

Linking Local Producers and Global Markets: Nontraditional Export Agriculture and Ethnic Identity in the Kaqchikel Maya Region of Guatemala

1. Overview

Collecting data through remote imaging, surveys, and ethnographic interviews, this project will examine patterns of economic production and ethnic identity in a comparative study of two towns and two hamlets in the Kaqchikel Maya region of highland Guatemala. Research will focus on the role of nontraditional export agriculture (primarily the rapidly expanding production of broccoli, cauliflower, and snow peas in the area) to examine the larger issue of how an increasingly direct articulation between global markets and local producers impacts social formations in peripheral regions. Recent work in political economy suggests that the post-Cold War reorganization of the world system has resulted in a decentralized pattern of core-periphery capital accumulation that is correlated in time and space with the emergence of various forms of ethnic nationalism. Building on my previous research documenting linkages between local, national, and international forms of Maya identity politics, data collected in this project will be used to measure the influence of household economic production (particularly nontraditional production) on economic mobility, capital holdings, and measures of ethnic identification. Inter-household and inter-community statistical comparisons will be contextualized by both intensive local ethnography and the macro framework of Guatemala's changing structural position in the global political economy.

An earlier version of this proposal was submitted in last year's competition, and several substantive changes have been made based on reviewer comments. In terms of presentation, I have included a more detailed description of regional economic history and expanded comparisons with other examples of small scale agricultural capitalism to clarify the unique aspects of this case and the importance of this research. Methodologically, sampling and survey strategies have been altered to include more data on non-farm income, which will provide a comparative basis for casual modeling as well as document forward and backward linkages associated with nontraditional production. The survey questionnaire now includes more detailed indices of change over time, which will better enable hypotheses to be tested on the basis of trajectories of change. I have also expanded my discussion of how crucial variables will be operationalized and utilized in multinomial logistic regression models designed to reveal patterns of causality. Finally, in terms of pedagogical goals, I have substantially scaled back plans to present project data over the Internet in order to protect informant confidentiality while outlining the role of graduate student training and mentorship in greater detail.

This project has three primary objectives. The first, based on the need for empirical data, is the construction of a geographic information system (GIS) database linking household socio-economic variables to data on production strategies and ethnic identification. These geo-referenced data will be used to test causal relationships between household production strategies, capital resources, and ethnic self-identification. Second, research will contribute to economic and social theory by providing empirical data on the elusive mechanisms of articulation between transnational markets and local producers and their effects on ethnic assertiveness (Cicourel 1981, DeWalt and Pelto 1985, Marcus and Fischer 1986, Wilk 1995).

Third, graduate instruction will form an integral part of the research. Graduate students will receive intensive academic mentorship, training in ethnographic techniques, and practical field experience. This graduate training will support the Vanderbilt Department of Anthropology's goal of strengthening graduate education in socio-cultural anthropology. The Department is committed to providing field training for all its graduate students, and this project will offer the means to do so while building on the program's existing strength in Mesoamerican studies.

In terms of both technical ability and practical experience I am qualified to complete the research proposed herein. I have conducted ethnographic fieldwork in the area under study over 27 months since 1990 and speak both Spanish and Kaqchikel Mayan. In previous research I employed household surveys and a GIS database comparable to the one proposed here. Contextualizing local forms of identity within Guatemala's changing position in the post-Cold War global political economy, I have demonstrated the mutually constitutive nature of identity politics played out in local contexts but thoroughly informed by national and international systemic relations (Fischer 1996a, b; 1999). The present project builds logically on this previous research and will lay the foundation for future contributions both to the field and to education.

2. Background

2.1. Theoretical framework

The theoretical framework for this research derives from recent reformulations of world system theory in light of changes over the last thirty years in global political economic relations. Classic world system models posit that capitalism perpetuates underdevelopment in primary product producing countries by concentrating capital accumulation (accrued through the transformation of raw materials into commodities) in core economies. The decentralized patterns of production characteristic of late twentieth century capitalism, however, have substantially altered this structure of dependent capital accumulation. Examining nontraditional agricultural export production in the Kaqchikel area, data collected in this project will be used to examine the effects of changing patterns of capital accumulation on ethnic self-identification.

Dependency and world system theorists argue that the historical development of capital intensive manufacturing in the West combined with the ideology and practice of colonialist expansion created global economic structures that have acted to concentrate capital accumulation and development in the core areas of Western Europe, North America, and increasingly East Asia while "developing underdevelopment" in the periphery in order to ensure a continued cheap supply of goods and labor (Luxemburg 1913; Baran 1957; Frank 1967; Cardoso and Faletto 1967; Wallerstein 1974, 1979). Such formulations have been ably criticized for negating the power of local formations in the face of capitalist expansion (Smith 1978, 1984; Wolf 1982; Roseberry 1983, 1989; Mintz 1985). Laclau (1977), Meillassoux (1981), and others argue that the world system incorporates as often as destroys local modes of production, and that global markets depend on a continued articulation with non-capitalist forms of production to subsidize capitalist expansion. Reconciling these observations with models of core-periphery dependence, it has been shown that dualistic structures of production lead to disarticulated economic relations in which capitalist production is not dependent on local consumption, allowing wages to fall below subsistence levels and thus restricting capital accumulation to core regions (de Janvry 1981, Cook 1982, Cook and Binford 1990, Moberg 1992, Netting 1993). At the same time we are now aware that peripheral regions are more heterogenous than was once assumed, and that

local power relations significantly affect the ways in which capitalist class relations form in the periphery (Hill 1970, Lutz and Lovell 1990, Berry 1993).

