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Perceptions of Institutions and Development in Rural Costa Rica

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Abstract

Dissecting complex institutional webs and the roles they play (or should play) in development is an ongoing endeavor. To better understand the relationships between local and external institutions in small communities—specifically, whether these two sets of institutions act as complements or substitutes—we analyze subjective assessments of organizations and development indicators in nine rural Costa Rican towns. We expect to find that attitudes toward both local and external institutions are positively related to perceptions of development indicators. While the regression model we present yields a relationship between the perceived strength of local institutions and development indicators, we fail to find such a relationship with the importance respondents place on the presence of external organizations in their community. The results of a second regression model suggest that individuals may link the importance of external institutions with the specific services they provide. We consider that weak informal ties (embeddedness) established by external institutions in these communities may account for the observed lack of a relationship between development indicators and the importance of external institutions.

Keywords: community development, complementarity, embeddedness, substitution, synergy

1.0 Introduction

The roles that different social, political, and economic institutions play in development have long been of interest in the social sciences. While it has become a truism that “institutions matter” to development, finding *which* institutions matter, to what extent, and under which conditions is highly complex (Bardhan, 2005). Understanding the effectiveness of different institutional arrangements is not only theoretically interesting, but vital to the formulation of development policy.

We seek to understand the respective roles played by *local* and *extra-local* (*external*) institutions in rural communities. By analyzing the results of interviews conducted in nine towns in rural Costa Rica, we examine whether local institutions (development associations, municipal governments, religious groups, cooperatives, etc.) and external institutions (regional/national government agencies or nongovernmental organizations) function as *complements* or as *substitutes*, and the implications of these relationships for community development. Where previous

authors have examined objective measures of development and institutional strength (Grootaert, 1999; Grootaert & Narayan, 2004; Grootaert, Oh, & Annand, 2002), we want to know how local and external institutions are related to one another, and to development at the subjective level. That is, do individuals link indicators of development in their community with the performance of both local and external institutions? Is perceived development highest when people regard institutions at both levels as complementary, or does one set of institutions take precedence over the other? We believe answering such questions about individual perceptions of institutional relationships and efficacy, in addition to more objective measures, is important to the effective implementation of development efforts.

Our analysis draws on interview data measuring the strength of local institutions, the importance of external institutions, and several indicators of community development. We first present a regression model attempting to discern the relationship between perceptions of local and external institutions (independent variables) and the levels of certain development indicators as reported by respondents. To further illuminate potential determinants of attitudes towards external institutions, we then build a stepwise regression model to test for potential links between the importance individuals place on external institutions and the services they provide.

It is important to note that some authors, notably Uphoff (1993), argue that “organizations” and “institutions” are separate concepts which are often conflated. We do not make this distinction in our study. We use subjective assessments of institutions, and do not expect respondents’ answers to questions regarding “institutions” and “organizations” to reflect this subtle theoretical difference. The importance of institutions/organizations in our study is their functional relationship to other variables and not their precise theoretical definition.

1.1 Complements and Substitutes

The issue of substitution and complementarity between different social, political, and economic structures appears in several fields. Zenger, Lazzarini, and Poppo (2002) review the literature on the relationship between formal and informal institutions in general, finding that substitution and complementarity between the two are both commonplace and ultimately that “the interaction between formal and informal institutions is too complex to accommodate a unique pattern” (p. 294). Strong formal institutions may make up for a lack of social cohesion in communities and organizations, while high social capital may mitigate weak formal institutions. Nooteboom (2007) notes the particular importance of institutional substitution in developing countries, where social capital is often needed to fill the void of political and legal structures. On the other hand, synergy may arise between the two when strong informal institutions lubricate interactions within formal institutions by reducing monitoring and transaction costs. In inter-organizational relations, the complexity of contracts may be positively related to social capital between organizations, suggesting that strong informal ties help improve inter-organizational exchanges (Poppo & Zenger, 2002).

We are interested in substitution and complementarity between local (community-level) and extra-local institutions. Here, substitution may occur due to the “competitive exclusion” of weak external institutions by strong local ones, or vice-versa. From the literature on local and extra-local leadership in Africa, Lund (2006) contends that local groups regularly attempt to undermine national authority and

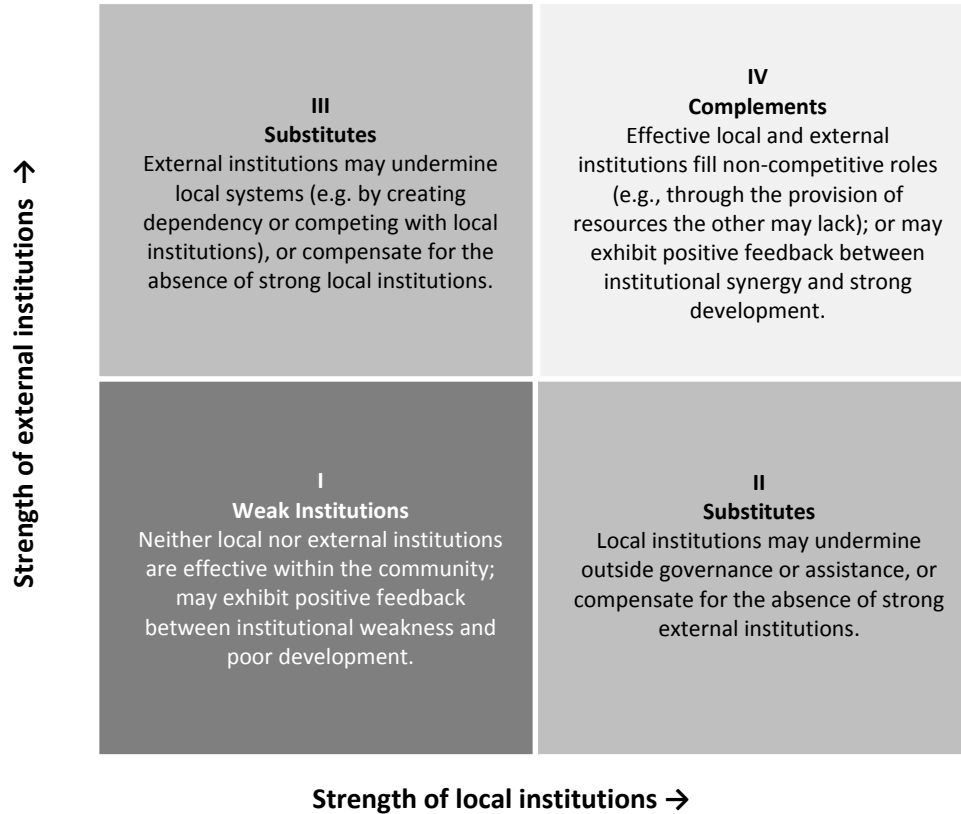
cement their own. During democratization in Niger, for example, “Home-town associations, chieftaincies and vigilante groups all took on the mantle of public authority in their dealings with what they considered to be their antithesis, ‘the state’.” A similar tension has been described between national and local-level democracy in England, where a reassertion of local autonomy can undermine state sovereignty (Pratchett, 2004).

