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**Department of Human Development**

**Poverty in Indigenous Populations  
in Panama: A Study Using LSMS Data**

**Renos Vakis  
Kathy Lindert**

January 2000



**The World Bank**

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**Latin America and the Caribbean Regional Office**



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**Poverty in Indigenous Populations in Panama:  
A Study Using LSMS Data**

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## PREFACE

Although “ethnicity” is a broad concept, relating to language, culture, and territory, survey analysis in Latin America has generally adopted one of three operational indicators to define indigenous people, depending on the availability of data, including: language spoken, geographic concentration and self-perception.<sup>1</sup> The Panama LSMS was designed to include “identifiers” for the first two indicators, namely language (maternal, second) and geographic concentration. Most of the analysis reported in the Poverty Assessment uses geographic area to distinguish between residents of indigenous, non-indigenous rural, and urban areas. These are mutually exclusive categories that are applied based on census classifications of each survey cluster. Geographic classifications have certain advantages, including simplicity of analysis and of future policy applications (e.g., geographic targeting). They are limited, however, in that they do not distinguish between distinct indigenous *groups* or between indigenous *populations* living within and outside indigenous *areas*.

This paper seeks to conduct a more in depth study of indigenous poverty using language indicators of ethnic origin rather than geographic criteria. The objective is to analyze the living conditions of the main indigenous groups, both within and outside the official census demarcations of indigenous areas. These include the Ngobe-Buglé, the Kuna, and the Embera-Wounan. The study seeks to paint a portrait of indigenous poverty and to examine the various assets of the indigenous, including: labor, human capital, physical assets, financial assets, and social capital. The determinants of indigenous poverty are also analyzed using multi-variate regression techniques.

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<sup>1</sup> Psacharopoulos and Patrinos (1994).

## PART I: INDIGENOUS PEOPLE IN PANAMA

### Overview of Panama's Indigenous Groups<sup>2</sup>

The 1990 census identified close to 200,000 indigenous residents in Panama, which represented about eight percent of the national population. There are a number of distinct indigenous groups in Panama. The largest is the Ngobe-Buglé, followed by the Kuna and the Embera-Wounan.

**The Ngobe-Buglé.** The largest group, known as the Guaymí or the Ngobe-Buglé account for two-thirds of all indigenous people in Panama.<sup>3</sup> They primarily live in the western provinces of Bocas del Toro and Chiriquí. Their habitat is largely mountainous, with strong limitations for agricultural production. Primary crops include rice, *ñame*, corn and beans, bananas, and coffee (see Appendix 1). It is also common for Guaymí workers to migrate temporarily to work on banana, coffee and livestock plantations.<sup>4</sup>

The Ngobe-Buglé traditionally live in very small, dispersed communities (6-8 households each on average), linked by family relations. This dispersion complicates the provision of basic services to Ngobe-Buglé communities. Land ownership is *not* generally collective, but rather acquired through inheritance and user rights.<sup>5</sup>

Although there is not a long-standing tradition of centralized governing councils among the Ngobe-Buglé, a number of traditional figures have played an important role in enforcing cultural and social norms and mediating disputes.<sup>6</sup> In the 1970s, at the initiative of the Government with support of the Kuna's General Cacique Estanislao López, the Ngobes adopted a new type of governing organization based on the Kuna model. This new organization includes the General Congress of the Ngobe-Buglé as well as the Regional Congresses of Bocas del Toro, Chiriquí and Veraguas. It involves massive participation and voting of the Ngobe-Buglé population. The passing of Law 10 in March 1997 officially recognized the group as the Comarca Ngobe-Buglé, as well as the ethnic-cultural institutions of the group and the existence of the General and Regional Congresses. It also established a number of official positions governing the Ngobe-Buglé society, including *inter alia* the General Cacique, the Comarcal Governor, and regional and local caciques.<sup>7</sup>

Despite this autonomous Comarca status, public spending and revenue collection remain under the control of Panama's Central Government, which must guarantee necessary allocations for administration, investment, and integrated development of the Comarca in each year's annual national budget. These funds are channeled via state institutions with the collaboration of the General, Regional, and Local Congresses according to plans and programs elaborated by government agencies in coordination with indigenous authorities.<sup>8</sup>

**The Kuna.** The Kuna make up the second largest indigenous group in Panama, numbering close to fifty thousand people in 1990 (one quarter of the total indigenous population). The majority of the Kuna live in the autonomous province of San Blas, also called the Comarca Kuna Yala. San Blas is largely made up of an archipelago of some 365 islands on the Atlantic/Caribbean coast. This remote location

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<sup>2</sup> This section draws on information from: Davis (December 1997), Alvarado (February 1998), and from the 1990 National Population Census.

<sup>3</sup> Although the Ngobe and Buglé are two distinct groups with important differences, notably, their language and marital traditions (polygamy is common among the Ngobe but not the Buglere), they share the same territory, organizational system, and many traditions.

<sup>4</sup> Bourgois (1985) provides a rather graphic description of the working conditions facing the Guaymí plantation workers. He finds that Guaymí workers have traditionally operated at the bottom of the worker hierarchy, below other indigenous workers in terms of pay, responsibility, and working conditions.

<sup>5</sup> Davis (December 1997).

<sup>6</sup> These include the *Sukia*, considered by the Ngobe to be a sacred personality sent by the Cosmic God (*Donkin Kri Kokwinbidi*); the "Chief" (*Donkin Kri* or *Cacique*), an elected political representative; the Patriarch (*Patriarca* or *Anciano*), a quasi-administrative authority of the extended family; the household head (generally a male); and the oldest son. For more information, see Alvarado (February 1998).

<sup>7</sup> For more details see Alvarado (February 1998) and Law 10 of March 7, 1997 Chapter 1.

<sup>8</sup> Law 10 of March 7, 1997, Chapter 5.

requires that contacts with the rest of the country rely on air and boat travel.<sup>9</sup> Many Kuna also live in the Panama Province, largely in El Llano and Cañitas in the Chepo District where the Comarca Kuna de Madungandi was recently established.<sup>10</sup>

Agriculture is the primary activity of the Kunas, with corn constituting the main crop, followed by bananas, plantains, cabbage, coconuts, and avocados (Appendix A1.1). Seafood farming also provides an important source of livelihood for the Kuna. Artisan activities are likewise important, with women involved in the production of ceramics and decorative shirts (*la mola*) and men working with wood.

Three types of tenancy arrangements govern land ownership in Kuna areas: (i) private inherited land; (ii) virgin land "owned" by users when they cultivate it through invasion; and (iii) land that belongs to the community that is worked by all members of the community (those who don't participate in working communal lands must pay a local tax).<sup>11</sup>

The Kuna live in villages (*aldeas*) that are characterized by their strong cohesion and political and administrative organization. This cohesion and organization is even prevalent among migrant urban Kuna communities. The General Kuna Congress (CKG) was created in 1945 as the highest governing body. It convenes twice a year with five delegates headed by a "Sayla" (chief) from each of the 48 communities in the Comarca. The CGK is represented in the Panamanian Government by three "Caciques Generales." The Congress has also created an Integrated Development Institute (IDIKI) as an NGO to administrate and implement development projects at the Comarca level. A General Cultural Congress is responsible for maintaining cultural traditions and projects. Local Congresses are also active at the community level, as are work committees and professional groups.<sup>12</sup> Social networks are also formed through certain domestic tasks (e.g., women's groups formed around laundry and water collection; men's groups formed around housing construction and harvests).

**The Embera-Wounan (Chocoe).** The Embera and Wounan (or Waunana) groups are distinguished by their languages, but otherwise share the same rain-forested, tropical geographical area (concentrated largely in the Provinces of Darién and Panama),<sup>13</sup> institutions and authorities. Agriculture, hunting and fishing are the primary economic activities of the Embera-Wounan. The primary crops include *ñame*, rice, beans, and corn (through land clearing), as well as bananas and plantains (through plantation farming), coconuts, and avocados (Appendix A1.1).

The Embera-Wounan are the least formally organized indigenous group in the country, largely due to their migratory settlement patterns: they tend to live in dispersed, family-based clans under semi-nomadic conditions along river basins. One traditionally important social figure among the Embera-Wounan is the Jaibaná, with holy and medicinal functions. In the late 1960s, the Panamanian Government initiated a number of changes to bring the Kuna model of organization to the Embera-Wounan, with General and Regional Congresses. Local authorities (called "Nokoes") have also been established. The new organizational system was "ratified" by Law 22 in 1983 with the creation of the Comarca Embera-Wounan. Implementation of this new system has apparently been less successful among the Embera-Wounan than among the Ngobe-Buglé.

**Other Indigenous Groups.** Other indigenous groups include the Teribe, a monarchic group living largely in the Bocas del Toro Province, and the Bokotas (Buglere) and the Bri-Bri who live along the Costa Rican border.

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<sup>9</sup> There are more than 20 airstrips in the Comarca Kuna Yala. Davis (December 1997).

<sup>10</sup> Law 24 of January 12, 1996.

<sup>11</sup> Davis (December 1997).

