Demographic Pressure and Institutional Change:
Village-Level Response to Rural Population Growth in Burkina Faso

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Final draft for publication by the NBER African Successes Project
This version revised November 6, 2011

Abstract
This paper uses historical census data from Burkina Faso to characterize local demographic pressures, including population shocks associated with internal migration after disease eradication in river valleys, and forced repatriation of migrants from Cote d'Ivoire. We combine those data with a new survey of village elders that was designed to document change over time and differences across villages in local public goods provision, market infrastructure, and property rights. We hypothesize that higher local population densities are associated with more collective services and a transition from open-access to regulated land use, offering a village-level test of fundamental hypotheses about social and political change in Africa. Controlling for year and province fixed effects, we find that villages' variance in population associated with proximity to river valleys and to Cote d'Ivoire is closely correlated with higher levels of public services, infrastructure, religious facilities, and markets; in addition, villagers' land is more often governed through individual as opposed to familial rights, with more land-market transactions and stronger regulation of villagers' forest use. Responding to population growth with improved public services and more private property rights is consistent with both scale effects in public good provision, and changes in the scarcity of land.

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Introduction and Motivation

An unusual factor in Africa's 20th-century agricultural development was a relatively low initial level of average population density coupled with unusually high rates of rural population growth over the last 30 years. As shown in Figure 1, Africa's year-to-year rate of rural population growth rose above that of Asia around 1975, peaked in 1990, and only recently has fallen below the highest levels ever seen in other regions. All regions have seen a rise and then fall in their annual rates of rural population growth, but in the post-1975 period Africa's growth rate rose more recently and reached a higher level for a longer time than that of other regions.

This project investigates the link between rural population growth and the local institutions and infrastructure needed for market development in agriculture. We use spatial differences in migration exposure to test how village societies have responded to population pressure. Our central hypothesis is that recent increases in rural population densities are associated with a wider spread of rural public services, infrastructure, and local marketplaces; a transition from open-access to regulated land use, including stronger individual property rights; and more reliance on the rule of law to adjudicate disputes.

Our data come from Burkina Faso, a landlocked West African country of about 13 million people. As shown in Figure 1, from 1950 to 2005 Burkina Faso's rural population growth rate rose even more dramatically than that of Africa as a whole, to a peak above 2.5% per year. Burkina's rural population growth rate is projected to decline rapidly in the coming decades, but will remain well above zero until the absolute size of the urban population becomes large enough for its annual growth to absorb each year's increase in the country's entire population. Figure 1 shows that rapid growth in Burkina Faso's rural population was not uniform in time, with a temporary reversal in the 1980s that may have been associated with migration to Cote d'Ivoire or other factors, followed by a burst of catch-up growth and downward projections until urbanization is sufficient to achieve zero rural population growth around 2050.

Historically, Burkina Faso has had large movements of rural people to its own cities and a large migration to coastal Cote d'Ivoire after colonization and particularly through the 1980s. A large number of those migrants were then forcibly repatriated following civil unrest in Cote d'Ivoire starting in the late 1990s. In addition, the donor-funded Onchocerciasis Control Program quickly eradicated river blindness starting in the 1970s, leading to large population movements into river valleys. These demographic shocks affected villages across Burkina Faso in different ways depending on their location, offering two different exogenous shocks to rural population density with which to study the impact of rural demography on local institutions and infrastructural investments.

We hypothesize that changes in rural population growth change the payoffs from collective action, making it relatively more urgent to develop market infrastructure and institutions. This hypothesis follows Boserup (1965), who argued that rising rural population densities create incentives not only for farm-level adoption of more input-intensive techniques and "induced invention" of new technologies in response to factor scarcity as suggested by Hicks (1932), but also induced institutional changes to allocate newly-scarce natural resources more efficiently. A link between rural population density and rural public goods could also be due to political pressures or indivisibilities and scale effects in the provision of infrastructure and institutions. Both relative-price and scale effects could be subject to time lags, leading rural population growth to have a Malthusian effect in the short run, even as it facilitates the institutional and technological innovations needed for later agricultural productivity growth.

Modern analyses of how population density and factor scarcity affect agricultural development were pioneered by Hayami and Ruttan (1971) for the U.S. and Japan, and tested in a large subsequent literature such as Olmstead and Rhode (1993). Only a few of these papers (e.g. Lin 1995) focus on the emergence and adoption of institutions; most ask how institutions affect technology adoption, such as Kazianga and Masters (2002, 2006). Focusing on rural demography also expands on our other previous work regarding the role of environmental factors in economic growth (Masters and McMillan 2001) and African policy choices (McMillan 2001, McMillan and Masters 2003). Here, we focus on changes in village-level institutions, testing how the governance of local resources and market infrastructure has responded to demographic change among local households.

Our focus on the specific challenge of *rural* population growth for agricultural development follows Johnston and Kilby (1975) among others. Most of the development economics literature concerned with demography has focused either on demographic transition in the population as a whole (including the demographic "drag" or "dividend" from age structure emphasized by Bloom and Williamson, 1998), or the structural transformation from farm to nonfarm employment in terms of output and employment shares, including the one-time "growth bonus" associated with shifting from a low productivity to a high productivity sector as in Temple (2005). Focusing on demographic conditions within rural areas addresses a distinctive aspect of Africa's post-independence economic decline, and grounds for optimism about the future as rural infrastructure and institutions adapt to higher levels of population density and the speed of further demographic slows down.

The motivation for our approach begins with an economic view of rural demography. Demographic accounting ensures that each locality's rural population growth is its natural increase (births minus deaths, which in turn are determined by age structure as well as age-specific mortality and fertility), plus or minus each year's net migration to urban or other rural areas. From an economic point of view, however, both fertility and migration are choice variables, and mortality may also be influenced by investment in health. Given this endogeneity, identification of a potentially causal effect of population requires an exogenous shock to rural population size that occurs with sufficient speed and magnitude to induce a measurable institutional response.

Our study design takes advantage of Burkina Faso's unusual demographic history, which includes two large waves of exogenous migration into specific rural areas from the 1970s through the early 2000s. One wave flowed into river valleys in response to an international campaign of Onchocerciasis eradication which made those locations newly attractive, and another wave flowed in from Cote d'Ivoire in response to political violence there. We use three rounds of census data in 1985, 1996 and 2006 to capture the resulting variation in village population, and compare that to variance in institutions and infrastructure as recalled by focus group interviews of village elders.

Our work contributes to an important gap in the literature on institutions and economic development indentified by Pande and Udry (2006) who argue that "the research agenda

identified by the institutions and growth literature is best furthered by the analysis of much more micro-data than has typically been the norm in this literature." Specifically, we study the historical evolution of institutions in response to demographic pressure by focusing on diversity across villages in a setting with wide variation in exposure to clearly exogenous demographic shocks. The closest antecedent is probably Grimm and Klasen (2008), who test for endogenous adoption of land titles at the village level on Sulawesi in Indonesia. Our surveys include land titles and also consider a very wide range of other institutions, public services, and infrastructure used for market exchange. Methodologically, our use of focus groups to obtain village-level recall data on the location and availability of public services follows Chattopadhyay and Duflo (2004), building on a long tradition of participatory surveys in rural areas (e.g. Chambers 1994). This approach allows us to ask about many different types of public services, with access to physical infrastructure measured by its proximity to the village center.

Though not the central focus of this particular paper, our survey data could also be used to analyze causal effects of public services and institutions on economic outcomes. For example, Besley (1995) and others have found evidence that institutions significantly affect investment outcomes in rural Africa (see Pande and Udry (2006) for a summary of these studies). In Burkina Faso, Kazianga and Masters (2002) found that stronger cropland tenure was associated with more intensive soil and water conservation. Our approach to changes in village-level infrastructure and institutions is also relevant to the mechanisms by which large-scale public health interventions influence economic development, as in Acemoglu and Johnson (2007), Bleakley (2007) and Cutler et al. (2010).

In the next section, we describe the major exogenous population shifts that might permit identification of how changes in rural population density affect public goods provision. We then turn to our empirical strategy and a description of our data. In section four we present and discuss our results. Section five concludes.

Historical Background

Since independence in 1960, Burkina Faso has experienced two major policy-induced changes in settlement patterns. The first began in 1974 when the Onchocerciasis Control Program was launched by the World Bank to control river blindness in seven West African

countries: Benin, Burkina Faso, Cote d'Ivoire, Ghana, Mali, Niger, and Togo. The second occurred from the late 1990s until 2002 when up to one million Burkinabe returned from Cote d'Ivoire to escape violence and a suspension of immigrants' rights in that country. Since our ability to draw a causal link between population growth and institutional change hinges on the extent to which these two events were exogenous to other influences on village population size, we describe the two shocks in more detail below.

The Onchocerciasis Control Programme

  The Onchocerciasis Control Program (OCP) was initiated in 1974 to control river blindness in West Africa, and is widely considered to be among the most successful public health programs ever launched in Sub-Saharan Africa. Onchocerciasis, or "river blindness", is primarily a rural disease that affects Sub-Saharan Africa more than anywhere else in the world. The disease is spread through bites from black flies of the genus *Simulium,* which transmit the larvae of a filarial worm, *Onchocerca volvulus*. The worms multiply only in the human body, where they cause debilitating symptoms that include blindness, and are transmitted only by the black fly, which lives in proximity to fast-moving rivers.

  The OCP was a multilateral effort that covered eleven countries, including Burkina Faso. The program involved weekly aerial treatment and ground-level treatment of black fly breeding grounds. Annual drug treatments offered immediate relief from the symptoms and elimination of nearly all offspring of the adult worm. Today, the disease is no longer considered a threat in the control zone, which has consequently attracted in-migration from other rural areas (McMillan et al. 1992, 1993).

  To control the anticipated immigration to these newly attractive areas, the government of Burkina Faso created a special national agency—the Volta Valley Authority (AVV)—and gave the agency control of 75% of the river basins. Figure 2 shows these locations, and the "planned" villages to which it provided financial and institutional support. However, the pace of spontaneous settlement soon outgrew the ability of the AVV to finance and create sufficient numbers of sponsored settlements. As a result, there were sizable intra- and interregional differences in the rate of new lands settlement documented by McMillan et al. (1992), as well as

substantial variation in land use practices and land management institutions described by McMillan et al. (1993).

Repatriation from Cote d'Ivoire

For more than three decades after independence from France in 1960, Cote d'Ivoire was an important destination for immigrants from Burkina Faso, offering peaceful stability and economic prosperity, including rural work associated with opening new forests for cocoa production. The death of the autocratic ruler Felix Houphet-Boigny in 1993 ushered in a new era. His successor, Henri Konan Bedie, has been accused of sowing the seeds of ethnic discord by introducing the concept of "Ivorian-ness" in 1995, allegedly to deny Ivorian citizenship to his main political rival, Alassane Ouattara, thereby excluding him from office. Bedie insisted that Ouattara, a Muslim from the north of the country, was actually from Burkina Faso. Subsequently, attacks on people of foreign descent became increasingly widespread (Human Rights Watch 2001). By that time, more than one quarter of Cote d'Ivoire's population had immigrated to the country since independence, the overwhelming majority of whom had come from Burkina Faso. As shown in Figure 2, the Cote d'Ivoire census of 1998 identified about 2.25 million Burkinabe living in Cote d'Ivoire, which was close to 20% of Burkina's total population at that time.

Peace and stability in Cote d'Ivoire came to an abrupt halt on December 24, 1999, when the military, under the leadership of General Robert Guei, overthrew the elected government of Konan Bedie in the country's first coup d'état. Although the coup was ostensibly prompted by soldiers' unhappiness over pay and conditions, it soon became apparent that, like Bedie, General Guei was also ready to incite ethnic and religious rivalries in order to remove political opposition. Continuing the theme of "Ivorian-ness", Guei introduced even stricter eligibility requirements for the 2000 presidential elections, once again excluding Alassane Ouattara on the basis of his alleged links with Burkina Faso.