A more positive form of substitution, which might be termed “compensatory substitution”, occurs when missing or ineffective institutions at one level are mitigated by stronger institutions at another level. As mentioned above, social capital at the community level may help to make up for weak formal institutions in developing countries (Nooteboom, 2007). Marsh (2003) points out that informal avenues for mutual assistance (e.g., credit, savings, and poverty alleviation schemes) can be vital for communities when such services are not provided through formal bodies. Generally speaking, effective organization and leadership at the local level become essential when outside help from higher-level government institutions or nongovernment organizations is largely absent.

Complementarity arises when local and external institutions are sufficiently strong and effective to avoid the competitive exclusion and compensatory substitution scenarios described above. A strong basis of local political, human, and social capital is important for the success of development efforts led by outside institutions. Regional/national governments and NGOs can be instrumental in providing communities with the financial and physical capital they often lack (Grootaert & Narayan 2004; Nel, Binns, and Motteux, 2001). NGOs may also facilitate communication and cooperation between local leadership and outside organizations such as donor groups and regional/national government agencies (Marsh, 2003). And as Evans (1996) argues in an instructive article on state-society synergy, the complementarity between states (instrumental in providing goods such as physical capital, financial capital, and the rule of law) and local citizens (which provide social and human capital) is important to the success of development programs.

To summarize these potential interactions between local and external institutions, we present a simple model of complementarity and substitution (see Figure 1). Communities which fall in Quadrant II or III are experiencing substitution; strong institutions at one level may inhibit the function of those at the other level (competitive exclusion), or else may compensate for weaker institutions (compensatory substitution). Communities in Quadrant I lack effective institutions at both levels. Quadrant IV is characterized by complementarity rather than competition between effective local and external institutions. Those communities in Quadrant I and Quadrant IV may respectively be experiencing something akin to the “spiraling down” and “spiraling up” described by Emery and Flora (2006). Emery and Flora refer to positive feedback loops between different types of capital in a community (social, political, natural, etc.), in which losses or gains in one capital catalyze a systemic downward or upward development spiral. Prior research suggests that the same may apply in cases of local-external complementarity (Quadrant IV); strong local and external institutions lead to the development of capital (in the form of social capital, increased economic activity, etc.) which can be reinvested by those institutions to further enhance development. The opposite may happen where both sets of institutions are ineffectual (Quadrant I).

Figure 1: Scenarios for Substitution and Complementarity between Local and External Institutions.



1.2 Implications for Development and Public Perception

We expect that (1) both local and external institutions matter to local development and (2) complementarity between local and external institutions is a superior development scenario to one which exhibits competitive exclusion or compensatory substitution between local and external institutions. These hypotheses are in keeping with the mainstream development literature, which reject pure libertarian and grassroots “bottom-up” approaches on the one hand and externally imposed “top-down” strategies on the other, in favor of more balanced and integrative strategies (Nel *et al.*, 2001; Pretty & Ward, 2001). Advocates of this approach point out that external institutions are capable of providing capital, expertise, and communication channels that local communities often cannot otherwise access, while successful external development efforts rely on traditional knowledge and strong social capital at the local level (Nel *et al.*, 2001; Pretty & Ward, 2001; Woolcock, 1998).

Grootaert and Narayan’s (2004) study of social capital and poverty provides a particularly useful empirical precedent for our investigation. Evaluating development in four communities in rural Bolivia, the authors found that the community with the highest level of development (Mizque) exhibits “complementarity between strong traditional institutions, strong supra-community regional organizations, and effective municipal government.” By contrast, the poorest community (Villa Serrano) is characterized by both weak local and external institutions. The intermediate development scenarios, Charagua and Tiahuanacu, respectively exhibit substitution of weak traditional institutions by strong municipal

government and substitution of weak regional organization by strong traditional institutions. But while Grootaert and Narayan (2004) are interested in objective measures of development and institutional strength, we are interested in subjective assessments of institutional strength, importance, and community development, relevant aspects to construct the internal frame of reference necessary to make sense of the world around. That is, are individual perceptions of local and external organizations' performance related to their perceptions of development?

We expect that perceived community development will positively relate to both the strength of local institutions and the importance of external institutions. If the development prospect is highest when strong local and external institutions play complementary roles, we expect individuals to link indicators of community development with both local and extra-local institutions.

1.3 A Brief Explanation on the use of Subjective Indicators

Studies of the relationship between objective institutional features and objective indicators of development, exemplified by Acemoglu, Johnson, and Robinson (2001), play a prominent role in the development literature. At the level of local institutions and development, Uphoff (1986) typifies the literature, providing a comprehensive treatment of how institutions are linked to various areas of development and directions for the strengthening of local institutions in the service of development. Such work is in a sense the standard fare of economics and comparative political science: it asks how the structure of institutions influences observed outcomes in the economy, culture, environment, etc., and has made tremendous contributions to our understanding of the social world.

