB in Sonsón describes these activities:

> "[The president] ... is always looking for information on projects at the mayor's office, projects in which the village can participate, ... public works, housing, in sport, everything, anyway she is looking for things for the village (…) then she informs.[41]"

The priority, indeed, is getting on time access to information about opportunities for communal development. "Information from 'outside' is concentrated in the president. He is accountable for the relationships with institutions and organizations at the local level (…) in

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[38] Interview conducted in the municipality of Mallama, Nariño.

[39] Orjuela, 297, also Jaramillo, 145

[40] Interview conducted in Mallama, Nariño.

[41] Jaramillo, 133

CAB meeting he briefs the community on relevant information coming from the mayor's office or any other institution.[42]" This is the principal ability that "members of the CAB appreciate as it represents the best chance for the community to get access to projects promoted at the municipal level.[43]" This is a work that is seen as one of obtaining "help"[44] rather than demanding rights and is, off course, tiring; one for which a great deal of motivation is required.

> "They have really seen that even if I fight for the village, sometimes there are very difficult administrations, because there is little that is achieved, yet they see that I am in one thing, in another... they encourage you to go to a meeting, a workshop. I am always there. Perhaps this is what has allowed me to continue...[45]"

As all intermediation between the government and the community passes through the CAB it is unsurprising that CAB presidents play a crucial role in history of communal development.[46] Indeed, for his role as element that centralizes all the information the president of the CAB is recognized both by the community and the municipal bureaucracy as the local authority.[47]

> "The most rewarding part of being president is when you see the need of one's community for you to represent them in many events, when we have community meetings, meetings with the very municipal administration (...) all of that is very rewarding because it reveals the leadership one has, and the good standing one enjoys in the community."[48]

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[42] Jaramillo, 88. Jaramillo studied the minutes of some of these CAB's and found that in the rare occasions when the President was not present information was exclusively of "inside" origin, that is, from the village itself.

[43] Jaramillo, 141

[44] Jaramillo, 106

[45] Jaramillo, 142, see also 370

[46] Orjuela, 192

[47] Jaramillo, 100 and 102

[48] Jaramillo, 205

"…as President people pays you more attention. You can go to institution saying you are just a member and they don't listen, but if you say you are the president then, off course!, because they know that behind a simple member nobody comes, but behind a president there are more members…institutions always look for the impact they have, and according to the leader is the impact.[49]"

"Here we have accomplished things thanks to the community. We have obtained fruits from our errands, but with the support of the community (…) what I have said, is done. If somebody is sick, I go with them to get the appropriate care. Alone is hard.[50]"

Now, few aspects are as important as the intermediation role played by the CAB president as chief negotiator of development vis-a-vis local politicians during elections as I pass to illustrate.

2.4. Community action boards and local politics

Across the country CAB's remain a mechanism whereby community leaders mediate between politicians' aspirations and the needs of the community. "With CAB's communities discover that politics can be translated into public works and that the relationship with politicians is instrumental."[51] In Mallama (Nariño) a farmer describes the mechanism:

"Politicians play the role of intermediaries serving the CAB, therefore politicians are supported and promoted by members of the CAB and the inhabitants of the community. This is a strategy that allows members of the community to participate in how decisions that affect them are taken. This is how rural dwellers actually get a space to express their needs, and get resources for the construction of public works.[52]"

Or as Jaramillo puts it, "the most elemental and constant set of relationships are the ones

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[49] Jaramillo, 100

[50] Interview conducted in Mallama, Nariño.

[51] Rojas (2012), p 59

[52] Orjuela, 369

established between council members or local politicians [and CAB's].These are relationships

that are proper of the nature of CAB's and the role that has been assigned to them by the state,

especially by the municipal administration.[53]" The most dynamic village in Orjuela's account

boasted the construction of a new aqueduct:

> "Chicú community is visited by politicians who often give their financial support in exchange for the cooperation of the community in political campaigns. This was how the work of the aqueduct was completed in 1988".

> Also from Samaná, Caldas:

> "The relationship between the mayor and our CAB is mediated by politics, as it is everywhere, if the President is not of the line of the mayor he will most likely ignore her. If she is a supporter, then by trying to suport her, he will support the CAB.[54]"

During political campaigns debates inside communities arise to discuss the relationships

between the current mayor and the village, and also to define the most urgent aspects that should

be discussed with candidates as they contact the President to ask him to "gather" the community

for a meeting in which they introduce their plans for the vereda.

> "There was this mayor candidate, he says 'so how is your vereda, which are the needs there', 'there are many needs' I told him, 'The hard time is for you to satisfy them' I said, 'well, I have to win the election he said'. 'Look any candidate coming to my vereda has no know that I need a satisfaction of a need for all the community, and that is the need of the aqueduct'. And that is how I address all the candidates, with the need of the aqueduct.[55]"

At Giralda, a village in Sonsón (Antioquia), Jaramillo describes how "the CAB president

decidedly supported la campaign of a member of the municipal council that the mayor also

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[53] Jaramillo, 228.

[54] Interview in the municipality of Samaná, Caldas.

[55] Interview conducted in Mallama, Nariño.

supported for the period 2008-2011".

> "In meetings he supported the candidate saying he was 'a good one'. Furthermore, he pointed out to all members that the CAB should be grateful to the mayor for his collaboration with the school and the road and invited members to vote for him.(…) [then]the CAB decided to suport the same candidate, because as winner he will recognize the loyalty of the village and then will reciprocate with a gesture.[56]"

A leader from Samaná describes these meetings as follows:

> "The candidates pay visits to the CAB. We program a Bazar and they come. They ask there for a space and describe their programs.[57]"

Although "CAB presidents administer the relationships between the community and politicians and therefore approve their participation in CAB meetings"[58] it is unlikely that they would refuse to abide by politicians petitions to talk in CAB meetings. In none of my sources CAB presidents refused such petitions as even those members of the community that would otherwise be indifferent to the businesses of the CAB will "attend the meeting when somebody from outside the vereda such as the mayor, a CAB promoter, a politician, or a rural extension technicians come".[59]

> "With something like a week in anticipation politicians contact the CAB and arrange a meeting and organize a work agenda. Communities are then organized by their leaders to attend. These leaders look forward to these meetings, especially with those they have political affinities.[60]"

Orjuela describes how "CAB's are under pressure to accept these visits, for it is their

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[56] Jaramillo, 201-2

[57] Interview in the municipality of Samaná, Caldas.

[58] Jaramillo, 65

[59] Orjuela, 1990. p142

[60] Interview in the municipality of Samaniego, Nariño.

hands that potentially helpful resources are and so it makes no sense for CAB leaders to

antagonize with politicians.[61]" In the end, however, a decision is taken:

> "The community knows that Dr. Ayala collaborated with the suport [money for the construction of the aqueduct], we told people, people know that it is the liberal Dr. Ayala of the popular movement who gave the aid to the vereda so there was no need for a more explicit campaign for political proselytizing.[62]"

Another CAB president described:

> "I will not force anyone to go with me as leader of the CAB. But I have people in mind, those who supported [with the vote], fine. I went to Tuquerres [another municipality] to get suport for electricity from the candidate. It was a need of all community. I went back and talk to the people 'you need this, don't you?'. If the one I supported wins, and I got the aqueduct, I go the those who voted otherwise and say 'no, your supported the other one and this is for all the community."[63]

> "Was there a preference for a specific candidate?, off course, that is common, it is normal.[64]"

Orjuela tells a similar story twenty years later in a different region:

> "Off course I tell them with whom we can work well, for example in this last [election] I told them, with whom I could, and the community could work with. Always you choose a candidate, when they go [for elections] is hard if one is with all, but one has to be decided on someone. Unfortunately, it was not possible now, we did not go with the winner, let's see how it goes, the truth is that everybody was there [when I told them]."[65]

We can think of the negotiation between candidates and communities as a game.

Candidates have two choices; they can choose to negotiate with the community as a whole or

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[61] Orjuela, 271

[62] Jaramillo, 147

[63] Interview conducted in Mallama, Nariño.

[64] Jaramillo, 107

[65] Jaramillo, 147

buy individual votes. Negotiating with the community entail the promise of public goods to be delivered if elected, although in some cases it also involves the delivery of some construction materials (to complete a school for example).[66] It is reasonable to assume that whether promising public goods is cost efficient as the politician don´t have to commit his own resources, vote buying is probably more secure as individuals develop a sense of loyalty for their patrons. Better organized CAB's effectively reduce uncertainty in community negotiations, therefore making a negotiation for political suport more likely at the community level and the promise of public goods the preferred strategy of candidates. "One can think of a local politician as a small patron" says Orjuela, "with a group of small clients [CAB's]. He is the man with the political resources, who is willing to deploy them wherever he finds more profitable.[67]"

> "They are there to set off their people and change the way they think, and they are, as representatives of their communities, who say, we have to vote for this one because he has committed himself.[68]"

> "When it comes, for example, to secondary or tertiary roads [essential to access villages], there is no supervision, you can only rely in the unity of communities to demand their maintenance from mayors. They [mayors] attend the needs if there was electoral suport, otherwise these communities may be forgotten.[69]"

The contrast between villages where the organization of CAB's is extremely poor and those where they are strong have less to do with the existence or absence of clientelism, but rather with the kind of clientelism practiced. Well organized communities negotiate for public goods. In Sonsón a number of CAB presidents described to Jaramillo their understanding of

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[66] Jaramillo, 200

[67] Orjuela, 367

[68] Interview in the municipality of Samaniego, Nariño.

[69] Interview in the municipality of Samaniego, Nariño.

block voting: "if the entire village supports the same candidate we can get more help and

projects".[70]

> "We go directly to talk to the mayor. We go as a group: 'we have this problem', that's
> how we did it for the aqueduct, things for the school. To put an example, last year there was a
> drought. People in need of water talked to the CAB president, and as Vice President we both went
> to talk to the mayor. He in turn sent us to the councilmembers 'which councilmember did you
> support, all right go to that councilmember as ask him to solve it', that's how it worked, the
> councilmember helped us.[71]"

What the evidence shows is that CAB's depend of their leaders to effectively serve as

organizers for development both during the day to day businesses, as well as during political

campaigns. Constant travelling to town -often hours away- as well as diligence to deal with the

local bureaucracy and the local political class, are essential requisites for excelling as president

of a CAB or as leader of any of its committees. Al Jaramillo puts it:

> "The existence of a representative that concentrates power and therefore has effective
> influence over the group is quite functional to the political system of clientelism during elections.
> (…) the kind of relationships established between the president as maximum authority in the
> village the its membership permits that the endorsement of the former leads to votes and
> recognition for the politician. (…) CAB's double condition as community based and state
> supported makes for a fertile platform for these dynamics as the votes obtained by the president
> can become later on favors and benefits for the CAB.[72]"

Therefore, when campaigns arrive CAB's leadership is tested for not only presidents

should guarantee that the community is relatively unified as a voting bloc, they also need to

know which promises are more likely to be fulfilled given the municipal budget size, and

therefore which candidates can be trusted

> "It is hard to know if everyone is going to vote and for whom, although you can tell about
> the intention of a number of people. (…) Mayors know which veredas supported them. [Samaná,

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[70] Jaramillo, 107

[71] Interview in the municipality of Samaná, Caldas.

[72] Jaramillo, 236

Caldas] (…) The CAB don't support publicly any candidate. Of course we recommend candidates, but not officially.[Samaná, Caldas] (…) this is quite important to voters because if the candidate that was supported by the CAB president wins the election, then help will be available and the CAB President can go and demand their support.[73]"

In his detailed study of rural leadership across the country Rojas (1994) brings the following testimony from the department of Santander:

> "…I saw that politicians' only role consisted in clientelism and personal favors, never any big project for communities. Therefore, we decided through the CAB to present to each one of the politicians contesting a list of demands, conditioning the votes to the help they offered."[74]

For those communities unable to guarantee collective support for candidates, the preferred mode of clientelism will be individual vote buying. CAB's are weakest in regions dominated by ranching. In the municipality of San Onofre, where large ranches predominate (department of Sucre), there was no secretary of social integration when I visited and CAB's were for the most part inactive. Here politicians belonged to political alliances dominated by large landowners. Unlike other municipalities described in this chapter, here politicians depended on local brokers at the village level who 'prepared' the community some months before the election for the support of a specific candidate. Specifically, these persons (also known as *mochileros*) would collect information about individual needs of specific households and would report them to the prospective candidate for the individual solution. Health is often at the top of these priorities, and help to obtain medical care provided by these politicians to these families often guarantee their loyalty and political support.[75], such promise of support was often

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[73] Interview in the municipality of Samaná, Caldas.

[74] Rojas, 1994. P 56.

[75] In my interview with Alejandro Reyes he described how many families of politicians in the Colombian coast had close alliances with medical doctors, many whome were their relatives, who would attend for free familites booked by the politician.

ratified with the distribution of cash by *mochileros* on election day. No exchange of political

support in return for the provision of public goods was described to me in these interviews. I

went on a tour across rural aqueducts in San Onofre and found a depressing panorama with no

CABs in charge of the service, no treatment plants functioning, and no aqueducts properly

functioning.

The negotiation between communities and politicians depend on the leadership of their

rural elites, in the next section I explore how the agrarian structure conditions rural leadership.

2.5. Community action boards and the landownership Structure.

Orjuela (1990) places the distinction between large absentee landlords (including owners

of recreational properties) and the group comprised by small farmers and middle size farmers at

the center of her dissertation explaining participation in CAB's. In her work she associates

socioeconomic status with specific strategies deployed via participation (or the lack of) in

CAB's. "Considering the criteria of socioeconomic stratification, roots and lifestyle of a family

(or individual) we can grasp the position of this family in the village, in the sense of

opportunities, expectations and possibilities for action in the social, political and economic

dimensions". These strategies, she argues, "are determinant of the dynamics of CAB's (…), for it

is based on a given set of resources and interests, that the collective does search for solutions".[76]

Both Orjuela and Jaramillo dedicate extensive parts of their dissertations to discuss the

socio-economic divisions in their communities and then discuss its implications for the

organization of CAB's. In both works, middle size farmers represent a special kind of

stakeholders in the rural community as they know that their economic reproduction depends on

the success of their medium size enterprises. Orjuela calls them *'finqueros de arraigo'* (rooted

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[76] Orjuela, 1990. P148-9, see also 263

landowners) and notes that they own more land than the average landowner, but certainly much less than the "f*inqueros ausentistas*" (absentee landowners). She sees these '*finqueros de arraigo'* taking an extremely active part in communal decision making and describes them as "almost part of the landscape". Let us consider the relationship between different kinds of rural elites and CAB's separately.

2.5.1. Large Landowners and CABs

"CAB's are the means to express the needs of most socio-economic sector, the exception being the first sector [large landowners][77]" for "Large landowners" Orjuela writes "live in the nearby city and travel to the municipality mostly to supervise the works in their property. They leave behind an administrator in their land, somebody that is often alien to the community [perhaps because they can be more trustworthy given their littler connections with the community](…) these are families that rarely participate in the social life of the vereda (…) they do not know about the problems of the vereda".[78] Orjuela compares large landowners "who have no interest in establishing a relationship with others"[79] with the rest of the community and finds that "to the extent that members of the community don't have the means to solve their needs by themselves, they seek the help of other members and will try to participate in village activities as a way to solve some of these problems.[80]" In Marquetalia (Caldas) the secretary of social integration notes how unity in CAB´s "seems correlated with small and medium farming, 2.5

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[77] Orjuela, 272

[78] Orjuela ,1990. P146-7. In a study conducted in Valle del Cauca, Rojas (2012) also finds that "administrators rarely last in their jobs for more than a year and this is why they circulate so often, *patrones* searching for good administrators and administrators for good *patrones*", p38.

[79] Orjuela, 181

[80] Orjuela, 173. See also 170

hectares on average, as there is a constant interaction between neighbors depending on the same water, the same road, the same health centre.[81]"

Apathy of large landowners -including capitalists, all "living in town"[82]- for CAB's is ever-present in Jaramillo's account and she contrasts them with the eagerness shown by other social groups, particularly landowners of middle size and small farms.

> "Large landowners and therefore those with more economic power do not participate in the activities of the CAB, neither in the collective activities promoted from there. Their self-exclusion signals that participation is seen as something done by those with more pressing needs.[83]"

Indeed, "CAB's are formed fundamentally by families owning small plots (…), those earning salaries from their work in farms, as well as the two families of the village that have the better economic conditions. There is no participation by the administrators of dairies belonging to capitalist entrepreneurs.[84]"

Orjuela -who conducts a series of representative surveys in the communities she studies-finds that unlike other social groups, large landowners don't have electricity needs and only rarely water access problems.[85] Furthermore, both Orjuela and Jaramillo refer conflicts between the community organized in CAB's and absentee large landowners who oppose the expansion of rural aqueducts as it would force them to reduce their own use of water. Jaramillo refers a CAB that obtained from the mayor's office the materials to begin the expansion of the aqueduct. Unfortunately "the owner of one of the large ranching properties opposed the project as an

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[81] Interview conducted in the municipality of Marquetalia, Caldas.

[82] Jaramillo, 180

[83] Jaramillo, 244. See also, 214

[84] Jaramillo, 128. See also 143

[85] Orjuela, 152

aqueduct would force him to reduce the amount of water for his animals.[86]" Orjuela even

describes how some large landowners entered the CAB with the exclusive purpose of boycotting

the construction of a aqueduct that would limit the monopolization of water

Orjuela as well as Jaramillo describe the difficulties of landless peasants as well as

sharecroppers to organize effectively. In their accounts although these groups are generally

willing to participate in Community action boards, their participation sometimes lack continuity

and almost never carry with it the responsibility to lead. As "owners" are the ones in leading

positions, "sharecroppers, *jornaleros* (day laborers), and administrators often attend looking for

benefits. Their participation can lead to desertion or indifference by whom?.[87]" In a village with

quite few owners, dominated by large ranchers, Jaramillo describes a "tough situation to build a

sense of the collective that would motivate the mobilization for the satisfaction of basic needs.[88]"

> "It may sound contradictory for even if these are the families with the most pressing
> needs, this also means they have the greatest limitations to advance any action to modify their
> situation. In Guayabal the urgency of getting the bread of the day is decisive when it comes to the
> CAB as members simply leave things in the hands of the President. (…) 'they don't believe that
> the CAB is for everyone to work together'.[89]"

Jaramillo finds that villages dominated by large landowners (mostly dedicating their land

to extensive ranching) have younger and weaker community organizations.

> "The oldest CAB's are located in the districts that make up the so-called 'Sonsón of the
> mountain' while the majority of the most recent ones belong to the villages in the districts of
> Magdalena Medio. This situation is related to the prevalence in the latter sector of the large

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[86] Jaramillo, p161.

[87] Jaramillo, 215

[88] Jaramillo, 215.