Though exact numbers are difficult to come by, it is estimated that between 1999 and 2002 hundreds of thousands of Burkinabe were repatriated as a result of political unrest and worsening economic conditions in Cote d'Ivoire. They returned by rail, road, and on footpaths, often but not always to their original villages.

Empirical Strategy, Data, and Descriptive Statistics

Our evidence on village-level access to public services, infrastructure and institutions comes from a novel survey conducted for this project by the Burkina Faso Office of Agricultural Statistics in January through June 2010. This survey asked groups of village elders to discuss and describe the history of the facilities around them, recording the date of any changes in the distance to each kind of facility and any changes in property-rights arrangements. From those underlying observations, we construct a time-varying index of the village's proximity to public services, public infrastructure, religious services, and markets, as well as time-varying indicators of property rights over land. We combine these indexes with population estimates for each village from the Burkina Faso national censuses of 1986, 1996, and 2006 to test whether variance in population size can help explain variance in the provision of public services, infrastructure, and institutions.

To overcome endogeneity between a village's amenities and its population size, we use each village's straight-line distance to any river from which Onchocerciasis could have been eradicated, as well as distance to the Cote d'Ivoire border from which migrants could have returned, as instruments for the village's population in each survey year. The result is a set of two-stage least squares (2SLS) regressions asking whether population shocks associated with changes in the attractiveness of rivers and of Cote d'Ivoire are correlated with the spread of rural public services, infrastructure, and market institutions. Our paper does not identify the mechanism by which more populated villages might attract more rural public services, infrastructure, or market institutions: instead, we are testing for reduced-form relationships, exploiting an unusual natural experiment in rural population density.

Our sample of villages consists of 747 sites that had previously been selected by the Office of Agricultural Statistics for their nationally representative agricultural survey conducted annually since the early 1990s. In this context, villages are very small, averaging about a thousand people. Their boundaries can change somewhat from decade to decade, as some households split off into new settlements. Our final dataset consists of 730 villages whose recorded names are the same across the three censuses and our new survey, at a correctly

recorded GIS location. We use year and region fixed effects for each of Burkina's 45 provinces in order to focus on spatial variation across villages within relatively small administrative units.

The survey instrument is provided in the appendix. It was administered by experienced enumerators employed for Burkina's annual agricultural survey, whose structure is designed to accommodate new survey modules. The survey began by assembling a focus group of village elders and officials who were asked a series of detailed questions regarding various types of public services, infrastructure, and institutions available to them. For each variable, we typically asked for its distance from the village and other salient characteristics, at present and in previous years, along with the date of any change. For example, the section on property rights poses the following question: Can land be sold in your village? If the group agrees that the answer to this question is yes, the interviewer then asks: since when could land be sold in your village? Questions posed in this way allow us to construct time varying indexes of public amenities from the point of view of the villagers themselves. Our results focus on two kinds of variables: travel distances to public amenities, and categorical indicators of land use rights, both as reported for each census year.

The travel distances to collective amenities are grouped into four categories: (1) *Public Services and Utilities*, defined as the administrative office used to register births, any savings and loan facility, any fixed-line telephone, or any mobile phone reception; (2) *Public Infrastructure*, defined as a road that is accessible by truck all year, a road accessible by truck seasonally, a bus stop, a primary school, a secondary school, or a health center; (3) *Religious Services*, defined as any church, mosque, or temple; and (4) *Markets,* defined as any market with storage facilities, any livestock market, or a private shop. These are all the distances for which our group-interview technique elicited unambiguous agreement in at least 700 of the 730 villages. Other questions, such as distance to water wells, bridges and electricity supplies, were less likely to elicit agreement, perhaps because those amenities are less salient to villagers' lives or their use is more varied among the respondents. The distances to collective amenities were then aggregated in each of three ways. First, we consider the distance one must travel to have access to *all* the services in a given category, i.e. the distance associated with the farthest one. Second, we consider the average distance to all of the services in the group, i.e. the arithmetic mean of each

distance. Finally, we consider the distance to *any* of the listed services, i.e. the minimum distance among them.

Categorical indicators of land rights address three kinds of land use. First, we ask whether use rights over crop land are undefined or held by individuals, families, or the community. Then we ask whether cropland had ever been rented or sold, which we take to indicate the presence of a land market. Finally, we ask whether villagers recognize a formal authority that regulates access to pasture land, forests and potentially cropped land.

Table 1 presents the proportion of all observations with each category of property right, as reconstructed for the census years of 1985, 1996 and 2006. For example, rights over cropland are not defined in 14.4 percent of village-year observations. Descriptive statistics on all variables as used in the regressions are provided in Table 2, separately for each year to reveal the time trends. Public services become more closely available and property rights are more tightly regulated in more recent years. Also, note that the average population of all surveyed villages grows from 1985 to 1996, but then falls in 2006. There is likely to have been systematic undercounting of the rural population in 2006, which is why the Burkina government is planning a new census several years ahead of its decennial schedule.

Estimating Equations and Results

Our estimation begins with a set of descriptive OLS regressions showing the correlations between village-level population and public infrastructure or institutions, controlling for year and province fixed effects, using the following specification:

$$I_{jkt} = \alpha + \beta P_{jt} + \delta\, X_j + \gamma_t + \varepsilon_{jkt} \qquad (1)$$

where *I* is our measure of infrastructure or institution of type *k* in village *j* at time *t* from the survey data, and *P* is our measure of the total population in village *j* at year *t* from the census data, and γ are time dummies. *X* controls for province fixed effects, and in robustness tests also controls for the ethnic composition of village population, or more generally for village fixed effects. Our hypothesis is that that $\beta > 0$, as larger populations facilitate the provision of public goods and market institutions, due either to relative scarcities as in Boserup (1965) or to indivisibilities at the relevant scale of population size.

Estimates of regression (1) are shown in table 3, where X controls only for province fixed effects. In columns 1-4 the dependent variable is the maximum distance one must travel to have access to all amenities in each category. In columns 5-8, the dependent variable is the average distance one must travel to access any amenity in each category, and in columns 9-12 the dependent variable is the minimum distance one must travel to access at least one of them. Both the distances and village population are expressed in natural logs, so that the coefficients can be interpreted as elasticities. We find that larger villages have closer amenities in 11 of the 12 regressions; the one exception is column (3), where only the time trend is significant. Institutions for land use are significantly linked to village population in only two of the seven regressions.

Table 4 repeats the diagnostic OLS regression with additional controls for the number of ethnic groups and number of clans in the village, as a crude approximation of the village's social fragmentation which might influence political cooperation and collective action for public goods provision (e.g. Alesina and La Ferrara 2005). The correlation between population size and access to public goods is robust to these controls. Estimated coefficients on population size are somewhat smaller when controlling for ethnic diversity, but contrary to some hypotheses the more diverse villages actually have more public infrastructure than the less diverse ones. In the absence of any clear identification strategy regarding fragmentation, however, for this paper we focus on the main relationship concerning total population size.

Finding significant coefficients in these OLS regressions is not surprising, as people could choose to locate in villages with closer access to public institutions and services, or both could be caused by something else. To overcome endogeneity, we use instrumental variables for population, so that the only variation in village population that we actually use is associated with distance to rivers and distance to the border with Cote d'Ivoire, and changes in these associations over time.

The first stage regression of our 2SLS system is specified as follows:

$$P_{jt} = \alpha_0 + \alpha_1 G_j + \alpha_2 T_t G_j + \alpha_3 T_t + \alpha_4 M_j + \epsilon_j \qquad (2)$$

where *G* is a vector of the logs of geographic distance to rivers and to the border with Cote d'Ivoire, *T* is year dummies for 1996 and 2006, and *M* is controls imposed through province fixed effects. When using the resulting predicted village populations in equation (1), our identifying assumption is that a village's distance to rivers and to Cote d'Ivoire have no other channel of influence on infrastructure and institutions beyond their importance for population size. Some evidence regarding the validity of those exclusion restrictions is provided here using Hansen's J statistic, but that test is not conclusive. This initial use of our data concerns Burkina Faso as a whole, and to investigate more deeply with stronger identification, future work could focus on specific regions and times when more narrowly-defined natural experiments have occurred.

First stage results are shown in Table 5. Our preferred specification with both distances in column 3, while columns1 and 2 show results with only (log) distance to rivers and to Cote d'Ivoire, respectively. Columns 1 and 3 indicate that villages located further from rivers are less populated than other villages, with no significant difference between census years. As documented by McMillan et al. (1992), much of the population movement triggered by river blindness control had already occurred by the 1985 census, so this effect is primarily cross-sectional in our data. Repatriation from Cote d'Ivoire occurred later, as shown in columns 2 and 3, where villages further from the border have smaller populations than others in 1996 and 2006. Thus, our preferred first stage (column 3) has as its significant excluded instruments distance to rivers (in all years) and distance to the border (in 1996 and 2006). Beneath each column, we provide an F-statistic on the joint significance of all excluded instruments. The F-statistic levels indicate that in each case, the null hypothesis that the instruments are jointly irrelevant in the regression can be rejected at the one-percent level. The F-statistics are, however, smaller than the rule of thumb cut-off suggested by Stock and Yogo (2005), implying that our second stage estimations may suffer from weak identification in these regressions. Future work could focus on the regions of Burkina Faso where Onchocerciasis control and repatriation from Cote d'Ivoire was concentrated, to strengthen the identification strategy.

Table 6 reports the instrumental variable (IV) estimates for our preferred specification. In each column, we report the Hansen J statistics and the associated probability. In columns 1, 2, 3, 4, 6, 9, 10 and 17, we cannot reject the null hypothesis that the instruments are wrongly excluded

from the second stage regression. Results should be interpreted with caution, but it is notable that the IV results are stronger than the OLS estimates in Table 3, with larger estimated coefficients and greater statistical significance. Variation in a village's population that is linked to being near rivers and to Cote d'Ivoire is positively associated with having more public services, infrastructure, religious facilities, and markets, as well as more individual land rights (as opposed to familial or communal), more land rental or sale transactions, and regulated access to forest land. In tables 6A and 6B, we test these relationships separately using each of the two kinds of instruments. Table 6A shows the IV estimations using only distance to the nearest river, and table 6B shows IV results using only distance to the border of Cote d'Ivoire. Both sources of identification produce qualitatively similar results, with somewhat larger point estimates when population is instrumented by distance to the border. The identification is, however, stronger when we use distance to nearest river in Table 6A. The F-statistic in the first stage is 9.9 and we cannot reject the null hypothesis that the exclusion restrictions do not hold for column 10 only. This contrasts with table 6B where columns 1, 5, 6, 9, 10, 12 and 13 do not pass the overidentification test.

The main results presented in Table 6 use province fixed effects to control for variation in political and economic circumstances across the country's 45 administrative regions. This leaves unobserved heterogeneity among villages within each province, and Table 6C shows results when village fixed effects are used. Two relationships survive these controls: villages with above-trend population increases gain closer proximity to markets and become less likely to use communal property rights over land. The other relationships we see in cross-section become insignificant in changes between census years, as the nationwide expansion of infrastructure and market-oriented institutions dominates change over time. Controlling for village fixed effects and the common time trend, in fact, one of the cross-sectional relationships is now reversed, as villages with above-trend population increase are actually less likely to regulate pasture use. The excluded instruments are now reduced to the interaction terms, since controlling for village fixed effects removes any village level time-invariant variables, including distance to the nearest river and distance to the Cote d'Ivoire border. The F-test statistic from the first is stage is only 2.06, indicating that the identification is substantially weaker than the specifications where we control only for province fixed effects only. The Hansen J statistic indicates that the exclusion

restrictions cannot be rejected in columns 1, 5 and 10. To identify a causal relationship between population and most kinds of infrastructure or institutions we remain reliant on cross-sectional variation within provinces, as in Tables 6, 6A and 6B.