Another large literature concerns how *subjective* impressions are linked to objective states of the world. Attribution of blame to politicians (e.g., Arceneaux, 2003; Lyengar, 1989; Marsh & Tilley, 2010), beliefs about global warming (Li, Johnson, & Zaval, 2011), and environmental health risks (e.g., Flynn, Slovic, & Mertz, 2006; Horlick-Jones, Sime, & Pidgeon, 2003) are just a few cases in which researchers have examined how objective institutional and environmental characteristics are linked with subjective impressions. Such studies inform policy discussions in a way in which comparisons of purely objective measures cannot, as the way individuals see the world (as opposed to the way the world is) is itself integral to the behavior of social systems. This approach is crucial in the development literature, as it tells us how locals actually perceive development and development initiatives in their communities, in addition to whether policies work as measured by objective indicators alone (e.g., Borecky & Prudky, 2001; Diedrich & Garcia-Buades, 2009; Quinn, Huby, Kiwasila, & Lovett, 2003).

This study departs from these two approaches by comparing *subjective* development indicators to *subjective* assessments of local and external institutions. The purpose of such a methodology is to measure how individuals link their views of institutions with their personal assessments of development indicators in their communities. Comparisons of objective features of institutions and subjective assessments of development and, conversely, subjective views of institutions and objective development indicators are informative but do not tell us how the relationship between institutions and development is represented in people's minds. Independently of the actual function of local and external institutions, do people connect the behavior of

these institutions with the perceived state of the infrastructure, environment, economy, and other aspects of development in their communities?

2.0 Methods

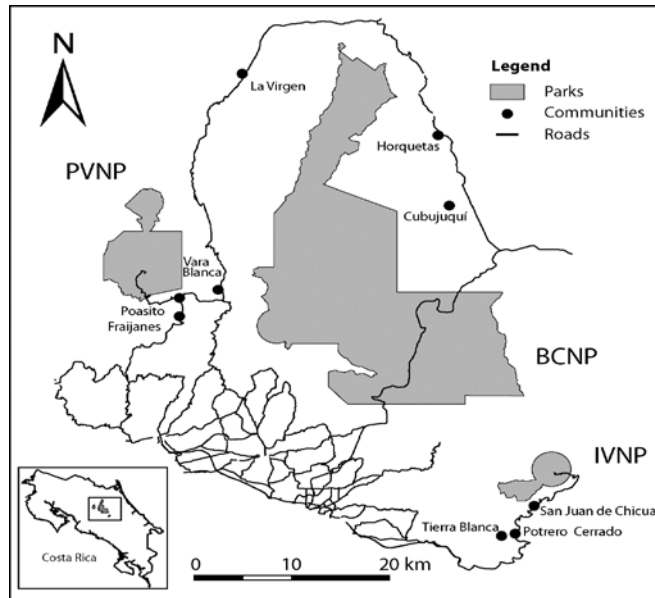
To test our predictions about perceptions of institutions and development, we present two regression models using interview data from a larger series of studies on community capitals. Variables include two indices created using principal components analysis, in order to better measure “perceived development” and “strength of local institutions.”

2.1 Interviews

Data for this analysis were collected during three separate periods in nine rural Costa Rican towns between November 2011 and 2012 (see Table 1 and 2). During each period, three national park gateway communities (see Figure 2) were selected along with park officials based on their close proximity to one of its public entrances. All communities belong to the Central Volcanic Mountain Range Conservation Area, which is one of the 11 areas that comprise the National System of Conservation. Teams of interviewers, which first piloted and practiced the interviews in an alternative community, employed a stratified sample procedure with systematic random sampling for households (every other house), as well as purposeful snowball sampling to include insights from community leaders (identified by fellow community members). This procedure aligns with the nature of the study, as the input of community leaders was theoretically sensible. Sampling error was in all cases smaller than twenty percent, and the small geographic extent of each community gives us good reason to believe that our samples preserve the internal validity of our findings. The interview was completely voluntary and participants were told that all responses were anonymous, although many voluntarily gave their name and contact information in the event that we needed to contact them for further explanation of responses.

The questionnaire was created with the assistance of an official from the Central Volcanic Mountain Range Conservation Area and two research assistants at the School for Field Studies. Its design was aided with information from Gutiérrez and Siles (2008), Cepeda Gomez (2008), and ACCVC/UNA-IDESP (2011). It contains 63 questions written in Spanish and was designed to take about an hour. The structured interview helps to measure the presence of capitals within the community, as defined by the Community Capitals Framework, a system designed to assess the level of development in a community according to levels of seven different “community capitals” (Emery & Flora, 2006). The analysis we present draws on questions measuring individuals’ perceptions of various development indicators, ratings of development association and municipality performance, and demographic variables.

Figure 2: Location of National Parks and Communities Assessed.



Source: Own elaboration by authors with information from 2008 Atlas of Costa Rica.

Table 1. *Overview of Study Sites*

Town	National Park	Municipality	Number of Houses	Number of Interviews (n=245)	Date of Interviews
Vara Blanca	Poas Volcano	Heredia	160	26	November 2011
Poasito	Poas Volcano	Alajuela	366	24	November 2011
Fraijanes	Poas Volcano	Alajuela	393	23	November 2011
Cubujuqui	Braulio Carrillo	Sarapiquí	354	25	April 2012
La Virgen	Braulio Carrillo	Sarapiquí	718	33	April 2012
Horquetas	Braulio Carrillo	Sarapiquí	616	29	April 2012
Tierra Blanca	Irazu Volcano	Cartago	667	47	November 2012
San Juan de Chicua	Irazu Volcano	Oreamuno	83	17	November 2012
Potrero Cerrado	Irazu Volcano	Oreamuno	146	21	November 2012

Table 2. General description of communities evaluated.