<sup>12</sup> See Alvarado (February 1998) for more details.

<sup>13</sup> The Embera-Wounan living in the Province of Panama are largely concentrated in the Districts of Chimán, Panama, San Miguelito, and Chepo. Migration of the Embera-Wounan to the Province of Panama is increasing.



## Defining Ethnicity Using the LSMS

Three operational definitions are explored to identify ethnicity using the LSMS:

- **Definition 1: Maternal language.** A person is classified into a particular ethnic group according to his/her maternal (first) language;<sup>14</sup>
- **Definition 2: Any indigenous language.** A person is classified as indigenous if he/she speaks any indigenous language either as a maternal (first) or other (second) language;<sup>15</sup> or
- **Definition 3: Any indigenous language in the household.** A person is classified as indigenous if he/she or any person in the household speaks an indigenous language either as a maternal (first) or other (second) language.<sup>16</sup>

As discussed above, the main indigenous groups in Panama include the Ngobe-Buglé, Kuna, Embera-Wounan plus a few other smaller groups. Due to the small population size of the “other indigenous” groups, however, these groups are combined with the Embera-Wounan for the rest of the analysis.<sup>17</sup> See Appendix A2 for a discussion of sampling issues and statistical significance testing.

All three definitions yield very similar patterns with respect to the ethnic distribution of the population (Table A2.1). Less than ten percent of the national population is classified as indigenous and the Ngobe-Buglé account for about two thirds of the indigenous population. The Kuna and the Embera-Wounan account for the remainder with similar population shares.

The first two definitions yield almost identical results. As expected, Definition 3 classifies a larger number of people as indigenous (about 271,000 under Definition 3 as compared with about 176,000 and 182,000 under Definitions 1 and 2 respectively). One of the reasons is that with Definition 3, children under six (for whom the language questions were not asked) are also taken into account, resulting in a larger sample. The larger *share* of indigenous with Definition 3 suggests that indigenous households have more children relative to the non-indigenous households (as discussed below).

### Geography and Ethnicity

The total number of *ethnic* indigenous is substantially larger than the number of residents classified as indigenous using geographic indicators of *area*. With Definition 3 (which includes children under age six), for example, the total number of residents of indigenous areas is about 206,000. This compares with roughly 271,000 people counted as ethnically indigenous using Definition 3.

Table A2.2 presents the distribution of ethnic groups by geographic area. Less than ten percent of residents of indigenous areas are non-indigenous in their ethnicity regardless of definition. The ethnic Ngobe-Buglé are mainly concentrated in indigenous areas (84-90 percent depending on the definition used). In contrast, a significant share of the Kuna and the Embera-Wounan live outside these areas (about half using Definition 3), mainly in urban areas implying significant migration of these groups in the cities. Migration may be a result of cultural patterns (e.g., the semi-nomadic behavior of the Embera-Wounan) or part of households' economic decisions to seek better living conditions. Indeed, as discussed in more detail below, poverty levels seem to be lower among indigenous people living outside indigenous areas.

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<sup>14</sup> This refers to question 12 in section 4 of the LSMS.

<sup>15</sup> This refers to questions 12 and 13 in section 4 of the LSMS.

<sup>16</sup> This definition includes children under 6 who were not asked the language questions in the LSMS. However, households in which only a maid or a renter speaks an indigenous language (with the other members speaking a non-indigenous language) are classified as non-indigenous.

<sup>17</sup> Therefore, all remaining tables include “other indigenous” people in the Embera-Wounan group. In the sample there are only 13, 18 and 52 observations for the “other indigenous” category corresponding to Definitions 1, 2 and 3 respectively. This “other indigenous” ethnic category represents about 1% of the total indigenous population in this sample.

All three ethnic definitions yield very similar results in terms of geographic tendencies. However, it is interesting to note that the patterns mentioned above get stronger with the more flexible definitions (e.g. Definition 3).<sup>18</sup> That is, although the distribution of the Ngobe-Buglé remains concentrated in the indigenous area, the shares of the Kuna and Embera-Wounan population living in the urban and rural areas increase under Definition 3.

For simplicity, Definition 3 is used for the remainder of the analysis for a number of reasons. First, Definition 3 is more inclusive, capturing children under six, which increases the sample size significantly and adds degrees of freedom for econometric analysis. Second, this definition enables the classification of an entire household as indigenous or not. This is important for any econometric analysis that explores ethnic differentials as possible explanatory variables. Finally, the other two definitions pose some limitations. For example, Definition 1 (native language) may exclude indigenous descendants that declare Spanish as native language. Definition 2 (other language) may exclude indigenous people who do not speak an indigenous language or deny the knowledge of it but are nevertheless part of an indigenous group, its culture and characteristics.<sup>19</sup>

### Language Abilities of Indigenous Groups: Monolingualism vs. Bilingualism

In the above analysis, language indicators were used to classify people (and households) according to their expected *ethnicity*. The actual language *abilities* of individuals, however, are also an important characteristic in their own right. Language abilities of the population – monolingualism (Spanish or indigenous languages only) or bilingualism – can have important policy implications, particularly in areas such as education, health services, employment policies, and social programs.

**Spanish-Speaking Ability.** As expected, the vast majority (83 percent) of Panamanians are monolingual Spanish speakers (Table A2.3). Another 15 percent are bilingual. Only two percent of the total population does not speak Spanish.<sup>20</sup> This could imply that investments in non-Spanish language-specific policies or programs might not be cost effective, given the small size of the group of potential beneficiaries.

One out of every five indigenous people, however, does not speak Spanish (Table A2.3). One quarter of the Ngobe-Buglé and Kuna peoples are monolingual indigenous speakers. In contrast, only two percent of the Embera-Wounan do not speak Spanish. A higher share of indigenous people living within indigenous *areas* do not speak Spanish, particularly for the Ngobe-Buglé and the Kuna. Indigenous women are less likely to speak Spanish than indigenous men: there are almost twice as many monolingual indigenous women as men. Interestingly, with the exception of children aged 6-11, the probability of speaking Spanish falls with age so that a higher share of the older groups speak only an indigenous language.

**Preservation of Indigenous Languages.** A considerable share (15 percent) of ethnic indigenous people in Panama do not speak an indigenous language.<sup>21</sup> The Kuna have the highest share of monolingual Spanish speakers (29 percent), followed by the Embera-Wounan (19 percent). The Ngobe-Buglé seem to have preserved their language more than the other groups, with only eight percent monolingual Spanish speakers, which probably reflects the smaller share of Ngobe-Buglé living outside indigenous areas.

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<sup>18</sup>The correlation coefficients between *area* and the three *language definitions* are also high: Definition 1 = 0.42, Definition 2 = 0.40 and Definition 3 = 0.35. Therefore, there is consistency between the two types of ethnic classifications (geographic area and language).

<sup>19</sup> Psacharopoulos and Patrinos, 1994.

<sup>20</sup> Just over 3,400 people (less than 0.2% of the national population) in Panama are monolingual speakers of English or other languages different from Spanish or Indigenous. These people are classified as monolingual Spanish for the purposes of this analysis.

<sup>21</sup> Recall that these people are classified as indigenous according to Definition 3, whereby the indigenous classification applies if any member of the household (other than a maid or renter) speaks an indigenous language.

Among all three indigenous groups, a larger share of ethnic indigenous people living outside indigenous areas speak only Spanish, suggesting that migration may be resulting in a loss of indigenous culture.

Moreover, it appears that the share monolingual Spanish speaking indigenous people is increasing, particularly among the Kuna and the Embera-Wounan, suggesting that the younger generations tend not to learn their indigenous languages. A larger share of indigenous children aged 6-18 do not speak an indigenous language, as compared with other age groups (Table A2.3). Among the Kuna and the Embera-Wounan, the shares of Spanish speakers monotonically increase from older to younger, with a substantial share of Kuna children (about forty percent) and Embera-Wounan children (over one quarter) not speaking their indigenous language. This compares with only nine percent of Ngobe-Buglé children aged 6-18 who do not speak their language. This pattern parallels the fact that a larger share of Kuna and Embera-Wounan live outside indigenous areas, as compared with the Ngobe-Buglé.

## PART II: A PROFILE OF POVERTY AMONG INDIGENOUS GROUPS

### Poverty Among The Indigenous

Poverty among indigenous groups in Panama is abysmal. Using the language definition of ethnicity,<sup>22</sup> some 83 percent of indigenous people live below the poverty line,<sup>23</sup> as compared with one third of the ethnically non-indigenous population (Table A2.4).<sup>24</sup> Extreme poverty is also much more prevalent among the indigenous: 70 percent of indigenous people cannot satisfy their minimum daily caloric requirements even if they allocated all of their consumption to food, as compared with 13 percent of the ethnically non-indigenous living in extreme poverty.

These disparities are also reflected in the index of the depth of poverty: it is almost five times higher for the indigenous population as compared with the non-indigenous. Poverty is also more severe among the indigenous, suggesting that the distribution of consumption among indigenous people is more unequal than among the non-indigenous. That is, since the severity indicator assigns greater weight to the poorest of the poor, there are more poor indigenous people living *far* below the poverty line (rather than clustered closer to it).