Using our main specification from Table 6, we now turn to the estimated magnitude of these population effects on the provision of public services, infrastructure, and other amenities. The size of estimated population effects depends not only on the estimated elasticity coefficients, but also on the range of population changes that are predicted from the first stage regression. Table 7 calculates each of the estimated effect sizes, when moving from the first to last quintile of the differences in village population predicted by distance to rivers and to Cote d'Ivoire. This amounts to a roughly 15% difference in predicted village population, as being closer to rivers or to Cote d'Ivoire is associated with having an additional 152 people against an average predicted size of 1,030. Using the estimated coefficients from our preferred specification in Table 6, the resulting difference is similar or larger than each decade's worth of time trends from 1985 to 1996, or from 1996 to 2006.

Conclusion

This paper uses migration shocks associated with proximity to rivers and to Cote d'Ivoire to test whether villages with larger populations obtain closer provision of public services, public infrastructure, religious facilities and markets, and have more market-oriented property rights over land use. Our data on infrastructure and institutions come from a new survey of village elders, which was designed to document change over time and differences across villages. We find strong links between larger rural populations, more local public goods provision and stronger property rights, controlling for province fixed effects and time trends.

The generalizability of our results is limited by the strength of our instruments and the validity of their exclusion from the main regression. Internal and external validity is limited by the potential influence of omitted variables, measurement errors and reverse causality in these relationships. Further work using our village-level data could probe more deeply, for example by disaggregating where and when exogenous migration shocks occurred within Burkina Faso, and then testing their impact on specific kinds of infrastructural and institutional change.

Another approach to finding natural experiments would be to go even further back in time using archival data, as in Jedwab and Moradi (2011).

One feature of our study is to demonstrate the use of village elders' recall data in constructing time-varying indexes of local infrastructure and institutions. This involves asking about villagers' access to specific amenities, and then aggregating those responses into indexes that capture variation in public amenities from their point of view. The correlations we find demonstrate the potential significance of this approach as a way to overcome the limited availability of other ways to measure variation in public services, infrastructure, and institutions over time and space.

In the particular setting of rural Burkina Faso, we find that variance in village population size is closely correlated with village-level access to local public services and infrastructure. Our point estimate of this effect suggests that moving from the first to the last quintile of village population size associated with rural migration within Burkina is similar or larger than a full decade of time trends across Burkina as a whole. These village amenities are clearly of great importance for rural development. Future work using our data or similar new surveys elsewhere could document further how village infrastructure and institutions are responding to the extraordinary demographic changes recently experienced by rural Africans.

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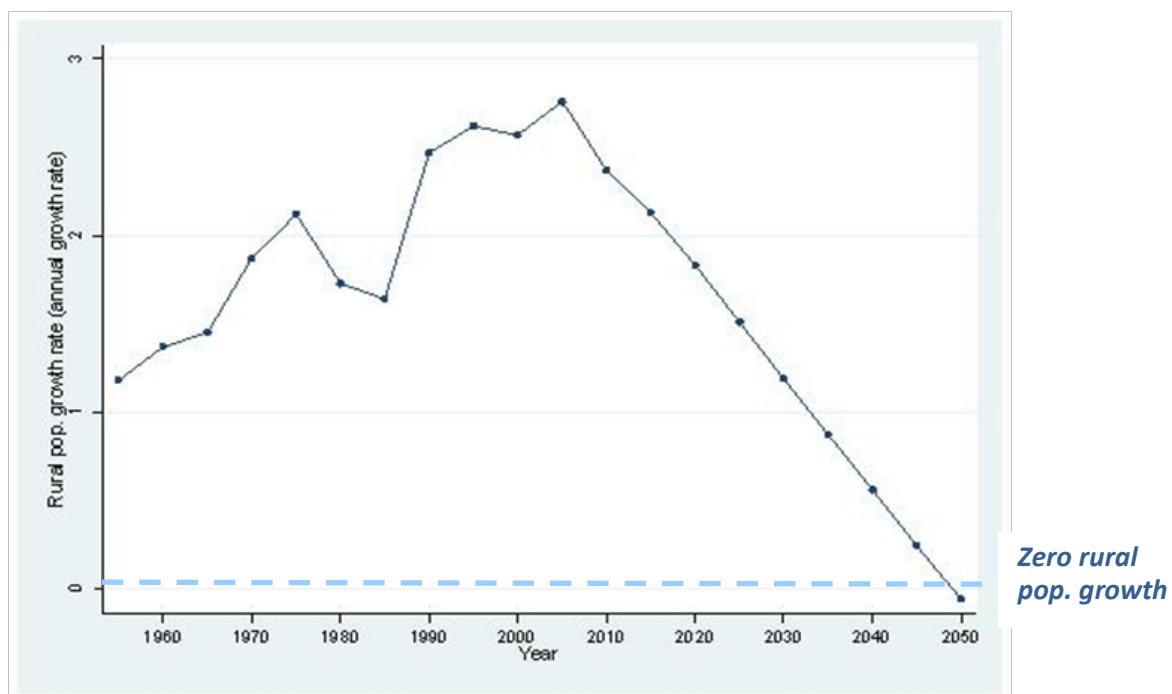Human Rights Watch, 2001. "The New Racism: Political Manipulation of Ethnicity in Cote d'Ivoire." New York: HRW (August, 2001), online at www.hrw.org/en/reports/2001/08/28/new-racism.

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Figure 1. Past and projected rural population growth, by region and country (1950-2050)

Panel A: Regional aggregates
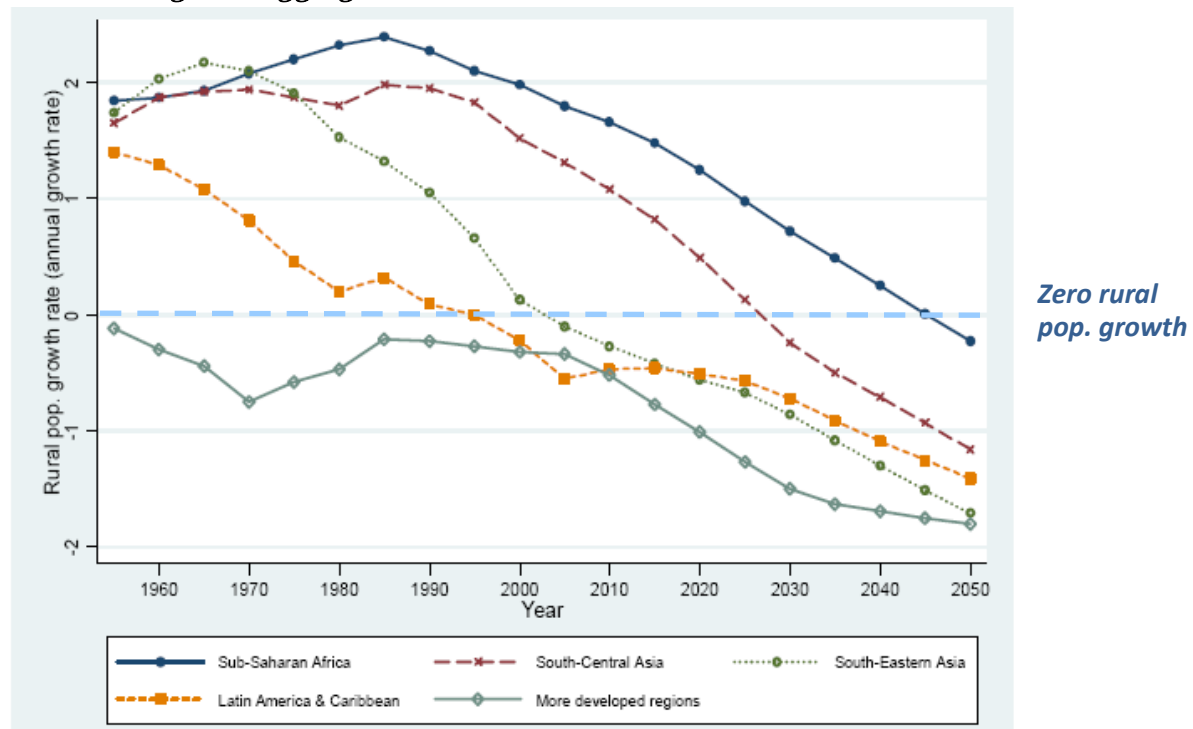
Panel B: Burkina Faso

Source: Calculated from UN Population Projections (esa.un.org/unpp).

Figure 2. Location of Planned Settlements Associated with Onchocerciasis Control, 1973-1984

Source: Della E. McMillan, Jean-Baptiste Nana and Kimseyinga Savadogo, "Settlement and Development
in the River Blindness Control Zone." World Bank Technical Paper No. 200, Series on River Blindness Control in West Africa.
Washington, DC: World Bank, 1993.

Figure 3: Foreign Population in Cote d'Ivoire by Nationality, 1998 Census
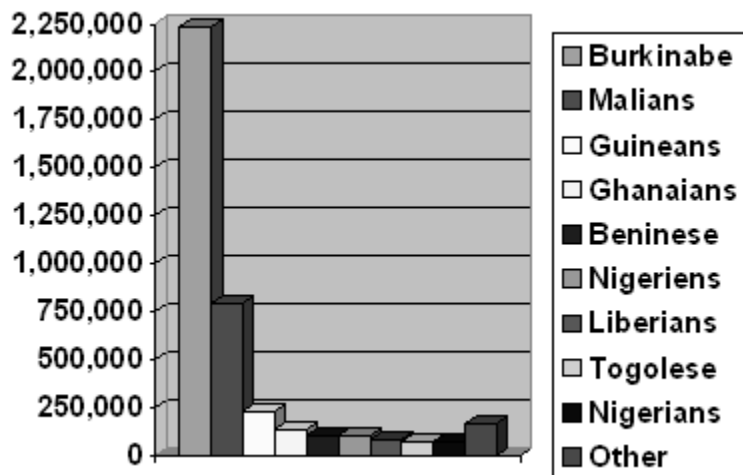
Source: IRIN News, "In-depth: Cote d'Ivoire crisis" (November, 2002). Online at
http://www.irinnews.org/IndepthMain.aspx?indepthid=38.