Park/ community	Description	Local institutions	External institutions	General assessment
Poas Volcano National Park	This park is located in the Central Region of Costa Rica. Established in 1971, it is one of the country's first national parks, and encompasses 6 506 hectares. Over the last several years, it has been among the most visited parks of the country, with over 300 000 visitors annually, half of them being foreigners. Besides the volcano's crater, it has unique ecological characteristics, and represents an important water recharge area for high demand aquifers.			
Vara Blanca	Vara Blanca is a small town that belongs to the province of Heredia, and of the three communities researched is located farthest away from the main entrance of the park. Its primary income sources are dairy farms, some of them under contract with large national processing corporations, and strawberry farms. Tourism services, though mostly informal (e.g. yard sales of souvenirs), is another source of income for some residents.	Municipality of Heredia, Catholic church, Association of Community Development, Local committee for water provision (ASADA), Blue Flag group, elementary school board, local health, sports, and agricultural committees.	National Institute of Learning (INA), National Institute for Women (INAMU), State Universities (UNA and UCR), National Institute of Social Support (IMAS), Red Cross, National Emergency Commission (CNE), Ministry of Agriculture, and United Nations Development Program (UNDP).	One of the main limitations mentioned by locals is that participants of local groups were often the same people, overwhelmed by multiple tasks. Social barriers such as trust and sense of community appear to be causes of limited participation.
Fraijanes	Another rural community near the park entrance. With almost 400 houses, mostly along the main passing road toward the park, this community has a variety of businesses such as restaurants, cabins and shops. The main source of agricultural income is ornamental plants such as flowers and ferns. These activities are largely controlled by a handful of foreign companies, and locals work mostly as hired farmers. Dairy farms represent a smaller source of income. Services such as banks, clothing stores, or entertainment are almost nonexistent.	Municipality of Alajuela, Catholic church, Shalom evangelical church, Association of Community Development, Local committee for water provision (ASADA), Local Chamber of Tourism, elementary school board, and sports committee.	National Institute of Learning (INA), Ministry of Health, University of Costa Rica, Social Health Organization (CCSS), Lions Club.	Literacy rate is over 95% in this community; however, at the time interviews were conducted the only elementary school had recently been destroyed by an earthquake. Of the three communities evaluated, this one appears to be the least organized and least interested in communal initiatives. Interviewees mentioned there is no leadership and little support from the municipality.
Poasito	This community is the closest to the park, and is similar in number of houses as Fraijanes. The main sources of income are	Municipality of Alajuela, Catholic church, Shalom evangelical church,	Child care-education program (CENCINAI), National Institute of Learning (INA),	Human capital in Poasito was the highest rated compared to the other two communities

Park/ community	Description	Local institutions	External institutions	General assessment
	dairy farms, and also a variety of businesses connected to the tourism industry such as restaurants, cabins and shops. Given the weather, proximity to the forest, and the scenic views of the valley, land value here is much higher compared to the other communities.	Association of Community Development, Local committee for water provision (ASADA), health, education and sports committees, recycling group, neighborhood watch committee.	National System of Conservation Areas (SINAC), Foundation for Development of the Central Conservation Area (FUNDECOR), University of Costa Rica, National Emergency Commission (CNE), National Institute of Electricity (ICE), Social Health Organization (CCSS), Lions Club and United Nations Development Program (UNDP).	evaluated around Poas. Health, education, growing population and employment opportunities were all rated positively.
Braulio Carrillo National Park	This park was established in 1978, and with a size of 47 586 hectares is among the largest in Costa Rica. The park receives about 15 000 visitors annually. The three communities evaluated are located in the eastern and northern sides of the park on the Caribbean side. The agricultural activities of these communities have been a source of tension with the park officials.			
Horquetas	The community of Horquetas originated with the influx of squatters to the area, and accompanying rapid forest conversion, in the 1970s and 80s. Today, most of the agricultural production in Horquetas is in bananas and pineapple. There are also a number of small farmers that produce various agricultural products for the local market. Compared to La Virgen, Horquetas is just beginning to enter the tourism industry.	Municipality of Sarapiquí, Catholic and Evangelical churches, Child care-education program (CENCINAI), Association of Community Development, Local committee for water provision (ASADA), Road committee, elementary school board, local sports committee.	EARTH University, National University of Costa Rica (UNA), Sueño Azul Resort, Institute of Social Help (IMAS), Institute of Agrarian Development (IDA), National Emergency Commission (CNE).	Due to governmental aid, Horquetas provides their locals an important base for development in the form of community halls, schools, clinic, roads, housing, and other public services. However, employment options are limited, and residents consider the community as lacking in organizational and leadership capabilities.
La Virgen	La Virgen, like the other three communities, is mostly rural, though its town center has been rapidly growing over the last decade. La Virgen's main economic activity is the cultivation and	Municipality of Sarapiquí, Red Cross, Seniors House group, Catholic and Evangelical churches, Association of Community	Ministry of the Environment and Energy (MINAE), Peace Corps., Tirimbina Biological Reserve, COOPELESCA water and electric utility cooperative,	Due to investments in agriculture and tourism this community has experienced significant economic growth over the past decades. Nevertheless,

Park/ community	Description	Local institutions	External institutions	General assessment
	export of pineapple. There are also tracts of land in pasture for beef production, and to a lesser extent the production of heart of palm and ornamental plants. La Virgen has also slowly established itself as an ecotourism destination over the last two decades.	Development, AA group, Local committee for water provision (ASADA), Committee of rural tourism, high school board, local sports committee.	National Institute of Electricity (ICE), Organization for Tropical Studies (OTS), Ministry of Health, National Institute of Learning (INA), and Water and Sewage Institute (AYA).	deforestation, soil erosion, and agrochemical pollution are pressing issues here; unfortunately, social and political organization is considered weak and insufficient to solve these problems.
Cubujuqui	Cubujuqui differs from the other communities near Braulio Carrillo in several respects. First, it is a very small village with only 354 households (about half the size of La Virgen and Horquetas). Second, Cubujuqui is the closest community to the main entrance of the Braulio Carrillo, and the closest to the perimeter. Finally, the presence of a hydroelectric project and another under construction makes this sector the major source of employment (rather than agriculture).	Municipality of Sarapiquí, Catholic and Evangelical churches, Association of Community Development, Hydroponic Women's group, elementary school board, local health, sports, neighborhood watch, and agricultural committees.	COOPELESCA water and electric utility cooperative, Doña Julia hydroelectric project, National University of Costa Rica (UNA), National Institute of Electricity (ICE), Ministry of Health, National Institute of Learning (INA), Institute of Agrarian Development (IDA), Water and Sewage Institute (AYA), Ministry of Agriculture (MAG).	Of the communities evaluated this one appears to be the poorest. There are no basic services such as clinic, a pharmacy, or a high school. Despite the employment opportunities offered by the hydroelectric projects, the perception is that there is limited communication between the companies and the community.
Irazu Volcano National Park	The Irazu Volcano National Park (IVNP) is the highest active volcano in Costa Rica (i.e., 3 400 m.a.s.l.). In 1955 the park was created to protect an extension of 4 000 hectares, which includes 5 craters at its peak and an impressive diversity of flora and fauna. Currently the park receives around 190 000 visitors annually, being among the top attractions to nationals and foreigners. The upper area is characterized by pasture lands for dairy production and the mid-areas are among the most important nationally for the cultivation of vegetables such as potatoes, onions, and cabbages. Although these communities were established at the beginning of the 20th century, they were in large part destroyed by a volcanic eruption in 1963 and have since been rebuilt. Unfortunately, employment rates for these three communities high.			
San Juan Chicua	This small community is closest to the park entrance. According to historical records, in the 1890s San Juan de Chicua became the site of the first large scale dairy farm in Costa Rica (Ramirez, McHugh & Alvarado, 2008). The community is still dominated by a few large land owners that mix forest with pastures for dairy production - most of the	Municipality of Oreamuno, Catholic church, Association of Community Development, Transportation committee, Local committee for water provision (ASADA), elementary school board,	Ministry of the Environment and Energy (MINAE), National Scholarship Fund (FONABE), Ministry of Agriculture (MAG).	Of the communities around Irazu, San Juan de Chicua scored lowest in our analysis of community capitals. Low employment opportunities limit the community's capacity for human development. Locals also mentioned that their