[89] Jaramillo, 164

property and therefore the existence of a lagging development of the organizational processes of the villagers.[90]"

"In all four cases we see the self-exclusion of large landowners as well as the administrators they leave behind (…) also in all the cases studied there were territorial divisions coinciding with the form in which families get access to land, forms that have a repercussion in how CAB's work.[91]"

The affirmation that large landowners don't participate in communal activities would seem hardly new to any observer of rural dynamics in Colombia. Reyes, who has studied rural politics in Colombia for more that forty years, goes even further when he affirms that "an evident and deliberate effect of land concentration in Colombia -particularly in the Coast, but also other places- has been to close down opportunities for the autonomous subsistence of peasant communities", he thinks the -often illegal- expansion of ranching lands at the expense of other forms of landownership forces communities into "political and economic submission".[92] "What happens in the Coast" says Balcazar -who served as national director of the provision of public goods in rural areas affected by the conflict- "is that large landowners don't care about the provision of public goods because the benefits are small and the tax costs usually high. Now, for landless peasant there are quite low incentives for organizing and demanding these territorial goods (basis services) as they don't have a clear attachment to their territories. Organizing is expensive, therefore people sell their vote as the difference for the laborer is in the short term getting the gains from the vote. This is why I think that the logic of land concentration is the opposite of the logic of rural development.[93]"

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[90] Jaramillo, 66

[91] Jaramillo, 216

[92] Interview with Reyes.

[93] Interview Balcazar.

2.5.2. Middle size farmers and CABs

But if large landowners do not participate in CABs, and small farmers as well as landless peasants have a hard time organizing, what is the difference that middle size farmers make in Community action boards across the country? Alvaro Balcazar has their role:

> "When we think of the rural middle class it is important to think about the size of the land as well as the security of the rights people have over the land. First, it seems clear to me that the concentration of land produces absenteeism while the opposite leads to family scale agriculture that in principle can lead to the production of a surplus. It is the existence of this kind of property and the security of the rights that in my view produces the incentives to demand services as people live in those rural areas, spends there, and obviously invest there. This is situation in which rural communities develop a greater sense of political responsibility. That is how you see a greater level of political control and the preoccupation of having politicians concerned with the development of such areas. Simply put, their motivation comes from the fact that people want to raise their children with good conditions, health, communications, electricity.[94]"

In a study conducted in 1987 on a sample of thirty-five rural leaders in Colombia, Rojas (2012) found that all had a level of education "relatively higher" for rural areas, have their economic situation "structurally solved" living off their agricultural undertakings, twenty-six owned land, thirty lived full time in rural areas, and most significantly, twenty-seven served as CAB leaders or municipal councilmembers. Again, in 1994, Rojas conducted a study of rural political leadership and describes an emblematic case of a middle size farmer that managed to become the first elected mayor of his municipality with the support of another twenty-three CAB presidents.

> "I have workers here in my farm, but I never dodge work, I get the cows (…) I lost the funds of two credits for being involved in national travelling as leader. Eighteen of twenty-one cattle died in a year (…) I was in Santa Marta in a workshop when twenty-three CAB presidents of the municipality had a meeting and said 'let's launch Javier, he is the only candidate we have' (…) other politicians laughed at my campaign as I was just walking a talking to people. They had their cars and went around offering cement, boots, anything. Somebody told me 'Javier don't be such a democratic man!, people have to vote for the legislative anyway, so why don't we go to talk to a politician from Pasto [capital of Nariño]' (…) he gave me a million pesos. (..) [when

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[94] Interview Balcazar.

results started to come out] Dalmacia, my village [was still uncounted], so I knew I had won before the counting was over. (…) They said 'the peasant won', and I was an uncivilized peasant with only two years of secondary school. (…) when one has social base and has worked with the community on fundamental aspects, you may end as I did: mayor."[95]

"If you want to understand the meaning of rural leadership here [Marquetalia, Caldas]" I was told by the secretary of social integration "you should talk to don Ernesto". Here was a man owning a farm of less than fifty hectares carpeted in coffee talking loudly and proudly about his role as president for eighteen years of the communal aqueduct "this vereda is for me like a family". Don Ernesto bought one of the largest properties in the village of small and medium size farms and, as he says "replaced the leadership" of the former owner who was also president of the aqueduct and a very active member of the CAB. "All people in this village has land and cultivate it. Before it was a hundred percent coffee. Now we have about sixty percent of coffee". Don Ernesto has never forced anyone to support a candidate as "the vote is secret, but there are people that pay attention to what you say 'whom do you think is going to be the mayor?' they ask, and one gives advice as a leader". Ernesto has coordinated several works in the vereda, one of the most emblematic being the construction of a tertiary road connecting the village with the principal road that leads to town.

> "I coordinated in 2006 the first process for the pavement of the road here in the *vereda*. We got help from the mayor's office, some money and machinery, also from the coffee committee we got some cement. We almost died in a car accident because of the situation in the road. So what did I do? I took a day, a notebook, and went house by house to form a schedule of the labor that the community would put at my disposal. Each one signed. I managed the funds personally. There was some shortage of funds to complete the road, so I decidedly started asking for collaboration in town. Everyone helped, including all farmers, even the priest. Everyone in the community collaborated.[96]"

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[95] Rojas, 1994. P 70-76.

[96] Interview in the municipality of Marquetalia, Caldas.

In both Orjuela's and Jaramillo's dissertations the central cleavage between strong and weak CAB's relies on the existence of leadership of middle size farmers. In Orjuela's account the divide between Chicú and Salitre is defined by the presence of leaders living in the village who had land, and also education and connections in urban areas. In Jaramillo's account also the existence of a strong presence of middle size farmers appears critical as she distinguishes between the village of Guayabal with poor communal organization and low service provision, on the one hand, and, on the other hand Giralda, El Brasil and Yarumal where participation was more dynamic resulting in better developmental outcomes.

To "have economic power is a desirable condition for whomever leads the CAB"[97], this is true not only for reasons of communal prestige, but also for logistical reasons:

> "Being a CAB leader requires a lot of work, one has to leave [for town] on Fridays, there are meetings, one has to go to the mayor's office on Saturday's, and there is no payment for any of this…this is why some people don't even try to be presidents…they either don't have the time or economically don't have the means to go to town regularly. You need means to do this.[98]"

For Jaramillo "the group of owners -who are also part of the set of families who founded the village- are in reality the minority with most possibilities to serve as CAB leaders. They have the most important positions in the CAB.[99]" In one village the president of the CAB from 1990 to 2000 is still remembered for being "one of the persons with more land in the village, with superior economic conditions to those of the average landowners "and therefore seen as an effective leader "whose economic power was an element allowing the CAB to advance works, get resources, and actually get done things that were up to that point frustrated.[100]"

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[97] Jaramillo, 202

[98] Jaramillo, 95.

[99] Jaramillo, 215

[100] Jaramillo, 168.

"When the leader of a CAB is a wealthy farmer [finquero] they do better because he will be willing to spend funds of their own.[101]"

"…he was an extraordinary leader, and when he runs errands in town he always pais from his own pocket (…) you could tell he was a great leader. He made everybody dance"[102]

In, El Brasil the families that lead the CAB are "dependable families when there are problems",[103] "appreciated and respected in the village.(…) they are characterized by having a good economic position in the village: they are landowners, rent land to others, their production is marketed and generally they manage to obtain some excedents(…) this is why belonging to these families gives *right* to its members to become leaders in CAB's. Those who lack [land and economic excedents] remain regular members.[104]" Orjuela finds an identical pattern in which families of economic means "form part of CAB's and some of their members have been members of the directory.[105]" People prefer to have leaders "that are influential and known.[106]"

The economic status of the CAB president is "more determinant as the village is furthest apart from town." Jaramillo finds, for "having the means is really important to establish relationships with institutions, representing the community and even sustain relationships with the social and political actors of the municipality.[107]" In the case of Guayabal the president is poor and don't have sufficient resources to effectively represent the CAB, to this Jaramillo adds the "shared believe among rural dwellers that having some economic power is necessary to be an effective leader. (…) People in the village say that the economic position of the president

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[101] Interview conducted in Victoria, Caldas.

[102] Interview conducted in Marquetalia, Caldas.

[103] Jaramillo, 86

[104] Jaramillo, 244, also 82, 94, 97 and 123

[105] Orjuela, 251, see also 301

[106] Orjuela, 312

[107] Jaramillo, 177

represents a kind of insurance vis-a-vis other social and political actors, therefore guaranteeing

success in getting resources for the village.[108]" Next to economic status, but closely related to it,

education is key to deal with "complicated issues, some of them involving paperwork, red tape,

etc. (…) as few [in rural areas] know how the CAB works"[109] Indeed, "in contexts in which the

education levels are generally low the presence of CAB members with reading, writing and

accountancy abilities is highly appreciated."[110]

        Conclusion

Of the set of rural institutions developed during the *National Front,* Communal action boards

represent the most enduring. Created as channels of rural organization to serve as partners in

development, CAB's quickly adapted to a system of political cooptation in exchange for rural

development projects assigned by senators which was characterized by cost overruns and

endemic corruption. Under this system municipal mayors were appointed by governors who in

turn were appointed by the president, and the only institution elected by popular vote –the

municipal councils- managed tiny budgets. Budget accountability was out of question under this

system and rural communities could only expect marginal improvements by aligning their

interests with those gamonales –often large landowners- with connections at the regional and

national levels where resources were assigned.

Such system came to a stop by the middle of the eighties as massive civic strikes, combined with

a peace process with FARC, converged in demanding local democratization and devolution of

resources to municipalities to promote local accountability and planning. A first wave of

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[108] Jaramillo, 177. See also Orjuela, 179

[109] Orjuela, 365-6

[110] Jaramillo, 245

elections for mayors were held in 1986 and local budgets started a secular growth trend with funds that could be spend both autonomously or semi autonomously for earmarked resources for health, clean water access and education. Under this new system of local democratization and decentralized budgets CAB's could play a more direct role in their own development by exchanging the organized electoral support for mayor and councilmember candidates in exchange for developmental resources. Trustworthy CAB's had to be well organized and such organizational capacity came from having a robust middle size farming class willing to spend their own resources in organizing communities, lobbying candidates, and acquiring information on budgets and developmental resources.

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Chapter 3

Compositions vs Gini: The metrics of rural class effects.

It is common in the literature linking the agrarian structure to either political or developmental outcomes to interpret a positive or negative correlation between the land Gini and any other response variable as indicating the existence of effects associated to the exclusive interaction between the rich and the poor. Acemoglu et al (2007) interpret the fact that land Gini is positively associated with good outcomes by suggesting "that powerful and rich landowners may be creating checks against the most rapacious tendencies of politicians. Consequently, in the municipalities with major landowners, distortionary policies that could be pursued by politicians were limited, and this led to better economic outcomes". Deininger and Squire (2004) find a different effect for land Gini and conclude that "results have implications for the poor". The obvious exception is Ansell and Samuels (2014) in which the middle class is discussed in the context of a higher income Gini and the appeal it made to realism in the actual distribution of real world Ginis, "It is true that different income distributions can generate similar Gini coefficients, potentially invalidating inferences about the relationship between inequality and social structure. For example, if we changed the income of the top group…and left everything else the same, the Gini would leap…. However, what is possible mathematically and what occurs in the real world are two different things. In truth, real world distributions of Gini coefficients are

highly constrained, giving us confidence in our inferences about the relationship between Ginis and social structure".

What is missing in these and other papers is an actual measurement of potential effects to be assigned to the middle class which goes beyond the dyad rich-poor. Palma (2011) displayed the paradox in his paper "Homogeneous middles vs. Heterogeneous tails" when analyzing cross national income disparities, he finds that "the Gini index only reflects the income disparities of half the world's population — those at the very top and at the bottom of the distribution — but it tells us little about the remarkable distributional homogeneity of the other half" (see figure 2).

In sum, if both Ansell and Samuels (2014) middle class effects, and Easterly´s (2001) middle size consensus are to be precisely tested, unfortunately the land Gini (and the income Gini) won´t be useful.

1. Beyond Gini.
   The restriction on theorization forced by the usage of the Gini coefficient is perhaps better illustrated as we consider its constancy at drastically different levels of relative wealth. For simplicity consider a municipality with a population divided in tertiles of land ownership (small farmers, middle size farmers, and large landowners) with a relatively common demographic distribution (.70,.25,.5) and a land Gini of 0.60. It can be shown that these conditions are satisfied under drastically different patterns of land ownership (figure 1 top). This ambiguity is by no means restricted to the Gini of 0.60 as is shown in the bottom row on figure 1 describing a number of possible values per tertile that could satisfy identical Ginis. Only when the Gini is unusually low (below .1) or unusually high (above .8) we can be confident of a polarized interpretation (about the dynamics between the poor and the rich). However, distinguishing

between the middle class and the rich is impossible in more typical values ranging between .1

and .8.
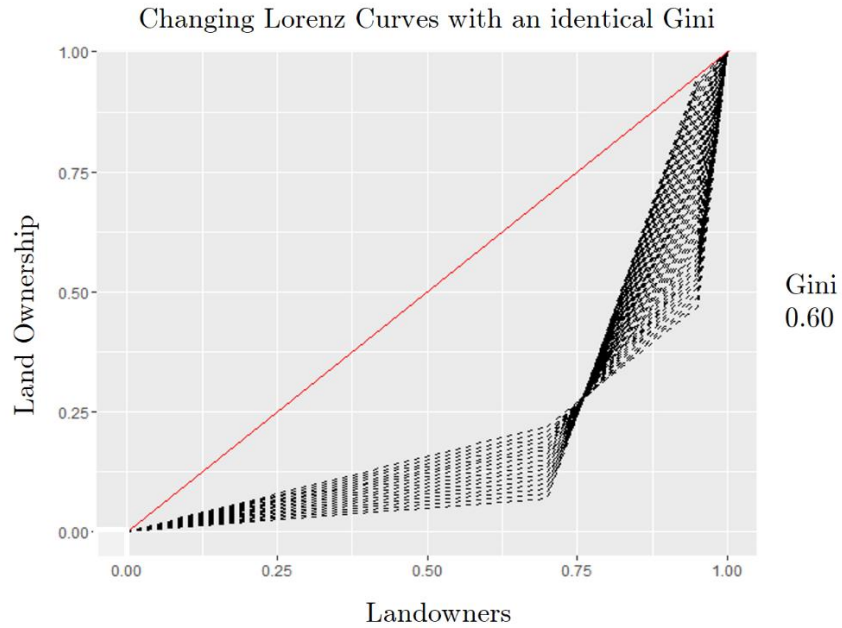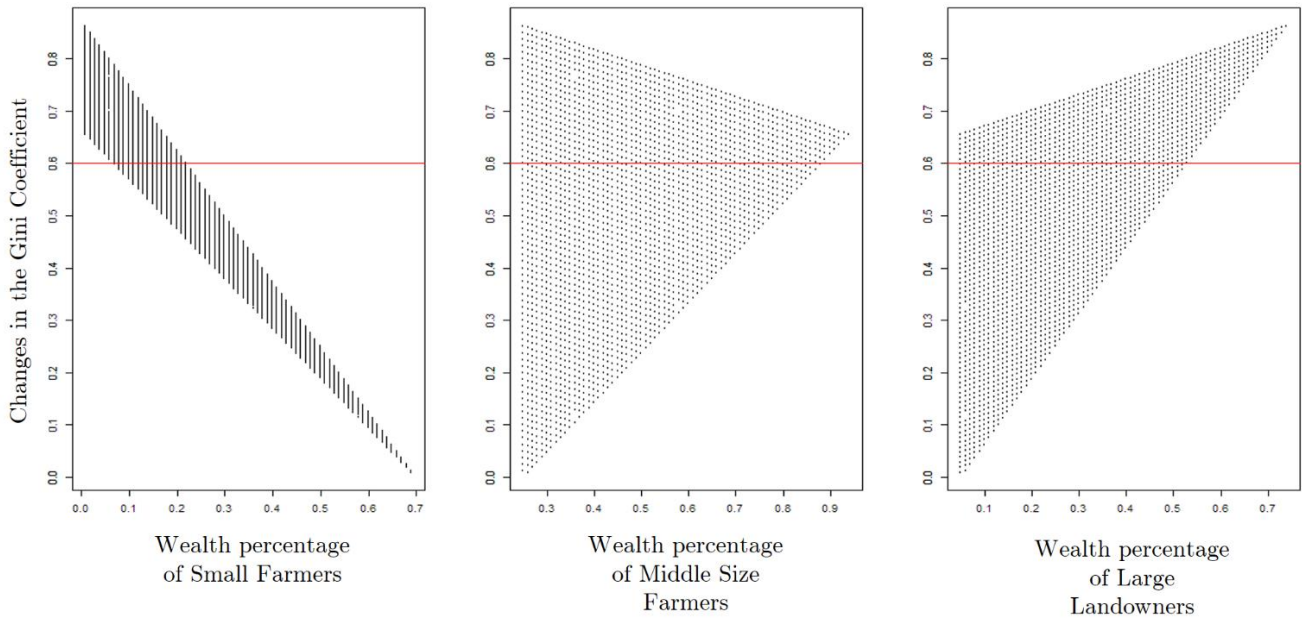
Figure 1

Even though since 1897 Karl Person warned against the dangers of interpreting correlations between ratios whose numerators and denominators contain common parts (the Cephalic Index was not working when comparing fathers to sons, brothers to sisters, and daughters to brothers), this has been precisely the way some authors have tried to capture the effects of the middle class in recent years. Lupu and Pontusson (2011) predict the differences between pre and after tax Gini (redistribution) by using simultaneously as independent variables inter percentile group earnings ratios (50-10, 90-10, 90-50). Specifically they first use both the 50-10 and 90-50 ratios (.7 correlation), and then in other models, the perfectly collinear 90-10 ratio (called the *skew*), to suggest that the "compression of income differentials increases social affinities between individuals occupying different positions in the income distribution… Government policy tends to become more redistributive as earnings in the upper half of the distribution are more dispersed and less redistributive as earnings in the lower half are more dispersed"[111]. Easterly (2001) incurs in a similar false solution when measuring the share of the middle class. Although I address this somewhat more detail below, the problem with ratios boils down to this in a three case scenario (the most common): Because percentile data adds to one any change in one variable, necessarily affect the combination of the other two, but in the opposite direction. In general, it can be shown that using simple ratios, for example, leads to greatly biased estimates. This is something that gets only worse when including all but one of the components, when we observe that by replacing the excluded component with any of the

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[111] I hope to convince the reader by the end of this chaper that the solution to the problem of Lupu and Pontusson (2011) is to use compositional analysis. Results using –incorrectly- ratios for the models run in this chapter are available upon request. The coefficients are not statistically significant.

included ones in the regression that coefficient simply maintains the magnitude, but with the inverse sign, as in a game of chairs (for an excellent illustration see, Hron et al, 2012).