Figure 4: Location of Surveyed Villages and Rivers Used for IV Estimation
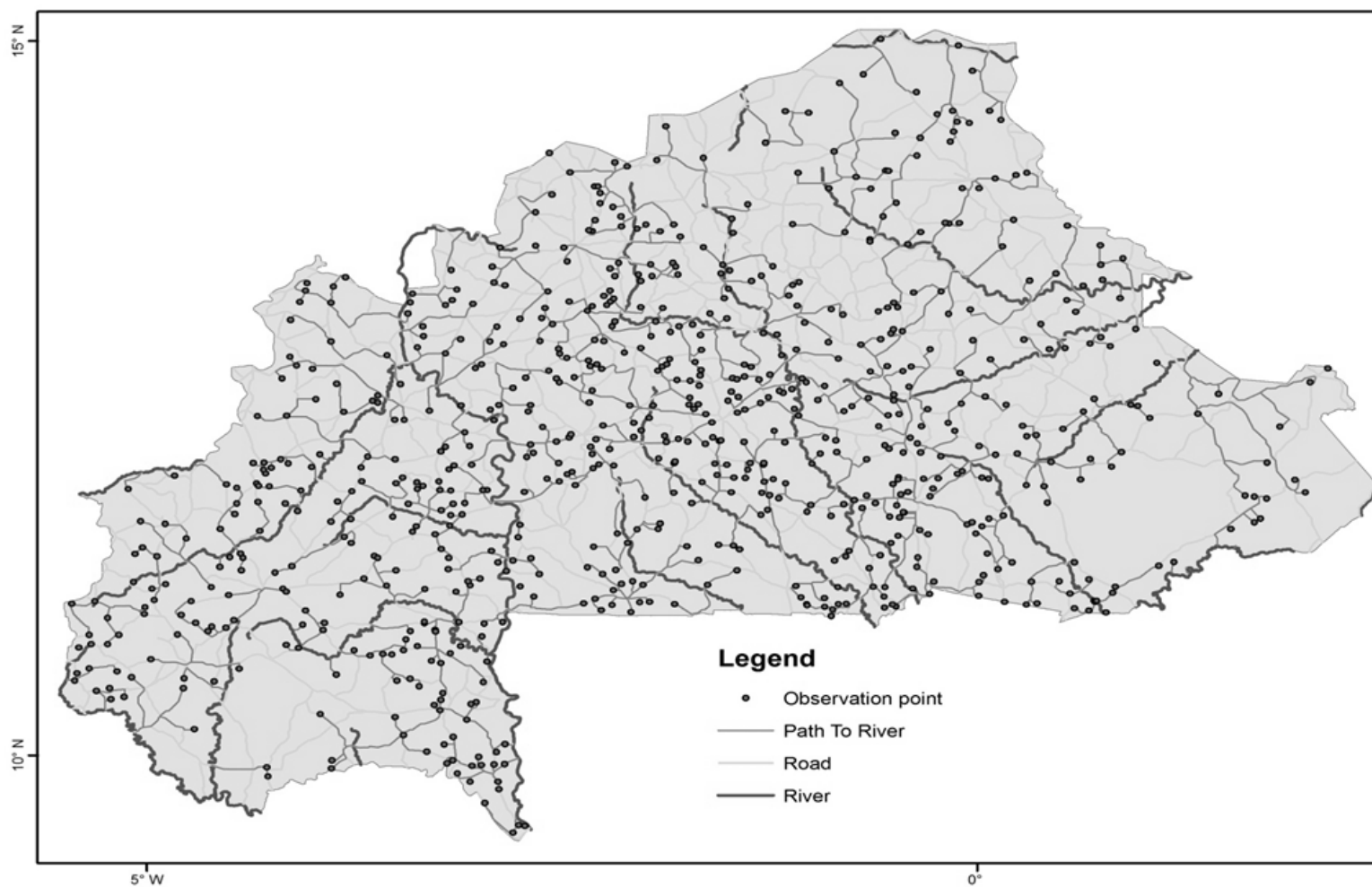
Source: Authors' calculations. Village locations are drawn from authors' survey data; river locations and paths from villages to rivers are calculated from IFPRI file data. Roads and travel paths are shown for illustration purposes only; data used for hypothesis tests are straight-line distances from the village to the closest river, and travel distance to nearest point in Cote d'Ivoire (at the lower-left of the map shown).

Table 1: Property rights and land use across sample villages in Burkina Faso (n=2,170)

Land Rights	Percentage of observations in sample
Rights over crop land	
Not defined	14.4
Communal	10.0
Familial	59.9
Individual	15.7
Existence of sales or rental of crop land	
None	92.4
At least one sale or rental has occurred	7.7
Role of traditional authorities in solving crop land conflict	
None	63.8
Some	36.2
Role of elected authorities involved in solving crop land conflict	
None	81.9
Some	18.1
Demarcation and regulation of pasture land	
No delimited pasture land	71.7
Pasture land delimited, access not regulated	80.9
Pasture land delimited, access regulated by tax or quota	19.1
Demarcation and regulation of forest land	
No delimited forest land	70.1
Forest land delimited, access not regulated	15.9
Forest land delimited, access regulated by tax or quota	14.0

Source for all tables: Authors' calculations.
Notes: Results shown are from village elders' response to questions asked in local languages, translated by local enumerators from the French questionnaire reproduced in the appendix to this paper. Items shown are from questionnaire sections VIII (for crop land), IX (for pasture land) and X (for forest land).

Table 2: Mean and standard deviations for all variables (n=2,121)

Year	Proximity of farthest source (km) (Distance to farthest site in each set)				Proximity to all sources (km) (Average distance to all services)				Proximity to closest source (km) (Distance to closest site in each set)			
	Public Services	Public Infrast.	Religious Services	Markets	Public Services	Public Infrast.	Religious Services	Markets	Public Services	Public Infrast.	Religious Services	Markets
1985	35.348	35.458	9.274	12.832	26.915	14.662	6.321	8.585	18.351	3.566	3.536	4.855
	[1.206]	[1.239]	[0.518]	[0.790]	[0.779]	[0.482]	[0.360]	[0.432]	[0.607]	[0.308]	[0.299]	[0.269]
1996	35.635	28.053	7.465	12.735	25.055	11.532	4.726	7.811	15.115	1.817	2.328	3.788
	[1.137]	[0.977]	[0.409]	[0.741]	[0.708]	[0.374]	[0.267]	[0.384]	[0.533]	[0.209]	[0.230]	[0.251]
2006	32.151	20.955	5.218	11.455	19.681	8.099	3.036	6.11	8.596	0.501	1.16	1.975
	[1.005]	[0.771]	[0.331]	[0.611]	[0.543]	[0.278]	[0.194]	[0.276]	[0.415]	[0.083]	[0.138]	[0.176]

Year	Land ownership rights			Land markets	Regulated access to			Population '(1000s)	Distance (km) to:	
	Individual	Familial	Communal		Pasture	Forest	Crop		Nearest river	Cote d'Ivoire
1985	0.41	0.665	0.1	0.056	0.152	1.353	2.75	1.6	65.986	506.904
	[0.018]	[0.018]	[0.011]	[0.009]	[0.013]	[0.024]	[0.033]	[0.058]	[1.782]	[8.787]
1996	0.423	0.671	0.099	0.064	0.186	1.44	2.751	1.682	66.876	506.478
	[0.019]	[0.018]	[0.011]	[0.009]	[0.015]	[0.027]	[0.034]	[0.059]	[1.818]	[8.984]
2006	0.453	0.669	0.104	0.107	0.24	1.516	2.786	1.396	66.336	509.231
	[0.018]	[0.017]	[0.011]	[0.011]	[0.016]	[0.029]	[0.033]	[0.091]	[1.777]	[8.753]

Notes: Standard deviations in brackets. Proximity measures refer to travel distances from the village to reach the closest site offering one or more of each set of collective resources: **Public Services** and Utilities (defined as the administrative office used to register births, any savings and loan facility, any fixed-line telephone, any mobile phone reception); **Public Infrastructure** (defined as a road that is accessible by truck all year, a road accessible by truck seasonally, a bus stop, a primary school, a secondary school, and a health center), **Religious Services** (any church, mosque or temple), and **Markets** (any open-air food market, livestock market, or private shop). Specific wording of each question is reproduced in the appendix; from the questionnaire as a whole, we retained only those proximity questions which more than 700 of the 730 villages were unable to answer unambiguously. Population is computed from the Burkina Faso national censuses for 1985, 1996 and 2006. Distances to nearest river and to the Cote d'Ivoire border are straight lines calculated from latitude and longitude geocodes.

Table 3: OLS regression results for public infrastructure and institutions on village-level population

	Proximity of farthest source (km)				Proximity to all sources (km)				Proximity to closest source (km)			
	Services	Infrastr.	Religion	Markets	Services	Infrastr.	Religion	Markets	Services	Infrastr.	Religion	Markets
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Population	0.045*	0.003	0.153***	0.182***	0.041*	0.049**	0.145***	0.187***	0.108***	0.116***	0.125***	0.228***
	[0.026]	[0.027]	[0.029]	[0.031]	[0.023]	[0.021]	[0.025]	[0.027]	[0.032]	[0.020]	[0.022]	[0.023]
Y=1996	-0.059	0.174***	0.127**	-0.030	0.025	0.193***	0.167***	0.034	0.191***	0.305***	0.225***	0.193***
	[0.051]	[0.051]	[0.063]	[0.064]	[0.045]	[0.041]	[0.054]	[0.056]	[0.056]	[0.047]	[0.051]	[0.054]
Y=2006	0.027	0.485***	0.493***	0.072	0.255***	0.538***	0.515***	0.222***	1.109***	0.611***	0.490***	0.628***
	[0.048]	[0.050]	[0.062]	[0.064]	[0.043]	[0.041]	[0.052]	[0.054]	[0.060]	[0.043]	[0.047]	[0.051]
Constant	-3.29***	-3.18***	-2.44***	-3.20***	-2.97***	-2.71***	-2.14***	-3.03***	-2.69***	-1.40***	-1.50***	-2.64***
	[0.223]	[0.209]	[0.266]	[0.341]	[0.197]	[0.175]	[0.220]	[0.292]	[0.268]	[0.167]	[0.195]	[0.243]
Observ.	2,132	2,161	2,040	2,136	2,132	2,161	2,040	2,136	2,132	2,161	2,040	2,136
R-squared	0.097	0.147	0.233	0.220	0.116	0.220	0.265	0.225	0.230	0.234	0.232	0.235

	Land ownership rights			Land markets	Regulated access		
	Individual	Family	Communal	markets	Pasture	Forest	Crop Land
	(13)	(14)	(15)	(16)	(17)	(18)	(19)
lnpopulation	0.012	-0.012	0.012*	0.010*	0.009	-0.021	-0.011
	[0.010]	[0.010]	[0.007]	[0.005]	[0.009]	[0.016]	[0.019]
year==1996	0.018	0.005	-0.002	0.008	0.036*	0.086***	0.008
	[0.022]	[0.021]	[0.015]	[0.010]	[0.018]	[0.033]	[0.039]
year==2006	0.044**	0.001	0.007	0.053***	0.091***	0.158***	0.032
	[0.022]	[0.021]	[0.015]	[0.011]	[0.019]	[0.034]	[0.040]
Constant	0.324***	0.747***	0.016	-0.013	0.087	1.498***	2.828***
	[0.074]	[0.071]	[0.051]	[0.037]	[0.064]	[0.116]	[0.135]
Observations	2,146	2,146	2,146	2,146	2,146	2,146	2,146
R-squared	0.335	0.294	0.139	0.379	0.181	0.227	0.313

Notes: Population and distance measures are in logs, with proximity defined as its additive inverse (-log[distance]), so that coefficients can be read as elasticities and a positive coefficient implies closer facilities. The regression also controls for 45 province dummies (not shown). Robust standard errors in brackets, and asterisks indicate significance levels at *** p<0.01, ** p<0.05, * p<0.1.

Table 4: OLS regression results for public infrastructure and institutions on village-level population and diversity

	Proximity of farthest source (km)				Proximity to all sources (km)				Proximity to closest source (km)			
	Services	Infrastr.	Religion	Markets	Services	Infrastr.	Religion	Markets	Services	Infrastr.	Religion	Markets
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Population	0.027	-0.009	0.107***	0.144***	0.021	0.031	0.107***	0.150***	0.068**	0.100***	0.105***	0.192***
	[0.025]	[0.026]	[0.029]	[0.031]	[0.022]	[0.021]	[0.024]	[0.026]	[0.031]	[0.020]	[0.022]	[0.023]
Clans	-0.001	-0.001	0.017***	0.013***	-0.000	0.001	0.013***	0.012***	0.008**	0.004**	0.006***	0.011***
	[0.004]	[0.003]	[0.003]	[0.004]	[0.003]	[0.002]	[0.002]	[0.003]	[0.004]	[0.002]	[0.002]	[0.002]
Ethnicities	0.063***	0.044***	0.065***	0.057***	0.066***	0.050***	0.058***	0.061***	0.087***	0.028***	0.035***	0.063***
	[0.013]	[0.011]	[0.011]	[0.012]	[0.012]	[0.008]	[0.009]	[0.010]	[0.012]	[0.006]	[0.008]	[0.008]
Y=1996	-0.057	0.175***	0.134**	-0.026	0.028	0.195***	0.173***	0.037	0.196***	0.306***	0.229***	0.197***
	[0.050]	[0.051]	[0.062]	[0.064]	[0.045]	[0.041]	[0.053]	[0.055]	[0.054]	[0.047]	[0.051]	[0.053]
Y=2006	0.025	0.483***	0.487***	0.066	0.252***	0.534***	0.511***	0.216***	1.103***	0.608***	0.488***	0.622***
	[0.047]	[0.050]	[0.060]	[0.063]	[0.042]	[0.040]	[0.051]	[0.053]	[0.059]	[0.043]	[0.047]	[0.050]
Constant	-3.27***	-3.16***	-2.38***	-3.15***	-2.94***	-2.68***	-2.09***	-2.98***	-2.63***	-1.38***	-1.48***	-2.59***
	[0.220]	[0.207]	[0.258]	[0.338]	[0.193]	[0.172]	[0.215]	[0.288]	[0.262]	[0.165]	[0.195]	[0.237]
Observ.	2,132	2,161	2,040	2,136	2,132	2,161	2,040	2,136	2,132	2,161	2,040	2,136
R-squared	0.121	0.157	0.273	0.243	0.150	0.241	0.302	0.258	0.268	0.243	0.247	0.271

Notes: Population and distance measures are in logs, with proximity defined as its additive inverse (-log[distance]), so that coefficients can be read as elasticities and a positive coefficient implies closer facilities. The regression also controls for 45 province dummies (not shown). Robust standard errors in brackets, and asterisks indicate significance levels at *** p<0.01, ** p<0.05, * p<0.1.