Park/ community	Description	Local institutions	External institutions	General assessment
	families belonging to this community work as hired workers in the larger farms.	health and sports committees.		occupation with daily chores affects their participation in organized groups.
Tierra Blanca	Tierra Blanca and Potrero Cerrado are both located farther downhill of Irazu. Their rich volcanic soils permit the farmers of Tierra Blanca develop very intensive and productive agricultural systems. Part of the Reventado watershed, this community is among the top producer of potatoes, onions, carrots, broccoli, and cabbages that are consumed in the country. The tracts of land are smaller and usually worked by the owners alone and in cooperation with their neighbors. The town center is significantly larger compared to that of surrounding communities, offering education, health, and business services to their inhabitants.	Municipality of Cartago, Association of Horticultures of Irazu (ASHORI), Association- Chamber of Farmers of Tierra Blanca (ASOCAGRI), Catholic and Evangelical church, Association of Community Development, Local committee for water provision (ASADA), Red Cross, sports committee.	Ministry of Agriculture (MAG), Ministry of Education (MEP), National Institute of Learning (INA), University of Costa Rica (UCR), Child care-education program (CENCINAI), Social Health Organization (CCSS), National Insurance Institute (INS), United Nations Food and Agriculture Organization (FAO).	Tierra Blanca is a thriving community that enjoys the highest level of perceived leadership among the three communities evaluated near this park. They enjoy also the highest literacy and employment levels among these communities. Unfortunately the growth of the urbanized center is also posing environmental threats, such an increase in waste water and solid residues that are not managed properly.
Potrero Cerrado	Potrero Cerrado is located adjacent to Tierra Blanca along the main road towards Irazu. It is similar economically to Tierra Blanca, small scale agriculture being the most important source of income and employment. Of the communities around Irazu, Potrero Cerrado seems to take the greatest advantage of traffic to the park through restaurants and shops.	Municipality of Oreamuno, Catholic church, Association of Community Development, Local Emergencies Committee, Local committee for water provision (ASADA), elementary school board, neighborhood watch, health and sports committees.	National Union of Small and Medium Farmers (UPANacional), National Association Educators (ANDE), Ministry of Agriculture (MAG), Ministry of the Environment and Energy (MINAE).	Residents of Potrero Cerrado indicate rich cultural assets such as traditional knowledge of plants for medicine, traditional dishes, and celebration of local community events. This is an important aspect since Potrero Cerrado is the community which is most taking advantage from tourism.

2.2 Variables

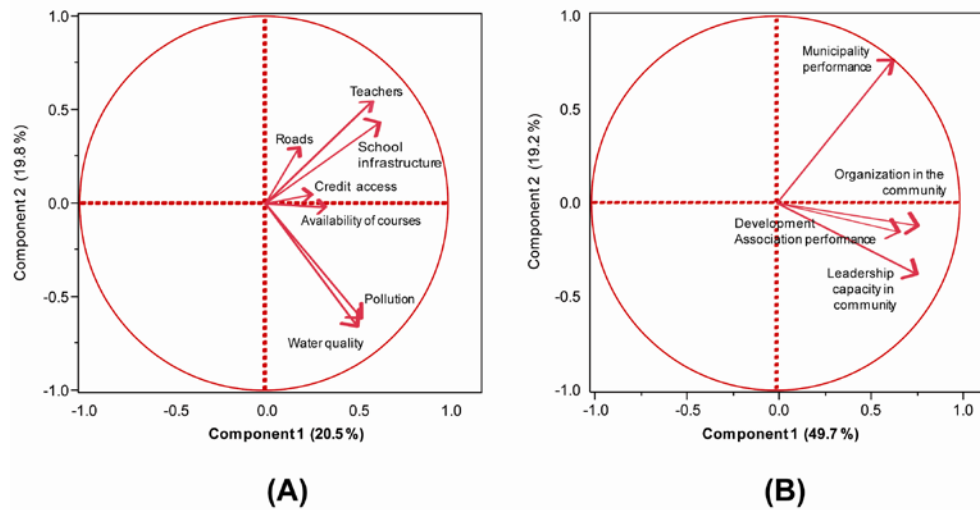
Development indicators include individual ratings of roads; education; infrastructure of the local school; quality of water in rivers, streams, and wells; and the level of pollution, using five-point rating items. Several questions were presented in reverse order to minimize common method bias. We also use responses to the question “Is it easy for you to obtain credit?” (yes or no) and “Do you believe that there are opportunities in your community to receive training?” (none, few, or many). These perceived development indicators represent measures of physical, human, natural, and fiscal capital in the Community Capitals Framework (Emery & Flora, 2006). In order to measure perceived development as a whole, we created an index of *perceived development* using a principal components analysis in the manner described by Vyas and Kumaranayake (2006). Principal components analysis of the indicators above yields factor scores (see Table 3) that we used as weights in the construction of our perceived development index. The score plots for these two factors shown in Figure 3. Factors scores from the first principal component are used, as factor scores for each indicator are in the expected direction with respect to the first principal component (i.e. positive, as each is a positive indicator of development). We weighted the indicators that make up the index, creating a more robust method than simply summing or averaging raw scores.