Global economic relations have undergone a dramatic restructuring over the last twenty years, a trend accelerated in the present decade by post-Cold War political realignments in the world system (Jameson 1991, Lash and Urry 1994, Friedman 1994). Stimulated by tariff reduction agreements (notably the Uruguay round of the Global Agreement on Tariffs and Trade), decreasing communication and transportation costs, and the opening of new markets (especially in Eastern Europe), the total volume of world trade has more than doubled over the last ten years. Yet, during this same period, production in the world's most developed economies increased at an annual rate of only 3 percent (EIU 1998). The increase in global trade is closely associated with a trend to shift agricultural and industrial production to lesser developed countries. Influenced by management theorists who advocate reducing labor and capital costs to return more profit in terms of market value to stockholders (e.g., Dunlop 1997), U.S. corporations have turned to outsourcing production and infrastructural services, eschewing vertical integration to concentrate on core strengths that increasingly take the form of "fictive" (i.e., nonproductive) capital, intangibles such as marketing savvy and image maintenance (Lash and Urry 1987, 1994; Giddens 1990; Jameson 1991; Friedman 1994; Kearney 1996).

As industrial and agricultural production are shifted to peripheral regions, no longer are raw materials simply imported from the periphery and processed in core areas where the value added through production accumulates. Increasingly, assembly, if not complete production, of consumer goods destined for sale in both core and peripheral countries is carried out in the periphery. Much of this production is contracted to small local concerns with low overhead expenses. Contracting foreign production allows transnational corporations access to cheap labor while hedging the considerable risk of direct investment in the politically unstable areas of the world where wages are lowest. Hedging this risk, however, involves a decentralization of capital accumulation patterns at the global level, and potentially at the regional and local levels as well. Transnationalism encourages direct articulation between peripheral economic producers and global markets, unmediated by regional elite-dominated market structures. This may increase efficiency, as resources that were formerly allocated toward directly unproductive profit seeking (maintaining the legal distortions in market structures that act to funnel capital flows to the core) are invested in production (cf. Bhagwati 1982). In a study of northern Italy, Charles Sabel (1982) shows how the break-down of Fordist mass production empowered local workers-cum-producers in ways not dictated by the larger system. A similar situation has emerged in parts of highland Guatemala based not on the breakdown of industrial production but on an expansion of traditional agricultural models of production.

2.2. Comparative data

The introduction of new crops as part of nontraditional export schemes is often accompanied by a rapid redistribution of productive resources at local and regional levels and the concentration of capital in the hands of a small class of producers. Access to larger (often global) commodity markets offers new opportunities to small producers, but these same markets increase direct competition and often favor the consolidation of holdings that lead to class differentiation. Cocoa production in Western Africa provides a classic example of this process. In both southern Ghana (Hill 1963, 1970) and western Nigeria (Berry 1975, 1985, 1993) cocoa production has led

to a highly unequal distribution of wealth, with a small group of successful producers controlling local supplies of capital. As in the case of nontraditional agriculture in Guatemala, barriers to market entry are relatively low and multinational concerns have directly entered local markets. Nonetheless, cocoa farming benefits greatly from economies of scale, thus favoring those producers with access to the capital needed to fund up-front labor costs and farm expansion. Hill (1970) shows that local capital markets throughout the region are highly imperfect; Berry (1975, 1993) goes on to argue that local capital markets develop through preexisting social networks, thus reinforcing certain social hierarchies. We find a similar situation with citrus export agriculture in Belize (Moberg 1992) and shrimp and melon production in southern Honduras (Stonich 1993). In both cases, pronounced market and ecological factors favor large scale plantation production, although here high market entry costs act to increase economic inequality and magnify existing class relations and local factionalism (Moberg 1992:167-169; Stonich 1993:78-87; cf. Reynolds 1997, Sick 1999). In contrast, the labor intensive production of exotic fruits and vegetables in highland Guatemala is conditioned by ecological and market pressures that favor small and medium sized farms over larger ones. It is hypothesized that this results in a low threshold of diminishing returns that stimulates a more equitable pattern of capital accumulation than is found in these other cases.

Comparative studies from the Maya region have focused more explicitly on the linkages between local producers and global markets. Collier (1975, 1990) and Collier, Mountjoy, and Nigh (1994) argue that Maya peasants in Chiapas have been quick to adapt to changing global contexts, strategically employing variable balances between reliance on wage labor and subsistence production given certain structural constraints exerted by global commodity markets. Working in the same region, Cancian (1979, 1992) shows that changes in macro-level systems (state politics as well as the global economy) since the 1960s have led to decentralized political and social relations in Maya hamlets, eroding the traditional bases of a strong community identity. Collier and Cancian both ably represent local conditions as tied to larger contexts while not denying the importance of culturally conditioned agency (cf. Wasserstrom 1983).

Smith's work in western Guatemala similarly documents the interplay between local and global processes but with a focus on how "local-level processes actively shape the larger picture" (1984:195; 1975, 1978). Drawing on her research in Totonicapán, she shows that local residents have adapted a long tradition of artisanal workshops to pursue petty commodity production as an alternative to seasonal wage labor, thus thwarting the intended course of expansion in the region dictated by capitalist logic (namely alienation from means of production and the formation of a free labor market). Petty commodity production has allowed a large class of Maya to retain control over their means of production and has stimulated the development of a local labor market; that this local labor market is not "free" in terms of kinship, social, and political relations between buyers and sellers makes it all the more appealing to local Maya, and results in wages higher than economically rational market clearing rates (Smith 1989). Further, Smith reveals that ethnically charged political-economic relations distort regional market structures in the western Guatemala. Indian agricultural produce and petty commodities circulate within a structure of low-level rural market centers; regional bulking centers in some 20 Indian towns provide points of articulation between rural Indian producers and non-Indian (ladino) controlled urban markets. Ladino market towns, the larger of which are also state administrative centers, funnel goods up from lower levels and feed them into the state-level market system (Smith 1975, 1976; cf.