Table 4 (continued)

	Land ownership rights			Land markets	Regulated access		
	Individual	Family	Communal		Pasture	Forest	Crop Land
	(13)	(14)	(15)	(16)	(17)	(18)	(19)
Inpopulation	0.007	-0.015	0.004	0.008	0.011	-0.030*	-0.013
	[0.011]	[0.010]	[0.007]	[0.005]	[0.009]	[0.017]	[0.019]
Ethnicities	0.009**	-0.002	0.005	0.007**	-0.008**	0.011*	0.004
	[0.004]	[0.004]	[0.003]	[0.003]	[0.003]	[0.006]	[0.007]
Clans	0.001	0.002*	0.005***	-0.000	0.001	0.003	-0.001
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.002]	[0.002]
year==1996	0.019	0.005	-0.001	0.009	0.037**	0.087***	0.008
	[0.022]	[0.021]	[0.015]	[0.010]	[0.018]	[0.033]	[0.039]
year==2006	0.044**	0.000	0.005	0.053***	0.092***	0.158***	0.032
	[0.022]	[0.021]	[0.015]	[0.011]	[0.019]	[0.034]	[0.040]
Constant	0.308***	0.756***	0.005	-0.024	0.096	1.487***	2.834***
	[0.075]	[0.072]	[0.050]	[0.036]	[0.064]	[0.117]	[0.136]
Observations	2,132	2,132	2,132	2,132	2,132	2,132	2,132
R-squared	0.335	0.294	0.163	0.383	0.180	0.231	0.307

Notes: The regression also controls for 45 province dummies (not shown). Robust standard errors in brackets, and asterisks indicate significance levels at *** p<0.01, ** p<0.05, * p<0.1.

Table 5: First stage regression results for IV estimation

	(1)	(2)	(3)
Excluded instruments:			
Distance to River	-0.157***		-0.155***
	[0.037]		[0.038]
Distance to River*1996	0.022		0.034
	[0.056]		[0.056]
Distance to River*2006	0.060		0.073
	[0.053]		[0.053]
Distance to Border		-0.181*	-0.044
		[0.110]	[0.113]
Distance to Border*1996		-0.140**	-0.143**
		[0.067]	[0.067]
Distance to border*2006		-0.149**	-0.157**
		[0.067]	[0.067]
Time trends:			
year==1996	-0.001	0.932**	0.813*
	[0.228]	[0.409]	[0.435]
year==2006	-0.446**	0.689*	0.458
	[0.213]	[0.415]	[0.448]
Constant	7.275***	7.985***	7.605***
	[0.186]	[0.720]	[0.734]
Observations	2,146	2,146	2,146
R-squared	0.177	0.170	0.180
F-Stat Inst	9.896	5.688	6.831

Notes: Dependent variable for all columns is log of village population size; column (3) is our preferred specification. Distance measures are in logs. Proximity to nearest river is straight-line distance, to capture flight time needed by the black flies that carry Onchocerciasis from the river to peoples' homes. In contrast, proximity to Cote d'Ivoire is travel distance, by roads, train or footpath. The regression also controls for 45 province dummies (not shown). Robust standard errors in brackets, and asterisks indicate significance levels at *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 6: IV regression results for infrastructure and institutions on village population, instrumented by distance to rivers and Cote d'Ivoire

	Proximity of farthest source (km)				Proximity to all sources (km)				Proximity to closest source (km)			
	Services	Infrastr.	Religion	Markets	Services	Infrastr.	Religion	Markets	Services	Infrastr.	Religion	Markets
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
lnpopulation	0.308*	0.574***	1.165***	0.649***	0.410**	0.780***	0.989***	0.718***	0.953***	0.303*	0.629***	0.933***
	[0.175]	[0.202]	[0.235]	[0.239]	[0.166]	[0.187]	[0.199]	[0.215]	[0.246]	[0.171]	[0.174]	[0.211]
year==1996	-0.078	0.127**	0.055	-0.071	-0.004	0.134**	0.106*	-0.011	0.119*	0.285***	0.185***	0.135**
	[0.054]	[0.059]	[0.075]	[0.068]	[0.050]	[0.054]	[0.064]	[0.060]	[0.069]	[0.050]	[0.056]	[0.061]
year==2006	0.082	0.603***	0.737***	0.173**	0.331***	0.694***	0.721***	0.340***	1.286***	0.643***	0.621***	0.791***
	[0.062]	[0.074]	[0.100]	[0.087]	[0.058]	[0.069]	[0.085]	[0.079]	[0.088]	[0.059]	[0.070]	[0.080]
Observations	2,108	2,137	2,016	2,112	2,108	2,137	2,016	2,112	2,108	2,137	2,016	2,112
Hansen J stat.	18.25	17.03	9.398	5.231	21.42	18.42	6.483	5.490	14.14	20.33	0.170	5.693
Prob HJS	0.00265	0.00444	0.0942	0.388	0.000674	0.00247	0.262	0.359	0.0148	0.00108	0.999	0.337

	Land ownership rights			Land markets	Regulated access		
	Individual	Family	Communal		Pasture	Forest	Crop Land
	(13)	(14)	(15)	(16)	(17)	(18)	(19)
lnpopulation	0.221***	-0.246***	0.097*	0.061*	0.102	0.222*	-0.231
	[0.083]	[0.082]	[0.050]	[0.033]	[0.070]	[0.125]	[0.151]
year==1996	0.001	0.024	-0.009	0.004	0.028	0.066*	0.025
	[0.024]	[0.025]	[0.016]	[0.010]	[0.020]	[0.035]	[0.042]
year==2006	0.088***	-0.049*	0.025	0.064***	0.110***	0.210***	-0.015
	[0.029]	[0.029]	[0.019]	[0.014]	[0.023]	[0.045]	[0.052]
Observations	2,146	2,146	2,146	2,146	2,146	2,146	2,146
Hansen J stat.	7.879	3.175	2.912	1.780	25.70	2.662	1.781
Prob HJS	0.163	0.673	0.714	0.879	0.000102	0.752	0.878

Notes: First stage results are shown in Column 3 of Table 5. Population and proximity measures are in logs. All regressions control for 45 province dummies (not shown). Robust standard errors in brackets, and asterisks indicate significance levels at *** p<0.01, ** p<0.05, * p<0.1.

Table 6A: IV regression results for infrastructure and institutions on village-level population, instrumented by distance to rivers only

	Proximity of farthest source (km)				Proximity to all sources (km)				Proximity to closest source (km)			
	Services	Infrastr.	Religion	Markets	Services	Infrastr.	Religion	Markets	Services	Infrastr.	Religion	Markets
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Inpopulation	0.196	0.351*	1.112***	0.463*	0.307*	0.696***	0.947***	0.587**	0.885***	0.465**	0.613***	1.016***
	[0.191]	[0.207]	[0.241]	[0.274]	[0.182]	[0.200]	[0.205]	[0.242]	[0.277]	[0.197]	[0.180]	[0.239]
year==1996	-0.068	0.144***	0.059	-0.057	0.005	0.140***	0.109*	-0.001	0.125*	0.273***	0.186***	0.129**
	[0.054]	[0.055]	[0.074]	[0.068]	[0.050]	[0.052]	[0.063]	[0.060]	[0.068]	[0.051]	[0.055]	[0.063]
year==2006	0.059	0.555***	0.724***	0.130	0.310***	0.676***	0.711***	0.310***	1.272***	0.678***	0.617***	0.810***
	[0.062]	[0.070]	[0.101]	[0.090]	[0.058]	[0.068]	[0.085]	[0.080]	[0.090]	[0.066]	[0.071]	[0.085]
Observations	2,108	2,137	2,016	2,112	2,108	2,137	2,016	2,112	2,108	2,137	2,016	2,112
Hansen J stat.	2.222	2.382	1.747	1.300	1.900	1.399	1.255	0.619	2.012	5.921	0.0433	0.0556
Prob HJS	0.329	0.304	0.418	0.522	0.387	0.497	0.534	0.734	0.366	0.0518	0.979	0.973

	Land ownership rights			Land markets	Regulated access		
	Individual	Family	Communal		Pasture	Forest	Crop Land
	(13)	(14)	(15)	(16)	(17)	(18)	(19)
Inpopulation	0.216**	-0.304***	0.101*	0.077**	0.243**	0.276*	-0.330*
	[0.096]	[0.100]	[0.056]	[0.038]	[0.098]	[0.149]	[0.177]
year==1996	0.001	0.029	-0.009	0.003	0.017	0.062*	0.033
	[0.024]	[0.026]	[0.016]	[0.011]	[0.023]	[0.037]	[0.045]
year==2006	0.087***	-0.061*	0.025	0.067***	0.141***	0.221***	-0.036
	[0.031]	[0.033]	[0.020]	[0.015]	[0.029]	[0.048]	[0.056]
Observations	2,146	2,146	2,146	2,146	2,146	2,146	2,146
Hansen J stat.	0.106	0.480	0.434	0.493	0.715	1.443	0.310
Prob HJS	0.948	0.787	0.805	0.781	0.699	0.486	0.857

Notes: First stage results are shown in Column 1 of Table 5. Population and proximity measures are in logs. All regressions control for 45 province dummies (not shown). Robust standard errors in brackets, and asterisks indicate significance levels at *** p<0.01, ** p<0.05, * p<0.1.