Palma (2011) diagnoses graphically the ambiguities produced by the Gini index in his cross national comparison of the share of the middle class (fig 2). After plotting the income deciles for all countries with data available (decile 1 to 4 poor, 5 to 9 middle, and 10 rich) he shows that the income Gini varied drastically even as for most countries the middle class owned

Palma's illustration of the homogeneous middle vs. the heterogeneous tails in 132 countries, c, 2005
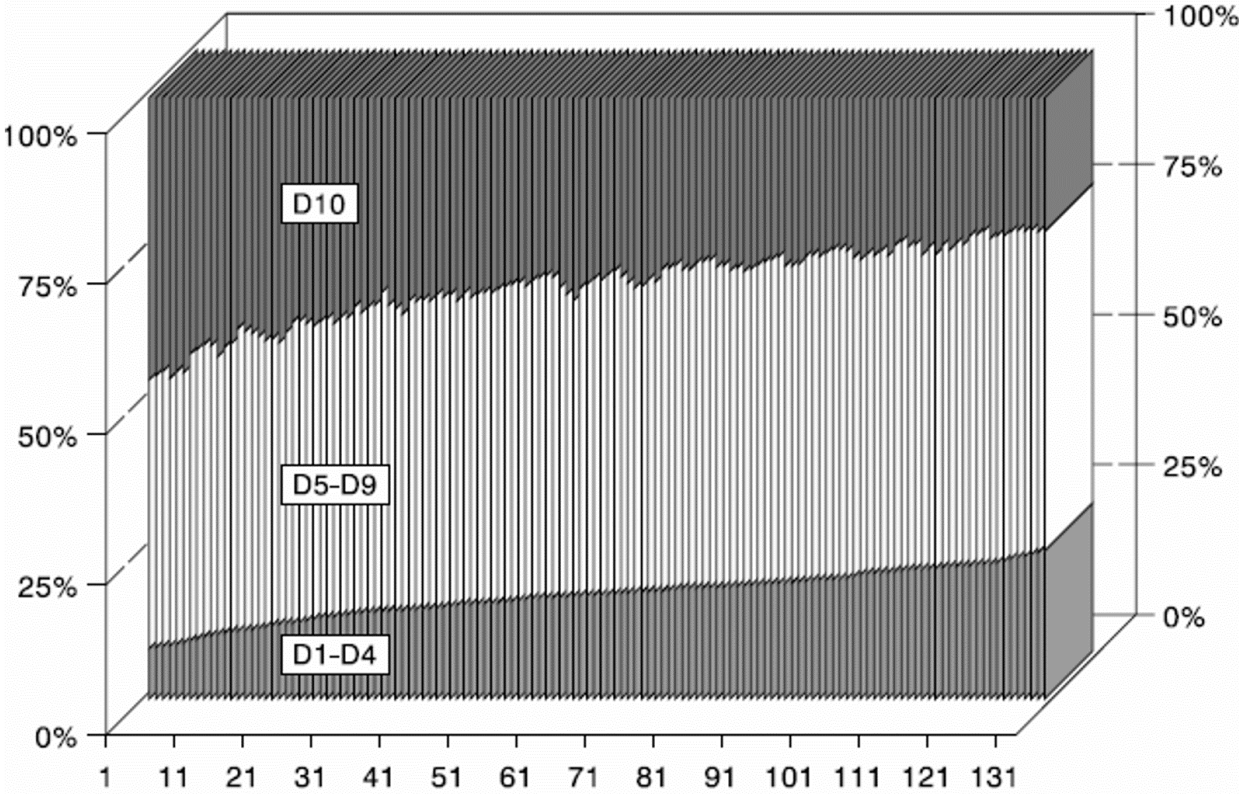
Source: Palma, 2011

Figure 2

half of the national income (Fig 2). In his view "what is crucial to remember is that the regional distributional structure suggested by the Gini index only reflects the income disparities of half the world's population -- those at the very top and at the bottom of the distribution -- but it tells us little about the remarkable distributional homogeneity of the other half. This raises serious questions regarding how useful the Gini index is as an indicator of overall income inequality, especially because (from a statistical point of view) the Gini is supposed to be more responsive to changes in the middle of the distribution."

Cobham and Sumner (2013) translated this intuition into the "Palma's Index" defined as the ratio of the richest 10% of the population's share of gross national income (GNI), divided by the poorest 40% of the population's share, effectively being a useful and intuitive measure of polarization if not necessarily of concentration (the share of the middle class is, again, ignore, if for good reasons). But what the "Palma's Index" could be seen as the symptom of, is the lack of an efficient statistical apparatus to evaluate the simultaneous vying of the three classes in - especially- a multivariate environment as I go on to explain.

2. Compositions

By its nature the data used in calculating the Gini coefficient reflects portions of some whole, summing to a constant such as 100% as in figure 2 above. Indeed, consider a landownership distribution by class of a municipality with one hundred thousand hectares. Thirty-two thousand owned by middle size farmers (MSF), forty-four thousand by large landowners (LL), and the remaining twenty-two thousand hectares by small farmers (SF). For cross section comparison this municipal distribution (which is fully developed as illustrative case in section Compositional data) becomes naturally, 0.32, 0.44 and 0.22, adding to 1 which, we know, excludes statistical canonical requirements necessary for the application of common

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techniques, particularly there is no free fluctuation from minus to plus infinite (-∞ , ∞+) as a precondition to implement the operations defined in the Euclidean space and there is perfect interdependence leading to singularity in the design matrix.

This single factor explains to a large extent the tradeoff observed in the literature between on the one hand selecting the Gini as a one index descriptor of concentration representing the information of the entire set of groups that may otherwise identified independently for theorization, and use of percentages of wealth accruing for a specific group class (over another as in the Palma Index or simply as a ratio of the total as in Easterly) which again, needs to ignore simultaneous inferences about excluded groups and leads to spurious conclusions. Naturally what is desirable is a way in which simultaneous inferences about all of the classes could be made within the framework of standard statistical analysis. This is where compositional analysis can potentially play a crucial role.[112]

Compositional analysis evolved principally in the Geological context where samples containing the interacting components in the soil always added to the sample unit. The fundamental intuition of compositional analysis is that in characterizing data of this type what is informative is not the absolute size of the portions, but the ratios of components properly transformed from a compositional sample space.[113] Therefore, pairs of components of different

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[112] The best introduction is in Pawlowsky-Glahn and Egozcue (2006). See also a practical guide for R in Boogaart & Tolosana (2013). The most important text is the founder of compositional analysis, Aitchison (1986).

[113] For a full description of common mistakes committed, such as extracting subcompositions and renormalizing them see Pawlowsky-Glahn and Egozcue (2006). Here are some of the items: (a) "any correlation coefficient will be affected to an unknown degree by spurious effects induced by the constant sum constraint"; (b) "the results of tests of significance will be intrinsically flawed since they arise from techniques applied to data for which they were never designed to be used" (c) "skewness and leptokurtosis" and (d) "results from discriminant analysis are likely to be illusory".

size may be compositionally identical if their ratios are identical. This interdependence, as Boogaart and Tolosana (2013) put it, "implies a substantial difference between compositional data and other multivariate datasets. Most multivariate analysis begins with a univariate analysis of the individual variables (the marginal), whereas each marginal variable of a compositional dataset has no meaning on itself, isolated from the rest". In a simple example of only two components one can see that increases in the portion of one necessarily lead to reductions in the second, which produces the negative bias in the covariance structure (singularity, exactly -1 for just two components). However, using log ratios between them one can readily see how these two components in reality represent a single composition that will range in the domain of real numbers. Extending this example to multiple components led Aitchinson in 1986, to formulate a theory of compositions with a specific sample space (known as the simplex) and transformation tools to introduce ratios of different levels of complexity in regression analysis. For example, we can visualize a case of three components as a single dot in a ternary diagram representing the simultaneous ratios among all the components (see Fig 3).

It is possible to translate the compositional simplex onto the Euclidean space through the use of transformations preserving both the original angles and distances, that is, its specific geometry. More specifically, a transformed scale defines a real vector space allowing for usage in a multivariate regression environment. As Hron et al (2012) put it:

> "Because most statistical methods rely on the usual Euclidean geometry, the compositions just need to be moved first isometrically from the simplex with the Aitchison geometry to the standard real space with the Euclidean one, using an appropriate logratio transformation that results in a real vector of logcontrasts".

Although there are multiple transformations, the most adequate used in regression analysis is the underline isometric log-ratio transformation, or *ilr* (see Pawlowsky and Egozcue, 2006). A regression with compositions as explicative variables can be represented as,

$$y = y_0 + \sum_{i=1}^{D-1} \gamma_i \text{ilr}_i(\mathbf{x})$$

Notice that this *ilr* transformation will produce D-1 vectors of transformed ratios. For the case just mentioned of a municipality with a three-part landownership distribution {.22, .32 .44}, the *ilr* entails a output vector of two real values as follows[114]:

$$ilr(x) = ilr[32,44,22]$$

$$ilr(x) = [\frac{1}{\sqrt{2}} * \ln\frac{32}{44}, \frac{1}{\sqrt{6}} * \ln\frac{44*32}{22^2}]$$

$$ilr(x) = [-0.225, 0.435]$$

Schematically the transformation as we move from three to two axes looks like this:

*Ilr* transformation for a compositions with three components
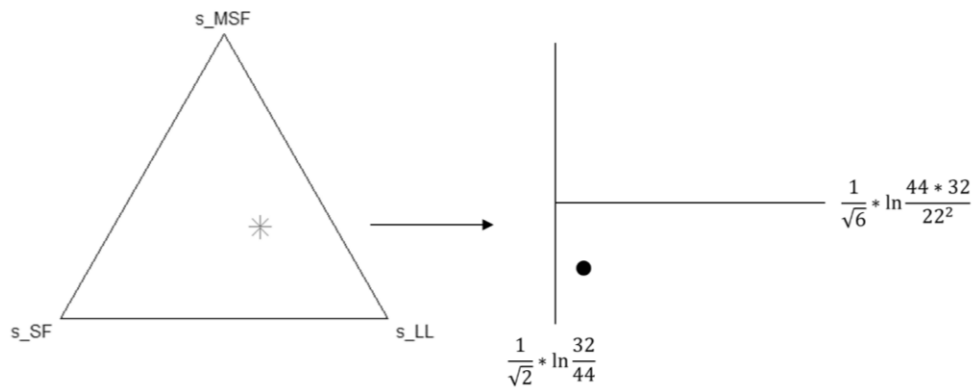
Figure 3

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[114] The interpretability of the operation in the ilr is difficult to grasp intuitively as each simplex geometry defines its specific *ilr* in order to preserve angles and distances (Pawlowsky-Glahn and Egozcue, 2006).Also, notice that results are invariant to scale, thus it is the same to work with .32 as it is to work with 32.

A composition of three elements is transformed into a real vector with two components and the ANOVA test is used to evaluate the global significance of the composition for predicting the response variable. Then we can run hypothesis testing analysis about the relative behavior between two components or even two groups of them (subcompositions) and the response variable, by using *ilr balances*, which are single *ilr vectors* accounting for relative variation of these two parts (Egozcue & Pawlowsky-Glahn, 2005 & Tolosana and Boogaart, 2011). Both the *ilr* transformation as the *balances* are easily calculated with the package compositions in R. we can have *ilr* transformations for any number of components, and balances for any combination of them.

In sum, what compositional analysis allows for is a fully consistent statistical analysis of the likely effects of the simultaneous interaction between groups. In other words, once our groups are understood as components we can investigate the effects of their relative power. In what remains, I use multilevel longitudinal models to investigate this relative power of rural classes using municipal level cadastral longitudinal data collected over three decades (1985-2005) by the Colombian government (see Compositional data below for a fully developed example of how compositional analysis is implemented). Throughout I will compare results and their interpretability for models explaining rural service coverage for aqueduct and electricity whose main independent variable is either compositional or the land Gini coefficient (see model specification below).

3. Data and Specification.

The central question of my research is: Do municipalities in which the rural middle landowning class is relatively strong vis-à-vis the large landowning class provide better rural basic services differently before and after democratization than municipalities with a more polarized land distribution?

Source: Velasquez, 2015

So far I have shown that studies that have been able to say something about the role of the middle class either avoid the Gini or use it combined with a measure of its "share" (Easterly,

2009). I have also shown that studies using the Gini as main independent variable can't say much about the role of the middle class (Palma, 2011), or at the very least discard the alternative hypothesis suggesting that the middle class is responsible for the difference in outcomes they observe. I this section I show how to move beyond Gini in the context of an argument testing how differences in endowments and power balances across rural groups cause local democracies to provide access to public services in systematically different ways.[115]

I classify rural groups as large landowners (LL), middle size farmers (MSF) and small farmers (SF). Large landowners generally live in urban centers, use labor to administer their properties and, depending on their entrepreneurial capacity and capital, develop agricultural enterprises. Middle size farmers live in rural areas but often travel to the urban center of municipalities in order to commercialize their products, use the labor force of their families to cultivate the land, and produce some surplus that is often either reinvested in the land on in the education of their children. Small farmers live in rural areas and rarely travel to urban centers, they often divide their family labor between cultivating their own plots and working for either LL or MSF. Small farmers rarely produce surpluses and have a subsistence economy.

Although it is important to emphasize that none of these groups develop a per se opposition to the provision of public goods in rural areas (schools, drinking waters, roads, or electricity), it is a central aspect of my argument that municipalities where LL hold more land will tend to exhibit a poorer provision of these services due to the LL preference for low property taxes, capturing local politics for their own benefit and their own capacity for private satisfaction of the needs covered by most of these goods. In contrast, municipalities where MSF hold a larger

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[115] For a more detailed discussion of the theory please refer to chapter one of my dissertation.

share of the land exhibit better provision of public services, not because MSF prefer higher property taxes -who does?- but because they are, on the one hand, sufficiently rich to pay from their own pockets the expenses involved in acquiring relevant information -and lobbying on them- about projects and laws benefiting their communities, but also because MSF are not rich enough to satisfy privately their needs and so are critically dependent on overcoming collective action problems to acquire publicly provided services. I argue SF communities critically depend on the MSF leadership to obtain public services, otherwise, they succumb to the negative influence of LL and remain relatively dormant to enforce their rights vis-a-vis local administrations. Relatively homogeneous communities of SF can achieve more than communities of highly polarized land structures in which a substantial share of the land is held by LL. Under these premises I define as rural elites both the LL and the MSF.

As the effects I am trying to capture are relative, that is relations of power among groups, my main dependent variables will be balances between classes whose interpretability is precisely relational. Without balances (in the context of compositions), as already noted above, effects will be difficult -if not impossible- to interpret, or simply spurious due to the lack of information about the relative effect of other competing groups. Nonetheless, as already stated, I will compare my results and their interpretability with identical models in which the main independent variable is the land Gini coefficient.

Before going into the description of these balances and specification details, the next section contextualizes the data and explains the rationale for including specific controls.

3.1. Data: Middle size farmers and local democracy in Colombia.

When nationwide elections for municipal mayors were first held in Colombia in 1988 there was great variation in landownership patterns across the country. Large landowners held the largest proportion of land across municipalities in the Costa and Llanos, middle size farmers predominated in coffee lands (around Medellin), small farmers in Cundiboyacence regions (north of Bogota) and south Pacifica (near Pasto). Of course, not all municipalities in these regions had the same landownership patterns, and whereas in many two classes held equal proportion of the land, in others all the three could have an equal share. In short, it was difficult to infer the proportion of land of any class from that of any other.

Since the time of the Alliance for Progress researchers traveling across the country pointed out how these diverse patterns of landownership must have something to do with the differences they observed in how municipalities were run. In studies comparing municipalities in the Coast with those in the coffee lands Haney (1970) represented the latter as offering more opportunities for social mobility whereas the former was seen as little more than a feudal enclave of exploitation and poverty.

A relatively small land reform in the sixties and seventies did not suffice to avoid a dramatic expansion of guerrilla groups, all of whom claimed to be in arms for a revolutionary process that would, among other things, bring redistribution to areas of the country where large landowner predominated (Albertus & Kaplan, 2013). But if land concentration in the hands of ranchers was seen as a major obstacle to improving the conditions of rural mases, democratization of local politics -and therefore the election of mayors in 1988- was valued as a

step towards opening the political system without reforming the economic one.[116] At least the improvement of service provision was likely to occur as by design responsibilities and resources available to local elected leaders increased with democratization (Alesina et al, 2005). Such was part of the rational leading to the enactment of democratization as part of the implementation of the peace agreement with the FARC. So how did municipalities with different patterns of landownership fare after this process?

In my theory I assigned a developmental role to a strong rural middle size farming class due to their interests and capacities to push for the improvement of rural communities. I assigned a negative effect to a class of large landowners' class that was often absentee or provided privately for their needs. My interpretation of the incentives faced by the small farming class led to potentially contradictory scenarios as on the one hand they would want the expansion of services but on the other lacked the resources to exhibit independent voting. Based on these interpretations and the obvious interaction of interests between classes I then hypothesized that a larger proportion of municipal land held by middle size farmers (MSF) vs. large landowners (LL) would be associated with higher coverage of rural public services. I also hypothesized that a larger proportion of municipal land held by the small farming class would be probably associated with less service coverage, especially in the absence of a robust middle class to support its demands.

In order to test these hypotheses my main set of independent variables come from collected data on the landownership structure of municipalities before and after democratization from cadastral records compiled by the Geographic Institute Agustin Codazzi in Colombia

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[116] For an excellent review of this reform process see Archer and Esguerra (1989).

(IGAC). The comparability of my results with those of the land Gini coefficient come from the fact that this kind of data is the exact same used to calculate the land Gini coefficient (see compositional data below).

If success in democratization was to have a concrete effect in people's lives, it was in access to basic services. Indeed, at the heart of the debates surrounding the process of local democratization was the dissatisfaction across the country with the provision of essential public services. Therefore, my main response variables come from collected data on the percentage coverage at the household level of rural access to aqueducts, sewage and electricity from national census conducted in 1985, 1993, and 2005.

In order to isolate as much as possible, the true relationship between landownership distribution and the public provision of services I also account for a series of likely confounding factors. Colombia is currently trying to end a conflict that has lasted for more than fifty years. Previous peace processes with FARC include the one of 1985 that lead to the democratic opening of local politics (and eventually, though with other rebel groups to the enactment of the 1991 constitution), and one in the late nineties. Conflict has typically increase before and after these talks with intense fighting among paramilitary, guerrilla and government forces, and the perpetration of massacres. Variables accounting for these independent patterns tend to be naturally correlated and their separate inclusion in regression models problematic. Instead I use principal component analysis to construct a longitudinal war index accounting for what could be interpreted as the combined effect of war on the provision of rural services and which includes the number of political homicides committed by paramilitary groups, guerrillas, and the army, as well as the number of massacres and number of people killed in those massacres (construction

design is available upon request).[117] We may say from the outset that there is no clear expectation on what the sign of this coefficient may be. Although it is to be expected that an increase in the intensity of war may be correlated with negative developmental outcomes, it is also true that armed groups hold an interest in maintaining rural populations (who may be brought from other places to replace displaced communities) in their areas of control and is at least reasonable to expect that this could hinge upon their access to basic services. It is quite rare to see news reporting on the destruction of basic infrastructure such as aqueduct by armed groups (which should not be confounded with the constant attacks to other type of infrastructure such as pipelines). But independently of the motives of armed groups to preserve or destroy basic infrastructure it is reasonable to expect that services may be affected by patterns of forced displacement. To account for this last effect of conflict I construct a categorical variable on forced displacement.