Plattner 1975, 1985). This system is marked by the unidirectional flow of goods to higher levels, to urban-based markets from rural Indian markets (a disarticulated system in de Janvry's [1981] terms). Thus while producers have pursued self-interested and to a large degree self-defined strategies of production, the marketing of products perpetuates an inequitable core-periphery distinction. Smith's data reveal the monopolistic position of the commercial elite of major ladino market towns in discouraging competition and thus perpetuating inefficiency in the market. In the form of nontraditional agricultural production found in the Kaqchikel region, individual producers are largely able to bypass distorted regional marketing networks, selling their produce directly to transnational buyers. This, however, entails its own risks as producers are exposed to the vagaries of consumer demand in foreign markets; as production and competition increase prices should fall, with potentially detrimental effects on small scale producers.

2.3. Research on nontraditional agriculture in highland Guatemala

The most significant research on nontraditional agricultural production in highland Guatemala is reported in the work of von Braun, Hotchkiss, and Immink (1989), Goldin (1996), and Carletto, de Janvry, and Sadoulet (1999). In 1983 and 1985 von Braun and his team conducted surveys (N= 399) of traditional and nontraditional producers in several Kaqchikel communities. Focusing on the relationship between nontraditional production and nutrition, the von Braun study presents persuasive evidence for the efficiency of nontraditional crops (although, concerning environmental risks, see Hoppin 1989, Murray and Hoppin 1990, AVANCSO/PACCA 1992, and Netting 1993). These data support a number of macro-economic studies that argue nontraditional agricultural export production makes efficient use of surplus labor (Karp 1988, de Janvry et al. 1989), provides a viable private alternative to government policies favoring import substitution industrialization (cf. Grindle 1986, Williams 1986), and facilitates the free mobility of capital and labor that makes global markets more efficient (Balassa et al. 1986, Lindenberg 1988, Sardi 1989).

In contrast, Goldin (1996) looks at nontraditional production in the local context of San Pedro Almolonga, a town that is 99 percent K'iche' Maya. Showing a close link between upward mobility and the adoption of nontraditional crops, Goldin argues that nontraditional production accelerates class differentiation (cf. Chayanov 1966). Goldin's thesis is supported by other studies that, noting that the benefits of nontraditional production are normally concentrated in a small class of male landholders, view nontraditional production as destroying subsistence bases and increasing socio-economic inequality (Goldin and Saenz 1993, Lee 1993, AVANCSO 1994, Carletto 1996) while perpetuating gender inequalities in intra-household resource allocation (Nieves 1987, Katz 1994; cf. Bossen 1984 and Ehlers 1990).

Nonetheless, as Netting (1993) points out, class differentiation of peasants into capitalist landlords and proletariat agricultural workers is not the inevitable result of capitalist expansion in peripheral areas; local conditions can result in the maintenance of traditional modes of production, although these too contain internal structures of inequality that may be exacerbated an influx of capital resources. In a study of cooperative member households in the Kaqchikel region, Carletto, de Janvry, and Sadoulet (1999) find a significant relationship between farm size and adoption of non-traditional crops, but they argue that this relationship does not hold at the time of adoption of nontraditional crops and that "it is adoption that created large farms and not large farms that induced adoption" (1999:354).

Undeniably, the effects of nontraditional agricultural production have included a dramatic redistribution of land and wealth, but my preliminary research in the Kaqchikel region shows that lands have largely been transferred from the demographic minority (but economically more powerful) non-Indian population to Indians. Unsuitable for production on large farms, the fragile hybrid crops were first adopted by smallholding Maya farmers as a profitable supplement to subsistence milpa (maize and beans) agriculture. Maya have retained dominance in nontraditional production, and their expansion has been to the detriment of ladino owned large plantations in terms of land area, labor availability, and profit. Nontraditional production also neatly complements the traditional structure of Maya household economies and plays into the widespread desire of farmers to retain control over the means of production (cf. Raxche' 1996, Watanabe 1992, Wilk 1997, Fischer 1999). At the same time nontraditional agriculture has created a greater local demand for wage labor, but it is unclear if this has contributed to an increased reliance of landless and land-poor families on wage labor. There has long been an active market for seasonal migrant labor from the region, and laborers may prefer to work for local employers (even for lower wages) in order to avoid the financial, emotional, and health costs associated with traveling away from their home communities (cf. Collier 1975:121-123). Labor issues notwithstanding, nontraditional agriculture remains one of the few dynamic sectors of the economy in which Indians have established and maintained a dominant presence. While there has been class differentiation within the Indian population based on nontraditional export earnings, it is predicted that the distribution of resources along ethnic lines has become more equitable in the Kaqchikel communities under study.

Just as nontraditional production in Guatemala has accelerated, the country has also experienced the dramatic rise of a national pan-Maya movement that seeks broad based societal changes to correct ethnic inequalities in political, economic, and educational systems. A disproportionate percentage of pan-Maya leaders come from the region under study, and an analysis of their life histories shows that most came from a "middle peasantry" sector of the local population (Fischer 1996b, Fischer and Brown 1996, Warren 1998). As Cancian (1987), Kearney (1996), and Wilk (1997) have pointed out, the introduction of agricultural innovation often stimulates a local renegotiation of existing social relationships; Friedman (1994) adds that the post-dependency reallocation of productive capital and the concomitant contraction of Western hegemony opens new spaces of identity politics that are rapidly colonized by movements to revive ethnic traditions long submerged by Western expansion. The present research seeks to document concrete linkages between the development of nontraditional agricultural production, capital accumulation, and the increasingly overt expressions of local Maya identity associated with pan-Maya activism.

3. The area under study

3.1. Geographic location and social landscape

Field research will take place in a 15 square kilometer area encompassing the town centers of Patzún and Tecpán Guatemala as well as the rural hamlets of Cruz de Santiago and Paxorotot (see Figure 1), an area in which I have previously worked and maintain extensive contacts. Located on a fertile and temperate plain (elevation approximately 7000 feet) traversed by the Pan-American Highway and only 75 kilometers from Guatemala City's international

airport, the area is ideally suited for the year-round export production of nontraditional vegetables and berries.