Table 3. *Factor Scores for each Indicator Used in Perceived Development and Local Institutions Indices, Yielded by Principal Components Analysis*

Perceived development indicator	Factor score	Local institutions indicator	Factor score
Roads	0.18	Development association performance	0.76
Pollution	0.52	Level of organization in the community	0.66
Water quality	0.50	Municipality performance	0.63
School infrastructure	0.62	Leadership capacity in the community	0.76
Teachers	0.58		
Credit access	0.25		
Availability of courses	0.32		
Variance explained by first component: 20.5%		Variance explained by first component: 49.7%	

To measure the strength of local institutions, we created a “*local institutions*” index in a similar fashion. The indicators in this index include five-point rating items in which respondents rated the level of organization in their community, the capacity of leadership in their community, the performance of the community development association, and the performance of the municipal government with respect to development. As before, factor scores from principal components analysis (see Table 3) provide the weights for each variable in our index.

Figure 3: Score plots of Principal Component Analysis for the “Perceived development indicator” (A) and the “Local Institutions indicator” (B).



Importance of external institutions is measured using a single rating item, on which respondents indicated “how important is the presence of external organized groups in your community?” Explanations distinguishing local and external institutions were not provided to respondents. There are two, related reasons for this. First, as Uphoff (1986) notes, “Delimiting what is ‘local’ turns out to be almost as complicated as determining what is an institution” (p. 10). And, critically, what we believe are local and external institutions may not be perceived as such by respondents. Given our interest in how respondents themselves relate the behavior of institutions they consider local and those they consider external, compounded with the difficulty of separating the two in the first place, we chose not to elaborate on the distinction between the two types of institutions.

The second model we present includes a dichotomous variable from the question, “Have you received any course or training in the past two years?” As controls in our analysis, we included the respondent’s community, whether or not the respondent belongs to a local organization, and demographic variables: gender, age, education, and whether or not the respondent was born in the town in question.

2.3 Analysis

We present a multivariate regression analysis in order to test our prediction that both the strength of local institutions (local institutions index) and the importance of external organizations are positively related to the level of development indicated by respondents (perceived development index). Our model controls for basic demographic characteristics, membership in a local organization, and respondent community in order to eliminate the effects of community-related extraneous variables.

To further understand the role of external organizations in perception of development indicators, we present a second regression model with the importance of external institutions as our dependent variable. The model’s major independent variables are (1) perceived availability of training opportunities and (2) whether or not the respondent has taken a course in the past two years. The latter is introduced

in a forward stepwise regression in order to learn how are related the external institutions, the availability of training opportunities, and actually receiving training. All statistical analyses were carried out using the statistical package JMP, version 10 (SAS Institute, 2012).

3.0 Results

Results of multiple regression analysis (see Table 4) confirm our prediction that the local institutions index is positively related to perceived development ($\beta = 0.33$, $p < 0.001$). However, our analysis fails to support our expectation that the perceived development index varies with the importance of external organizations ($\beta = -0.068$, $p = 0.455$). Our analysis also indicates that perceived development is significantly higher amongst citizens of Poasito ($\beta = 1.36$, $p < 0.001$) and La Virgen ($\beta = 0.63$, $p = 0.017$), and significantly lower in Fraijanes ($\beta = -1.79$, $p < 0.001$). Furthermore, the results hold when the analysis is performed separately for community leaders and for the rest of respondents (i.e., non-leaders). Failing to find a relationship between the importance of external institutions and perceived development, we investigated more closely, potential links between perception of external organizations and individual indicators of development. Several descriptions of external organizations operating in their communities suggest that the opportunity to receive training is one of the indicators potentially most relevant to the presence of external organizations. Although is not unique to external organizations, respondents in several communities listed a number of external institutions which offer courses to locals. These include the Costa Rican Institute of Aqueducts and Sewers, which offers training in water use; the National Learning Institute, which gives courses in English and other subjects; and the University of Costa Rica, which provides courses in disaster preparation. We thus construct another model to find what relationship there is, if any, between the importance of external institutions and the training opportunities indicator in particular.

A third variable which might influence an individual's rating of both the importance of external institutions and the availability of training opportunities is whether or not he/she has taken a course in the last two years. We use a forward stepwise regression analysis to test (1) the relationship between perceived availability of training opportunities and importance of external organizations and (2) the effect on this relationship of an individual having taken a course himself.

The original model (Step 0) shows that the importance of external organizations is positively related to perceived access to training opportunities ($\beta = 0.138$, $p = 0.059$) (see Table 5). However, when the "course taken in last two years" variable is introduced (Step 1), the significance of the training opportunities variable is erased ($p = 0.114$). Meanwhile, having taken a course in the last two years has a significant direct relationship with individuals' perceptions of the importance of external organizations ($\beta = 0.28$, $p = 0.004$). This however, might be occurring because individuals who mentioned the lack of access to training are simply not informed about these opportunities.

Table 4. Regression Analysis Explaining Individuals' Perceived Development (as Measured by Perceived Development Index)

Variables †	β	p-value	t-value
Intercept	7.47	<.0001	10.58
Local institutions index	0.33	<.0001	5.47
Importance of external organizations	-0.06	0.4548	-0.75
Cubujuqui	-0.47	0.1171	-1.57
Fraijanes	-1.79	<.0001	-5.51
Horquetas	0.15	0.5731	0.56
La Virgen	0.63	0.0173	2.4
Poasito	1.36	<.0001	4.69
Potrero Cerrado	0.03	0.9152	0.11
San Juan de Chicua	0.02	0.9657	0.04
Tierra Blanca	0.04	0.8636	0.17
Membership in local organizations	-0.06	0.6174	-0.5
Non-native	0.13	0.2233	1.22
Age	0.00	0.659	-0.44
Gender: female	-0.06	0.556	-0.59
Education	-0.03	0.6974	-0.39

†Dependent variable is importance of external organizations.
 Adjusted R² = 0.28
 n = 232

Table 5. Forward stepwise regression analysis explaining importance of external organizations. Step 1 introduces "course taken in last two years" dichotomous variable