It could also be argued that current levels of rural service provision at the municipal may have been affected by rural conflicts predating local democratization. A nationwide process of land occupations had some momentum during the seventies as peasant organizations across the country radicalized in the face of the rather marginal land reform that was more or less abandoned by a new conservative government (Zamosc, 1986). It could be argued that perhaps in areas of more intensive struggles people were generally better organized to push for service provision under elected local governments. It may be also the case that zones of armed conflict during the seventies and early eighties produced specific patterns of social mobilization in rural areas demanding or abstaining from demanding public services. Lastly it could be argued that the

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[117] Data on political homicides has been obtained from the Center for Historic Memory. Data on massacres from the Observatory of land restitution and property rights.

violence of the 1940s, the most intense in violence until the late nineties, could have had a lasting effect -particularly across sectarian lines- in local politics. I account for these factors using data collected by Albertus and Kaplan (2013).

Municipalities with smaller rural areas and larger rural populations would be more likely to exhibit better coverage in basic services. This is to be expected as for them granting better access would be both more cost effective and politically more attractive. This is why I include both the sheer size of municipalities and their rural population as summarized in the single index of population density. For the same reason an index of the proportion of rural to total population is included. Better access to natural water and therefore easiness of aqueduct construction is accounted for through a measure of precipitation. Similarly, older municipalities are accounted for as a way to register effects associated with geographic consolidation.

Legrand (1986) has emphasized how newly occupied territories often follow conflictive patterns in the assignment of often insecure property rights over land. Governance in such places, she claims, is often problematic. Registering such places as well as the land the has been officially granted from the hands of the state is done by introducing a dummy for municipalities of recent occupation (Albertus and Kaplan, 2013), and the consolidated number of plots and size assigned by the state as part of its policies of access to land as reported by the Colombian Institute for Rural Development (Incoder).

Finally, I include controls for well know aspects that may affect the provision of public services such as whether the municipality was a coca producer, the percentage of people belonging to ethnic minorities, the five geographic regions in which the country is divided, and

the level of dependence from national or departmental transfers (calculated as the proportion of domestic revenues to external transfers)[118].

3.2. Compositional data

In 1993 the municipality of Yacopí in Cundinamarca 9,573 landowners registered covering 108,435 hectares (see Table 1). While its single largest landowner had an estate accounting for about 15 per cent of that land, all those with less than 15 ha each accounted together for only 22 per cent of the land. What was their relative income? According to official statistics, if you owned eleven hectares in Yacopí in 1993 you probably had a monthly income equivalent to approximately two minimum wages.[119] Here I define the rural middle class as households earning between two and six monthly minimum wages. [120] Therefore in Yacopí the rural middle size farmers are most likely owners of plots of land between 15 and 50 hectares thus

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[118] Data with a relatively large number of observations was available I was able to include all the controls that I thought could reasonably affect the outcome of interest without major statistical concerns. Results with no controls are also reported.

[119] The Colombian government has implemented a quantitative exercise known as the UAF (*Unidad Agricola familiar* or agriculture family unit) effectively allowing for comparability of land-income across the country. Comparability of classes (or groups) across municipalities with different types of soils is a concern with this kind of data. A member of the middle class in municipality A where the soil is rich and access to market relatively easy may typically own five to ten hectares. In contrast, no less than one hundred hectares may be required in municipality B where the soil is poor and access to market harder for us to safely classify a farmer as member of the middle class. Descriptive stats of the UAF are provided in table 2.

[120] Defining rural classes in terms of income (even if proxy by land) is already an improvement over most of the literature which simply used the size of plots independently of the fertility, proximity to markets, and other variables included in the UAF analysis. In an evaluation of one of the largest programs of rural development in Colombia known as DRI, Fajardo et al (1991) defined middle size farmers as "those placing their production in market. They have incorporated some industrial goods in their production (…) Women work at home (…) and a number of sons collaborate. (…) In moments of high demand of labor they hire labor. (…) All of them have a peasant origin and have living a rural life". Using a stative range (5 to 20 hectares) their estimates as to what percentage of the land was held in middle size farms differ from mine (see fig.4). Their calculation was that 11.5% of area belonged to middle size farms, I calculate 23%.

owning as a class about 32 per cent of the land.[121] Land accruing to the small farming class

(earning less than two minimum monthly wages of the land) accounted for 22 per cent of the

land. The remaining 44 per cent of the land was in the hands of the large landowning class.[122]

This distribution of land of land in Yacopí is summarized by a Gini coefficient of 0.66.

Changes in Land Ownership projected in Ternary diagrams
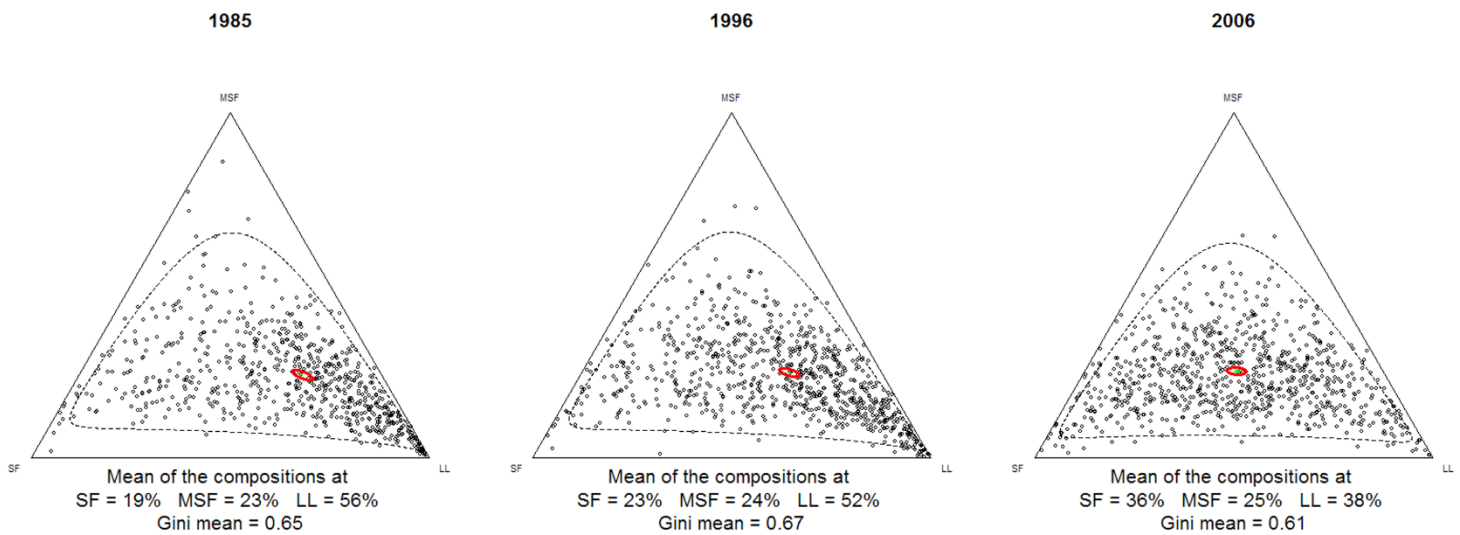
Fig 4

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[121] This is a conservative estimate of the size of the middle class as the previous range available in the data (from 10 to 15 hectares) likely includes both small farmers owning less that eleven hectares as well as middle size farmers above this size.

[122] Compositional analysis allows us to explore interclass relationships among any number of classes or groups (see the conclusion below). I use three classes as this is conventional in the literature on rural politics.

A first idea of how we can study the relationships between these portions of wealth accruing to the different classes in compositions is given by the ternary diagram in column 8 of table 1. What the red dot in the ternary diagram represents is the entire set of possible ratio combinations between shares of land owned by the three different groups, small, middle and large landowners (SF, MSF, LL, from now on). This can be seen if we interpret its relative distance from the vertexes as the inverse of the share of the class represented in them. In the case of Yacopí, we can see that the pull of LL on the red dot is stronger than the one exerted by either

Compositions and their respective balances for the relationship between
Middle Size Farmers and Large Landowners.
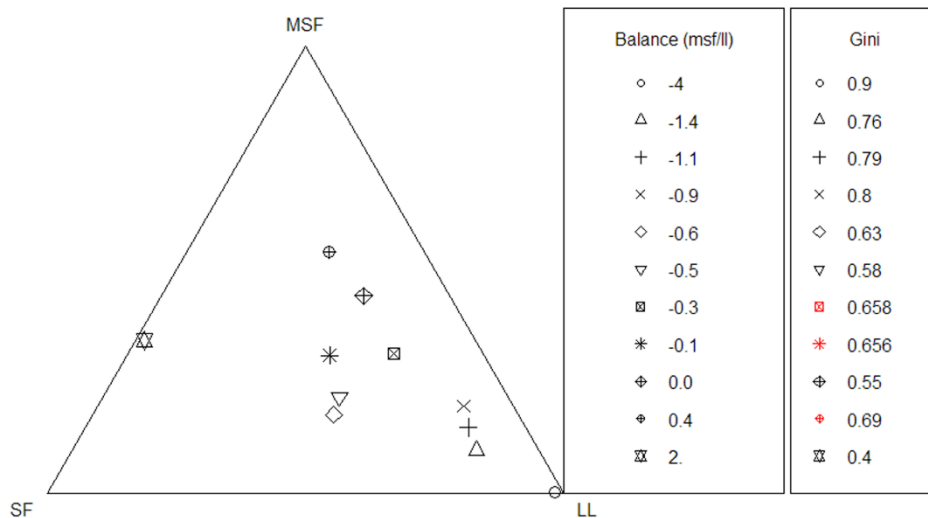
Fig 5

MUNICIPALITY : YACOPI — CUNDINAMARCA 1993

SIZE OF ONE FAMILY AGRICULTURAL UNIT (UAF) : 11 HECTARES

RANGES OF OWNERSHIP	NUMBER OF OWNERS	SIZE OF LAND OWNED	UAF-CONVERSION		COMPOSITION LAND BY CLASS	TERNARY DIAGRAM	GINI
LESS THAN 1 HECTARE	837	152					
FROM 1 TO 3 HAS	1642	2149					
FROM 3 TO 5 HAS	1516	4131	Less than 1 UAF	Owners of Small Farms: 7047 (74%)	Size of Land in Small Farms (s-SF): 24913 — 22%		
FROM 5 TO 10 HAS	1999	9926					
FROM 10 TO 15 HAS	1053	8557					
FROM 15 TO 20 HAS	630	7351	Between 1 and 3 UAFs	Owners of Middle Size Farms: 1999 (21%)	Size of Land in Middle Size Farms (s-MSF): 34792 — 32%		0.66
FROM 20 TO 50 HAS	1369	27442					
FROM 50 TO 100 HAS	393	17770					
FROM 100 TO 200 HAS	94	7563	More than 3 UAFs.	Owners of Large Farms: 527 (6%)	Size of Land in Large Farms (s-LL): 48728 — 44%		
FROM 200 TO 500 HAS	36	6108					
FROM 500 TO 1.000 HAS	3	1485					
FROM 1.000 TO 2.000 HAS	0	0					
MORE THAN 2.000 HAS	1	15802					
TOTALS	9573	108435	9573	108435	100%		
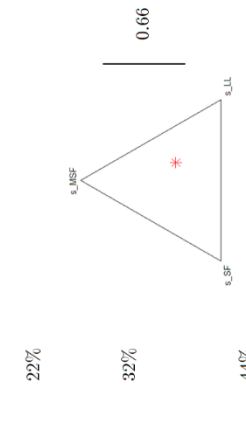
Table 1

SF or MSF, this, of course is due to their bigger share in landownership of forty-two percent. What we observe in figure 4 is thus the entire array of compositions ordered by year.

And what the minuscule green dot and red line around it represents is the geometric mean and 95 percentile confidence interval respectively. What we observe as the mean is displaced across decades away from the LL vertex is a recomposition of the landownership structure towards greater diversification. From the diagrams we can also see that even as these changes could be seen as rather significant, the geometric mean of the Gini change is rather small.

The use of balances that is required to introduce the insights of compositional analysis into multivariate regression environments can be visualized for a handful of cases (see figure 5). The balance of interest (msf/ll) represents the correct geometrical transformation between the simplex and the Euclidean space for the variation of MSF relative to LL. Notice that as we move from the LL corner of the diagram (for a municipality where LL own almost all the land) to the MSF corner our balance increases linearly. We can see already in passing that the corresponding Gini for each one of this municipalities does not follow a linear pattern thus missing the changing pattern of landownership shares accruing to the middle class relative to the richest one. The second panel in Table 2 presents summary statistics for the Gini, the compositions and balances used in this chapter.

4. Model Specification.
My approach estimates a multilevel longitudinal model on data with observations in three time-periods including before and after municipal democratization (1985, 1993 and 2005, local democratization begins in 1988 with the first democratic election of mayors). Because local democratizations was implemented nationwide and independently of municipal conditions, we

are confident that differences in effects won't be confounded with institutional factors.[123] Using

multilevel analysis is doubly required with the data at hand given that it is both nested spatially,

municipalities inside provinces, and chronologically, multiple observations are nested within

municipalities.[124] The levels in the model capture significant variation in service provision inside

municipalities with multiple observations, as well as across their respective provinces which

represent the neighboring municipalities with the most active interchange in goods, capital and

people. I use time random effects to assess the extent to which coverage in service provision over

three decades differ from one municipality to the next. Following the notation of Raudenbush

and Bryk (2002), Consider the following multilevel model:

$$
\begin{aligned}
L1: \quad & y_{tij} = \pi_{0ij} + \pi_{1ij}(T_{tij}) + \pi_{2ij}(C_{tij}) + \pi_{3ij}(CT_{tij}) + \pi_{4ij}(X_{tij}) + \varepsilon_{tij} \\
L2: \quad & \pi_{0ij} = \beta_{00j} + \beta_{01}(Z_{ij}) + r_{0ij} \\
& \pi_{1ij} = \beta_{10j} + r_{1ij} \\
& \pi_{2ij} = \beta_{20j} \\
& \pi_{3ij} = \beta_{300} \\
& \pi_{4ij} = \beta_{400} \\
L3: \quad & \beta_{00j} = \alpha_{000} + \delta_{00j} \\
& \beta_{10j} = \alpha_{100} + \delta_{10j}
\end{aligned}
$$

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[123] In particular, it may be the case that more vigorous democracies may bring about a stronger middle class and therefore any effect on rural services may be caused by a more dynamic democracy, whatever the reasons that may account for it. Knowing the composition of classes before democratization avoids this analytical consequence.

[124] Proceeding otherwise would violate the assumption of independence required for statistical analyses such as ANOVA, and OLS. Multilevel analysis is particularly useful to account for the necessary spatial correlation among neighboring units, in this case municipalities within provinces, something that can greatly bias parameter estimates.

Where in level one y_{itj} is the outcome of interest for municipality (i) in province (j) in period (t), which will be either (the transformation of) aqueduct, or electricity percentage coverage in rural areas. The main variable in the right side is C_{tij}, either the Gini or the Balances described in the previous section. Ttij is a dedicated time predictor continuous variable coded 0 for the first time period (1985) giving the intercept the interpretation of a baseline or initial status on the dependent variable (the other two years, 0 and 1, are 1993, and 2005 respectively). CT_{tij} is the interaction term exploring variation in growth rates. All other time-varying predictor variables that are captured at the municipal level are included in the vector X_{tij}. π are level one coefficients to be modeled in the next level. In level two time-invariant predictors associated with each municipality across all measurement conditions are included in ε_{tij} , Z_{ij}, $r_{.ij}$, and $\sigma_{.ij}$ are error terms for levels one, two and three respectively.

This model captures variability in the data produced from repeated measures within municipalities as well as across provinces. Level one models variation across municipalities of a given province with independent intercepts and a slope given by the balances (or Gini) and the time-varying covariates, the error term then captures variation of each data-point around its regression line. The intercepts in level two are modeled by averages within provinces, and slopes given by time-invariant covariates proper of each municipality, the error term modeling the variability of municipalities around the municipal regression line within provinces. Finally, level three models average intercepts and slopes corresponding to variance across provinces.

The questions we are trying to answer with these models, and the comparisons between Gini and Compositions as measures of landownership distribution, are: (a) What is the average growth effect of landownership distribution on the rate of service provision coverage in rural

Variable	Type/Transformation	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
Aqueduct coverage	percentage-BoxCox(^0.5)	0.57	0.23	0.60	0.59	0.24	0.00	1.00	1.00	-0.52	-0.38	0.00
Electricity coverage	percentage	0.59	0.30	0.66	0.61	0.34	0.00	1.00	1.00	-0.48	-1.07	0.01
Dependency of external transfers	percentage	0.47	1.00	0.27	0.33	0.25	0.00	18.00	18.00	12.01	184.74	0.02
War Index	PCA	1.12	4.04	0.00	0.25	0.00	0.00	79.55	79.55	9.60	140.20	0.08
Population Density	Log	3.18	0.96	3.29	3.24	0.91	-1.16	5.53	6.69	-0.70	0.87	0.02
Rurality Index	Log	0.67	0.19	0.71	0.69	0.19	0.02	0.98	0.96	-0.79	0.07	0.00
Precipitation	Log	7.44	0.64	7.33	7.48	0.36	3.38	8.99	5.60	-1.59	6.66	0.01
Age of munipality	Log	4.73	0.75	4.80	4.75	0.76	2.48	6.16	3.68	-0.35	-0.43	0.02
Gini	Index	0.66	0.11	0.66	0.66	0.11	0.28	0.99	0.71	0.00	0.19	0
Family Agricultural Unit (UAF)	Continuous	16.29	18.90	11.33	13.22	7.91	0.67	358.67	358.00	8.21	122.21	0.39
Balance MSF/LL	Balance	-0.47	0.83	-0.48	-0.47	0.69	-4.69	3.14	7.83	0.00	1.56	0.02
Balance SF/LL	Balance	-0.43	1.21	-0.44	-0.43	1.09	-5.60	3.45	9.05	-0.03	0.68	0.03

		None	Small	Medium	Large							
Land Occupations 70s	categorical (4 levels)	80%	15%	2%	2%							
Forced Displacement	categorical (4 levels)	26%	50%	10%	14%							
Number of plots assigned by the State	categorical (4 levels)	32%	27%	14%	27%							
Area of the plots assigned by the State	categorical (4 levels)	25%	32%	8%	35%							
Ethnic minorities	categorical (4 levels)	78%	11%	4%	6%							
		None	in 1993	in 2005	both years							
Production of coca in 1993 or 2005	categorical (4 levels)	85%	8%	5%	2%							
		Caribe	Orinoquia	Andina	Amazonia							
Geographic Regions	dummy	15%	5%	62%	2%							
		Yes	No									
War Zones Early 80s	dummy	12%	88%									
War Zones Late 40s	dummy	41%	59%									
Municipalities of recent formation	dummy	9%	91%									

Number of observations: 2337

Table 2

areas of Colombia before and after democratization? (b) is there significant variability in rural service coverage across municipalities over time? (c) are there reasons to believe that such effect is conditioned on democratization such that before, after and in the long run we observe different growth rates in service coverage? and (d) Does the fact that municipalities are spatially nested in provinces helps explain the variation in service provision coverage in rural areas?