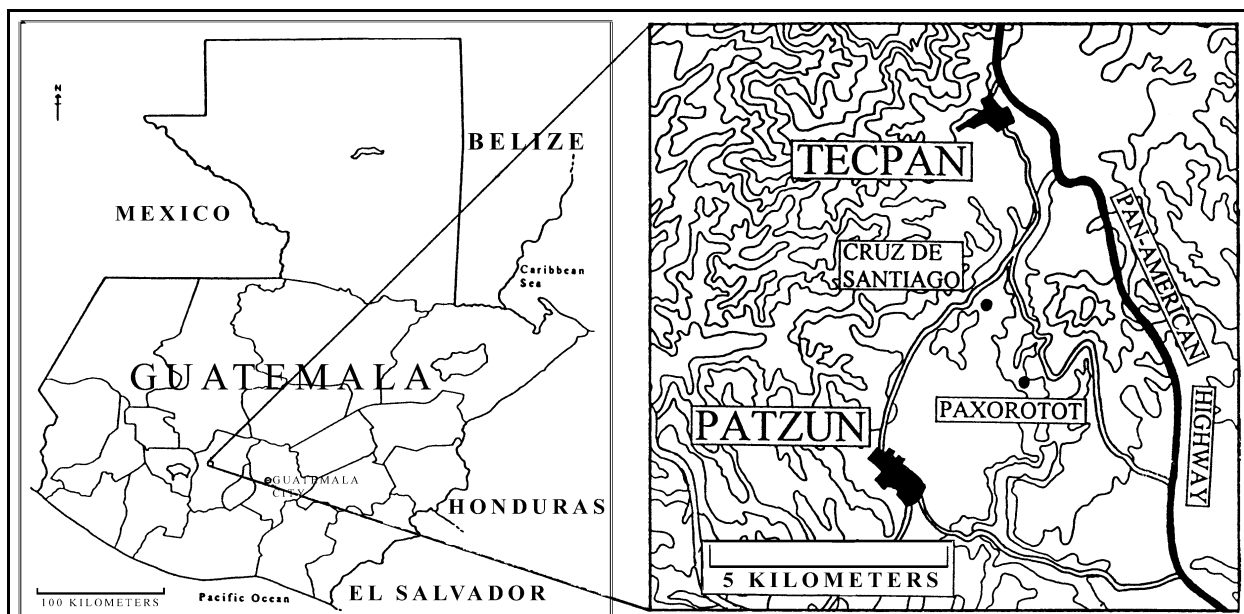


Figure 1: The Area Under Study

The populations of both towns are predominately Kaqchikel Maya (93.1 percent in Patzún, 77.3 percent in Tecpán), with an economically and politically powerful minority of ladino families. The economies of Tecpán and Patzún, like that of the country as a whole, are largely dependent on agriculture, although Tecpán's economy is more diversified than that of Patzún. My 1994 survey data show that farming was the primary occupation of 49.7 percent of Tecpaneco heads-of-households, 15 percent of whom were involved in nontraditional agricultural export production. (Traditional production is here considered to be maize and beans, wheat, and cattle, even though the last two were introduced through Spanish contact.) An additional 24.8 percent of sampled males were self-employed as commodity producers, merchants, tradesmen, or transportistas, and the remaining 25.5 percent reported wage labor as their primary source of income. In Patzún, 69.9 percent of male household heads surveyed in 1994 were farmers, 27 percent of whom were growing nontraditional crops. A lesser percentage of those surveyed (20.5 percent) were self employed (primarily as itinerant merchants), and only 9.6 percent worked primarily as wage laborers. These data reflect the two towns' different patterns of articulation with national and international markets. In Patzún, the more culturally conservative of the two towns, subsistence agriculture has provided a basis to expand into nontraditional crops, resulting in the establishment of extensive forward and backward linkages associated with contract production. Commodity and labor market relations show a greater degree of penetration in Tecpán's economic structure, where significantly fewer farmers have pursued nontraditional production strategies and where there exists a larger class of wage laborers. The hamlets under study show similar variation in their economic strategies. The inhabitants of Cruz de Santiago (population 350, approximately 85 percent Maya) have widely adopted nontraditional crops over

the last twenty years, while nontraditional production has only recently made modest inroads in the hamlet of Paxorotot (population 250, approximately 95 percent Maya).

3.2. Local histories and regional markets

The area under study has a long history of small scale agricultural capitalism and contact with larger systems. Archival records and oral histories point to a consistent pattern of legal maneuvering and political intrigue by Indians to protect and expand their land holdings. Their most surprising victories came against powerful local Spaniards, such as the case of the 1658-1663 litigation that returned a large portion of the area under study to a group of Indian nobles from Tecpán and Patzún led by the Xpantzay family (Fischer n.d.). Today, the Maya of Tecpán, Patzún, and other highland communities place a high cultural value on controlling one's means of production. Given the agricultural bias of local economies, it is not surprisingly then that land purchases are by far the preferred form of capital investment even when returns fall below those of available alternatives such as bank savings. I have argued elsewhere that the valuation of control over means of production is a foundational cognitive schema in the Maya cultural logic of economic production (Fischer 1999). The shift away from milpa agriculture to nontraditional production has been criticized for eroding the material bases of traditional culture and for coercing Maya peasants into accepting risks that they do not fully comprehend. Local perceptions, however, largely view such shifts in a positive light for offering new alternative for economic advancement. Given the opportunity, Tecpanecos and Patzuneros most often choose to pursue economic strategies that allow them to maintain maximum control over lands and to approximate the flexibility of labor inputs built into the agricultural cycle--even if this involves greater risk, as is the case in nontraditional production.