A breakdown of the indigenous population by ethnic group reveals that poverty is most prevalent among the Ngobe-Buglé: 92 percent are poor and 82 percent live in extreme poverty. Poverty is also high among the Embera-Wounan (80 percent), though a smaller share of the Embera-Wounan live in extreme poverty. The poverty rate among the Kuna is lower (65 percent) – which is closer to the incidence of poverty<sup>25</sup> in non-indigenous rural areas (63 percent).

### Geography, Migration and Indigenous Poverty

Distinguishing between ethnically indigenous populations living within and outside geographic indigenous areas sheds light on some of the factors underlying the differences in the incidence of poverty between indigenous groups (as shown in Table A6.6). Overall, poverty is far higher among the ethnically indigenous living *within* geographic “indigenous” areas as compared with their indigenous counterparts living *outside* these geographic areas. Whereas virtually all indigenous people living in indigenous areas are poor (96 percent), only half of indigenous people residing outside these areas live below the poverty line (53 percent). The geographic differences are even more stark for those in extreme poverty: while 87 percent of indigenous people within indigenous areas live in extreme poverty, less than one quarter of those residing outside these areas live below the extreme poverty line.

The incidence of poverty among the Kuna living outside indigenous areas is particularly low (34 percent) – lower than the prevalence of poverty for the nation as a whole (37 percent). This is particularly significant, given that roughly half of all ethnic Kuna live outside indigenous areas (Table A6.3), in part due to higher rates of migration (Table A6.7). Indeed, escaping poverty seems to be a prime motivation for migrating Kunas: economic reasons – moving in search of higher incomes, work, or educational opportunities – accounted for 60 percent of recent Kuna migrants’ decisions (Table A6.7). The apparent

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<sup>22</sup> Definition 3, as described above.

<sup>23</sup> This report defines the extreme poor as those whose total consumption falls below an extreme poverty line of B./519 per capita and the poor as those whose total consumption falls below a full poverty line of B./905 per capita (including the extreme poor). See Annex 2 for details on the methodology used to construct these poverty lines as well as Ravallion (1992) for a more general discussion on poverty measurement methodologies.

<sup>24</sup> The geographic demarcation of indigenous *areas* yields a slightly higher incidence of poverty for indigenous *residents* (95%); this is likely due to the fact that poverty is higher among the share of indigenous *people* living within indigenous *areas* and lower among those living outside these areas (as discussed in more detail below).

<sup>25</sup> Using the geographic classification (see Main Poverty Assessment Report in Volume 1).

loss of native language among this group (see Table A6.4) could signal a cultural cost of this decision, however.

Poverty among the Embera-Wounan and the Ngobe-Buglé living outside indigenous areas is still quite high, though admittedly lower than among their counterparts living within indigenous areas. This may reflect the fact that social, rather than economic, reasons (family, marriage) seem to be the primary force causing the Embera-Wounan and the Ngobe-Buglé to migrate (Table A6.7).<sup>26</sup>

These patterns support the important conclusion that geography seems to be a more powerful determinant of poverty than ethnicity (or culture) itself. This has the advantage that geographic targeting is much easier to administer – not to mention much less politically divisive – than the administrative nightmare that would be associated with targeting based on ethnicity or language.

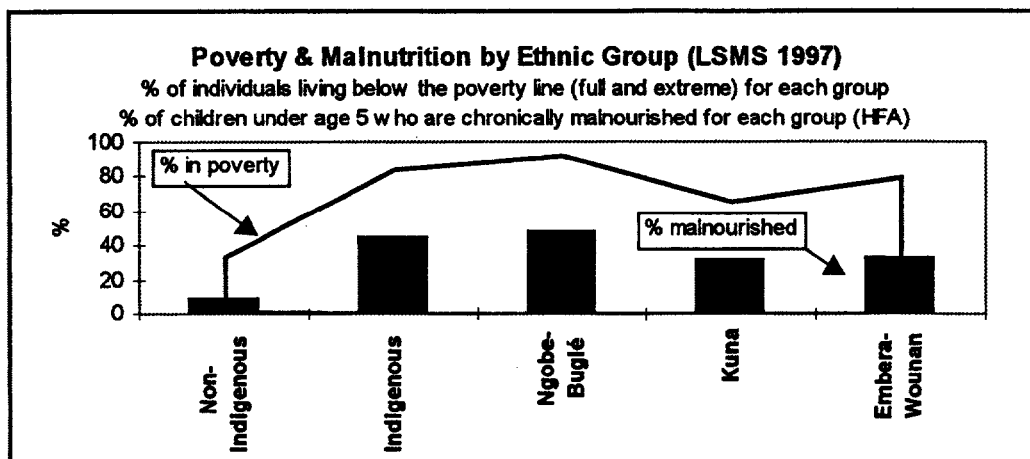
### Poverty and Language Abilities

Poverty among ethnic indigenous groups is highest among households that are headed by monolingual indigenous speakers (Table A6.8). Virtually all households headed by monolingual indigenous speakers live in *extreme* poverty. In contrast, among the ethnically indigenous, only 36 percent of those living in households headed by monolingual Spanish speakers are poor and only 15 percent live in extreme poverty. Poverty is also deeper and more severe among those living in households in which the household head does not speak Spanish.

### Malnutrition Among the Indigenous

The incidence of malnutrition closely parallels the patterns of poverty across ethnic groups in Panama, and can serve as another objective indicator of living standards (Table A6.9 and Figure A6.1). One in every two indigenous children is malnourished compared with one every ten for the non-indigenous.<sup>27</sup> Among the indigenous, the Ngobe-Buglé children have the highest incidence of malnutrition: one half of Ngobe-Buglé children suffer from any form of malnutrition (primarily chronic malnutrition) as compared with about one-third of Kuna and Embera-Wounan children. This pattern parallels the higher incidence of poverty among the Ngobe-Buglé (Table A6.5 above). It could also reflect the lower access of Ngobe-Buglé households to potable water (discussed below), which is a crucial input into nutritional status

Figure 1



<sup>26</sup> These social decisions make some sense, given the fact that the Ngobe-Buglé and the Embera-Wounan are much more likely to live in small, dispersed household clusters (as discussed above).

<sup>27</sup> Using a composite indicator of any form of malnutrition (chronic, underweight, and acute).

as the consumption of unsafe water can lead to parasitic infections and diarrhea causing children's growth to falter.

More than half of the children living within indigenous areas are malnourished, while the incidence for children living outside indigenous areas is less than 25 percent. In addition, while the incidence of malnutrition among indigenous children living in a household with a monolingual Spanish is very low (less than eight percents), children whose household head speaks an indigenous language (either monolingual or bilingual) have almost fifty percent chance of being malnourished. Both these findings correspond with the poverty incidence results discussed above (Tables A6.6 and A6.8).

### **Household Structure, Fertility, and Poverty**

**Household Size.** Indigenous households are by far the largest in Panama, reflecting both higher fertility and the practice of housing extended families in the same dwelling. Indigenous households average 6.6 members, with the Ngobe-Buglé averaging the highest number, as compared with a 4.0 members for non-indigenous households (Table A6.10). This pattern holds even among the poor: poor indigenous households have an average of two members more than their poor non-indigenous counterparts.

**Fertility.** Higher fertility among indigenous women is one reason for larger household sizes. Fertility rates<sup>28</sup> for indigenous women are 3.5 live births versus 2.9 for non-indigenous women.<sup>29</sup> The Ngobe-Buglé have the highest rates of fertility (3.6). Indeed, indigenous households average 1.6 children under twelve more than non-indigenous households (Table A6.10). Multivariate analysis confirms the higher fertility rates among the indigenous, particularly the Ngobe-Buglé. Education clearly plays a role in decreasing fertility and poverty is associated with higher fertility (Table A6.11).

**Household Structure.** Indigenous households also have a larger number of adults, on average, than their non-indigenous counterparts, probably reflecting the more common concentration of extended families in single dwellings among indigenous groups. Indigenous households average 2.7 adults aged 18-59, as compared with 2.1 among non-indigenous households (Table A6.10). The number of senior citizens is lower among indigenous groups, however, particularly among the Ngobe-Buglé and the Embera-Wounan. Widespread poverty seems to drive these lower life expectancy rates among the indigenous, as a similarly low number of elderly is also observed for the poor non-indigenous.

A much larger share of indigenous household heads are married than non-indigenous heads (Table A6.10). The Ngobe-Buglé and the Embera-Wounan have a higher prevalence of married household heads than the Kuna. Interestingly, these patterns correspond largely to the share of households headed by females, suggesting that female headship is largely correlated with non-married marital status of the household head. A larger share of non-indigenous than indigenous households are reportedly headed by women. Among the indigenous, women head a larger share of Kuna households than Ngobe-Buglé or Embera-Wounan.