Variables †	Step 0		Step 1	
	β	p-value	β	p-value
Intercept	3.235	<.0001	3.195	<.0001
Access to training	0.138	0.059	0.114	0.123
Course in last two years	--	---	0.297	0.004
Cubujuqui	0.597	0.022	0.617	0.016
Fraijanes	-0.596	0.036	-0.643	0.028
Horquetas	0.328	0.166	0.329	0.155
La Virgen	0.681	0.003	0.753	0.001
Poasito	0.453	0.081	0.303	0.241
Potrero Cerrado	-0.309	0.277	-0.300	0.280
San Juan de Chicua	-1.459	<.0001	-1.393	<.0001
Tierra Blanca	0.277	0.175	0.389	0.055
Membership in local organizations	-0.135	0.179	-0.041	0.696
Non-native	0.015	0.877	-0.009	0.927
Age	-0.002	0.692	0.000	0.947
Gender: female	-0.085	0.367	-0.105	0.259
Education	0.101	0.086	0.106	0.070

†Dependent variable is importance of external organizations.
 Adjusted R² = 0.16
 n = 231

4.0 Discussion

We divide the discussion of our results into two parts. First, we discuss the potential implications of our findings for the differences in perceptions of local and external institutions. Second, we return to the original framework to place our results in the context of institutional complementarity, substitution, and development.

4.1 Importance of External Institutions as a Function of Exposure

The results fail to support our prediction that both the strength of local institutions and the perceived importance of external organizations would be positively related to our perceived development index, which draws on indicators of human, physical, natural, and financial capital. While our results provide evidence that individuals link the strength of local institutions with our broad measure of development, the same is not true of external organizations. This is not to say that our more general expectation that development is maximized where local and external institutions play complementary roles can be rejected. Measuring the importance of external institutions against an index of development simply obscured, in our case, a more subtle but nevertheless important role for external institutions in the perception of development.

While the availability of courses is given the lowest weighting in the perceived development index, it may be helpful in explaining how people rate the importance of external organizations. This item is unique in that the survey includes questions on both access to training in general and the provision of specific training benefits (having taken a course in the past two years). This allows for tentative testing of the hypothesis that the importance of external organizations is a function of the direct benefits they provide to individuals rather than the level of development in general. Our stepwise regression model (see Table 5) indicates that having taken a course in the last two years is an important predictor of the importance an individual places on the presence of external organizations in his community. These results suggest that individuals may not link external organizations with development in general, but with the *provision of specific benefits* which are readily noticeable; contrast this with our finding that perception of local institutions is related to development *in general*. By specific benefits, we refer to those that individuals will automatically connect with the function of an institution—e.g., the provision of courses or the extension of credit. We differentiate these from more general benefits such as water quality, infrastructure, and the level of pollution in the community, which may be provided by external institutions but which individuals may not *necessarily* connect with the organizations that provide them. We offer several speculations as to why this difference might exist within the context of our study.

First, our finding of a significant positive relationship between the local institutions index and perceived development is *not* equivalent to showing that individuals mentally link the performance of local institutions with general development indicators. It may be that individuals link *only* the provision of specific benefits to *both* sets of institutions. If communities which are high in general development indicators (measured by our perceived development index) also contain local organizations which provide many *specific* benefits (e.g., training, loans, social welfare programs), the relationship we find between *general* benefits and local organizations may be spurious. The fact that our model controls for the effects of community, however, improves the chances that extraneous community-related variables do not account for this relationship. Second, our findings may reflect that

external institutions in these communities are indeed unrelated to the level of development as a whole.

If our results provide evidence that individuals link local institutions with development in general, why do they associate external institutions with only the specific services provided? It is possible that the difference lies in the relative exposure individuals have to the respective sets of institutions. Prior research finds that the degree of contact between individuals and their local government is positively linked to their attitudes towards local governance in general (Borecky & Prudky, 2001). And according to Evans (1996), complementarity is a necessary but often insufficient precondition of synergy between governments and local development efforts; the *embeddedness* of outside institutions within communities also matters. That is, not only the services provided by external institutions but the *connections* they make within the communities in which they work are important to the success of their initiatives. Local institutions are of course inherently embedded in their communities but external organizations in the towns we assessed may vary in their degree of embeddedness, this means that individuals may not connect organizations with their contributions to community development, if they lack sufficient connections. Furthermore, in the Costa Rican context there are external organizations such the Catholic Church or public universities that are highly regarded by citizens but many others with low credibility and performance (Poltronieri 2011, CGR 2013). In this case, it would not be surprising to find that the importance of external institutions is unrelated to development in general, but to the provision of specific benefits by some of them. Services such as courses may be one of the few ways individuals interact with poorly-embedded external institutions.