Tecpán and Patzún have both long been integrated into highly developed regional markets for goods and labor. Throughout the colonial period both towns fell within the 20 league radius of the Spanish capital and were thus subject to labor tribute for large construction projects, although colonial records indicate regular resistance to such demands due to tight local labor markets. Ethnographies from the early part of this century also illustrate the importance of regional markets and sub-regional specialization in agricultural products and artisanal commodities (Wagley 1941, McBryde 1947, Tax 1953, Brintnall 1979; cf. Nash 1958 on industrial capitalism). Particularly notable is the work of Tax, who studied the economy of the Kaqchikel town Panajachel in the late 1930s and early 1940s. Tax shows that while Indians comprised a small minority of coffee growers in the area (coffee production being highly capital intensive), they effectively controlled regional trade in onions and other truck crops and were quick to adopt market innovations. Such regional markets continue to serve as an important avenue for indigenous upward mobility, and many Indians have been able to use their market expertise to expand into nontraditional production. The manner in which labor demands and returns combine with local social obligations has remained largely intact since Tax's study, but now local producers of nontraditional crops have ready and direct access to international markets and buyers, thus reducing resource extraction by intermediaries and improving efficiency. Higher returns brought about by increased efficiency also imply greater risks for small scale producers. To date the market for exotic produce has steadily expanded, ensuring a degree of price stability. If, as seems likely, competition increases as markets become saturated, farmers will be more vulnerable to the boom and bust cycles typical of global commodity markets.

3.3. The rise of nontraditional production

Realignments in the global political economy over the last 20 years have created conditions favorable to the emergence of nontraditional agricultural export production in Guatemala. Under pressure from the World Bank, the International Monetary Fund, and the U.S. government, and responding to internal pressure exerted by economically liberal entrepreneurs, Guatemala has adopted a number of neo-liberal economic reforms (reducing state regulations, lowering tariff barriers, and liberalizing markets) that have benefitted nontraditional producers (Seale 1992, Weeks 1995). The United States has encouraged these policy shifts through bilateral trade liberalization programs, particularly the Generalized System of Preferences and the Caribbean Basin Initiative. Under these regulations, virtually all nontraditional agricultural imports from Guatemala may enter the United States duty-free. Capitalizing on this competitive advantage, farms and packing plants for nontraditional crops have been established in the highland region around Tecpán and Patzún.

Alimentos Congelados Monte Bello, S.A. (ALCOSA) was established in 1972 with funding from the U.S. Agency for International Development to introduce nontraditional export crops in the Kaqchikel region and pack them for export. Initially, nontraditional production was conducted on company-owned lands and contracted out to large plantation owners. Due to the high labor and supervisory costs required to grow such fragile hybrids, by the mid-1970s production was being outsourced to mostly indigenous smallholders with a dramatic increase in efficiency, quality, and production capacity (Kusterer, Bartres, and Cuxil 1981; von Braun, Hotchkiss, and Immink 1989; de Janvry et al. 1989). Based on ALCOSA's early success, the production of nontraditional exports began to increase dramatically in the 1980s, and this growth has been sustained to the present. In 1975, when it was purchased by U.S.-based Hanover Brands, ALCOSA was the only company specializing in nontraditional agricultural exports in highland Guatemala; by 1987 there were 12 corporations engaged in such export production, and that number had increased to 47 by 1998. Over this same period the volume of nontraditional export crops has increased at an average rate of 30 percent per year and has expanded to include exotic berries as well as winter crops such as broccoli and cauliflower. Guatemala has become one of the top suppliers of both fresh and frozen fruits and vegetables for the U.S. market (Hamm 1992, McCracken 1992), and such production has been the most dynamic sector of the Guatemalan economy in recent years, with annual foreign exchange earnings now topping \$300m (AGEXPRONT 1997); in 1996 nontraditional agricultural products accounted for 12.39 percent of all Guatemalan exports, with earnings surpassing those of both bananas and sugar (Banco de Guatemala 1997; cf. Feinberg and Bagley 1986).

Cauliflower was the first nontraditional crop grown in Patzún and Tecpán, introduced during the reconstruction efforts following a 1976 earthquake that destroyed both towns. In subsequent years few farmers adopted the new crops and with variable success as they experimented with new pesticides and fertilizers. During the tense civil war years, locally remembered as lasting from 1981 to 1984, few farmers were willing to take on the additional risks involved in nontraditional production. It was only by the mid-1980s, after military activity subsided, that nontraditional production began its current phase of massive expansion in the area. An astonishing 27 million kilograms of cut broccoli were exported from Guatemala in 1997 (an increase of over 1000 percent since 1990), mostly grown by smallholding Maya farmers in the region under study. For packing plants (which are subsidiaries of transnational corporations or

work under contract for foreign companies), contracting production to smallholders takes advantage of local agricultural expertise (resulting in a higher quality product than can be produced on plantations) and of the marginal cost of household labor (which is absorbed by the producer). Interviews with packing plant management in 1998 reveal that they see this model as a logical extension of a profit maximizing strategy to cut overhead expenses and reduce capital investment by outsourcing production (for comparative data from other countries see Glover 1984; Feder, Just, and Zimmerman 1985; Teubal 1987; Clark 1997). For farmers, nontraditional production complements traditional subsistence production and is seen as a preferable alternative to seasonal wage labor. In selling their production directly to transnational corporations, rural Maya farmers bypass distorted regional markets (in which information costs are high and terms of trade are unfavorable) and are able to earn higher returns by taking on additional risks.

The growth of nontraditional agricultural exports is based on the model of contracting out production to smallholders pioneered by ALCOSA. In many ways the ecological mandates of the crops introduced led to the unique pattern of smallholder production found in the Kaqchikel region (cf. Moberg 1992, Stonich 1993). The high labor input required by these exotic crops results in an inverse relationship between plot size and productivity; smallholders leverage the marginal costs of household labor and subsidize labor costs with subsistence production (Hirschman 1977, Berry and Cline 1979, Annis 1987, Netting 1993). Recent data from Guatemala show that 63 percent of broccoli production comes from farms of less than 17 acres, and 50 percent from farms of less than 3.4 acres (Barham et al. 1992), and my own preliminary research confirms the findings of von Braun, Hotchkiss, and Immink (1989) that nontraditional production is closely associated with increased productivity of subsistence crops; this may offer some protection for small scale producers from exposure to foreign market fluctuations.