**Dependency and Poverty.** As a result of larger and younger households, the indigenous appear to have a higher dependency ratio<sup>30</sup> than the non-indigenous, with dependency ratios of 3.2 and 2.9 respectively (Table A6.10).<sup>31</sup> The Ngobe-Buglé in particular have a high dependency ratio, averaging 3.8 non-working dependents per working member. This implies that the generally lower incomes of working members in indigenous households must be stretched across more people – and as a result, per capita consumption among the indigenous is generally lower than the poverty lines. Interestingly, poor non-

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<sup>28</sup> Fertility rates are age-specific (calculated as the number of live births for women between the age of 15-49).

<sup>29</sup> These patterns remain the same for the indigenous population across the consumption spectrum, while poor non-indigenous women have slightly higher fertility rates than their non-poor counterparts.

<sup>30</sup> Defined as the number of non-working members divided by the number of working members.

<sup>31</sup> This result is not statistically significant, however. See Appendix A6.2 below.

indigenous households have similarly high dependency ratios, suggesting that high fertility and large households are strongly related to poverty conditions.

### PART III: THE ASSETS OF INDIGENOUS GROUPS

Poverty is not a static situation. Rather, people tend to move in and out of poverty, as economic, household, and personal conditions change in the face of various risks. There is some evidence, and much debate, over the degree to which those in extreme poverty are able to move out of their destitute living conditions. Data from several countries suggest that while the “moderately poor” are a fairly dynamic group, it is much more difficult for individuals to move out of extreme poverty – which affects a large share of indigenous people in Panama.

Multi-country analyses of the various coping strategies of vulnerable populations reveal that the poor possess a number of assets, or means of resisting worsening living conditions.<sup>32</sup> These assets can be grouped as follows: (i) labor; (ii) human capital (education and health); (iii) physical assets (housing, basic services, and land); (iv) financial assets (savings, credit); and (v) social capital at the community level.<sup>33</sup> This section examines these key assets of Panama’s indigenous populations.

#### Labor Assets

Labor is the poor’s most abundant asset. In a context of increasing economic insecurity, due to changes in prices, wages, and public expenditures, the poor’s response is to diversify income resources by mobilizing their labor. This can involve either intensifying existing income-generating strategies or creating new ways of earning income.<sup>34</sup>

**Labor Force Participation.** More than half the indigenous participate in the labor force (Table A6.12). However, while three quarters of men participate, only one third of the women do. The Embera-Wounan have the highest participation rates among the indigenous for both men and women, while the Ngobe-Buglé the lowest. This may suggest cultural differences and the role of women in each ethnic group, but may also be an indication of different household strategies on labor allocation. However, the observation that Ngobe-Buglé men have also the lowest participation rates among the indigenous, weakens the latter argument. The labor force participation by age has the expected inverted U shape: participation is low for younger people, peaks up and decreases again for the old. In addition, participation increases with the level of education.

**Unemployment and Underemployment Among the Indigenous.** Overall, unemployment rates are very low for the indigenous.<sup>35</sup> Given the prevalence of poverty among the indigenous, the low levels of unemployment likely reflect the fact that they cannot afford not to work. There are some signs that the indigenous are underemployed, however, given that they work fewer total hours than the non-indigenous (Table A6.13).

**Employment.** Half of the indigenous are employed in the agricultural sector (Table A6.14). In addition, twenty percent are employed in commerce and twelve percent in community services. More than ninety percent of the indigenous are also employed in the private sector (Table A6.15). Two-thirds of all ethnic indigenous workers find jobs in the informal sector (Table A6.16). Formal-sector employment opportunities are more rare within geographic indigenous areas (Table A6.16). Job diversification and higher intensity of work do not appear to be common among the indigenous: fewer indigenous have more

<sup>32</sup> Moser (1996) plus specific country studies. These studies have primarily been conducted in urban areas. It would be interesting to use Moser’s participatory methodology for analyzing the coping strategies of the indigenous poor. The LSMS, however, does provide some clues as to these strategies.

<sup>33</sup> Household relations (extended families, etc.) can also be viewed as an asset. Moser (1996).

<sup>34</sup> Moser (1996).

<sup>35</sup> Unemployment rates are 2% for the ethnic indigenous overall, and 2% and 4% for indigenous men and women respectively.



than one job and the total number of hours worked is lower among the indigenous than the non-indigenous (Table A6.17).

**Sources of Income.** The indigenous derive close to sixty percent of their total incomes from labor (Table A6.17). Self-employment generates about forty percent of labor earnings among the indigenous (as compared with one quarter for the non-indigenous). Interestingly, the indigenous appear to be heavily dependent on transfers, with one fifth of their *total* incomes coming from such donations (mainly from public and private institutions, Table A6.17).<sup>36</sup> This suggests a certain degree of dependence on – and vulnerability to changes in – external assistance.

Despite the large number of indigenous workers who are employed in farming, agriculture generates a surprisingly small share of the total incomes of the indigenous (Table A6.18). This probably reflects low productivity in the agricultural sector. The majority of agricultural output is used for subsistence purposes among the indigenous, suggesting that they face higher transaction costs for the marketing of their outputs (transportation costs, access to markets, etc.).

**Hourly Earnings and Discrimination.** Hourly wages for ethnic indigenous people in Panama are around 32 percent less than those for non-indigenous workers, with indigenous workers averaging B./1.6 per hour as compared with over B./2 among the non-indigenous.<sup>37</sup> Wage functions were estimated to decompose the wage gap between ethnic indigenous and non-indigenous workers using the Oaxaca technique described in Appendix A6.3. While 45 percent of the wage differential can be explained by differences in observable characteristics (education, experience, sector of employment etc.), 55 percent of the gap is unexplained and can be thought of as an upper bound on discrimination against indigenous workers.

## Education

Education is an important complement to labor, boosting its productivity and potential for income generation. Indeed, the World Development Report 1990 showed that education levels and poverty reduction are closely linked. In addition, the recent emergence of the new growth theory trying to explain growth and its link to human capital has education at its core. It is a key vehicle with which a poor individual can utilize to exit the vicious cycle of poverty.

**Literacy among Indigenous Groups.** In contrast with the non-indigenous population, in which literacy is virtually universal, close to one-third of the indigenous population cannot read or write (Table A6.19). While 80 percent of the Kuna are literate, 25 percent and 36 percent of the Embera-Wounan and the Ngobe-Buglé respectively cannot read or write. Moreover, literacy is lower among the poor indigenous than their poor non-indigenous counterparts.

Literacy is particularly low among indigenous women: close to 40 percent of all indigenous women and almost one-half of Ngobe-Buglé women are illiterate. This type of gender gap is not observed among the non-indigenous Panamanian population, even among the poor.

Literacy is lowest among the indigenous who do not speak Spanish (Table A6.20). Only twenty percent of monolingual indigenous speakers read and write. In contrast, 92 percent and 94 percent of bilingual and monolingual Spanish speakers of indigenous ethnic origin are literate.

**Educational Attainment.** The non-indigenous complete an average of four more years of schooling than the indigenous population (Table A6.19). Among those living below the poverty line, the

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<sup>36</sup> The LSMS does not distinguish between public and private transfers.

<sup>37</sup> Source: Panama LSMS, 1997.

poor non-indigenous still complete more years of schooling than the poor indigenous. The gap in educational attainment is narrowing somewhat among recent generations: indigenous children aged 12-17 have on average two years of schooling less than their non-indigenous counterparts, as compared with a gap of close to five years among those aged 25-39.

Among indigenous groups, the Kuna have the highest levels of educational attainment, averaging almost seven years of schooling overall. In contrast, the Ngobe-Buglé (the largest indigenous group) average less than three years of schooling.

Indigenous men average about five years of schooling while indigenous women average just under four. This gender gap appears to be closing among the recent generation, however: indigenous boys aged 12-17 have just a 0.4 year advantage over their female counterparts, as compared with a gap of 1.8 for those aged 18-24 and 2.2 for those aged 25-39.

Language ability – or rather Spanish-speaking ability – appears to be an important determinant of educational attainment (Table A6.20). Monolingual indigenous speakers – who tend to be the poorest group in Panama (see above) – average less than one year of schooling. This compares with 7-9 years for their bilingual and Spanish-speaking ethnic indigenous counterparts. Investments in bilingual education at the primary level (with textbooks, materials, bilingual trained teachers, etc.) clearly appear to be important for helping monolingual indigenous children transition into the Spanish-speaking world – with better chances of escaping poverty.

**Current Enrollment.** Although Panama has achieved virtually universal enrollment for primary education among the non-indigenous population, some 17 percent of indigenous children aged 6-11 are not enrolled in primary school (Table A6.19). Enrollment is lower even among poor indigenous children as compared with their poor non-indigenous counterparts. Enrollment is highest among the Kuna and the Embera-Wounan and lowest among the Ngobe-Buglé. An inability to speak Spanish appears to be an important deterrent of enrollment: only one half of monolingual indigenous speaking children aged 6-11 are currently enrolled in primary school, suggesting a widespread absence of bilingual services at the primary level (Table A6.20).

A very small share of indigenous children enroll in secondary school (Table A6.19). The share of children enrolled in secondary school is twice as high for non-indigenous as indigenous children aged 12-17. While close to 43 percent of poor non-indigenous children enroll in secondary school, only 16 percent of poor indigenous children enroll (Table A6.19). Only eight percent of all monolingual indigenous speaking children enroll in secondary school, and virtually none of them live below the poverty line (Table A6.20).