4.1. Multilevel structure

The usage of the multilevel structure is warranted as 31% and 33% percent variance – ICC- in aqueduct service coverage occurred both across municipalities and provinces respectively. For electricity 26% of the variance in service coverage occurred across municipalities, while 34.5% occurred across provinces. There is significant variation in observed versus predicted service coverage within municipalities ($\sigma 2$). There is significant variation across municipalities with respect to average service coverage (τ_{00}^2) as well as the growth rate of service coverage across years (τ_{11}^2). The same is true for provinces (ω_{00}^2 and ω_{11}^2 respectively). The negative sign in the correlation coefficient (τ_{01}) indicates some deceleration in the growth rates form municipalities with rapid early gains and again, the same is true of provinces as show by (ω_{01}).

How do models that use compositions compare to identical ones using Gini? The most widely use criteria for model selection AIC (Akaike's information criteria) is slightly lower for the models with Gini (see table 2). A close examination, however, shows that such difference is fundamentally explained by the extra two degrees of freedom incurred by including the compositions (parameters estimated, 1870 vs 1872). Indeed, for the case of aqueduct:

AIC = -2*log-likelihood + k*npar

AIC Compositions model = -1356.546   npar = 1872

AIC_Gini Model = -1389.118   npar = 1870

Therefore, the log-likelihood for the model with compositions is:

-1356.546   = -2* log-likelihood + 2*1872

log-likelihood = (-1356.546 - 2*1872)/(-2)

log-likelihood (compositions) = 2550.273

Analogically, the log-likelihood for the model with Gini is:

-1389.118   = -2* the log-likelihood + 2*1870

log-likelihood = (-1389.118 - 2*1870)/(-2)

log-likelihood (gini) = 2564.559

The percentage log-likelihood change across models is just 0.55%, therefore differences

in AIC are almost 99% explained by the two extra degrees of freedom, which is obviously a

minor loss compared with the advantages offered in hypothesis testing.

5. Main Results

The advantage of using compositions instead of the Gini coefficient as predictor has to do

with their respective power to expand the hypothesis environment. The main results are in table 4

ANOVA global significance test on ilr compositions					
	df	Sum sq	Mean sq	F value	P-value
ilr(acueduct)	2	0.114	0.057	3.385	0.034*
Error	2226.75	37.654	0.017		

	df	Sum sq	Mean sq	F value	P-value
ilr(electricity)	2	0.167	0.084	7.120	0.001 ***
Error	2225.210	26.127	0.012		

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Table 3

Parameters	Acueduct		Electricity	
	Balances	Gini	Balances	Gini
Regression coefficients (fixed effects)				
intercept	0.391 (0.113)***	0.309 (0.115)**	0.084(0.104)	-0.006 (0.113)
Time	0.134 (0.010)***	0.129 (0.009)***	0.222(0.011)***	0.280 (0.028)***
Balance msf/ll	-0.018 (0.011).		-0.046(0.010)***	
Balance sf/ll	-0.007 (0.007)		0.011(0.006).	
Balance msf/ll : time (Democratization)	0.011 (0.005)*		0.017(0.005)***	
Gini		0.179 (0.041)***		0.181 (0.062)**
Gini : time (Democratization)				-0.100 (0.040)*
Controls	yes	yes	yes	yes
Variance components (random effects)				
Residual (σ^2)	0.130 (0.001)***	0.130 (0.001)***	0.109 (0.001)***	0.108 (0.001)***
Intercept Level municipality (τ_{00}^2)	0.129 (0.002)***	0.128 (0.002)***	0.137 (0.002)***	0.140 (0.002)***
Slope Level municipality : year (τ_{11}^2)	0.046 (0.001)***	0.046 (0.001)***	0.056 (0.001)***	0.059 (0.001)***
Covariance (τ_{01})	-0.523 (0.043)***	-0.532 (0.042)***	-0.776(0.006)***	-0.780 (0.005)***
Intercept Level province(ω_{00}^2)	0.095 (0.003)***	0.099 (0.003)***	0.122 (0.004)***	0.125 (0.004)***
Slope Level province: year (ω_{11}^2)	0.049 (0.001)***	0.049 (0.001)***	0.074 (0.001)***	0.075 (0.001)***
Covariance (ω_{01})	-0.687 (0.029)***	-0.717 (0.001)***	-0.762 (0.012)***	-0.764 (0.012)***
Model Summary				
Deviance Statistic	672.1898	700.7624	2421.815	2420.305
AIC	-1356.546	-1389.118	-1932.909	-1935.399
pseudo-R^2	0.8072792	0.8056485	0.9179464	0.918003
Parameters estimated	1872	1870	1872	1870

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Table 4

reporting estimates for aqueduct and electricity rural coverage as dependent variables. In all columns I report standard errors, the number of municipalities and provinces. To save space reported models contain interactions with time when it was significant (all but one), otherwise the non-interacted model in reported. Controls are included in the models used to produce this table (but the coefficients are not reported to save space). Estimates are stable with specifications that do not include controls reported in table 5. Table 3 reports the global significance of the *ilr*.

Consistent with the evidence, all models show significant increases in service coverage across rural areas for the last thirty years, on average, with greater gains in electricity than aqueduct. Our research question focuses primarily on variables in level one, that is, time-varying individual level predictors of the response variable at the municipal level, in this case of the compositions (*ilr balances*) and the Gini.

Figure 6 compares effects for three real and contrasting municipal cases from the example illustrated in figure 5 above. For each municipality I show the share of land owned by each class, the corresponding *ilr balance* transformation for the ratio between middle size farmers and large landowners, and finally the corresponding Gini. Plots on the left show marginal effects with varying slopes due to the positive interaction between our balance of interest and time. This is interpreted as showing that *a greater share of land owned by the middle size farming class (msf) in relationship to that of large landowning class (ll), is significantly associated with greater rates of growth in service coverages across rural areas.* Indeed, what is observed across these thirty years is a tendency which coinciding with local democratization has slowly reversed the previous status quo when areas that were dominated by large landowners

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Illustration for three municipalities with inconsistent Gini patterns

	sf share	msf share	ll share	Balance msf/ll	Gini	
Municipality A	2%	0%	98%	-4.6		0.96
Municipality B	33%	21%	46%	-0.53		0.59
Municipality C	18%	54%	28%	0.47		0.69
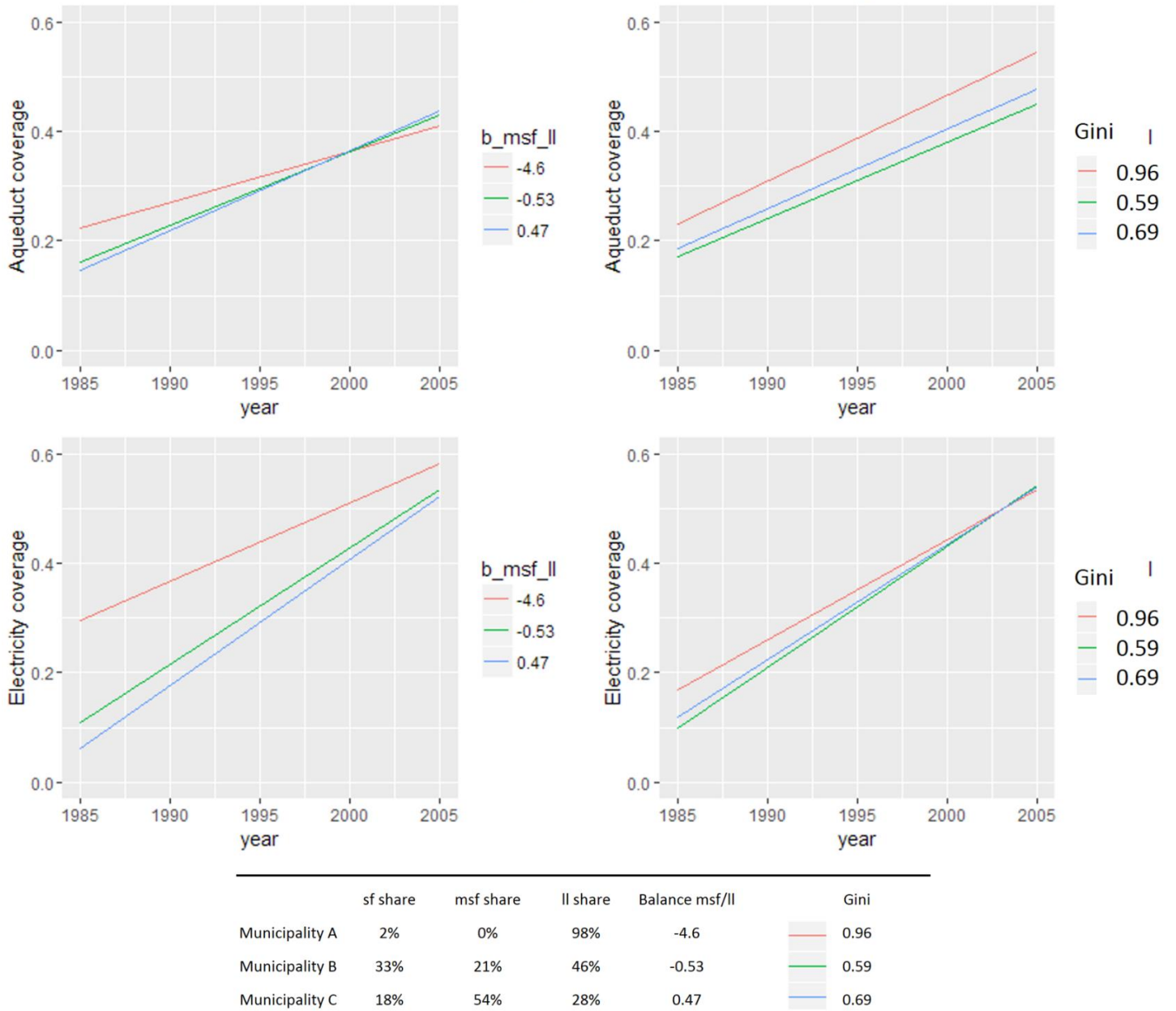
Fig 6

held better service coverages (even if still in poor rates of the order of twenty percent for aqueduct, or thirty percent for electricity, on average). After three decades of faster growth in areas with a stronger middle size farming class we see that the gap in service coverages is closing. Indeed, in our example while municipality C –strong middle class- almost tripled rural aqueduct coverage in three decades with an increase of approximately twenty-nine percentage points, from fourteen percent to forty-three percent, municipality A -strong large landowning class- went only from twenty-two percent to forty-one percent, gaining eighteen points and failing to double coverage. The picture on electricity is equally noticeable with three decade gains for municipality C of about forty-five percent (starting at minimal rates of six percent), whereas municipality A gains are only thirty percent (starting at twenty-nine percent). Consistent with these findings, it is reasonable to expect that as of 2016, areas with a stronger rural middle class vis-a-vis the large landowning class exhibit better levels of aqueduct service provision and electricity than those where the middle class is relatively weak. Point estimates suggest that a one standard deviation increase in the balance between middle size farmers and large landowners is associated with a 1.6 and 2.8 percentage points increase in the rate of growth in service coverages for rural aqueducts and electricity respectively.

The Gini coefficients is also significantly correlated with services coverage (table 4). In the case of aqueduct, a positive Gini is associated with greater service coverage across rural areas (its interaction with time is not significant). In the case of electricity however, as the interaction with time is negative we interpret that greater rates of growth in electricity service coverages is associated with less concentration in their landownership structures (the green line for municipality with land Gini 0.59 grows faster than the other two, in the bottom right plot). In the specific case of water, the positive correlation between a high Gini and the coverage of

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Gini representation in the simplex
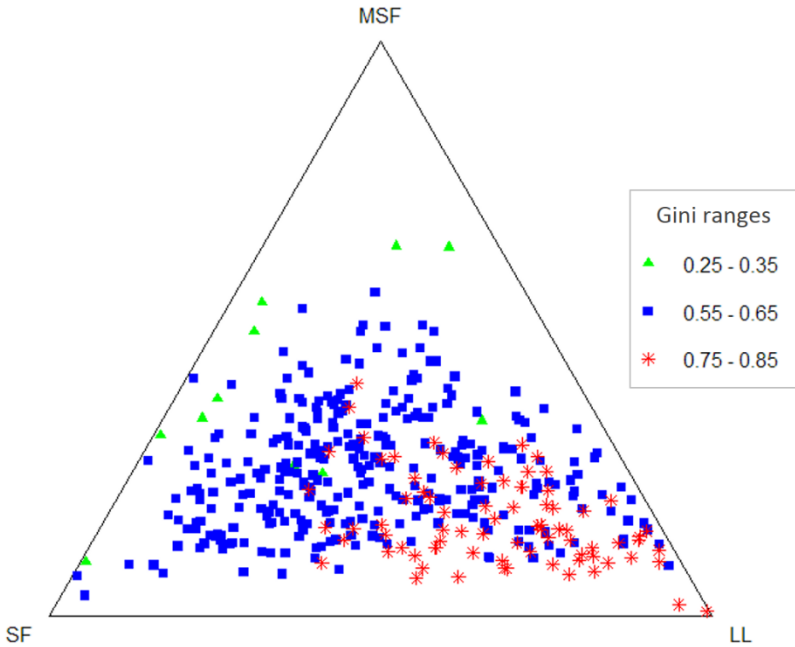
Patterns in the Gini coefficient are not sufficiently consistent
for purposes of hipothesis testing on the relative interaction between classes.
Data for year 2005

Fig 7

aqueducts demands *an explanation that can be usually read –mistakenly- along the lines that a greater share of land owned by the large landowning class is significantly associated with greater service coverage across rural areas.* But such an interpretation would be wrong as no continuous pattern actually links the Gini with the share of wealth of the large landowning class (see figure 7 and in the illustration in figure 6 note a Gini 0.69 for a share of 28%, and 0.59 for a share of 46%). In the case of electricity, we may assume that the opposite is true across time, that is that *a greater share of land owned by the small farming class in relationship to that of large landowning class, is significantly associated with greater rates of growth in electricity coverages across rural areas.* But this again would be untrue because in addition to the inconsistent patterns in emerging from figure 7, our own investigation showed that the share of the small farming class in relationship to that of the large owner class was not statistically significant across all models.

Conclusion

It is a felicitous coincidence that the simplex space for three components fits well with theories of class interests relating the poor, the rich and the middle class as it allows a more intuitive transition from the Gini coefficient as a measure of overall concentration, to the use of balances as a measure of inter-class competition. The good news is that this three dimensional simplex by no means exhaust the possibilities of compositional analysis as there are *d-1* simplexes as *d* components there are to analyze in a composition. We can distill from these big income classes more nuanced theories about more precisely defined income groups and therefore greatly expand the testing of hypotheses. We can, for example, explore relationships involving the upper middle classes, the super-rich or even the top one percent using compositions.

In a context of fast expanding literature on inequality it is urgent to develop metrics allowing to distill power dynamics across groups. After all, the economic cake adds to one, and every gain is always a relative loss. I have illustrated the use of compositional analysis as well as how it helps to solve some of the confusions social scientist encounter when interpreting the Gini coefficient in regression environments in the context of the debate on the role of the rural middle class on rural services in a developing country.

The findings of this chapter can be summarized as follows: (1) With the exception of its extremes the variation in the Gini coefficient cannot be mapped into group or class effects; (2) using ratios of wealth as regressors to make inference about specific groups is not appropriate as it ignores collinearity in singular data; (3) we can use compositional analysis on the shares of wealth accruing to different groups compiled in the data used to construct the Gini coefficient; (4) transforming the data is required to use it in regression analysis, and the most useful transformation is known as *ilr*; (5) within *ilr* we can use specific vectors relating components known as *balances* to test specific hypothesis; (6) multiple balances can be included in a multivariate regression environment, including mixed longitudinal models; (7) through the exploration of such relationships we found that even though the Gini coefficient is significantly related with outcomes of interest, we should prefer to work with balances when the hypothesis we are trying to test involve specific dynamics amongst groups.

Parameters	Acueduct		Electricity	
	Balances	Gini	Balances	Gini
Regression coefficients (fixed effects)				
intercept	0.430 (0.019)***	0.297 (0.034)***	0.347 (0.025)***	0.351 (0.037)***
Time	0.108 (0.008)***	0.110 (0.008)***	0.209 (0.009)***	0.209 (0.009)***
Balance msf/ll	-0.032 (0.011)**		-0.058 (0.010)***	
Balance sf/ll	0.013 (0.007).		0.039 (0.006)***	
Balance msf/ll:time (Democratization)	0.013 (0.005)*		0.015 (0.005)**	
Gini				-0.001 (0.038)
Gini:time (Democratization)		0.204 (0.042)***		
Controls	no	no	no	no
Variance components (random effects)				
Residual (σ^2)	0.130 (0.001)***	0.129 (0.001)***	0.109 (0.001)***	0.107 (0.001)***
Intercept Level municipality (τ_{00}^2)	0.150 (0.002)***	0.151 (0.002)***	0.172 (0.002)***	0.176 (0.002)***
Slope Level municipality : year (τ_{11}^2)	0.048 (0.001)***	0.050 (0.001)***	0.056 (0.001)***	0.059 (0.001)***
Covariance (τ_{01})	-0.560(0.032)***	-0.571 (0.029)***	-0.736 (0.008)***	-0.712 (0.009)***
Intercept Level province(ω_{00}^2)	0.138 (0.004)***	0.140 (0.004)***	0.208 (0.008)***	0.214 (0.009)***
Slope Level province:year (ω_{11}^2)	0.051 (0.001)***	0.051 (0.001)***	0.068 (0.001)***	0.070 (0.001)***
Covariance (ω_{01})	-0.534 (0.065)***	-0.55(0.057)***	-0.474(0.074)***	-0.457 (0.076)***
Model Summary				
Deviance Statistic	609.6422	644.6278	2156.636	2133.495
AIC	-1355.998	-1394.984	-1729.731	-1710.59
pseudo-R2	0.8147837	0.8189203	0.9224744	0.926383
Parameters estimated	1841	1839	1841	1839

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Table 5

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Chapter 4

Rural Leadership in Colombia: Survey Evidence.