4. Research plan and methodology

4.1. Working hypotheses and variables

Underlying the research design and methodology of this project is the hypothesis that the direct articulation of local producers with global markets results in a decentralized pattern of capital accumulation casually related to overt expressions of ethnic identity. Comparing household data collected from two towns and two small hamlets with distinct economic bases, analysis will reveal to what extent access to capital is more freely available in areas where nontraditional agriculture has made significant inroads and how this is related to ethnic identification and activism. Preliminary research suggests that socio-economic class as well as production strategies influence ethnic activism. My theoretical model of causality posits that participation in nontraditional production results in upward economic mobility (measured as changes in income and capital assets from a baseline point of household formation), which in turn influences the degree of active participation in pro-indigenous activities. A number of recent studies find a Leninist pattern of peasant differentiation emerging from nontraditional production in the Guatemalan highlands (Lee 1993, Goldin and Saenz 1993, Goldin 1996). The present research further explores the inter-ethnic dimension of such differentiation, considering the possibility that, while accentuating class differentiation within the Maya population, capital accumulation associated with nontraditional agricultural production has resulted in a more equitable distribution of resources vis-à-vis ethnicity in the bi-ethnic communities under study.

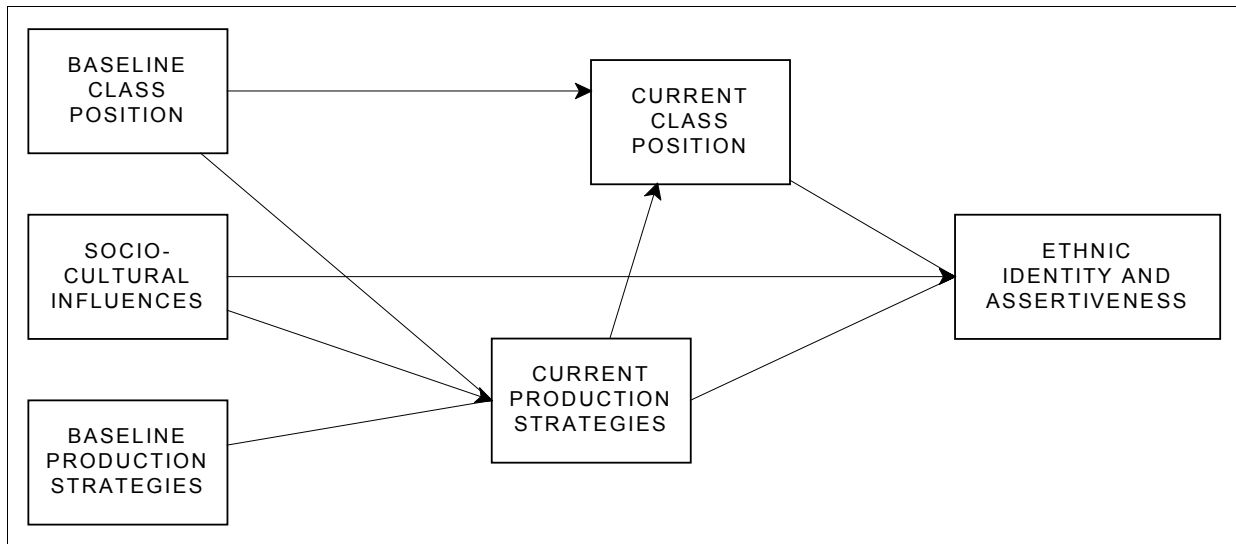


Figure 2: Postulated Influences on Identity

Figure 2 diagrams the postulated influences of baseline class position (with categories calculated from income and assets at the point of household formation), baseline production strategies (again, recorded from the point household inception), and socio-cultural influences (including education, religion, and language) on current production strategies, class position, and ethnic identity and assertiveness. Using historical recall data to compare current conditions to baseline data on production strategies and class position will allow us to isolate the influence of trajectories of change on capital accumulation and ethnic identity formation. It is hypothesized that current production strategies are directly influenced by baseline class position, production history, and socio-cultural variables; production strategies, along with the direct influence of baseline class position, should determine economic mobility (as calculated through a comparison of baseline versus current class position). Specifically, it is predicted that nontraditional agricultural production results in upward economic mobility, which in turn influences ethnic self-awareness and assertiveness.

Surveys will be constructed with the aim of operationalizing the above categories and producing data on which multinomial logistic regression analyses can be performed. Data analysis will employ structural equation models to isolate the cumulative direct and indirect influences of each of the independent variables (designed to measure change in socio-economic class position, production strategies, and social variables) on the dependent variable of ethnic identity and assertiveness.

4.2. Schedule of fieldwork and graduate student participation

Data collection will take place over three summers (2000,2001,2002) and during one extended field season from June 2003 through August 2004; a manuscript presenting research results will be completed by December 2004. The first two field seasons will complete mapping of the rural portion of the area under study. During the last two field seasons a large scale survey will be administered to sampled households and general ethnographic data will be collected. This research will be carried out by the principal investigator working in close collaboration with

a small team of graduate students and native assistants. Graduate student researchers will come from Vanderbilt's anthropology program, and selection will begin with the program's admission process. Vanderbilt has made a commitment to provide space and funding for promising socio-cultural graduate students to participate in this project, and selected students will receive intensive mentoring from the principal investigator. Successful applicants will be expected to be proficient in Spanish at the time of admission (reasonable given past applicant pools), and will take preparatory courses in mapping techniques, GIS management, ethnographic field methods, and basic Kaqchikel Mayan. In the field, data collection will take place in both Kaqchikel and Spanish and graduate students will work closely with bilingual native assistants recruited from among the growing number of Maya university students studying linguistics and anthropology. During fieldwork, data collected will be coded and entered into a computer database by graduate students working under the supervision of the principal investigator; in daily debriefing sessions we will collectively work through problems that arise and explore new avenues of data collection. In the academic years between field seasons these data will be further edited, analyzed, and made available over the Internet to interested scholars and students. This fieldwork will provide the data for graduate student theses (either directly or from spin-off projects), and students will have the opportunity to coauthor publications resulting from collective research.