Virtually all indigenous children who do enroll in school go to public schools. This is also true for non-indigenous children, particularly the poor. Interestingly, a much smaller share of indigenous students who are currently enrolled spend anything on school-related expenditures, such as enrollment fees, books, uniforms, etc. This could suggest financial assistance to indigenous students (particularly in the case of enrollment fee waivers), but it could also probably indicates that indigenous children have less access to textbooks and other educational materials (which absorb the bulk of household spending on education, see Annex 4 of the Poverty Assessment). Indeed, only 52 percent of ethnic indigenous primary students and 85 percent of indigenous secondary students report having books. This compares with 91 percent of both primary and secondary non-indigenous students with books.

**Language Spoken at School.** Spanish is clearly the dominant language for schooling in Panama (Table A6.21), even among the indigenous. Some indigenous students (15 percent) do report indigenous languages as the main language spoken at school, particularly at the primary level (Tables A6.21

and A6.22). Poor indigenous students are almost three times more likely than their non-poor indigenous counterparts to attend schools in which indigenous language is the dominant language spoken, which reflects the larger share of monolingual indigenous speakers among the poor. Among indigenous groups, the Kuna are the most likely to attend school in indigenous language.

### Health and Health Care Services

Good health is another important aspect of maintaining human capital and labor assets (as well as a general source of wellbeing). Although health indicators are relatively strong in Panama, these indicators mask poor health status among the poor, particularly the indigenous. Infant mortality rates are 40-50 per 1000 live births in indigenous areas (on par with low-income countries), despite a national average of 19 per 1000. As discussed above, malnutrition among indigenous children is high. Intestinal diseases, malnutrition, and respiratory diseases still account for a significant share of deaths in predominantly indigenous areas such as Bocas del Toro and San Blas; tuberculosis is also high in Bocas del Toro; and malaria is common in Bocas del Toro, Darien, and Veraguas, all of which have high concentrations of indigenous people. Indigenous communities in the LSMS also report problems with alcoholism.

The indigenous are less likely to seek medical treatment in case of illness or accidents than the non-indigenous. Among those reporting illness or an accident, some forty percent of the indigenous consulted a medical professional, as compared with about sixty percent of the non-indigenous (Table A6.23). This gap persists even among those below the poverty line (with the poor non-indigenous seeking treatment more commonly than the poor indigenous). The indigenous generally use public health facilities, as do the poor non-indigenous in Panama (Table A6.23). The indigenous are four times more likely to self-treat illness at home than the non-indigenous, suggesting lower access to health facilities among the indigenous population. The Ngobe-Buglé in particular have a higher frequency of self-treatment for illness at home. This might be due to the fact that the Ngobe-Buglé traditionally live in very small, dispersed household clusters, which hinders the provision of basic services. Indeed, the average distance to medical facilities for the indigenous who *sought* treatment is 41 minutes and 55 minutes for the Ngobe-Buglé, as compared with 32 minutes for the non-indigenous (it is presumably even further for those who did not seek treatment).

When the indigenous do seek treatment, they are much more likely to use health centers and sub-centers – and less likely to use hospitals – than the non-indigenous, irrespective of poverty status. They are also less likely to pay for medical services. Close to half of all non-indigenous people who sought treatment paid something for medical services, as compared with just over one-quarter of the indigenous (Table A6.23).

### Physical Assets & Basic Services

**Housing Conditions.** Although there are significant cultural differences between the indigenous groups in Panama, the LSMS suggests many similarities in the housing conditions among these groups (Table A6.24). A “typical” indigenous household lives in a hut (*choza o rancho*) or individual house. Indigenous houses tend to be quite crowded – averaging two rooms and 5-6 members per room. In addition, the materials used to construct these houses are less durable than the ones for non-indigenous houses. Specifically, only half of the indigenous houses have ceilings made out of more durable materials such as concrete or metal compared with 94 for non-indigenous houses. Similarly, walls and floors in most indigenous houses are made using wood, earth or thatch.

**Housing Tenancy.** Although the majority of indigenous households report “owning” their homes, the majority lack proof of ownership (62 percent of all households or 79 percent of those who own their homes), such as titles or deeds (Table A6.24). The lack of titling is higher among the poor indigenous versus the poor non-indigenous. While differences in titling could reflect cultural traditions with respect to

property allocations, the lack of titles can serve to block indigenous people from obtaining credit -- an important lever for escaping poverty and smoothing consumption -- as these groups lack formal forms of guarantees for borrowing.

**Basic Services.** In terms of access to basic services, indigenous groups are under-served for all services, even in comparison with the *poor* non-indigenous population (Table A6.24). The Ngobe-Buglé have the least access to all types of basic services. This probably reflects the fact that a larger share of the Ngobe-Buglé live in indigenous areas compared with the Kuna and Embera-Wounan (Table A6.3 above) and the fact that the Ngobe-Buglé traditionally live in small, dispersed clusters of households, which greatly hinders the provision of services.

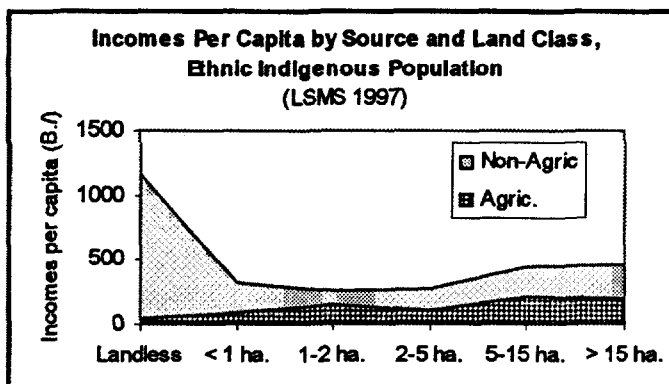
Roughly half of all indigenous households have access to formal water supply (public or private piped connections), compared with more than ninety percent for non-indigenous households (Table A6.24). About forty percent of the indigenous get their water from rivers and streams while three percent get water from wells. Among the indigenous groups, while four-fifths of the Kuna and Embera-Wounan possess access to piped water (a similar share as that of poor non-indigenous households), only one-third of the Ngobe-Buglé have access. Of those households that do not receive water from piped service, very few treat the water (via boiling, filtration, or chlorine), giving rise to health concerns. In particular, while only 23 percent of non-indigenous households treat water, even fewer indigenous households do so (seven percent). Interestingly, the Kuna treat water more than any other group (including non-indigenous).

Likewise, about half of all indigenous households lack any form of sanitation service (sewer connections or latrines), raising concerns about potential contamination, environmental and public health problems (Table A6.24). The situation is particularly severe among the Ngobe-Buglé: almost two thirds lack sanitation services. Formal trash collection services are virtually non-existent among indigenous households. The lack of proper waste removal services in the Comarca Kuna Yala in San Blas has already caused significant environmental damage and pollution in the fragile sea life surrounding the archipelago.

In terms of energy sources for lighting and cooking, most indigenous households do not have connections to electricity or gas, relying on informal sources such as kerosene, candles, and firewood (Table A6.24). Again, indigenous households have even less access to formal energy sources than *poor* non-indigenous households and the Ngobe-Buglé have the least access.

**Access to Land.** Half of all indigenous households own *some* land (Table A6.25). This is in contrast to the non-indigenous, the majority of whom are landless. However, of those who do own land, the non-indigenous own more land (19 hectares of land compared with only seven for indigenous households). The Kuna, who are the least poor of the indigenous groups, own the least amount of land (six hectares). Land might actually be a constraint to indigenous incomes: the landless have by far the highest per capita incomes (Figure A6.2). Those with some, but little land have the lowest; even those with a lot of land have lower incomes than the landless.

Figure 2



**Land Tenancy and Titling.** Due to legal restrictions on private ownership of land in indigenous *Comarcas*<sup>38</sup>, LSMS shows that over three fourths of indigenous people who own land have no ownership title; in the case of non-indigenous people, this proportion is slightly less than half (Table A6.26).

## Financial Assets

**Savings.** Savings are an important asset for consumption smoothing and investment. The LSMS reveals that 19 percent of the indigenous have savings, compared with more than 37 percent for the non-indigenous (Table A6.27). As expected, the poor have low savings (nine percent for the indigenous). Among the indigenous, the Kuna have the highest savings rates. This is consistent with the findings above that the Kuna are the wealthier among the indigenous groups. Of those who do save, the majority of indigenous use public institutions to put their savings, such as the National Bank of Panama and the Caja de Ahorros.

**Credit.** The ability to purchase goods and services on credit is also an important tool for consumption smoothing and investment. While most of the households requesting credit were approved, only eight percent of the indigenous solicited any credit, compared with fourteen percent for non-indigenous (Table A6.28). The most common reasons for not soliciting credit include the risks associated with indebtedness and a belief that they would not be approved. Of the indigenous who did solicit credit, low income was the main reason for being refused. Average borrowing amounts for the indigenous and non-indigenous do not differ substantially overall (B./3,742 and B./ 4,007 respectively). They are much lower among the poor (particularly the indigenous poor). They are also lowest among those living within indigenous areas (B./741 on average), suggesting limited geographical proximity to credit institutions in these areas (as well as limited assets for collateral). Most credit obtained by the indigenous was for personal use (consumption smoothing).