Table 6B: IV regression results for infrastructure and institutions on village-level population, instrumented by distance to Cote d'Ivoire only

	Proximity of farthest source (km)				Proximity to all sources (km)				Proximity to closest source (km)			
	Services	Infrastr.	Religion	Markets	Services	Infrastr.	Religion	Markets	Services	Infrastr.	Religion	Markets
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Inpopulation	0.946**	1.476***	2.054***	1.158***	1.073***	1.410***	1.659***	1.162***	1.596***	0.159	0.762*	0.995***
	[0.381]	[0.474]	[0.698]	[0.424]	[0.382]	[0.411]	[0.588]	[0.400]	[0.519]	[0.267]	[0.450]	[0.381]
year==1996	-0.133*	0.057	-0.004	-0.108	-0.061	0.085	0.062	-0.044	0.063	0.297***	0.176***	0.130*
	[0.072]	[0.090]	[0.115]	[0.080]	[0.072]	[0.078]	[0.095]	[0.073]	[0.095]	[0.053]	[0.066]	[0.066]
year==2006	0.213**	0.797***	0.957***	0.289**	0.467***	0.830***	0.887***	0.442***	1.418***	0.612***	0.654***	0.805***
	[0.103]	[0.137]	[0.200]	[0.126]	[0.104]	[0.120]	[0.167]	[0.118]	[0.142]	[0.071]	[0.122]	[0.109]
Observations	2,108	2,137	2,016	2,112	2,108	2,137	2,016	2,112	2,108	2,137	2,016	2,112
Hansen J stat.	7.231	2.744	2.667	1.084	7.638	6.414	1.977	2.168	6.041	14.23	0.0237	5.384
Prob HJS	0.0269	0.254	0.264	0.582	0.0220	0.0405	0.372	0.338	0.0488	0.000814	0.988	0.0677

	Land ownership rights			Land markets	Regulated access		
	Individual	Family	Communal		Pasture	Forest	Crop Land
	(13)	(14)	(15)	(16)	(17)	(18)	(19)
Inpopulation	0.345**	-0.157	0.140	0.042	-0.298**	0.156	-0.001
	[0.141]	[0.118]	[0.093]	[0.048]	[0.116]	[0.173]	[0.246]
year==1996	-0.009	0.017	-0.012	0.006	0.061**	0.071**	0.007
	[0.028]	[0.024]	[0.017]	[0.011]	[0.025]	[0.036]	[0.043]
year==2006	0.115***	-0.030	0.034	0.060***	0.025	0.196***	0.034
	[0.040]	[0.034]	[0.026]	[0.015]	[0.034]	[0.052]	[0.067]
Observations	2,146	2,146	2,146	2,146	2,146	2,146	2,146
Hansen J stat.	5.067	2.060	2.031	1.072	1.853	1.057	0.132
Prob HJS	0.0794	0.357	0.362	0.585	0.396	0.590	0.936

Notes: First stage results are shown in Column 2 of Table 5. Population and proximity measures are in logs. All regressions control for 45 province dummies (not shown). Robust standard errors in brackets, and asterisks indicate significance levels at *** p<0.01, ** p<0.05, * p<0.1.

Table 6C: IV regression results for infrastructure and institutions on village-level population, instrumented by distance to rivers and Cote d'Ivoire interacted with year dummies, with village fixed effects

	Proximity of farthest source (km)				Proximity to all sources (km)				Proximity to closest source (km)			
	Services	Infrastr.	Religion	Markets	Services	Infrastr.	Religion	Markets	Services	Infrastr.	Religion	Markets
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
lnpopulation	-0.172	0.182	-0.352	1.007**	-0.275	0.016	-0.145	0.758**	-0.111	-0.308	0.360	0.220
	[0.243]	[0.343]	[0.375]	[0.437]	[0.216]	[0.218]	[0.298]	[0.332]	[0.335]	[0.295]	[0.325]	[0.260]
year==1996	-0.027	0.181***	0.162***	-0.102	0.067**	0.213***	0.193***	-0.018	0.226***	0.349***	0.225***	0.188***
	[0.040]	[0.048]	[0.049]	[0.063]	[0.034]	[0.032]	[0.038]	[0.048]	[0.047]	[0.044]	[0.040]	[0.037]
year==2006	-0.019	0.522***	0.346***	0.253**	0.192***	0.534***	0.434***	0.353***	1.073***	0.523***	0.570***	0.647***
	[0.055]	[0.083]	[0.101]	[0.108]	[0.049]	[0.051]	[0.082]	[0.082]	[0.079]	[0.072]	[0.093]	[0.069]
Number of VFE	716	728	689	717	716	728	689	717	716	728	689	717
Observations	2,095	2,135	1,987	2,101	2,095	2,135	1,987	2,101	2,095	2,135	1,987	2,101
Hansen J stat.	7.673	3.487	2.071	1.095	6.884	1.182	1.727	1.205	5.301	23.27	0.131	2.422
Prob HJS	0.0533	0.322	0.558	0.778	0.0757	0.757	0.631	0.752	0.151	0.00	0.988	0.490

	Land ownership rights			Land markets	Regulated access		
	Individual	Family	Communal		Pasture	Forest	Crop Land
	(13)	(14)	(15)	(16)	(17)	(18)	(19)
lnpopulation	-0.004	0.032	-0.029*	-0.034	-0.173**	-0.140	0.080
	[0.051]	[0.027]	[0.017]	[0.040]	[0.085]	[0.119]	[0.059]
year==1996	0.021***	0.002	0.003	0.010	0.046***	0.101***	0.003
	[0.007]	[0.003]	[0.003]	[0.007]	[0.013]	[0.020]	[0.011]
year==2006	0.041***	0.012	-0.000	0.044***	0.050**	0.135***	0.050***
	[0.013]	[0.007]	[0.003]	[0.011]	[0.020]	[0.029]	[0.018]
Number of VFE	729	729	729	729	729	729	729
Observations	2,145	2,145	2,145	2,145	2,145	2,145	2,145
Hansen J stat.	0.347	0.332	2.266	0.00826	5.880	4.453	0.789
Prob HJS	0.951	0.954	0.519	1.000	0.118	0.216	0.852

Notes: First stage results for this regression are not shown. Population and proximity measures are in logs. All results control for village fixed effects. Robust standard errors in brackets, and asterisks indicate significance levels at *** p<0.01, ** p<0.05, * p<0.1.

Table 7: Estimated effect sizes of changes in population and time for public infrastructure and institutions

	Proximity of farthest source (km)				Proximity to all sources (km)				Proximity to closest source (km)			
	Services	Infrastr.	Religion	Markets	Services	Infrastr.	Religion	Markets	Services	Infrastr.	Religion	Markets
Coefficient estimates												
Population	0.308	0.574	1.165	0.649	0.41	0.78	0.989	0.718	0.953	0.303	0.629	0.933
Y=1996	--	0.127	--	--	--	0.134	0.106	--	0.119	0.285	0.185	0.135
Y=2006	--	0.603	0.737	0.173	0.331	0.694	0.721	0.34	1.286	0.643	0.621	0.791
Effect size estimates												
Pop. from 1st to last quintile	0.327	0.610	1.238	0.690	0.436	0.829	1.051	0.763	1.013	0.322	0.669	0.992
Time from 1986 to '96	--	0.135	--	--	--	0.142	0.113	0.000	0.126	0.303	0.197	0.144
Time from 1996 to '06	--	0.506	0.783	0.184	0.352	0.595	0.654	0.361	1.241	0.381	0.463	0.697

	Land ownership rights			Land		Regulated access		
	Individual	Family	Communal	markets	Pasture	Forest	Crop Land	
Coefficient estimates								
Population	0.221	-0.246	0.097	0.061	--	0.222	--	
Y=1996	--	--	--	--	--	0.066	--	
Y=2006	0.088	-0.049	--	0.064	0.11	0.21	--	
Effect size estimates								
Pop. from 1st to last quintile	0.235	-0.261	0.103	0.065	--	0.236	--	
Time from 1986 to '96	--	--	--	--	--	0.070	--	
Time from 1996 to '06	0.094	-0.052	--	0.068	0.117	0.153	--	

Notes: Estimated effect sizes are shown only where coefficients are estimated to be significantly different from zero at $p<0.05$ or $p<0.1$. Population shocks are illustrated as the difference between the means of the first and last quintiles of predicted population from our first stage regression. This turns out to be a difference of 152 people per village (exp [7.420] – exp[6.375]), where the mean predicted population of all villages is 1,030 people (exp[6.938]). The mean predicted population of each quintile, in log form, is 7.420, 7.140, 6.966, 6.786, and 6.375.

BURKINA FASO
Ministère de l'Agriculture de l'Hydraulique et des Ressources Halieutiques

DIRECTION GENERALE DE LA PROMOTION DE L'ECONOMIE RURALE

Direction de la Prospective et des Statistiques Agricoles et Alimentaires

ENQUETE COMMUNAUTAIRE

Nº	Eléments d'identification	Nom	Code
1	Région		|___|___|
2	Province		|___|___|
3	Commune		|___|___|
4	Type de localité 1 = urbain 2 = rural		|___|
5	Village / secteur		|___|___|___|
6	Latitude		|___|___|___|___|___|___|
7	Longitude		|___|___|___|___|___|___|

Nom du contrôleur : _____ |__C__|___|___|

Date de l'interview : |___|___| |___|___| |___|___|
                     Jour   mois   année

Nom et visa du superviseur :_____

Date de contrôle : |___|___| |___|___| |___|___|
               Jour   mois   année

Résultat du contrôle :……………………………………………...…|___|
          (1= aucun problème ; 2= questionnaire corrigé ; 3= questionnaire repris)

Nom et prénom(s) de l'agent de saisie A :_____|___|___|___|

Nom et prénom(s) de l'agent de saisie B :_____|___|___|___|

A combien d'années remonte l'établissement du village :….. |___|___|___|___|

Le Village est-il un village de colonie : (1=Oui ; 0=Non) :…………………… |___|

I. IDENTITE DES REPONDANTS

N°	Catégorie	Nombre pour chaque catégorie		TOTAL*
		Homme	Femme	
I.1	Autorités gouvernementales/Représentants de l'administration	|___|___|	|___|___|	|___|___|
I.2	Chefs de village	|___|___|	|___|___|	|___|___|
I.3	Délégués CVD	|___|___|	|___|___|	|___|___|
I.4	Chefs de terre	|___|___|	|___|___|	|___|___|
I.5	Chefs religieux (Imam, Pasteur, Prêtre….)	|___|___|	|___|___|	|___|___|
I.6	Responsables de Groupements/Associations	|___|___|	|___|___|	|___|___|
I.7	**TOTAL***	|___|___|	|___|___|	|___|___|

* A compléter après l'interview avec le groupe

II. COMPOSITION ACTUELLE DES COMMUNAUTES DU VILLAGE

N°	Questions	Réponse
II.1	Nombre approximatif d'autochtones revenus de la Côte d'Ivoire à cause de la crise ivoirienne	|___|___|___|___|
II.2	Nombre approximatif d'immigrants venant d'ailleurs	|___|___|___|___|
II.3	Nombre de groupes ethniques dans la communauté du village	|___|___|
II.4	Nombre de clans dans le village	|___|___|

III. **POPULATION DU VILLAGE**

NB : Pour cette partie, l'enquêteur devra se rendre à la préfecture ou à la mairie de la localité

N°	Questions		Réponse
III.1	Existence des documents du recensement de 2006 **(1=Oui ; 0=Non)**		|___|
III.2	Population totale en 2006		|___|___|___|___|___|___|
III.3	Population de plus de 15 ans	Homme	|___|___|___|___|___|___|
III.4		Femme	|___|___|___|___|___|___|
III.5	Population de moins de 15 ans	Homme	|___|___|___|___|___|___|
III.6		Femme	|___|___|___|___|___|___|
III.7	Existence des documents du recensement de 1996 **(1=Oui ; 0=Non)**		|___|
III.8	Population totale en 1996		|___|___|___|___|___|___|
III.9	Population de plus de 15 ans	Homme	|___|___|___|___|___|___|
III.10		Femme	|___|___|___|___|___|___|
III.11	Population de moins de 15 ans	Homme	|___|___|___|___|___|___|
III.12		Femme	|___|___|___|___|___|___|
III.13	Existence des documents du recensement de 1985 **(1=Oui ; 0=Non)**		|___|
III.14	Population totale en 1985		|___|___|___|___|___|___|
III.15	Population de plus de 15 ans	Homme	|___|___|___|___|___|___|
III.16		Femme	|___|___|___|___|___|___|
III.17	Population de moins de 15 ans	Homme	|___|___|___|___|___|___|
III.18		Femme	|___|___|___|___|___|___|