4.3. Constructing the GIS database

The first phase of research involves mapping the 15 square kilometer area under study. Detailed maps of land and household compounds within the two urban areas of Tecpán and Patzún have already been constructed, and fieldwork in 2000 and 2001 will complete mapping of the rural area between the two towns (encompassing the hamlets of Cruz de Santiago and Paxorotot). These data will provide the template for the project's Geographic Resources Analysis Support System Geographic Information System (GRASS-GIS) database linking plot location, size, and land use history with socio-economic data obtained from sampled households. The first layer of the database (a digitized 1:1000 scale two-dimensional representation) has already been constructed based on 1994 areal photographs taken by Guatemala's Instituto Geográfico Militar, census maps produced in 1993 by the Instituto Nacional de Estadística, and previously conducted field surveys. The second layer will include the positions of individual plots and subplots. A third layer will correlate land utilization histories to individual plots. The fourth layer will link sampled plots to the economic variables associated with the production (cost of inputs, profit/loss, market outlets for production, and labor force composition). The final layer will include the sociological data (focused on socio-economic class and ethnicity) obtained from sampled households associated with particular plots.

Constructing the second and third layers of the GIS database and will take place with the aid of graduate students and local assistants. Using new correlation algorithms developed by the ImageLinks Corporation, digitized monochromatic areal photographs taken by Guatemala's Instituto Geográfico Militar at a 1:30,000 scale will be fused with three bands of spectral data obtained from the French Satellite Pour l'Observation de la Terre (SPOT) to produce a mosaic data set compatible with the project's GRASS-GIS software. Satellite and areal photography data will be obtained in September 2000, taking advantage existing imaging schedules and corresponding to a seasonal peak in both traditional and nontraditional agricultural production.

The high resolution of areal photography will allow us to determine the boundaries and size of an estimated 95 percent of the plots in the area under study. The multispectral SPOT data is highly sensitive to soil and leaf moisture content, enabling the accurate identification of specific crops and natural vegetation at a 30 meter resolution (see www.spot.com for an example of a similar use of SPOT data in the Nile Valley). Fusing SPOT satellite data with areal photography will enhance the resolution of the satellite data and should allow for accurate land-use classification of 85 percent of plots in the area under study; ground surveys using hand held global positioning devices will supply missing data and true classifications obtained through remote imaging. Plots will be classified based on their current use, distinguishing nontraditional crops, traditional milpa, wheat, pasture, fallow, multi-use plots, household compounds, primary forests, and secondary forests. These data will allow us to document the extent of nontraditional agricultural production in the area, providing a regional framework within which responses from household surveys can be situated. This database will further provide an important baseline for future studies of land use and production strategies. My own plans include a ten-year restudy of the area that will examine the long term effects of price fluctuations on small scale producers as markets become more highly developed.

4.4. Sampling, surveys, and ethnographic data

The fourth layer of the GIS database will come from extensive surveys to be administered to 100 percent samples of households from the two hamlets (N=300) and 15 percent samples of households from each of the town centers (N=450). After mapping plots in the area under study, survey instruments will be tested and refined during field trials in 2001 and 2002; full scale surveys will proceed in the 2002 field season based upon these refined techniques. Households will serve as the basic unit of sampling, and each sampled household will be matched to plots that its members own or rent. Surveys will be intensive and will involve several meetings with the heads of households and other family members. Multiple interviews will improve the reliability of data collected by allowing for a degree of familiarity and trust to be established and for historical recall data on sensitive economic issues to be cross-checked.

Appendix A includes excerpts from a preliminary interview schedule that is divided into several parts. First, basic sociological data on the composition of sampled households will be collected, with a focus on the consumer to worker ratio and the educational levels, language usage, religious affiliation, and productive activities of household members (noting in particular inter-generational changes). It is hypothesized that most households pursue varied economic strategies; analysis of these data will reveal the objective importance of particular strategies and their relative association with nontraditional production, as well as the subjective importance of each to interviewees.

Second, data on household production strategies and finances (starting with a baseline date of household formation) will be recorded. Such data will allow us to construct categories for both baseline and current class position and production strategies and thus tease out diachronic influences on ethnic expressiveness. Surveys will also elicit data on the extent and nature of household capital holdings, focusing particularly on land holding and land use histories. The location, acreage, usage, and history of each of the household's plots will be recorded and keyed to plot locations in the project's GIS database. In addition, an economic history of land production over the past year will be recorded, focusing on the costs and types of inputs

(pesticides, fertilizers, seedlings and/or seeds, labor, packaging, and transportation), sources of capital, and terms of sales (the quantity of harvests and the prices received, contractual obligations, and to whom sales were made). Particular attention will be paid to the use of household labor in comparison to hired labor, and hired laborers will be interviewed. It is hypothesized that there will be a significant association between nontraditional production and the value of household capital assets. Inter-household and inter-community comparison of these data will test the strength of the correlation between nontraditional agriculture and access to capital.