## Social Capital

Social capital – defined as norms, trust, and reciprocity networks that facilitate mutually beneficial cooperation in a community – is an important asset that can reduce vulnerability and increase opportunities. The LSMS and the associated Social Capital Qualitative Survey (SCQS) indicate the following trends in social capital among the indigenous (See Annex 18 of Volume 2 of the Poverty Assessment for details):

- **Indigenous communities have higher social capital than non-indigenous communities.** Four fifths of indigenous communities in the LSMS community sample report having some sort of community organization, as compared with just half of urban communities and three quarters of non-indigenous rural communities. Horizontal connections, which manifest themselves through different organizations within the same community or via the establishment of links with groups in neighboring communities – were also found to be the strongest in indigenous communities in the SCQS.
- **Among the ethnic indigenous, social capital appears to be stronger for those living *within* indigenous areas as compared with those living *outside* indigenous areas.<sup>39</sup>** A larger share of indigenous households living within indigenous areas report participation in public-good type “community-oriented” organizations (local, community *juntas*, congresses, committees, and

<sup>38</sup> The laws creating the *Comarcas Emberá* (Law 22 of 1983) and the *Comarca Ngöbe-Buglé* (Law 10 of 1997) state that lands delimited by such laws constitute collective property of the respective *Comarcas* and that the right to use collective lands is administered by traditional indigenous authorities, in accordance with procedures in the corresponding Organic Acts. The laws only acknowledge private properties and rights of possession registered at the time such laws were enacted and establish restrictions on the sale of these properties to persons other than those of the *Comarca*.

<sup>39</sup> The results in this paragraph were tabulated using language indicators of ethnicity (Definition 3) and are not included in Annex 18.

associations) than their counterparts living in urban and non-indigenous rural areas (36 percent versus 26 percent respectively). Close to twice as many ethnic indigenous households living within indigenous areas report participation in community committees and associations as those living outside indigenous areas. In contrast, ethnic indigenous households living outside indigenous areas are close to two times more likely to join associations which yield higher private gains, such as cooperatives, a pattern also found in urban areas and among the non-poor in general. Migrating or settling in non-indigenous areas does seem to have an effect on social capital and community ties.

- **Social capital appears to contribute to more positive perceptions of overall well-being.** Despite the abysmal rate of poverty among indigenous communities, they report more positive perceptions of changes in overall well-being than their non-indigenous rural and urban counterparts. This optimism contrasts with their perceptions of specific living conditions (such as the delivery of basic services), which were more negative than their non-indigenous counterparts. Stronger community ties – social capital – could account for the relatively positive perceptions of overall well-being among the indigenous, which otherwise contrast with generally abysmal economic conditions.
- **Social capital also appears to be important as a tool to leverage external assistance.** A higher share of indigenous communities with high or medium levels of social capital report receiving external assistance (from the Government or NGOs) than those with low social capital.

## PART IV: THE DETERMINANTS OF INDIGENOUS POVERTY

While the univariate analysis presented above is crucial in understanding the relationship between the indigenous and poverty, it is important to understand the interaction of all these factors as well. This section examines the correlates of poverty for the ethnic indigenous and non-indigenous in a multi-variate setting so as to shed light on their relative importance. The analysis is useful, first, to verify the relative role of the various factors in determining poverty status (and any differences for the indigenous and non-indigenous), and second, to assess the potential impact that policy-induced changes in these factors are likely to have on the probability of being poor, holding all other factors constant.

It is important to note the limitations of this analysis at the outset. First and foremost, the analysis does not capture the dynamic impact of certain causes of poverty over time. Most notably, the impact of changes in economic growth -- most certainly a key determinant of poverty -- cannot be assessed using this static, cross-section model. Other dynamic factors that are likely correlates of poverty include variables such as past nutritional status of household members (which could affect their current productivity for example). Second, the analysis is limited by the variables available at the household level from the 1997 LSMS household survey. Other factors -- such as social conditions, like social exclusion, discrimination, alcoholism or crime, or physical conditions, such as variations in climate or access to markets -- could not be included due to a lack of data at this level. Finally, though theory holds that many of the variables included in the analysis do indeed contribute to ("cause") poverty (or poverty reduction), the statistical relationships should be interpreted as correlates and not as determinants since causality can run both ways.

### Key Correlates of Indigenous Poverty

Estimation results for the probability of ethnic indigenous households being poor<sup>40</sup> are presented in Table A6.29. The findings are discussed below.

The key assets described above -- labor, education, basic services, and physical assets -- are clearly correlated with poverty status among the indigenous. Other correlates of poverty include geographic location and household size and composition.

**Labor: Sources of Income and Employment.** Informal-sector employment is clearly correlated with poverty among indigenous households. Those whose main income is derived from informal employment have a significantly higher probability of being poor than those with incomes coming from the private formal sector, the public sector, or non-labor earnings.

**Education.** Education is clearly correlated with poverty status and plays an important role in reducing poverty.<sup>41</sup> The higher the education of the household head or his/her companion, the lower the household's probability of being poor. *Completing* schooling (primary or secondary) significantly reduces a household's chances of being poor.

**Housing Conditions and Tenancy.** Low quality housing is strongly correlated with poverty, though the direction of causality is not clear. Poverty itself is a cause of makeshift housing, but low quality housing can also limit the ability of households to use their homes as a productive asset -- as a location of

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<sup>40</sup> The "marginal effects" column shows the percentage change in poverty status associated with a unit change in the explanatory variable. A negative sign on a coefficient generally means that an increased value of the variable reduces the probability of being poor. Maddala (1983) offers a comprehensive exposition of the econometric methodology implemented in this section.

<sup>41</sup> The analysis uses the maximum educational attainment of the household head or his/her companion to gauge the relationship between education and poverty. Since educational attainment of these members (adults) precedes their current economic status, it could validly be considered as having a causative influence on poverty status.

independent businesses for example. Larger houses (more rooms per capita) are correlated with lower levels of poverty. Home ownership and tenancy status does not appear to have a significant impact on the probability of being poor for the indigenous.

**Basic Services.** Access to basic infrastructure services improves the well-being and productivity of the poor and enhances their ability to use their homes for independent businesses. Lack of access to sanitation services (with only latrines) is strongly correlated with poverty. Further distances from the water source (as a proxy for access to water) are associated with a higher probability of being poor.

**Other Physical Assets.** Ownership of equipment is associated with a lower probability of being poor. Equipment can be viewed as a proxy of wealth or physical assets, which would clearly be related to poverty status.

**Credit.** Access to credit is significantly correlated with a lower probability of being poor. Credit allows households to smooth consumption in the face of income fluctuations and to invest in productive activities for future income generation.

**Fertility, Household Size and Composition.** Larger indigenous households tend to be poor. Households with more young children (reflecting higher fertility) have a higher probability of being poor, presumably due to the dependency status of these members.

**Geographic Location.** Even after controlling for key household characteristics, geography plays an important role in determining poverty status. Ethnically indigenous households *within* indigenous areas are more likely to be poor than those located *outside* indigenous areas, even after other differences are taken into account. Interestingly, indicators of ethnicity were not significant, again supporting the notion that geography is a more powerful determinant of poverty (as discussed above).

#### **Comparison with the Determinants of Poverty for the Non-Indigenous**

The factors associated with indigenous poverty are largely the same as those correlated with poverty among the non-indigenous (Table A6.30).<sup>42</sup> This suggests that, while the determinants of poverty are fairly constant regardless of ethnicity – and include endowments and use of key assets, such as labor, education, basic services and physical assets, as well as geographic location and household structure – the ethnic indigenous have a higher incidence of poverty because of poorer endowments of these assets. In fact, in a joint regression for all Panama, ethnicity did not turn out to be significant as a correlate of poverty, whereas key assets and geographic location (inside vs. outside indigenous areas) did, suggesting that it is these factors and not ethnicity *per se* that are associated with poverty.

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<sup>42</sup> Significance levels are stronger overall because the non-indigenous sample is larger.



## PART V: SUMMARY AND RECOMMENDATIONS

A number of key patterns emerge with respect to the profile of poverty among the indigenous in Panama:

- **Poverty among the indigenous is abysmal** (83 percent of ethnic indigenous live below the poverty line and 70 percent live in extreme poverty). Poverty is highest among the Ngobe-Buglé (the largest indigenous group: 92 percent are poor), followed by the Embera-Wounan (80 percent), and the Kuna (65 percent). Indicators of child malnutrition mirror these patterns.
- **Geography is an important determinant of poverty:** indigenous people living within indigenous areas have a significantly higher incidence of poverty than those living outside these areas. This result is particularly pertinent for the Kuna and the Embera-Wounan, about half of whom live outside indigenous areas. Indeed, economic factors appear to be the prime motivation for migration among the Kuna. A loss of indigenous language speaking ability, however, seems to be one of the costs of such decisions, as a larger share of ethnic indigenous people living outside indigenous areas speak only Spanish.
- **An inability to speak Spanish is also associated with destitution.** Poverty among the ethnic indigenous is highest among those households that are headed by monolingual indigenous speakers: virtually all live in *extreme* poverty.
- **Large households and high fertility are strongly associated with indigenous poverty,** as lower incomes must be spread across more members.