In the theory defended here a balance between needs (relative to the large landowner class) and opportunities (relative to the small farming class) explains the greater capacity of the rural middle class for participation and effective rural leadership. In other words, because of their interests and incentives, the rural middle class is more likely to be vocal participants in communal action and also occupy positions of rural leadership from which to bargain for local development.

I have shown extant qualitative evidence supporting this theory including ethnographic studies as well as interviews explaining the critical role played by the rural middle class in community organizing, their interest in overcoming collective action problems for the provision of services, and their strategic interaction with politicians during elections. I have also shown empirical evidence suggesting that in municipalities where the rural middle class owns more land relative to the large landowner class, the rate of growth in service provision for water and electricity has been greater. I have shown that these effects are particularly striking for they seem to correlate with the process of local democratization that took place from the late eighties and early nineties, therefore giving stronger support to the idea that the rural middle class was better able to defend their interests with the reforms that brought decision making closer to their communities.

But even though there is wide qualitative evidence that the rural middle class exhibit a significantly different patterns of rural leadership than other classes, it can be disputed whether such differences are indeed systematic and prevalent across the country. Similarly, the empirical test linking the amount of land owned by different classes and the growth of service coverage could be questioned on at least two levels. On the one hand it could be reasonably argued that because landownership is simply a proxy of income, a better test would be to get data on the actual income of rural households. In addition, it could be argued that even if the rural middle class would exhibit a different pattern of engagement in local leadership, it could be the case that a rural middle class that does not depend on the land for their reproduction may need less to overcome collective action issues to seek the provision of public services and therefore could have lower levels of local participation. Finally, even if the relationship between the relative power of the middle class and service provision could be reasonably established, it would be still possible to dispute whether the specific mechanism driving these changes was the one suggested in the theory, that is, that the rural middle class had a different pattern of rural leadership given its specific set of interests.

This chapter offers a set of empirical tests on the specific relationship between rural household income-wealth and patterns of rural political participation using survey data from 2010 and 2013, representative of the national and regional levels in Colombia. Using survey data of the Colombian longitudinal survey ELCA, which is representative at the rural level for the entire country, I use several tests to show that the rural middle class is indeed more likely to actively participate and occupy positions of rural leadership compared to the small farming class (including the poor). Consistent with these findings I show that this rural middle class is more likely to be socially better connected with their rural neighbors. Unfortunately, due to ELCA´s

sampling strategy -that did not oversample the rural rich, which is needed because so few actually live in rural areas- we cannot infer with confidence the relative behavior of the large landowner class. Therefore, the set of tests presented here will compare fundamentally the rural poor and the middle class. Finally, I show that inside the rural middle class there is indeed a divergent pattern of local participation and leadership, depending on whether the household owns land. Those that hold land participate and lead more than those whose income is not dependent on land. To my knowledge this is the first time that the socio-economic status (SES) is linked to political participation across rural areas of Colombia, and also the first study specifying mechanisms linking SES to such involvement.

The next section discusses some of the assumptions in the literature on middle size farmers and development, recent evidence on the variation of participation by income, as well as the existing mechanism across rural areas in Colombia for collective organizing. Section three presents the data, index creation and methods. Section four presents the results and the following concludes.

1. Literature

Even though there is a long tradition in the literature of political economy linking a strong rural middle class to developmental outcomes, most of the theories do not address the specific set of mechanisms explaining the specificity in incentives and action of the rural middle class from other groups, particularly in the day to day of local participation in politics. For example, while discussing the salutary role of the rural middle class in Pennsylvania and New York in the early stages of European occupation, Engerman and Sokoloff (2002) indicate how "the large landholdings unraveled because even men of rather ordinary means could set up independent farms when land was cheap and scale economies were absent", under these

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conditions owners of independent farms needed to cooperate for the provision of public services essential for their own reproduction. They continue "the logic is that great equality or homogeneity among the population [that] led, over time, to more democratic political institutions, to more investment in public goods and infrastructure, and to institutions that offered relatively broad access to economic opportunities." Although Engerman and Sokoloff show that the expansion of voting rights happened first in areas of greater land equality, they do not explore differences in patterns of communal participation and the ways in which the middle rural class cooperated for the expansion of services. Other authors have a similar gap in explaining the positive dynamics of a more equal distribution of land and the specific role of the rural middle class in bringing about developmental outcomes.[1]

In this chapter I contribute to fill this gat by using data on participation, leadership, and social capital showing that it is indeed the case that the rural middle class is more active in organizing communities and connecting socially than both the poor and the small farming class.

In the specific case of Colombia, where I developed all the empirical tests of this dissertation, the rural middle class has been mostly studied in relationships to the coffee production across the Andes and therefore most analyses lack national representativeness. Still, there is a relatively well established tradition linking development to more equal patterns of landownership and some early attempts (Edel, 1971) at identifying the relatively more pro-active role of the middle class in joining forces collectively across rural areas for the provision of public goods.

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[1] See Banerjee and Iyer, 2008; Galor, 2009; Robinson et al, 2009

The analysis introduced in this chapter is the first I know that presents a systematic analysis to establish differences in participation rates, leadership and social capital amongst different rural classes[125]. Therefore, it serves as a crucial empirical test for some of the implicit assumptions about the more active role of middle size farmers in organizing rural communities both for self-development as well as the more effective exchange of political support in return for the expansion of basic services and infrastructure.

2. Hypotheses

We have seen that overcoming collective actions problems for the provision of public services is especially consequential for the rural middle class and the poor due to their dependence on government services as rural dwellers. The large landowner class, on the other hand, only exceptionally lives in rural areas and even when they need the services, they would usually prefer to pay privately for their own higher quality provision than accepting to pay higher taxes for their still uncertain state provision. For their part, the poor don't have the economic resources to actively promote their own interest vis-a-vis the local political class, which includes electoral times when their most pressing needs weigh heavily in the decision to sell their votes. The importance of the rural middle class therefore relies of its particular combination of needs and opportunities making them a key player in promoting rural programmatic organization.

The principal vehicle for such programmatic representation of rural interests are Communal Action Boards. Indeed, CAB's represent the level at which rural citizens interact with each other and collectively seek the provision of basic services. It can be said that CAB's are local programmatic associations whose principal objective is to articulate the community and the

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[125] For the literature discussing the effect of household wealth on participation see Verba and Brady (1995).

local political class for the management and distribution of public services such as aqueducts and electricity.

If rural middle class actors carry most of the burden of local political organizing to secure public services, we should observe that the rural middle class exhibit a more active pattern of social connectedness (Putnam, 1993) than both the poor and the rich. Unfortunately given the sampling strategy employed by the ELCA survey, we can only test the set of hypotheses comparing the rural middle class that depends on the land (our MSF), the rural middle class that does not depend on the land (RMC) and the small farming class which includes del poor (SF&P). Therefore, our first hypothesis is:

H1 *The rural middle class (MSF and RMC) overall is more likely to participate, and occupy positions of leadership in CAB's than small farming class and the poor.*

In addition to this, we know that although CAB's represent the cornerstone of rural programmatic participation in Colombia, it is also true that both religious and educational organizations also play important roles in communal organization. In such organizations neighbors discuss solidarity activities, local bazaars, as well as the situation of rural schools including the relationship between the community and the school administration. To the extent that these other organizations matter to the capacity of rural communities for self-organizing, and according to the theory, we should observe a higher level of social connectedness of the rural middle class in them as well. Therefore, the second hypothesis is:

H2 *The rural middle class (MSF and RMC) is more likely to exhibit a better multidimensional pattern of social connectedness that include communal, religious and educative organizations than the small farming class and the poor.*

My theory relies on the needs of different landowner classes in relationship their agricultural needs, but the rural middle class does not rely exclusively on agricultural activities, much less on owning land. The rural middle class also includes those obtaining their income from non-agricultural activities such as commerce or services. My theory suggests that both the vulnerability and the motivation for social connectedness of the rural middle class, relies on their dependence of acquiring urgent public services for their properties. For this reason, we need a specific test that distinguishes the land owning from the non-land owning middle class in rural areas. In particular, in the absence of the pressing need to obtain public services such as water and electricity for their farms, we should observe lower levels of participation and social connectedness by those who don't own land. This is a challenge to Putnam's ideas about social capital for in his theory we should expect that anyone who has high social capital to use it for community improvement. What I suggest is that community improvement depends on actors who have both sufficient social capital and also a personal interest in the particular service discussed. Therefore, the third and fourth hypotheses are:

H3 *The rural middle class that owns land (MSF) is more likely to participate, and occupy positions of leadership in CAB's than the non-propertied middle class (RMC).*

H4 *The rural middle class that owns land (MSF) is more likely to exhibit a multidimensional pattern of social connectedness that include communal, religious and educative organizations than the non-propertied middle class (RMC).*

The level of social connectivity (Narayan, 2002) is another way of observing whether the rural middle class have a higher level of social connectedness than the small farming class and the poor, as well as the non-propertied rural middle class. If the landowner middle class (MSF) is

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more actively engaged in social activities and the promotion of the interests of the community as a way to advance their own interests, then we should observe that they are also better connected socially with their neighbors than their non-landowner peers and the small farming class and the poor. Therefore, we are interested in testing the following two hypotheses:

H5 *The rural middle class that owns land (MSF) is more likely to be better connected socially with their neighbors than the small farming class and the poor (SF&P).*

H6 *The rural middle class that owns land (MSF) is more likely to be better connected socially with their neighbors than the non-propertied middle class (RMC).*

3. Data and Methods

I use ELCA (*Encuesta Longitudinal Colombiana*) large-scale longitudinal survey for Colombia in its rural component covering 3864 households.[2] ELCA is a representative survey for four different regions in Colombia including the Atlantic, Central, Coffee-Growing and South. The sampling strategy led to the random selection of 222 veredas (villages) in 17 municipalities. The first wave was collected in 2010 and the first follow up was collected during 2013 (second wave) with 94% of the sample found. ELCA is unusual in focusing on issues as diverse as health, fertility, political participation, education, land access and ownership, therefore representing the first attempt at systematically measuring the behavior of rural households in Colombia.

I use several modules from ELCA. First, I use ELCA's household modules on land-related activities, including ownership and other forms of access, and the more general one for

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[2] 4720 rural households were surveyed in wave 1. The difference is explained by non-response in the second wave as well as newly formed households branching out from the original ones.

all the remaining aspects which include a detailed battery of questions on household

consumption and assets. Although income is reported in the survey there is generally a large risk

of misreporting. Spending questions may be less affected by the fallibility of human memory or

many people's dislike of revealing how much income they have as they enquire for everyday

concrete matters. This is why I rely on a battery of consumption questions to build a total

consumption variable. Also as the main concern in my tests is the precision in the socio

economic classification, I use household averages across waves.[3] Second I use questions on

participation and social capital for the head of the household or her/his partner (see below).

Finally, I use ELCA's community level module which includes questions of security perception,

distance in time to the nearest urban area, as well as the relative importance of CAB leaders for

conflict resolution in the community (See Table 1).

Across models the key independent variables are either the average total consumption per

household (continuous), or the categorical variable for class which is constructed via principal

component analysis using two-wave averages of (1) total household consumption, (2) spending

in food, (3) land owned, (4) land used (not owned), and (5) an index of asset wealth[4] (See 2 in

the appendix).

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[3] Results don't change significantly if trying to account for endogeneity I use my independent variables from the first wave and the dependent variables from the second wave (results available upon request). Taking averages across waves also means that I study those households that appear in the two waves, and ignore those that did not appear in the follow up, or those that were formed after wave 1.

[4] Constructed at Andes University (see Cadena, 2014)

Descriptive Statistics

Continuous

	mean	sd	min	max	range
Total Consumption per year (log)	15.79	0.51	13.79	18.19	4.4
Land owned in hectares (log)	0.67	0.77	0	4.29	4.29
Land used in hectares (log)	0.9	0.8	0	5.3	5.3
Total consumption in food (log)	15.06	0.58	12.31	17.16	4.85
Asset Wealth Index	0.09	1.71	-3.23	10.01	13.24
Index of participation and leadership	0.18	0.22	0	1	1
Time to get to the municipal urban centre	23.95	13.77	0	55	55

Categorical

Classes	MSF: 24% — RMC non dependent on land: 37% — SF&P: 39%
Participation and leadership in CAB	Do not participate: 61% — Attend meetings: 18% — Lead: 21%
Participation and leadership in Religious Organization	Do not participate: 89.5% — Attend meetings: 7.7% — Lead: 2.8%
Participation and leadership in Educational Organization	Do not participate: 90.7% — Attend meetings: 5.6% — Lead: 3.6%
Proportion of celphone numbers from neighboors	None: 23% — A few: 50% — leass than half: 8% — about half: 7% — Most: 10% — All: 2%
Proportion of neighboors willing to lend you U$ 20 in an emergency	None: 23% — A few: 46% — leass than half: 7% — about half: 8% — Most: 10% — All: 5%
Assesment of level of security	Safe: 21% — More or less safe: 64% — Quite insecure: 15%
CAB leader sought to solve community differences	Trust: 30% — Not Trusted: 70%

Table 1.

The dependent variables across models for levels of communal participation are either the ordinal variable recording the highest value on whether between 2007 and 2013 either the head of the household or his/her partner were leaders (scored as 2), attended the meetings (scored as 1), or did not attend their local CAB (scored as 0); or the index of social connectedness (See 3 in the appendix) ranging from 0 to 1 that combines the same scales for CAB's as well as Educational and Religious groups (the last two covering only wave 2 due to problems of coding).

Finally, for the models of social connectedness the dependent variables are either the ordinal evaluation of the proportion of neighbors from whom the head of the household or his/her partner has the cellphone numbers in case of an emergency; or the ordinal evaluation of the proportion of neighbors from whom the head of the household or his/her partner could expect the lending of about 20 dollars in case of a medical emergency. Number 1 in the Appendix shows schematically the treatment of the data by variable.

3.1. Socio Economic Groups

Patterns of total consumption reveal the relative absence of the rural rich in the data. About half of the households sampled (1700) consumed less than one minimum wage per month[5]. The remaining 2164, had consumption levels above the minimum wage. However, out of these 2164, about 426 had a consumption level above two monthly minimum wages, and of these only 9 households had consumption levels above six minimum wages.[6] Due to these restrictions in the data I test hypotheses about the income range of the middle class and below. Data on land access in general and ownership in particular also confirm this non-rich bias in

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[5] In Colombia between 2010 and 2013 was of $552.000 Colombian pesos

[6] In chapter 3 the middle class was defined as those owning land in the range of 2 to 6 minimum wages calculated using the UAF criteria of comparability.

ELCA. Half of the households in the sample own less than a hectare of land and have access to only one hectare. The household owning most land has only 72 hectares, and just above 200 hectares for other forms of land use. If we ignore the differences in the quality of soil and other aspects determining the price of land, it would still be almost always an exaggeration to call someone owning 72 hectares a large landowner.

To classify households in relatively homogeneous socio economic groups I use principal component analysis with five dimensions: total consumption, land owned, land under other forms of landholding, consumption in food, and the index of asset wealth calculated by the ELCA survey at Andes University. As a result, I form three differentiated groups of contrasting socio-economic characteristics conducive for theory testing (a) small-farmers and the poor (SF&P) representing thirty-nine per cent of households, (b)middle size farmers (MSF) representing twenty-three per cent of the households, and finally (c) the rural middle class that does not depend on land (RMC) representing thirty-six per cent of households.

Socio Economic Classification (Class)				
Total Consumption	Food Consumption	Land Owned	Land under other forms of tenure	Asset Index
In monthly minimum wages		In hectares		
MSF	1.6	0.7	6.3	8.2	0.4
RMC	1.5	0.8	0.4	0.9	0.81
SF&P	0.7	0.4	0.6	1.1	-0.8
Global	1.2	0.6	1.9	2.7	0.09

Table 2

Although both the landowner middle class (MSF) and the non-landowner middle class (RMC) have almost identical means of total consumption and consumption in food (about 1.5, and 0.75 monthly minimum wages respectively), their respective mean differences in relationship to land owned and land under other forms of arrangements are large (see Table 2).

Whereas MSF own of average 6.3 hectares and have 8.2 under other forms of arrangements, the rural middle class with no land own on average just 0.4 hectares and have 0.9 under other forms of arrangements. On the wealth index the non-landowner middle class is only slightly higher than the MSF with 0.8 and 0.4 respectively (specific values in the index cannot be interpreted beyond the fact that it goes from negative to positive as the assets of the household increase).

Across all of these dimensions SF&P fare much worse than both the MSF, and the RMC. Both total consumption and consumption in food is much lower (about 0.7 and 0.4 monthly minimum wages respectively), while land owned and under other forms of arrangements stand at 0.6 and 1.1 hectares respectively. In the wealth index they stand at a low of -0.8 (See Table 2).

The classification of socio economic groups is illustrated by the variable of whether the head of the household or his/her partner had served as farm workers for other household during the last twelve months (see Table 3).[7] This is a variable that can be used to distinguish economically dependent from independent households across rural areas. Across groups there is a significant difference in the distribution of the variable with household serving as farm workers heavily represented in the SF&P (Class.Cat of 51.9 and Cat.Class of 38.4). Eighty-seven per cent of MSF and seventy per cent of RMC did not serve as farm workers.

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[7] As I compile wave 1 and the follow up, I record "yes" if the answer is positive in either of them.

PCA- Illustrative Variable

	Class.Cat	Cat.Class	Global
MSF			
Served as farm workers	37.7	12.7	29.1
Did not serve	36.5	87.3	70.9
RMC			
Served as farm workers	29.4	29.7	29.1
Did not serve	10.4	70.3	70.9
SF and P			
Served as farm workers	51.9	38.4	29.1
Did not serve	34.1	61.6	70.9

Table 3

3.2. Communal participation and social connectedness.

Of all the households sampled, about forty per cent took an active role during the last six years in their communal action boards, either participating in the meetings only (18%) or as leaders and participants (21%). For religious organizations less than ten percent of the households took an active role, whereas for educational ones about thirty-five per cent did (16% participating in meetings, and 17% leading). As we combine these types of participation in the participation index (ranging from 0 to 1) it is unsurprising to get a zero inflated distribution with 52% of the households at zero (see the model specification below). Both Table 4 and Figure 1

Figure 1

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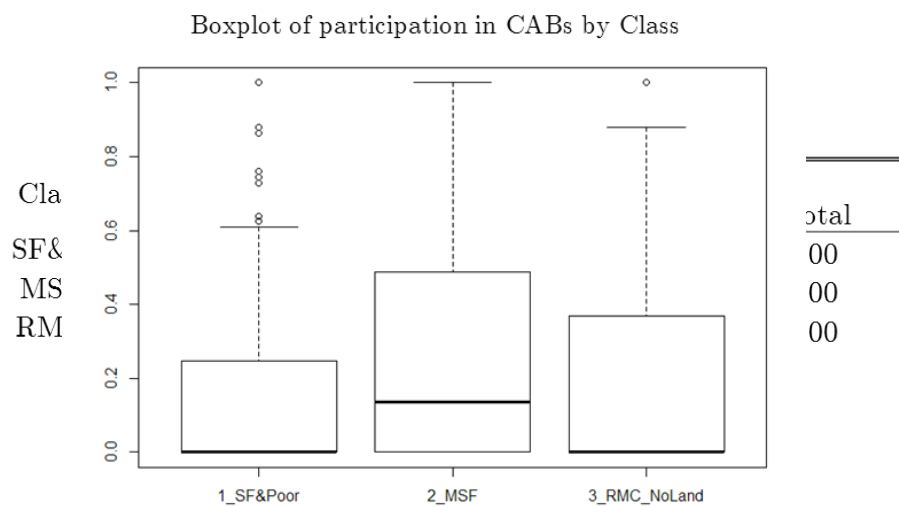
show preliminary evidence of the higher levels meeting attendance and leadership of the MSF group compared to the RMC. Notice that SF&P attend a slightly higher rate than MSF, but the latter have a larger proportion in positions of leadership positions. Although some of these differences are not very large, their combined effect can be substantial. Of the three groups not only middle size farmers have the largest proportion participating, but also from those participating a large proportion leading (63% of those participating, actually lead; the same indicator is 44% for SF&P, and 55 for RMC).