IV.VISITE D'UN OFFICIEL DE LA VULGARISATION AGRICOLE

N°	Questions	Réponse
IV.1	Quand a été la première visite d'un vulgarisateur à votre communauté ? *(Inscrire l'année ou xxxx si jamais)*	|____|____|____|____|
IV.2	Quand est-ce que la vulgarisation de proximité (ancienne formule) a cessé ? *(Inscrire l'année ou xxxx si jamais)*	|____|____|____|____|
IV.3	Quand est-ce que la vulgarisation nouvelle formule a commencé? *(Inscrire l'année ou xxxx si jamais)*	|____|____|____|____|
IV.4	Quand a été la dernière visite d'un vulgarisateur à votre communauté ? *(Inscrire l'année ou xxxx si jamais)*	|____|____|____|____|
IV.5	Combien de visites avez vous reçus au cours des 12 derniers mois ? *(Inscrire l'année ou xxxx si jamais)*	|____|____|____|____|

V.   INFRASTRUCTURES CENTRALES : DISTANCES ET CHANGEMENTS

N°	Questions	Réponse	
		Distance (en km)	Année d'établissement
V.1	**Distance entre le village et l'administration centrale (pour les registres des naissances)**		
V.1.1	La situation actuelle	|___|___|___|	|___|___|___|___|
V.1.2	La situation précédente	|___|___|___|	|___|___|___|___|
V.1.3	La situation antécédente	|___|___|___|	|___|___|___|___|
V.2	**Distance entre le village et la route praticable par car ou camion toute l'année**		
V.2.1	La situation actuelle	|___|___|___|	|___|___|___|___|
V.2.2	La situation précédente	|___|___|___|	|___|___|___|___|
V.2.3	La situation antécédente	|___|___|___|	|___|___|___|___|
V.3	**Distance entre le village et la route praticable par car ou camion seulement une partie de l'année**		
V.3.1	La situation actuelle	|___|___|___|	|___|___|___|___|
V.3.2	La situation précédente	|___|___|___|	|___|___|___|___|
V.3.3	La situation antécédente	|___|___|___|	|___|___|___|___|
V.4	**Distance entre le village et l'arrêt d'autocar/taxi brousse rural**		
V.4.1	La situation actuelle	|___|___|___|	|___|___|___|___|
V.4.2	La situation précédente	|___|___|___|	|___|___|___|___|
V.4.3	La situation antécédente	|___|___|___|	|___|___|___|___|
V.5	**Distance entre le village et le bureau des caisses populaires**		
V.5.1	La situation actuelle	|___|___|___|	|___|___|___|___|
V.5.2	La situation précédente	|___|___|___|	|___|___|___|___|
V.5.3	La situation antécédente	|___|___|___|	|___|___|___|___|

V.6	Distance entre le village et la localité avec distribution d'électricité		
V.6.1	La situation actuelle	|___|___|___|	|___|___|___|___|
V.6.2	La situation précédente	|___|___|___|	|___|___|___|___|
V.6.3	La situation antécédente	|___|___|___|	|___|___|___|___|
V.7	Distance entre le village et la localité avec le téléphone fixe		
V.7.1	La situation actuelle	|___|___|___|	|___|___|___|___|
V.7.2	La situation précédente	|___|___|___|	|___|___|___|___|
V.7.3	La situation antécédente	|___|___|___|	|___|___|___|___|
V.8	Distance entre le village et la localité avec la téléphonie mobile		
V.8.1	La situation actuelle	|___|___|___|	|___|___|___|___|
V.8.2	La situation précédente	|___|___|___|	|___|___|___|___|
V.8.3	La situation antécédente	|___|___|___|	|___|___|___|___|

VI.MARCHES VILLAGEOIS

N°	Questions	Réponse		
VI.1	**FREQUENCE DU MARCHE GENERAL**			
		Distance (en km)	**Fréquence** *1= chaque jour* *2 = tous les 3 jours* *3 = tous les 4 jours* *4 = chaque semaine* *5 = occasionnel*	**Année d'établissement**
VI.1.1	La situation actuelle	|___|___|___|	|___|	|___|___|___|___|
VI.1.2	La situation précédente	|___|___|___|	|___|	|___|___|___|___|
VI.1.3	La situation antécédente	|___|___|___|	|___|	|___|___|___|___|
VI.2	**TYPE DE SOURCE POUR ACCES A L'EAU DANS LE MARCHE GENERAL**			
			Type de source d'eau *1= robinet* *2 = borne fontaine* *3 = forage* *4 = puits* *5 = aucune*	**Année d'établissement**
VI.2.1	La situation actuelle		|___|-|___|-|___|	|___|___|___|___|
VI.2.2	La situation précédente		|___|-|___|-|___|	|___|___|___|___|
VI.2.3	La situation antécédente		|___|-|___|-|___|	|___|___|___|___|
VI.3	**HANGARS DANS LE MARCHE GENERAL**			
			Type de hangar *1= individuel* *2 = collectif* *3 = aucun*	**Année d'établissement**
VI.3.1	La situation actuelle		|___|-|___|	|___|___|___|___|
VI.3.2	La situation précédente		|___|-|___|	|___|___|___|___|
VI.3.3	La situation antécédente		|___|-|___|	|___|___|___|___|

VI.4	**ACCES A L'ELECTRICITE DANS LE MARCHE GENERAL**		
		Disponibilité *1= permanente* *2 = une partie de la journée* *3 = aucune*	**Année d'établissement**
VI.4.1	La situation actuelle	|____|	|____|____|____|____|
VI.4.2	La situation précédente	|____|	|____|____|____|____|
VI.4.3	La situation antécédente	|____|	|____|____|____|____|
VI.5	**FRAIS (NIVEAU DES TAXES DE MARCHE GENERAL)**		
		Période *1= chaque jour* *2 = chaque semaine* *3 = chaque mois* *4 = chaque année* *5 = chaque marché*	**Montant par période**
VI.5.1	La situation actuelle	|____|	|____|____|____|____|	|____|____|____|____|
VI.5.2	La situation précédente	|____|	|____|____|____|____|	|____|____|____|____|
VI.5.3	La situation antécédente	|____|	|____|____|____|____|	|____|____|____|____|
VI.6	**FREQUENCE DU MARCHE A BETAIL**		
		Distance (en km)	**Fréquence** *1= chaque jour* *2 = tous les 3 jours* *3 = tous les 4 jours* *4 = chaque semaine* *5 = occasionnel*	**Année d'établissement**
VI.6.1	La situation actuelle	|____|____|____|	|____|	|____|____|____|____|
VI.6.2	La situation précédente	|____|____|____|	|____|	|____|____|____|____|
VI.6.3	La situation antécédente	|____|____|____|	|____|	|____|____|____|____|

VI.7	TYPE DE SOURCE POUR ACCES A L'EAU DANS LE MARCHE A BETAIL		
		Type de source d'eau *1= robinet* *2 = borne fontaine* *3 = forage* *4 = puits* *5 = aucune*	**Année d'établissement**
VI.7.1	La situation actuelle	|___|-|___|-|___|	|___|___|___|___|
VI.7.2	La situation précédente	|___|-|___|-|___|	|___|___|___|___|
VI.7.3	La situation antécédente	|___|-|___|-|___|	|___|___|___|___|
VI.8	HANGARS DANS LE MARCHE A BETAIL		
		Type de hangar *1= individuel* *2 = collectif* *3 = aucun*	**Année d'établissement**
VI.8.1	La situation actuelle	|___|-|___|	|___|___|___|___|
VI.8.2	La situation précédente	|___|-|___|	|___|___|___|___|
VI.8.3	La situation antécédente	|___|-|___|	|___|___|___|___|
VI.9	ACCES A L'ELECTRICITE DANS LE MARCHE A BETAIL		
		Disponibilité *1= permanente* *2 = une partie de la journée* *3 = aucune*	**Année d'établissement**
VI.9.1	La situation actuelle	|___|	|___|___|___|___|
VI.9.2	La situation précédente	|___|	|___|___|___|___|
VI.9.3	La situation antécédente	|___|	|___|___|___|___|

VI.10	FRAIS (NIVEAU DES TAXES DE MARCHE) A BETAIL			
		Période *1= chaque jour* *2 = chaque semaine* *3 = chaque mois* *4 = chaque année* *5 = chaque marché*	**Montant par période**	**Année d'établissement**
VI.10.1	La situation actuelle	|___|	|___|___|___|___|	|___|___|___|___|
VI.10.2	La situation précédente	|___|	|___|___|___|___|	|___|___|___|___|
VI.10.3	La situation antécédente	|___|	|___|___|___|___|	|___|___|___|___|

VII.INFRASTRUCTURE DU VILLAGE

N°	Questions	Réponse		
		Distance	Nombre	Année d'établissement
VII.1	**Distance entre le village et les boutiques pour achat des provisions divers (sel, thé, sucre, etc.)**			
VII.1.1	La situation actuelle	|____|____|	|____|____|	|____|____|____|____|
VII.1.2	La situation précédente	|____|____|	|____|____|	|____|____|____|____|
VII.1.3	La situation antécédente	|____|____|	|____|____|	|____|____|____|____|
VII.2	**Distance entre le village et les puits collectifs pour l'eau potable**			
VII.2.1	La situation actuelle	|____|____|	|____|____|	|____|____|____|____|
VII.2.2	La situation précédente	|____|____|	|____|____|	|____|____|____|____|
VII.2.3	La situation antécédente	|____|____|	|____|____|	|____|____|____|____|
VII.3	**Distance entre le village et le puits à grand diamètre**			
VII.3.1	La situation actuelle	|____|____|	|____|____|	|____|____|____|____|
VII.3.2	La situation précédente	|____|____|	|____|____|	|____|____|____|____|
VII.3.3	La situation antécédente	|____|____|	|____|____|	|____|____|____|____|
VII.4	**Distance entre le village et le forage collectif pour l'eau potable**			
VII.4.1	La situation actuelle	|____|____|	|____|____|	|____|____|____|____|
VII.4.2	La situation précédente	|____|____|	|____|____|	|____|____|____|____|
VII.4.3	La situation antécédente	|____|____|	|____|____|	|____|____|____|____|

VII.5	Distance entre le village et le Barrage collectif			
VII.5.1	La situation actuelle	|___|___|	|___|___|	|___|___|___|___|
VII.5.2	La situation précédente	|___|___|	|___|___|	|___|___|___|___|
VII.5.3	La situation antécédente	|___|___|	|___|___|	|___|___|___|___|
VII.6	Pont routier construit par le village			
VII.6.1	La situation actuelle		|___|___|	|___|___|___|___|
VII.6.2	La situation précédente		|___|___|	|___|___|___|___|
VII.6.3	La situation antécédente		|___|___|	|___|___|___|___|
VII.7	Passage piétonnier construit par le village			
VII.7.1	La situation actuelle		|___|___|	|___|___|___|___|
VII.7.2	La situation précédente		|___|___|	|___|___|___|___|
VII.7.3	La situation antécédente		|___|___|	|___|___|___|___|
VII.8	Magasin (utilisable) de coopérative agricole, d'ONG ou de Groupement Villageois			
VII.8.1	La situation actuelle		|___|___|	|___|___|___|___|
VII.8.2	La situation précédente		|___|___|	|___|___|___|___|
VII.8.3	La situation antécédente		|___|___|	|___|___|___|___|