A review of the assets of the indigenous suggest that indigenous poverty reflects insufficient endowments of key assets – or obstacles to their efficient use in the market:

- **While labor is one of the most abundant assets among the indigenous,** returns to this asset are low due to: underemployment and low productivity, limited employment opportunities outside the informal sector (where earnings are significantly lower, see Annex 11), and probable wage discrimination in labor markets.
- **Although education is a clear vehicle for escaping poverty** (and serves as an input into other needed areas such as family planning), educational attainment among indigenous people is very low, particularly among the Ngobe-Buglé. Despite almost complete coverage of primary schooling in Panama (even among the non-indigenous poor), a substantial share of indigenous children do not enroll in, or complete, primary school. Very few attend secondary school. An inability to speak Spanish appears to be a significant deterrent of school enrollment and there are few opportunities for indigenous children to attend bilingual schools.
- **Health indicators are also worse among the indigenous,** and access to health services is much more restricted.
- **Housing quality is low among the indigenous,** and most do not possess titles or proof of ownership for their homes.
- **The indigenous are largely under-served with respect to basic services,** such as water, sanitation services, and energy sources, particularly the Ngobe-Buglé.
- **The indigenous have few financial assets** either in the form of savings or access to credit.
- **In contrast with the above assets, social capital is quite high among the indigenous.** These community bonds seem to be effective in generating positive perceptions of overall well-being and in leveraging external assistance.

The above analysis sheds light on a number of policy recommendations:

- **Additional public resources** need to be allocated to poverty reduction efforts among the indigenous. Geographic targeting to indigenous areas can be a useful tool in making (and monitoring) such allocations since: (a) poverty is highest and most widespread in these areas (even among the ethnic indigenous); and (b) geographic targeting is more administratively simple than targeting based on ethnicity or language.
- The Government should seek to make effective use of the high degree of **social capital** in indigenous communities, working with indigenous organizations to prioritize, design, and implement solutions and interventions for poverty reduction.
- Two key priority areas for **public investment** that are crucial for longer-term poverty reduction were identified by the indigenous communities themselves (see Table A6.31) include **education and potable water**:
  - ♦ With respect to **education**, the Government should provide additional resources for bilingual materials, textbooks, and teacher-training at the primary level. Additional research using qualitative methods (focus groups, etc.) would also be beneficial to further explore the barriers to higher educational attainment among indigenous children.
  - ♦ With respect to **potable water**, the Ngobe-Buglé have by far the highest gaps in access to this vital input into well-being (and consequently the highest rates of malnutrition). Additional resources should be provided in a coordinated manner (to avoid overlaps and conflicts between programs) so as to improve the access of indigenous groups (particularly the Ngobe-Buglé) to potable water.
- Given the high degree of poverty and extreme poverty among the indigenous (particularly those living within indigenous areas), **social assistance** in the form of transfers is urgently needed for alleviating poverty in the short run. For larger impact, such transfers should include those with long-term investment benefits, such as those linked to educational attendance (e.g., targeted school feeding programs or cash transfers tied to attendance).

**APPENDIX 1: AGRICULTURAL PRODUCTION BY ETHNIC GROUP**

<b>Table A1.1. - Absolute Value of Agricultural Production</b>						
<b>B./'000</b>	<b>TOT</b>	<b>NI</b>	<b>I</b>	<b>NB</b>	<b>K</b>	<b>EW</b>
Vaca, toros, ternero	117,582	115,641	1,940	1,005	935	0
Arroz	57,255	55,553	1,701	677	108	915
NName	34,123	23,926	10,197	7,156	11	3,029
Cerdos o puercos	34,578	34,073	504	376	15	112
Mazorca/grano seco	22,656	19,317	3,338	939	1,472	927
Cafe	24,061	23,534	527	527	0	0
Leche	16,491	16,491	0	0	0	0
Gallinas o pollos	11,412	10,400	1,011	636	249	126
Platano	5,789	4,077	1,711	30	231	1,450
Frijol de bejuco	4,720	3,322	1,398	1,268	22	108
Zapallo	5,616	5,153	462	0	461	1
Yuca	4,239	3,975	264	158	49	57
Aguacate	4,982	4,579	403	8	27	368
Pimento	5,676	5,676	0	0	0	0
Maracuya	4,923	4,923	0	0	0	0
Mazorca/maiz	4,058	3,933	125	90	1	35
Banano-Guineo	2,983	770	2,211	1,409	680	122
Tomate perita	3,598	3,594	4	0	4	0
Papaya	3,169	3,169	0	0	0	0
Canna de azucar	3,340	3,340	0	0	0	0
Poroto	2,945	2,945	0	0	0	0
Perejil	2,332	2,332	0	0	0	0
Tree 1	2,148	1,776	373	42	54	277
Bollos/tortillas	1,950	1,789	161	51	48	61
Sorgo	2,329	2,329	0	0	0	0
All other crops	28,390	25,798	2,592	1,001	728	863
<b>Total</b>	<b>411,345</b>	<b>382,415</b>	<b>28,922</b>	<b>15,373</b>	<b>5,095</b>	<b>8,451</b>

Source: Panama LSMS

NI = non-indigenous; I = indigenous; NB = Ngobe-Buglé; K =

EW = Embera-Wounan

Table A1.2. - Percent of Agricultural Production per Group						
	All	NI	I	NB	K	EW
Vaca, toros, ternero	29%	30%	7%	7%	18%	0%
Arroz	14%	15%	6%	4%	2%	11%
Name	8%	6%	35%	47%	0%	36%
Cerdos o puercos	8%	9%	2%	2%	0%	1%
Mazorca/grano seco	6%	5%	12%	8%	29%	11%
Cafe	6%	6%	2%	3%	0%	0%
Leche	4%	4%	0%	0%	0%	0%
Gallinas o pollos	3%	3%	3%	4%	5%	1%
Platano	1%	1%	6%	0%	5%	17%
Frijol de bejuco	1%	1%	5%	8%	0%	1%
Zapallo	1%	1%	2%	0%	9%	0%
Yuca	1%	1%	1%	1%	1%	1%
Aguacate	1%	1%	1%	0%	1%	4%
Pimento	1%	1%	0%	0%	0%	0%
Maracuya	1%	1%	0%	0%	0%	0%
Mazorca/maiz	1%	1%	0%	1%	0%	0%
Banano-Guineo	1%	0%	8%	9%	13%	1%
Tomate perita	1%	1%	0%	0%	0%	0%
Papaya	1%	1%	0%	0%	0%	0%
Canna de azucar	1%	1%	0%	0%	0%	0%
Poroto	1%	1%	0%	0%	0%	0%
Perejil	1%	1%	0%	0%	0%	0%
Tree 1	1%	0%	1%	0%	1%	3%
Bollos/tortillas	0%	0%	1%	0%	1%	1%
Sorgo	1%	1%	0%	0%	0%	0%
All other crops	7%	7%	9%	7%	14%	10%
Total	100%	100%	100%	100%	100%	100%

Source: Panama LSMS 1997

NI = non-indigenous; I = indigenous; NB = Ngobe-Buglé; K =  
EW = Embera-Wounan

## APPENDIX 2: SAMPLING AND ETHNICITY IN THE LSMS

### Sample design

In the Panama LSMS 1997, indigenous households were over-sampled so as to ensure adequate sample size. In addition, a two-stage sampling design was implemented in which primary sampling units (PSU) were first randomly chosen from regions and households were then randomly chosen from each PSU. As such, statistical analysis must take into account the sample design. Furthermore, even with over-sampling of indigenous populations, there are cases in which the sample size is small and careful statistical treatment is essential.

With this in mind and, given the data collection design, the statistical analysis in this paper is performed using stratification tools that takes into account both the sample design as well as the sample sizes of each sub-population.<sup>43</sup> As a basic check, Tables A2.1 through A2.4 summarize the sample sizes of some of the main categories used in this analysis.

### Statistical Significance

All results discussed in the paper were tested for statistical significance. Since the LSMS does not use a standard random sample and the sample size for the indigenous is not large, standard tests of significance based on large sample properties and random sampling are not valid. As such, statistical testing for significance for all means comparisons discussed in the paper takes into account the non-random design of the data by using the appropriate weights and stratification tools to correct for any biases. All results presented in the paper were statistically significant (most at the 99% level of confidence), with the exception of the means comparisons for dependency ratios, as noted in the text.

	Definition 1	Definition 2	Definition 3
Ngobe-Buglé	1442	1457	1957
Kuna	361	373	583
Embera-Wounan	335	349	493
Other Indigenous	13	17	52
Total	2151	2196	3085

Source: LSMS Panama 1997.  
Definition 3 includes children < age 6.