When it comes to the variables on social connectedness (cellphone numbers of neighbors and borrowing) we find that about 72% of the household either don't have any cellphone number from their neighbors (22%) or only from a few of them (50%). Only about 12% of the households indicated having the cellphone of most (10%) or all the neighbors (2%). A very similar picture emerges from the expectation of borrowing U$20 from neighbors in case of an emergency. 70% indicated they expected such favor from few (46%) or none of them (23%), whereas only 15% indicated they could expect to get such loan from the majority (10%) or from all (5%) (see Table 1). Table 5 disaggregates these variables by Class showing preliminary evidence of a relative advantage of MSF versus other groups.

So far the descriptive exploration of the data offers preliminary evidence about the relatively more pro-active role in their communities of the middle size farmer class in relationship to the other two groups. This preliminary evidence also suggests middle size farmers are better connected socially.

Proportion of cellphone numbers from neighbors

Class	None	A few	less than half	about half	Most	All	Total
MSF	18.31	45.4	7.64	11.3	15.06	2.3	100
RMC	21.52	50.92	8.76	6.11	10.52	2.17	100
SF&P	27.21	51.63	6.95	5.1	7.65	1.47	100

Proportion of neighbors willing to lend you U$ 20 in an emergency

Class	None	A few	less than half	about half	Most	All	Total
MSF	17.36	42.99	8.58	9.83	14.85	6.38	100
RMC	22.06	47.05	6.45	8.42	10.18	5.84	100
SF&P	28.68	48.18	7.14	5.8	7.07	3.12	100

Table 5

3.3. Communal level covariates

Finally, we shall consider the covariates at the community level which include security, the amount of time required to reach the urban area of the municipality and the level of trust in communal leaders to solve conflict amongst neighbors.

Out of the 217 veredas (villages) sampled 138 were considered relatively safe (level 2), while 46 were considered pretty safe (level 1). As many as 33 (15%) were considered pretty unsafe (level 3). Although it is reasonable to expect that participation levels would be lower in less safe villages, there is no obvious reason to expect those changes to have contrasting patterns across income groups.

Also, for about half of the communities (124) it takes between 15 and 30 minutes to reach the urban centre of the municipality, for 46 communities the urban centre can be reached in 15 minutes or less. The remaining 47 communities spend between 30 and 55 minutes reaching the urban centre. From the theory I have suggested that the farther from the urban centre, the more important for the community to have middle size farmers whose private incomes allow then to

travel as village representatives to urban areas. Unfortunately, ELCA do not include villages beyond an hour distance from the urban centre.

Finally, 67 communities (30%) answered they solved their communal problems by mainly going to communal leaders.

4. Models

I use two different model strategies for the. First a cumulative link model assuming order for the dependent variables of (1) participation in CAB's, (2) cellphones and (3) borrowing from neighbors, which calculates the probability of each one of the categories (levels) in the dependent variable:

$$P(Y_i = j) = \frac{1}{1 + \exp(-(\beta_{oj} + x_i^T \beta))} \tag{1}$$

Where x_i is a vector of explanatory variables for the ith observation and β is the corresponding set of regression parameters. The is a unique intercept β_{oj} for each category.

Second I use a generalized additive model for location, scale and shape (GAMLSS) suitable for modeling the zero-inflated beta distribution (BEINF) that most closely characterizes the index of participation. More specifically GAMLSS assumes a mixed continuous-discrete distribution with a beta distribution component for values between 0 and 1 (open interval) and a mass probability at 0 and 1 in the extremes, therefore the response´s probability function assumed in this model is:

$$f(y) = \begin{cases} \pi_0 & If \quad y = 0 \\ \dfrac{1}{\mathrm{B}(\alpha, \beta)} \, y^{\alpha-1}(1-y)^{(\beta-1)} & If \quad 0 < y < 1 \\ \pi_1 & If \quad y = 1 \end{cases} \tag{2}$$

Where $E(y) = \mu = \dfrac{\alpha}{\alpha+\beta}$ and $Var(Y) = \sigma^2 = \dfrac{1}{(\alpha+\beta+1)}$, and the proportion of zeros $\{\pi_0\}$ and

ones $\{\pi_1\}$. Although these parameters can be explicitly modelled we assume them as constants

with the exception of the mean which is modelled as:

$$logit(\mu_{ij}) = \beta_{0j} + x_i^T \beta \tag{3}$$

Table 6 summarizes the model strategy. In the following two section (5.1 and 5.2) I show the

specific model equations.

4.1. Participation Models
4.1.1. Participation and leadership in CAB's as explained by Class

(class) or Total Consumption (TC) is modeled as follows:

$$P(CAB_i = j) = \frac{1}{1 + \exp(-(\beta_{0j} + \beta_1 Class_i + \beta_2 \, Sec_i + \beta_3 Dis_i + \beta_4 \, Lead_i + u(Com_j)))} \tag{4}$$

$$P(CAB_i = j) = \frac{1}{1 + \exp(-(\beta_{0j} + \beta_1 logTC_i + \beta_2 \, Sec_i + \beta_3 Dis_i + \beta_4 \, Lead_i + u(Com_j)))} \tag{5}$$

Independent Variables

MODELS	CLASS	Total Consumption
Participation - CAB participation (ordered) Social Connectedness - Cellphones (ordered) Social Connectedness - Borrowing (ordered) Cumulative link model	$P(CAB_i = j) = 1/(1 + \exp(-(\beta_{0j} + \beta_1 class + \cdots)))$ $P(Cellphones_i = j) = 1/(1 + \exp(-(\beta_{0j} + \beta_1 class + \cdots)))$ $P(Borrow_i = j) = 1/(1 + \exp(-(\beta_{0j} + \beta_1 class + \cdots)))$	$P(CAB_i = j) = 1/(1 + \exp(-(\beta_{0j} + \beta_1 logTC + \cdots)))$ $P(Cellphones_i = j) = 1/(1 + \exp(-(\beta_{0j} + \beta_1 logTc + \cdots)))$ $P(Borrow_i = j) = 1/(1 + \exp(-(\beta_{0j} + \beta_1 logTC + \cdots)))$
Participation - Index of participation (zero inflated beta) GAMLSS	$logit\big(E(pcpl_{ij})\big) = \beta_{0j} + \beta_1 Class_{ij} + \cdots$	$logit\big(E(pcpl_{ij})\big) = \beta_{0j} + \beta_1 LogTC_{ij} + \cdots$

Table 6

Where apart from the parameters described above for cumulative link models (see 1), *Class* is a dedicated predictor for my three socio-economic groups, and logTC is a dedicated predictor for total consumption at the household level. I also control for the following community level covariates: security (Sec), distance in time to the urban centre (Dis) and whether the community trust communal leaders to solve conflicts (Lead). Finally all models use random effects at the community level (Com) with $u \sim N(0, \sigma_u^2)$.

      4.1.2. Participation and leadership across rural organizations (CAB's, Religious, Educational) as explained by Class (class) or Total Consumption (TC) is modelled as follows:

$$logit(E(pcpl_{ij})) = \beta_{0j} + \beta_1 Class_{ij} + \beta_2\, Sec_j + \beta_3 Dis_j + \beta_4\, Lead_j \qquad (6)$$

$$logit(E(pcpl_{ij})) = \beta_{0j} + \beta_1 logTC_{ij} + \beta_2\, Seg_j + \beta_3 MC_j + \beta_4\, Lead_j \qquad (7)$$

Where apart from the parameters described above for generalized additive models for location, scale and shape (GAMLSS) (2 and 3), *Class* and logTC are dedicated predictors, and I control for the same community level covariates as in (5). Finally all models have a random intercept by community with $\beta_{0j} \sim N(\beta_0, \sigma_0^2)$.

4.2.Social connectedness Models

4.2.1. The level of social engagement as measured by the proportion of cellphone numbers from neighbors as explained by Class (class) or Total Consumption (TC) is modelled as follows:

$$P(Cellphones_i = j) = \frac{1}{1 + \exp(-(\beta_{0j} + \beta_1 Class_i + \beta_2 Sec_i + \beta_3 Dis_i + \beta_4 Lead_i + u(Com_j)))} \quad (8)$$

$$P(Cellphones_i = j) = \frac{1}{1 + \exp(-(\beta_{0j} + \beta_1 logTC_i + \beta_2 Sec_i + \beta_3 Dis_i + \beta_4 Lead_i + u(Com_j)))} \quad (9)$$

Where all the notation follows the interpretation of (4) and (5)

4.2.2. The level of social connectedness as measured by the proportion of neighbors from whom the respondent can expect to borrow in an emergency as explained by Class (class) or Total Consumption (TC) is modelled as follows:

$$P(Borrow_i = j) = \frac{1}{1 + \exp(-(\beta_{0j} + \beta_1 Class_i + \beta_2 Sec_i + \beta_3 Dis_i + \beta_4 Lead_i + u(Com_j)))} \quad (10)$$

$$P(Borrow_i = j) = \frac{1}{1 + \exp(-(\beta_{0j} + \beta_1 logTC_i + \beta_2 Sec_i + \beta_3 Dis_i + \beta_4 Lead_i + u(Com_j)))} \quad (11)$$

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Where all the notation follows the interpretation of (4) and (5)

5. Results

This section shows a consistent pattern of greater levels of participation, leadership and social connectedness for the rural middle class compared to the small farming class and the poor. I also show that the rural middle class that depends on the land are also more likely to participate, lead and connect socially than the middle class that does not depend from the land. The results are reported in sections 6.1 and 6.2.

5.1. Participation and leadership in rural areas
5.1.1. Communal Action Boards

Tables 7 and 8 show results for Participation and leadership in CAB's as explained either by class, or total consumption. Middle size farmers (MSF) are significantly more likely to move from participation to attendance, and from attendance to leadership in CAB´s compared to small farmers and the poor. Specifically, MSF are seventy percent (1.7) more likely to engage in in more active levels of commitment in CAB than the SF&P. In addition to this, the rural middle class that does not depend on the land are also forty percent (1.4) more likely to participate, attend and lead in CAB's. Overall these results show a MSF class that is the most active in

	Odds of belonging to the next level of participation in CAB's
Middle Size Farmers Vs. Small Farmers and the Poor	1.70*
	[1.42; 2.04]
Rural Middle Class No Land Vs. Small Farmers and the Poor	1.40*
	[1.18; 1.65]
Security 2	0.91*
	[0.62; 1.34]
Security 3	0.76*
	[0.45; 1.27]
Distance to urban center	1.00*
	[0.99; 1.01]
Trust in Communal Leaders	1.18*
	[0.84; 1.64]
AIC	6822.78
BIC	6879.11
Log Likelihood	-3402.39
Num. obs.	3864

* 0 outside the confidence interval

Table 7

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participation and leadership in CABs, followed by the RMC that does not depend on the land. The SF&P are the least likely class in taking an active role in the CAB's.

This pattern of greater participation and leadership in rural CAB´s as the socio economic status increases also holds when we use the continuous variable of household total consumption (See Table 8). Indeed, an increase of one standard deviation in total consumption is significantly associated with a thirty percent (1.29) increase in the odds of moving from less to more active roles in CAB´s. Finally, compared to safe villages (security 1) there is no systematic evidence that households in less safe villages exhibit greater or lower odds of belonging to the next level of participation (the interval includes 1).

5.1.2. Index of communal participation

As we combine levels of participation in CAB´s with levels of participation in both religious and educational organizations the pattern of greater participation for the MSF class is maintained if somewhat reduced in size. Table 9 presents the results of the GAMLSS model suggesting that compared to the reference group (small farmers and the poor) both MSF and the rural middle class do exhibit moderately higher levels of participation. Coefficients are more easily understood graphically (Figure 2) suggesting that belonging to the MSF class is associated with levels of .40 in the Index, as opposed to .37 for the rural middle class, and .35 for the small farming and poor.

	Odds of belonging to the next level of participation in CAB's
Total Consumption in Standard Deviations (log)	1.29*
	[1.20; 1.38]
Security 2	0.91*
	[0.61; 1.35]
Security 3	0.74*
	[0.44; 1.26]
Distance to urban center	1.00*
	[0.99; 1.01]
Trust in Communal Leaders	1.16*
	[0.83; 1.64]
AIC	6810.34
BIC	6860.41
Log Likelihood	-3397.17
Num. obs.	3864

* 0 outside the confidence interval

Table 8

	Index of Political Participation
μ (Intercept)	−0.52***
	(0.05)
μ Middle Size Farmers	0.19***
	(0.04)
μ Rural Middle Class No Land	0.13***
	(0.03)
μ Security 2	−0.01
	(0.04)
μ Security 3	−0.10*
	(0.05)
μ Distance	−0.00**
	(0.00)
μ Trust in Communal Leaders	0.00
	(0.03)
σ (Intercept)	−0.79***
	(0.02)
ν (Intercept)	0.10**
	(0.03)
τ (Intercept)	−5.43***
	(0.35)
Num. obs.	3864
Nagelkerke R^2	0.09
Generalized AIC	3918.56

***$p < 0.001$, **$p < 0.01$, *$p < 0.05$

Table 9

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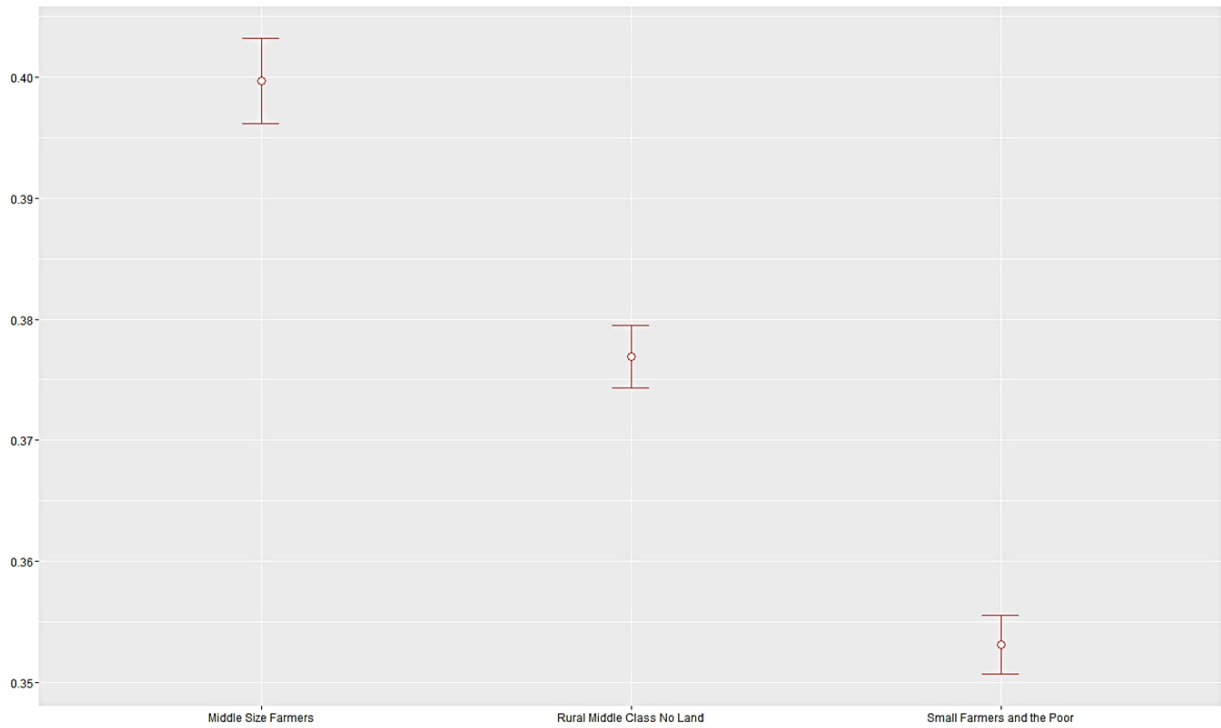
Figure 2

	Index of Political Participation
μ (Intercept)	-0.42^{***}
	(0.04)
μ Total Consumption in Standard Deviations (log)	0.09^{***}
	(0.01)
μ Security 2	-0.01
	(0.04)
μ Security 3	-0.11^{*}
	(0.05)
μ Distance	-0.00^{**}
	(0.00)
μ Trust in Communal Leaders	0.00
	(0.03)
σ (Intercept)	-0.79^{***}
	(0.02)
ν (Intercept)	0.10^{**}
	(0.03)
τ (Intercept)	-5.43^{***}
	(0.35)
Num. obs.	3864
Nagelkerke R^2	0.09
Generalized AIC	3910.21

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Table 10

These patterns are confirmed as we use total consumption as the main independent

variable. Indeed, table (10) shows that a one standard deviation increase of total consumption is

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associated with a nine percent increase in the participation index, with the most likely ranges of change between .30 and .45 as shown in the Figure 3.