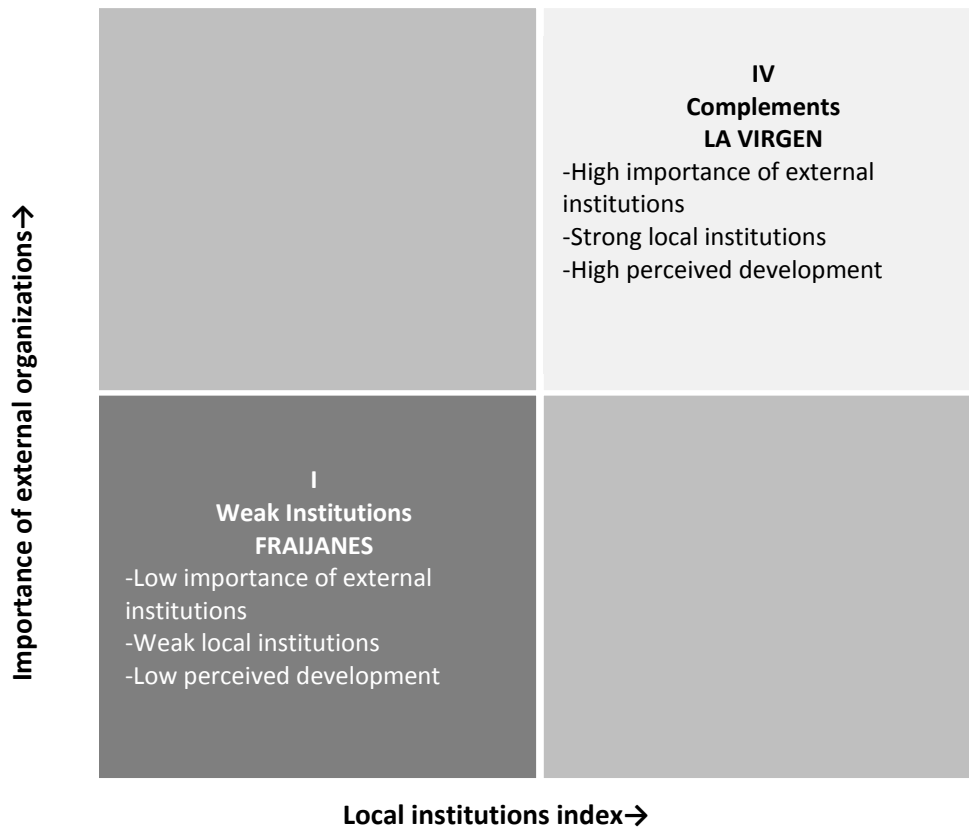
Community placement in the complement/substitute model. For reasons previously explained, we cannot relate our development index as a whole to the importance individuals place on external institutions. Individuals in the communities considered seem to link external institutions with specific indicators, while local institutions are positively related with development in general. As such, we cannot generalize about the relationship between each community's level of development as measured by the perceived development index and its placement on the complement/substitution model discussed in the introduction (Figure 4). However, it seems that two of the communities we studied—Frajanes and La Virgen—may be placed on the model with some confidence given our results. Fraijanes and La Virgen represent the extremes of decidedly weak local *and* external institutions on the one hand, and complementarity between strong local and external institutions on the other. The two cases are useful in placing the results of our study within the context of the literature, and in illuminating questions raised by our findings about subjective assessments of institutions and development.

Frajanes. Of the nine communities, perceived development, strength of local institutions, and importance of external organizations are all lowest in Fraijanes. Respondents blamed the lack of participation in their community on a host of factors: poor leadership, divisions within the community, lack of information on opportunities to participate, disenchantment with and a lack of interest in community projects. Very few external organizations were listed, and none was involved in ongoing development projects in the community.

While we cannot assert a causal relationship between the state of institutions in Fraijanes and its low level of perceived development relative to the other communities in our study, it is unlikely that there is not a connection. The data

provided by Fraijanes residents indicate a weak presence of external organizations, and poor formal and informal (social capital) institutions at the local level. Neither characteristic of institutions in this community has positive implications for development. The results of Local Level Institutions Study, carried out in rural communities in Bolivia, Burkina Faso, and Indonesia, demonstrate the importance of local social capital and organization in development (Grootaert, 1999; Grootaert, Oh, & Swamy, 2002; Grootaert & Narayan, 2004). In each case, social capital at the individual level (as measured by participation in community organizations) is positively related to household welfare. As discussed in the introduction, the authors of the Bolivia study found that the same applies at the aggregate level: those communities in which both local and external organizations were strong enjoyed the highest levels of economic prosperity (Grootaert & Narayan, 2004). Such empirical work, along with the established theoretical framework linking informal and formal institutions with development (Woolcock, 1998), suggests that the dearth of institutions reported by Fraijanes respondents is related to the relatively low level of perceived development in the community.

Figure 4: Two Communities in the Complement/Substitute Model.



La Virgen. On the opposite end of the spectrum, La Virgen has the highest levels of local institutional strength, importance of external organizations, and (along with Poasito) perceived development. A host of external organizations operate in the community which engage in development-related projects. There is therefore evidence in La Virgen of complementarity and synergy between local and external institutions. External institutions provide outside funding (e.g., political parties sponsoring infrastructural activities, the Ministry of Environment, Energy, and

Telecommunications engaging in fundraising for local projects) and human capital (e.g., English classes offered by the National Learning Institute, expertise on natural resource conservation from the Tirimbina Research Center and the Organization for Tropical Studies). These outside organizations do not appear to be substituting for weak community-level institutions; on the contrary, respondents in La Virgen report high levels of organization and leadership capacity in their community, and approve of the performance of the development association and the municipality. The picture framed by these findings is reminiscent of the development scenario described by Nel et al. (2001, p. 5), who state that development “strategies blend local initiatives with external support”, based on strong social capital and organization at the local level and the infusion of resources from the outside.

Why do respondents in La Virgen rate the presence of external organizations as significantly more important than respondents in Poasito, which has a similar suite of external organizations? First, it is possible that the external institutions which operate in Poasito are less effective than those in La Virgen. The answer may also lie in the levels of embeddedness which these institutions have in their respective communities. External organizations may complement local ones in Poasito to a similar extent as those in La Virgen. But if less social capital exists between these institutions and the community, people may be unlikely to consider them important.

5.0 Conclusions

Our study of institutions and development in rural Costa Rica diverges from previous work in its focus on *perceptions* rather than objective indicators. We contend that not only institutions, but what people *think* about institutions, matters to development. Our results suggest that individuals do indeed connect the strength of local institutions with indicators of development in their community. Our findings regarding links between external institutions, development, and specific services are less clear. The evidence that individuals associate external institutions mainly with the specific services they provide (rather than development in general) is far from definitive, but is also not trivial. The fact that people may be largely unaware of the benefits provided by external organizations if they are unable to directly link with local institutions may have important implications for the public relations of outside institutions. Future research should further investigate the determinants of public opinion towards external institutions, and the implications of these perceptions for cooperation between communities and outside organizations. These questions are directly related to understanding how external institutions become embedded in their client communities.

In general, we stress the importance of understanding individual perceptions of the roles institutions play in development. There is to date no theoretical framework addressing the question of how individuals link the work of institutions and developmental outcomes and, perhaps most importantly, how perceptions of institutions and development themselves affect development. Do the perceptions of the institutions in a community have implications for the effectiveness of those institutions in development? What can institutions do to make individuals connect their work with objectively measured progress? What are the gaps between subjective and objective assessments of development, why do they exist, and what is the value of subjective perceptions of development? Such information would of course be of great use to any development-related institution. Furthermore, a more

detailed look at the public's understanding of and attitudes toward institutions and development is important in the emergence of a development paradigm.

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