<sup>43</sup> See Deaton (1997) for further readings on stratification.

<b>Table A2.2 - Sample Size by Geographic Area and Ethnicity Definition</b>				
	<b>Geographic Area</b>			<b>TOTAL</b>
	<b>Urban</b>	<b>Rural</b>	<b>Indigenous</b>	
<b><i>Ethnic Definition 1: Maternal Language</i></b>				
<b>Total Population</b>	8782	7485	2160	18437
<b>Non-Indigenous</b>	8660	7424	202	16286
<b>Ngobe-Buglé</b>	37	49	1356	1442
<b>Kuna</b>	39	15	307	361
<b>Embera-Wounan</b>	46	7	295	348
<b><i>Ethnic Definition 2: Maternal or Second Language</i></b>				
<b>Total Population</b>	8782	7485	2160	18437
<b>Non-Indigenous</b>	8634	7411	196	16241
<b>Ngobe-Buglé</b>	43	57	1357	1457
<b>Kuna</b>	48	17	308	373
<b>Embera-Wounan</b>	57	10	299	366
<b><i>Ethnic Definition 3: Any Indigenous Language in Household (INCLUDES children &lt; 6)</i></b>				
<b>Total Population</b>	9965	8743	2729	21437
<b>Non-Indigenous</b>	9622	8549	181	18352
<b>Ngobe-Buglé</b>	83	110	1764	1957
<b>Kuna</b>	124	60	399	583
<b>Embera-Wounan</b>	136	24	385	545

<b>Table A2.3. - Sample Size by Language Abilities and Ethnic Group Using Definition 3</b>				
<b>Ethnic Group:</b>	<b>Monolingual Spanish</b>	<b>Monolingual Indigenous</b>	<b>Bilingual</b>	<b>TOTAL</b>
<b>Total Population</b>	16473	579	4327	21437
<b>Non-Indigenous Population</b>	16371	0	1981	18352
<b>Ethnic Indigenous Population</b>	190	549	2346	3085
Living in indigenous area	27	514	2007	2548
Living outside indigenous area	163	35	339	537
Male	96	282	1225	1603
Female	94	267	1121	1482
Age				
6-11	32	108	449	589
12-17	26	99	378	503
18-24	23	66	268	357
25-39	42	90	385	517
40-59	20	69	274	363
> 60	10	29	74	113
<b>Ngobe-Buglé</b>				
Living in indigenous area	27	373	1364	1764
Living outside indigenous area	58	9	126	193
Male	44	206	797	1047
Female	41	176	693	910
Age				
6-11	16	78	294	388
12-17	11	70	250	331
18-24	8	46	161	215
25-39	17	60	237	314
40-59	10	52	162	224
> 60	7	12	33	52
<b>Kuna</b>				
Living in indigenous area	0	135	264	399
Living outside indigenous area	82	21	81	184
Male	42	72	162	276
Female	40	84	183	307
Age				
6-11	14	27	46	87
12-17	12	28	58	98
18-24	8	20	44	72
25-39	22	29	59	110
40-59	9	15	57	81
> 60	3	16	24	43
<b>Embera-Wounan</b>				
Living in indigenous area	0	6	379	385
Living outside indigenous area	23	5	132	160
Male	10	4	266	280
Female	13	7	245	265
Age				
6-11	2	3	109	114
12-17	3	1	70	74
18-24	7	0	63	70
25-39	3	1	89	93
40-59	1	2	55	58
> 60	0	1	17	18

<b>Table A2.4. - Household Sample Sizes by Ethnicity and Poverty Group</b>									
	<b>Tot.</b>	<b>NI</b>	<b>I</b>	<b>N-B</b>	<b>K</b>	<b>E-W</b>	<b>MS</b>	<b>MI</b>	<b>B</b>
Extreme Poor	6003	3526	2477	1695	414	368	3544	520	1939
All Poor	9413	6665	2748	1834	442	472	6549	523	2341
Non Poor	12024	11687	337	123	141	73	10012	26	1986
Source: LSMS 1997. NI = Non-indigenous; I = Indigenous; N-B = Ngobe-Buglé; K = Kuna; E-W = Embera-Wounan.									

### APPENDIX 3 – WAGE DISCRIMINATION AGAINST ETHNIC INDIGENOUS WORKERS

**Methodology for Measuring Wage Discrimination.** Using Oaxaca 's (1973) technique it is possible to decompose the earnings gap between two groups (in this case between non-indigenous and indigenous workers) into a component which is largely attributable in human capital endowments, and a component that reflects largely wage discrimination. The technique involves estimating separate wage regressions for the two groups of interest (A and B) as:

$$(1) \quad \ln w_A = X_A (b_A) + \varepsilon_A \text{ for group A and}$$

$$(2) \quad \ln w_B = X_B (b_B) + \varepsilon_B \text{ for group B}$$

where the subscripts 'A' and 'B' refers to group A and B respectively;  $\ln (w)$ 's are the log of wages,  $X$ 's are a vector of characteristics,  $b$ 's are the coefficients and  $\varepsilon$ 's are the error terms.

The analysis in this paper is based on *wage* regressions, excluding earnings from self-employment (since a self-employed individual would not discriminate against him/herself). The difference in the average log of wages is equivalent to the percentage difference between non-indigenous and indigenous pay. Given that the error term in the non- indigenous and indigenous wage functions has a mean of zero, we can show that:

$$(3) \quad \ln w_A - \ln w_B = [ \bar{X}_A (b_A) - \bar{X}_B (b_B) ]$$

where  $\bar{X}_A$  and  $\bar{X}_B$  are the average values of non- indigenous and indigenous characteristics in the sample. Re-arranging, equation (3) yields:

$$(4) \quad \ln w_A - \ln w_B = [ \bar{X}_B (b_A - b_B) ] + [ b_A ( \bar{X}_A - \bar{X}_B ) ]$$

Therefore, the difference in pay comes from two different sources. The first term represents wage gaps attributed to differences in the returns ( $b_A - b_B$ ) that groups A and B receive for the same endowment of income generating characteristics. The second term represents wage gaps attributed to differences in the endowments of income generating characteristics ( $\bar{X}_A - \bar{X}_B$ ) evaluated with group A's worker pay structure. The former part is said to reflect wage discrimination while the latter captures wage differentials from differences in endowments.

The use of earning functions to estimate discrimination means that there will be omitted variables not "explaining" wage differentials. Therefore, the discrimination part of the decomposition does not only explain wage differences due to discrimination but in addition, due to omitted variables. In this sense it is often said that the discrimination part serves as the upper bound of "unjustified" or "unexplained" wage discrimination.



Table A3.1. - Log of Hourly Earnings Regressions by Ethnic Group		
	Non-Indigenous	Indigenous
<b>Individual Characteristics</b>		
<b>Education</b>		
# years of education	0.065***	0.026*
Experience <sup>a</sup>	0.032***	0.061**
<i>Experience squared</i>	-0.005***	-0.001
Had training	0.172***	0.404***
<b># of household members</b>		
Ages 0-5	-0.021	-0.045
Ages 6-11	-0.054***	0.033
Ages 12-17	-0.026***	0.090*
<b>Geographic Area</b>		
Rural	-0.358***	0.045
Indigenous	-0.371***	-0.527***
<b>Other</b>		
Female	0.016	-0.145
Single <sup>b</sup>	-0.140***	0.193
<b>Job Characteristics</b>		
Public <sup>c</sup>	0.280***	0.503***
Belong to union	0.110***	0.300***
Constant	-0.543***	-1.087***
Selectivity	0.205***	0.412***
Sample Size	4554	274
R-squared	0.36	0.32
Dependent Variable: Log of Hourly Earnings. (a) Experience = How long have you worked in your current profession (e.g., as a mechanic in any firm)? (b) Single = unmarried + widowed + divorced. (omitted variable: married = married + <i>unida</i> ). (c) The omitted variable for the sectors is private and for the geographic area is urban. Significance levels: * = 90%, ** = 95%, *** = 99%		

## REFERENCES


- Alvarado, Eligio. February 28, 1998. *Panamá: Perfil de los Pueblos Indígenas*. Draft.
- Davis V. Enriqueta. December 1997. *Informe Sobre la Pobreza en Panamá: Componente de Capital Social*.
- Deaton, A. 1997. *The Analysis of Household Surveys*. The World Bank.
- Maddala, G. 1983. *Limited Dependent and Qualitative Variables in Econometrics*. Cambridge University Press.
- Oaxaca, R.L. 1973. *Male-Female Wage Differentials in Urban Labor Markets*. *International Economic Review*, Vol. 14, No. 1, p.p. 693-709.
- Psacharopoulos, G. and H. Patrinos. 1994. *Indigenous People and Poverty in Latin America*. The World Bank.
- Ravallion, M. 1992. *Poverty Comparisons*. LSMS Working Paper No. 88. The World Bank.
- The World Bank. May 1998. *Panama: Atlantic Mesoamerican Biological Corridor Project*. Global Environment Facility Project Document.

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