5.2. Social connectedness in rural areas

The patterns in levels of social connectedness across rural areas closely follow those observed for participation in CAB's. MSF again exhibit greater levels of social engagement and trust as measured by the proportion of cellphone numbers they have from neighbors, and their expectations of their willingness to lend them money in case of an emergency. MSF also rank higher than the middle class that does not depend on the land. Across the board the small farming class and the poor exhibit the lowest levels of social engagement.
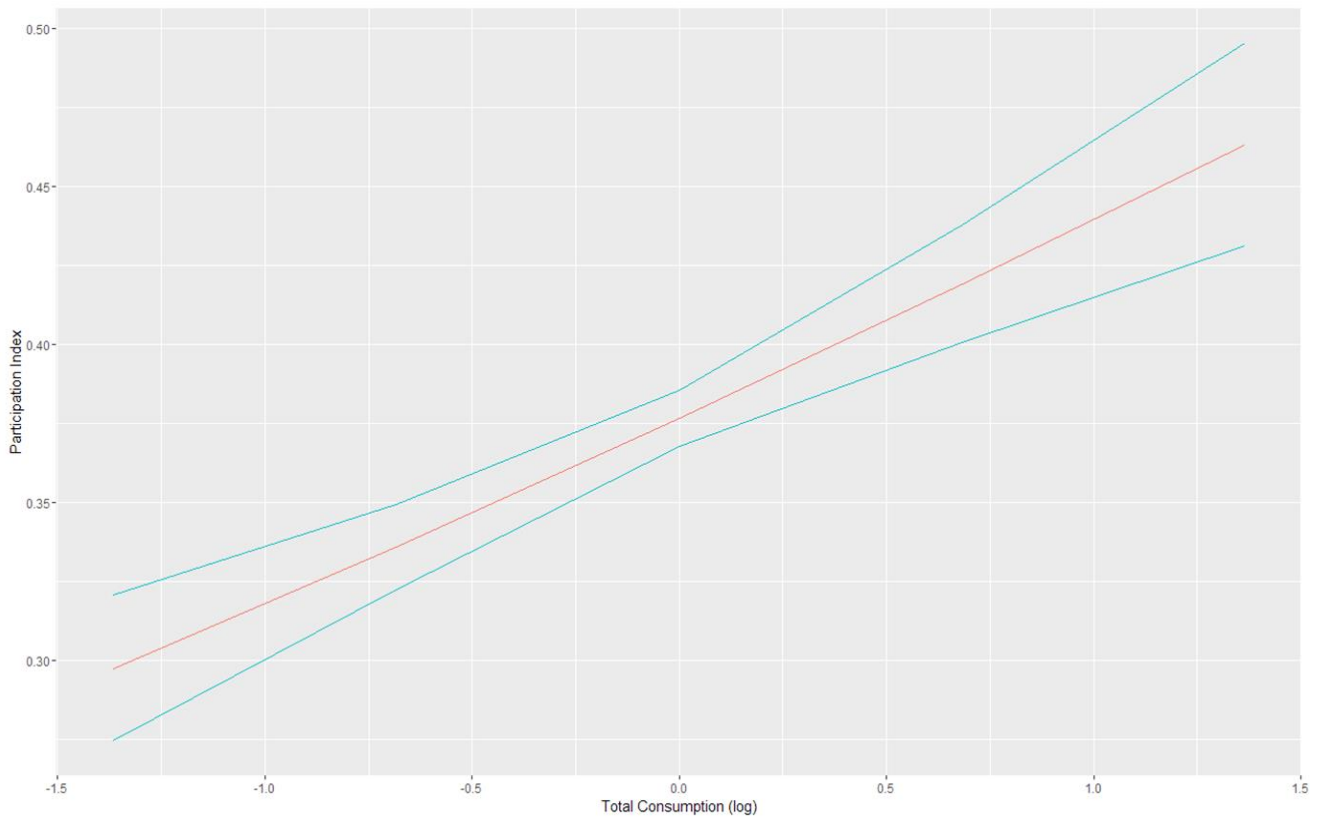
Figure 3

	Odds of having more cellphone numbers from neighbors
Middle Size Farmers Vs. Small Farmers and the Poor	1.78*
	[1.51; 2.10]
Rural Middle Class No Land Vs. Small Farmers and the Poor	1.42*
	[1.23; 1.65]
Security 2	0.97*
	[0.76; 1.23]
Security 3	1.34*
	[0.97; 1.87]
Distance to urban center	1.00*
	[0.99; 1.01]
Trust in Communal Leaders	0.99*
	[0.80; 1.22]
AIC	9928.51
BIC	10003.01
Log Likelihood	-4952.25
Num. obs.	3672

* 0 outside the confidence interval

Table 11

5.2.1. Social engagement

Table 11 shows that compared to the small farmer class and the poor, Middle size farmers are seventy-eight percent (1.78) more likely to have a larger proportion of cellphone numbers from their neighbors. Similarly, the odds of having a larger proportion of cellphone numbers from their neighbors of the rural middle class is forty-two percent (1.42) greater compared to the same group of reference. If we use total consumption as main independent variable (see Table 12) results show that one standard deviation increase in consumption is associated with thirty-two percent increase (1.32) in the probability of having a larger proportion of cellphone numbers from their neighbors.

5.2.2. Social connectedness

Finally, compared to the SF&P, belonging to the MSF class makes you up to ninety percent (1.90) more likely to trust that a larger share of your neighbors will lend you in case of an emergency (see Table 13). Also, compared to the same reference group, belonging to the

RMC increases by forty-seven percent (1.47) the odds of trusting that a larger share of neighbors will lend you in case of an emergency. This is confirmed as we use total consumption of the households (see Table 14) with a one standard deviation increase in consumption being associated with a thirty-nine percent increase in the odds of trusting that a larger share of your neighbors will lend you money in case of an emergency.

	Odds of having more cellphone numbers from neighbors
Total Consumption in Standard Deviations (log)	1.32*
	[1.24; 1.41]
Security 2	0.96*
	[0.75; 1.23]
Security 3	1.30*
	[0.93; 1.81]
Distance to urban center	1.00*
	[0.99; 1.01]
Trust in Communal Leaders	0.98*
	[0.79; 1.21]
AIC	9904.70
BIC	9972.99
Log Likelihood	-4941.35
Num. obs.	3672

* 0 outside the confidence interval

Table 12

	Odds of expressing confidence in borrowing from neighbors
Middle Size Farmers Vs. Small Farmers and the Poor	1.90*
	[1.61; 2.24]
Rural Middle Class No Land Vs. Small Farmers and the Poor	1.47*
	[1.27; 1.71]
Security 2	0.96*
	[0.73; 1.27]
Security 3	0.89*
	[0.61; 1.28]
Distance to urban center	1.00*
	[1.00; 1.01]
Trust in Communal Leaders	1.05*
	[0.82; 1.33]
AIC	10522.21
BIC	10596.71
Log Likelihood	-5249.11
Num. obs.	3672

* 0 outside the confidence interval

Table 13

	Odds of expressing confidence in borrowing from neighbors
Total Consumption in Standard Deviations (log)	1.39*
	[1.30; 1.49]
Security 2	0.96*
	[0.73; 1.27]
Security 3	0.85*
	[0.58; 1.24]
Distance to urban center	1.00*
	[1.00; 1.01]
Trust in Communal Leaders	1.03*
	[0.81; 1.31]
AIC	10483.74
BIC	10552.03
Log Likelihood	-5230.87
Num. obs.	3672

* 0 outside the confidence interval

Table 14

Conclusion

Results in this chapter show that middle size farmers are more active in communal organizations and play a significant role as rural leaders in their communities. These results also show that rural leadership is linked to landownership. Indeed, the rural middle class that does not depend on the land exhibit lower levels of participation and social connectedness than middle size farmers. This is consistent with theory expectations linking the rural leadership of middle size farmers with the need for the provision of public services for their plots. Still, the rural middle class that does not depend on the land for their economic reproduction is still more active in communal organizations than small farmers and the poor, which is consistent with the fact that they have better resources and capacity for mobilization. This is also consistent with the fact that even if they are not as dependent on the expansion of public services as middle size farmers because their income doesn't depend on them, they also receive other benefits for which they can have an active interest. Nonetheless, the findings suggest that no one is as active in promoting rural organization as middle size farmers.

These findings are important because they show a specific mechanism giving validity to a reasonable idea with unfortunately few empirical tests up until now, namely that middle size farmers represent a positive force for development. Throughout this dissertation I have shown why this is likely the case (Chapter 1), how it has been shown to be probably true via observation (Chapter 2), how it can be tested beyond the Gini coefficient (Chapter 3), and, in this chapter that it can be observed using contemporary survey data. Results shown in this chapter have implications for the normative question of how to promote greater political involvement and participation in rural areas. If the failure to get involved in local organizations such as communal

action boards is the consequence of poverty, then we should combine the current policies of

promotion to participation with a more serious approach to redistribution.

Appendix

1. Treatment Of ELCA survey data by variable

	NAME	TYPE	ORIGINAL VARIABLES	CLUSTER/INDEX METHODS	HOUSEHOLD AGGREGATION	WAVE AGGREGATION
IDENTIFICATION VARIABLES	Household	ID	NA	NA	NA	I use data only from root households that continued in wave 2
	Community	ID	NA	NA	NA	NA
INDEPENDENT VARIABLES	Total Consumption in pesos (log)	Continuous	Total Consumption in pesos (log)	NA	NA	Average across waves
	Classes	Categorical, 3 groups: poor (small farming), middle class with land, middle class no land	Total Consumption in pesos (log); Land owned in hectares (log); Land used in hectares (log); Total consumption in food (log); Asset Wealth Index	Groups/classes based on Cluster Analysis (PCA) with the set of independent variables: logOw, logAc, logCT, logAl, w.		
DEPENDENT VARIABLES	Participation and leadership in CAB	Ordinal (3 levels)	Belong to a CAB; Attend the meetings of a CAB; Lead a CAB	NA	The highest rank value of responses from either the head of the household or his/her partner.	The highest rank value from the household across waves
	Index of participation and leadership	Continuous	Belong to a CAB; Attend the meetings of a CAB; Lead a CAB; Belong to a religious Organization (RO); Attend the meetings of a RO; Lead a RO; Belong to an Education Organization (EO); Attend the meetings of a EO; Lead a EO	Synthetic index with set weights adding to 1.		The highest rank value from the household across waves / Due to coding issues we take only the value from wave 2
	Proportion of cellphone numbers from neighbors	Ordinal (6 levels)	Proportion of cellphone numbers from neighbors	NA	The answer of the head of the household or his/her partner in case of NA's	This questions only appears in wave 2
	Proportion of neighbors willing to lend you US 20 in an emergency	Ordinal (6 levels)	Proportion of neighbors willing to lend you US 20 in an emergency	NA		
COMMUNITY LEVEL COVARIATES	Assessment of level of security	Ordinal (3 levels)	Assessment of level of security	NA	NA	Worse (Highest) assessment across waves
	Time to get to the municipal urban centre	Continuous	Time to get to the municipal urban centre			Highest value across waves
	CAB leader sought to solve community differences	dummy	CAB leader sought to solve community differences			Highest value across waves

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2. Principal Component Analysis for Class

MSF

	Test.Value	Class.Mean	Frequency	Global.Mean
logOw	50.57	1.76	956	0.67
logAc	48.31	1.99	956	0.90
logCT	18.53	16.05	956	15.79
logAl	13.97	15.29	956	15.06
w	6.71	0.39	956	0.07

RMC

	Test.Value	Class.Mean	Frequency	Global.Mean
logAl	29.44	15.41	1474	15.06
logCT	27.39	16.08	1474	15.79
w	20.57	0.79	1474	0.07
logAc	-23.68	0.51	1474	0.90
logOw	-25.38	0.26	1474	0.67

SF&P

	Test.Value	Class.Mean	Frequency	Global.Mean
logAc	-18.81	0.60	1569	0.90
logOw	-19.10	0.38	1569	0.67
w	-26.19	-0.81	1569	0.07
logAl	-41.29	14.59	1569	15.06
logCT	-43.25	15.35	1569	15.79

Global.Mean and Class.Mean differ from descriptive statistics as N=3999

3. Participation index

Calculated as a normalized {0,1} weighted sum of individual indicators of levels of participation for the three types of rural organizations. Weights assigned as follows:

Dimension/organization	Indicator	Weights
CAB's	Do not participate	0
	Attend meetings	24.8
	Lead	48.8
Religious Organizations	Do not participate	0
	Attend meetings	13.5
	Lead	27.0
Educational Organizations	Do not participate	0
	Attend meetings	12.0
	Lead	24.0

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Chapter 5

Conclusion

The expansion of access to basic services is one of the most pressing concerns in the developing world and throughout this dissertation I have explored the link between landownership structure and the capacity of rural communities to effectively press for the expansion of services through political agreements of electoral support. I have suggested that approaches emphasizing greater access to information on, for example the availability of public resources, as a solution to improve service delivery do not solve the puzzle of why, if such information is so important, communities do not invest their own resources in acquiring it. Indeed, community organizing is expensive and demands the investment of private resources from communal leaders considering their own interests in the expansion of public services. Hence the gist of my argument suggested that only middle income farmers have enough resources as well as incentives to invest in communal collective action in the expectation of obtaining access to public services for themselves as well as others.

This argument does not deny the importance of accessing information about budgets and developmental priorities. It does, however, suggest that different rural groups access, use and manipulate this information with differing aims and that the rural middle class is the most interested in using it to press politicians for purposes of collective development. I argue that it is

because of these differences across rural classes that different balances of power among them cause local democratic governments to provide access to public services in systematically different ways.

Without theories of strategic decision-making producing differences in incentives to access and disseminate information, we perceive differences in governance as challenges to be solved via greater incentives for participatory democracy. I show, however, that participatory institutions such as the communal action boards only work as their designers envisioned, when municipal societies include a reasonably large group of individuals rich enough to acquire information but poor enough to need government services. In municipalities with more unequal distribution, the poor lack the resources to invest in information gathering, but the rich, who may have adequate information, lack incentives to organize their poorer neighbors to demand services from political leaders because they either do not need the services or do not want to pay higher taxes required for their public provision.

I use these arguments to explore the interaction between Communal Action Boards (CAB's) and politicians across rural areas. Indeed, during their first 25 years since their foundation CAB's were part of the pyramidal system of political patronage whereby developmental projects were defined at the national or department level, far from rural communities, while their implementation was left in the hands of local politicians appointed from outside the municipality. Under such system, CAB's served essentially as pipes whose irrigation with funds depended on their relative capacity for partnering with regional or national political bosses, but their influence was probably no larger than the one commanded by large landowners manipulating their dependent base where CAB's played only nominal roles.

This system came to a full stop in the mid-eighties as civic strikes across the country paralyzed rural areas demanding the expansion of services. The response of the national government was to launch a series of radical reforms that included the election of mayors and the expansion of developmental resources over which municipal governments had budget autonomy. The upshot was a transition to a system of local political decision making whereby mayor candidates now used CAB's as political platforms linking campaign promises and rural communities, and therefore better organized CAB's had a more direct pathway to negotiate their electoral support in exchange for public services needed by the community with mayor candidates.

Better organized CAB's had an upper hand in pushing for the expansion of services in exchange for political support and here is where middle size farmers played a key role. Indeed, what is observed since these reforms were enacted can be described as a bifurcation in the quality and expansion of service provision that was at least partially conditioned on the landownership structure of municipalities. Indeed, in municipalities where large landowners predominate service provision has expanded less rapidly than areas where there is more land in the hands of middle size farmers. Unfortunately, although there is some extensive ethnographic work validating this explanation of these divergent patterns, quantitative analyses show that municipalities where land was more concentrated, as measured by Gini coefficients, exhibited better patters of service provision suggesting according to some interpretations that far from having a negative role in development, large landowners were actually behind some of these positive results.

For rural communities across Colombia, this is a highly consequential debate; for if large landowners appear empirically to be promoters of development, then Colombia's highly

regressive distribution of land would receive a further boost. This is not an unlikely

development. In the aftermath of the 2016 plebiscite in which the implementation of a peace

agreement between the government and the FARC was put to the ballot and rejected, the

agrarian point in the agreement was the first to come under intense fire from the winners of the

'No' vote led by former president Uribe. In a country with record high levels of land

inequality, Uribe's main unsubstantiated claim was that the agreement threatened private

property. He went so far as to add a petition to reverse key aspects of the 'land restitution law'

(not discussed in the agreement) that reverses the burden of proof for dispossessed owners as

they reclaim their land from illegal occupiers. Should Colombians worry about further

concentration of land? Or should they control their redistributive and restorative impulses in

the face of evidence of longer run benefits from land concentration?

I have introduced a new measurement of distribution that uses compositional analysis

showing a more efficient way to test specific hypotheses about the effects of trade-offs of wealth

amongst groups in a multivariate regression environment. Indeed, compositional analysis

evolved principally in the geological context where samples containing interacting components

in the soil always added to the sample unit. This is a data structure similar to the one used in

calculating the Gini which by its nature reflects portions – i.e., deciles - of a whole (the sum

equals 1). A simple case of wealth distribution between, for example, men and women would

show that using either of the shares as regressors would produce coefficients of identical

magnitude but in diametrically opposed directions as increases in shares held by men are traded

with identical reductions for women. Applying the intuition of compositional analysis to this

case entails understanding these respective shares by men and women as a single composition of

log ratios of wealth, that is a single vector ranging from minus to plus infinity. In sum,

compositional analysis allows for a fully consistent statistical analysis of the likely effects of the simultaneous interaction of wealth portions held by competing groups. In other words, once our groups are understood as components we can investigate the effects of their relative wealth.

I have shown that even though the Gini coefficient is significantly related with outcomes of interest, we should prefer to work with balances calculates via compositional analysis when the hypothesis we are trying to test involve tradeoff dynamics amongst competing groups. Overall the results show that in Colombia even when the Gini is positively correlated with developmental outcomes such as access to clean water and electricity, the reason for the relationship is that middle-sized farmers act as political entrepreneurs to acquire needed infrastructure for themselves and their poorer neighbours, not that the rich provide such benefits.

Throughout this dissertation I have emphasized the urgency to develop metrics allowing to distill tradeoff dynamics across groups, particularly in a context in which inequality and its effects are a major concern. Using the context of the debate on the role of the rural middle class on rural services in a developing country I have illustrated the use of compositional analysis as well as how it helps to resolve some of the confusions social scientist encounter when interpreting the Gini coefficient in regression environments

In addition to testing my theory based on the relative distribution of land, I offered a series of empirical tests on the specific relationship between rural household income-wealth and patterns of rural political participation using survey data from 2010 and 2013, representative of the national and regional levels in Colombia. The results validate the intuitions of my theory showing that middle size farmers are more active in communal organizations and play a significant role as rural leaders in their communities. These results also show that rural

leadership is linked to the ownership of medium-sized farms. Indeed, the rural middle class that does not depend on the land exhibit lower levels of participation and social connectedness than middle size farmers. This is consistent with theoretical expectations linking the rural leadership of middle size farmers with the need for the provision of public services for their plots.

In short, the dissertation shows, first, that municipalities in Colombia with relatively large numbers of middle-sized farmers provide larger proportions of their citizens with piped water, electricity, and other public services. I argue that middle-sized farmers play this role because they have the income and other resources needed to travel to local urban areas to gather relevant information and to lead local CABs in bargaining with local elected officials, but they are poor enough to need the public provision of such services. Large landowners, in contrast, can supply themselves privately and thus have no reason to contribute to public supply. The second empirical study of the dissertation shows that the owners of middle-sized farms play an outsized role in CABs and that they are more generally well networked in their communities, as would be expected of those leading local collective action.