VIII. DROITS FONCIERS SUR LES TERRES DE CULTURE

N°	Questions	Réponse	
VIII.1	**Type de droit appliquée pour les terres de culture** *(si la réponse est non, mettre des croix à année de début d'application)*		
		Type de droit appliquée (1=Oui ; 0=Non)	**Année de début d'application**
VIII.1.1	Propriété individuelle	|___|	|___|___|___|___|
VIII.1.2	Propriété collective-familiale	|___|	|___|___|___|___|
VIII.1.3	Propriété collective-communautaire	|___|	|___|___|___|___|
VIII.2	**Location, vente et prêts de terres de culture** *(si la réponse est non, mettre des croix à année de début d'application)*		
		Possibilité de transaction (1=Oui ; 0=Non)	**Année de début d'application**
VIII.2.1	Est-ce que la terre peut-être louée ?	|___|	|___|___|___|___|
VIII.2.2	Est-ce que la terre peut-être vendue ?	|___|	|___|___|___|___|
VIII.2.3	Est-ce que la terre peut-être prêtée ?	|___|	|___|___|___|___|
VIII.3	**Est-ce qu'il y a des terres de culture qui ont étés louées ?** *(si non à la question VIII.2.1, mettre des croix dans les bacs et passer à la question suivante)*		
		Location de terre (1=Oui ; 0=Non)	**Année de début d'application**
VIII.3.1	Louées à une personne autochtone	|___|	|___|___|___|___|
VIII.3.2	Louées à une personne étrangère	|___|	|___|___|___|___|
VIII.4	**A qui devrait-on demander permission pour louer ses terres?** *(cette question devra être toujours posée quelque soit la réponse de la question précédente)*		
		Personnes ressources *1= chef de famille* *2= chef de terre* *3 = conseil élu par la communauté* *4 = conseil élu par le gouvernement* *5 = aucune permission*	**Année de début d'application**
VIII.4.1	La situation actuelle	|___|-|___|-|___|	|___|___|___|___|
VIII.4.2	La situation précédente	|___|-|___|-|___|	|___|___|___|___|
VIII.4.3	La situation antécédente	|___|-|___|-|___|	|___|___|___|___|
VIII.5	**Est-ce qu'il y a des terres de culture qui ont étés vendues ?** *(si non à la question VIII.2.2, mettre des croix dans les bacs et passer à la question suivante)*		

		Ventes de terre (1=Oui ; 0=Non)	Année de début d'application
VIII.5.1	Vendues à une personne autochtone ?	|____|	|____|____|____|____|
VIII.5.2	Vendues à une personne étrangère?	|____|	|____|____|____|____|
VIII.6	**A qui devrait-on demander permission pour vendre ses terres?** *(cette question devra être toujours posée quelque soit la réponse de la question précédente)*		
		Personnes ressources *1= chef de famille* *2= chef de terre* *3 = conseil élu par la communauté* *4 = conseil élu par le gouvernement* *5 = aucune permission*	Année de début d'application
VIII.6.1	La situation actuelle	|____|-|____|-|____|	|____|____|____|____|
VIII.6.2	La situation précédente	|____|-|____|-|____|	|____|____|____|____|
VIII.6.3	La situation antécédente	|____|-|____|-|____|	|____|____|____|____|
VIII.7	**Est-ce qu'il y a des terres de culture qui ont étés prêtées ?** *(si non à la question VIII.2.3, mettre des croix dans les bacs et passer à la question suivante)*		
		Prêts de terre (1=Oui ; 0=Non)	**Année de début d'application**
VIII.7.1	Prêtées à une personne autochtone	|____|	|____|____|____|____|
VIII.7.2	Prêtées à une personne étrangère	|____|	|____|____|____|____|
VIII.8	**A qui devrait-on demander permission pour prêter ses terres?** *(cette question devra être toujours posée quelque soit la réponse de la question précédente)*		
		Personnes ressources *1= chef de famille* *2= chef de terre* *3 = conseil élu par la communauté* *4 = conseil élu par le gouvernement* *5 = aucune permission*	Année de début d'application
VIII.8.1	La situation actuelle	|____|-|____|-|____|	|____|____|____|____|
VIII.8.2	La situation précédente	|____|-|____|-|____|	|____|____|____|____|
VIII.8.3	La situation antécédente	|____|-|____|-|____|	|____|____|____|____|

VIII.9	A qui devrait-on s'adresser pour résoudre un conflit foncier pour l'usage des terres de culture?		
		Personnes ressources *1= chef de terre* *2 = chef ou conseil élu par la communauté* *3 = chef ou conseil nommé par le gouvernement* *4 = autre type d'autorité* *5 = aucune autorité*	Année de début d'application
VIII.9.1	La situation actuelle	|____|-|____|-|____|	|____|____|____|____|
VIII.9.2	La situation précédente	|____|-|____|-|____|	|____|____|____|____|
VIII.9.3	La situation antécédente	|____|-|____|-|____|	|____|____|____|____|
VIII.10	**Quelles sont les modes de propriété des terres de pâturages dans cette communauté** *(s'il n'existe pas de terre de pâturage, mettre des croix dans les bacs et passer à la question suivante)*		
		Personnes ressources *1= propriété individuelle* *2 = propriété collective-familiale* *3 = propriété collective-lignagère* *4 = propriété collective-communautaire* *5 = autre*	**Année de début d'application**
VIII.10.1	La situation actuelle	|____|-|____|-|____|	|____|____|____|____|
VIII.10.2	La situation précédente	|____|-|____|-|____|	|____|____|____|____|
VIII.10.3	La situation antécédente	|____|-|____|-|____|	|____|____|____|____|
VIII.11	**Combien de pistes à bétail y a-t-il dans le village** *(s'il n'existe pas de pistes à bétail, mettre des croix dans les bacs et passer à la question suivante)*		
		Nombre	**Année de début d'application**
VIII.11.1	La situation actuelle	|____|____|	|____|____|____|____|
VIII.11.2	La situation précédente	|____|____|	|____|____|____|____|
VIII.11.3	La situation antécédente	|____|____|	|____|____|____|____|

IX. DROITS FONCIERS POUR LES TERRES DE PATURAGE

N°	Questions	Réponse	
IX.1	**Existe-t-il des terres réservées pour le pâturage ?** *(si la réponse est non pour une situation donnée, mettre des croix à année d'établissement)*		
		Existence de pâturage (1=Oui ; 0=Non)	**Année d'établissement**
IX.1.1	La situation actuelle	|____|	|____|____|____|____|
IX.1.2	La situation précédente	|____|	|____|____|____|____|
IX.1.3	La situation antécédente	|____|	|____|____|____|____|
IX.2	**Quelles sont les voies d'accès aux pâturages ?** *(si la réponse est 2 (tout autre piste), mettre des croix à année d'établissement)*		
IX.2.1		**Voies d'accès** 1= pistes à bétail 2 = tout autre piste	**Année d'établissement**
IX.2.2	La situation actuelle	|____|	|____|____|____|____|
IX.2.3	La situation précédente	|____|	|____|____|____|____|
	La situation antécédente	|____|	|____|____|____|____|

IX.3	**Quels moyens existent pour limiter l'accès aux terres de pâturages ?** *(si la réponse est non pour une situation donnée à la question IX.1, mettre des croix dans la situation correspondante à cette question ci)*		
		Moyens de paiement *1= paiement d'une taxe par animal* *2 = paiement d'un autre type de taxe* *3 = contrôle du nombre d'animaux* *4 = accès illimité pour autochtones* *5= accès illimité pour résidents* *6= aucune restriction*	**Année d'établissement**
IX.3.1	La situation actuelle	|____|-|____|-|____|	|____|____|____|____|
IX.3.2	La situation précédente	|____|-|____|-|____|	|____|____|____|____|
IX.3.3	La situation antécédente	|____|-|____|-|____|	|____|____|____|____|
IX.4	**Qui est responsable pour gérer l'accès aux terres de pâturages ?**		
		Personnes ressources *1= chef de terre* *2 = chef ou conseil élu par la communauté* *3 = chef ou conseil nommé par le gouvernement* *4 = autre type d'autorité* *5 = aucune autorité*	**Année d'établissement**
IX.4.1	La situation actuelle	|____|-|____|-|____|	|____|____|____|____|
IX.4.2	La situation précédente	|____|-|____|-|____|	|____|____|____|____|
IX.4.3	La situation antécédente	|____|-|____|-|____|	|____|____|____|____|

X. DROITS D'UTILISATION DES FORETS (POUR LE BOIS, LES FRUITS, LA CHASSE ETC.)

N°	Questions	Réponse	
X.1	**Existe-t-il des forêts dans votre communauté ?** *(si la réponse est non pour une situation donnée, mettre des croix à année d'établissement)*		
		Existence de forêts (1=Oui ; 0=Non)	**Année d'établissement**
X.1.1	La situation actuelle	|____|	|____|____|____|____|
X.1.2	La situation précédente	|____|	|____|____|____|____|
X.1.3	La situation antécédente	|____|	|____|____|____|____|
X.2	**Est-ce qu'il existe des moyens pour limiter l'accès aux forêts ?** *(si la réponse est non pour une situation donnée à la question X.1, mettre des croix dans la situation correspondante à cette question ci)*		
		Moyens de paiement *1= paiement d'une taxe par unité de bois* *2 = paiement d'une taxe par autre moyen* *3 = contrôle direct des entrées et sorties* *4 = accès illimité pour autochtones* *5= accès illimité pour résidents* *6= aucune restriction*	**Année d'établissement**
X.2.1	La situation actuelle	|____|-|____|-|____|	|____|____|____|____|
X.2.2	La situation précédente	|____|-|____|-|____|	|____|____|____|____|
X.2.3	La situation antécédente	|____|-|____|-|____|	|____|____|____|____|
X.3	**Qui est responsable de la gestion de l'accès aux forêts ?**		
		Personnes ressources *1= chef de terre* *2 = chef ou conseil élu par la communauté* *3 = chef ou conseil nommé par le gouvernement* *4 = autre type d'autorité* *5 = aucune autorité*	**Année d'établissement**
X.3.1	La situation actuelle	|____|-|____|-|____|	|____|____|____|____|
X.3.2	La situation précédente	|____|-|____|-|____|	|____|____|____|____|
X.3.3	La situation antécédente	|____|-|____|-|____|	|____|____|____|____|

XI.INFRASTRUCTURE D'EDUCATION ET DE SANTE

N°	Questions	Réponse	
		Distance	Année d'établissement
XI.1	**Distance entre le village et l'école primaire la plus fréquentée par les enfants du village**		
XI.1.1	La situation actuelle	|___|___|___|	|___|___|___|___|
XI.1.2	La situation précédente	|___|___|___|	|___|___|___|___|
XI.1.3	La situation antécédente	|___|___|___|	|___|___|___|___|
XI.2	**Distance entre le village et l'école secondaire la plus fréquentée par les enfants du village**		
XI.2.1	La situation actuelle	|___|___|___|	|___|___|___|___|
XI.2.2	La situation précédente	|___|___|___|	|___|___|___|___|
XI.2.3	La situation antécédente	|___|___|___|	|___|___|___|___|
XI.3	**Distance entre le village et le centre de santé le plus fréquenté par la population du village**		
XI.3.1	La situation actuelle	|___|___|___|	|___|___|___|___|
XI.3.2	La situation précédente	|___|___|___|	|___|___|___|___|
XI.3.3	La situation antécédente	|___|___|___|	|___|___|___|___|

XII. INFRASTRUCTURE RELIGIEUSES

N°	Questions	Réponse	
		Distance	Année d'établissement
XII.1	**Distance entre le village et l'église la plus fréquentée par la population du village**		
XII.1.1	La situation actuelle	|___|___|___|	|___|___|___|___|
XII.1.2	La situation précédente	|___|___|___|	|___|___|___|___|
XII.1.3	La situation antécédente	|___|___|___|	|___|___|___|___|
XII.2	**Distance entre le village et la mosquée la plus fréquentée par la population du village**		
XII.2.1	La situation actuelle	|___|___|___|	|___|___|___|___|
XII.2.2	La situation précédente	|___|___|___|	|___|___|___|___|
XII.2.3	La situation antécédente	|___|___|___|	|___|___|___|___|
XII.3	**Distance entre le village et le temple le plus fréquenté par la population du village**		
XII.3.1	La situation actuelle	|___|___|___|	|___|___|___|___|
XII.3.2	La situation précédente	|___|___|___|	|___|___|___|___|
XII.3.3	La situation antécédente	|___|___|___|	|___|___|___|___|