Third, interviews will elicit data on respondents' ethnic identity, use of ethnic markers, and views on inter-ethnic (Indian-ladino) relations. Indices of ethnic identity are especially elusive, requiring the collection of a number of indirect measures. The most straightforward measure will simply record the respondent's self-identification (how do you identify yourself, as Indian/Maya, ladino, or other?). Responses to this question will indicate overt ethnic self-identification but will reveal little about the strength of respondents' ideological commitment to ethnic issues. Thus, surveys will also record data on key ethnic markers, including language usage (Kaqchikel, Spanish, or some inter-generational combination of the two; linguistic markers of pan-Mayanist identity such as *rin* as the first person singular pronoun), dress (local Maya style, pan-Maya combinations, western style, or a combination); and religion (Catholic, Protestant, and traditionalist affiliations; attendance at and sponsoring of traditionalist ceremonies; *cofradía* or *hermandad* participation). Attitudes toward ethnic assertiveness will be recorded from questions on the value of Maya dress (e.g., should Maya children be allowed/encouraged to wear traditional dress to school?), language (e.g., should children be taught Kaqchikel? Do children today speak Kaqchikel properly?), and religion (e.g., what role does Maya religion play in the modern world?). Surveys will also record direct and indirect investment in ethnic activism through measures of participation in local and national organizations (including local cooperatives, artisans associations, and development groups), sponsoring ritual activities, and ethnic education. Finally, the interview schedule contains a number of open-ended ethnographic questions concerning ethnic identity and cultural values. The responses to such open-ended questions will be coded by field workers for the ethnic sentiment expressed based on salient criteria gleaned from preliminary results. Combing the data collected on these markers and attitudes will allow us to construct categories that will situate individuals in terms of both ethnic identification and activism. These data will then be keyed to household production strategies and measures of capital resources to reveal significant relations of causality.

In addition to data collected through surveys, the principal investigator and graduate assistants will also document local social forms and ethnic relations through ethnographic participant observation. Certain contacts (within and outside of the survey sample) will be cultivated and intensive ethnographic interviews will record their perceptions of changing forms of production and Maya ethnic activism. The data obtained from such participant observation will provide a means for assessing the subjectively perceived impact of nontraditional production on local culture and ethnic sentiments. Fieldworkers will daily edit, code, and enter the results of ethnographic field notes into the project database. Observations and preliminary analyses will be discussed during daily meeting of the principal investigator and research assistants.

5. Research results and pedagogy

Exploratory analyses will take place in the field, as time permits. During the academic years between field seasons, databases will be posted on the project's World Wide Web (WWW) site and systematic data analysis will be conducted employing both quantitative and qualitative interpretive techniques. Multinomial regression analyses will be used to isolate the relative causal influence of independent variables, and structural equation models will be produced to describe 1) the intersection of class and ethnic affiliations in relation to capital accumulated through nontraditional production, 2) the precise nature of articulation between individual producers (and the local system that they comprise) and national and foreign markets, and 3) the influence of nontraditional production and economic mobility on ethnicity. These data will contribute not only to our knowledge of the particular case of nontraditional export agriculture and ethnic activism among the Kaqchikel Maya but also to a broader understanding of the processes of global-local interaction that are producing new economic strategies and forms of identity politics around the world.

This project is notable for its graduate student training component and pedagogical innovations. Vanderbilt is expanding its program in Mesoamerican socio-cultural anthropology and has agreed to admit and provide support to graduate students interested in participating in this research. Selected graduate students will receive close mentoring throughout their studies and dissertation research and write-up. In preparation for fieldwork, students will take courses from the principal investigator and other faculty members in ethnographic theory and methods, remote imaging and geographic information system techniques, and data analysis and presentation. They will then be given the chance to apply this knowledge through extensive field experience. Solutions to problems that arise in the course of fieldwork will be explored during daily meetings of the research team, and students will be encouraged to propose methodological innovations to the research design. It is expected, but not required, that graduate student participants will develop dissertation topics based fieldwork conducted as part of this project, with the principal investigator acting as their thesis advisor. All of the research assistants will be given the opportunity to coauthor papers resulting from collective research.

The results of data analysis will be presented in scholarly articles, a monograph, and on the project's WWW site. The articles will contribute much needed quantitative data to debates in the field of Guatemalan studies on the social impact of nontraditional export production. Based on these data, the monograph will make a broader theoretical argument, advancing our understanding of the interplay between global and local processes in this post-dependency phase of capitalist expansion. While putting forth a substantive theoretical argument, the monograph will be written in a manner accessible to undergraduate students as well as other specialists, making it suitable as a classroom text. The data upon which the text's analysis is based will be made available over the Internet at the project's WWW site. Permitting access to these data will allow students and colleagues alike to reexamine the underlying data and explore alternative interpretations. I will integrate the project's online resources into the design of several undergraduate courses (including Introduction to Anthropology, Economic Anthropology, and Anthropological Field Methods) in which students will be assigned projects in which they analyze data, giving them practical experience in the process of moving from raw data to finished product.



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Departmental Endorsement of Dr. Edward Fischer's Career Development Plan

Edward Fischer is an extraordinarily talented and valued member of Vanderbilt's anthropology department who is now undertaking a major program of research and education in his proposed project, "Linking Local Producers and Global Markets: Nontraditional Export Agriculture and Ethnic Relations in the Kaqchikel Maya Region of Guatemala." This work fits precisely with the long term goals of the department, which is specialized in the anthropology of Latin America, with a particular focus on Mesoamerica. We are especially anxious to develop the ethnography wing of our instructional program, and expect that Professor Fischer's research will become a crucial part of the training of our graduate students.

If Dr. Fischer's proposal is approved we anticipate that we will support his project and integrate it into our program in the following ways:

- Encourage, admit and support graduate students with interests that are likely to lead to their participation in the project.
- Provide material support for Dr. Fischer by recommending him for a paid semester's leave in 2003-2004, the fourth year of the project..
- Provide the potential of continued support for Dr. Fischer through his application to Vanderbilt's University Research Council.
- Provide the potential of research support for Dr. Fischer's students through the Graduate School's dissertation improvement grants.
- Provide continuing mentoring and advice by our other faculty members who work in Mesoamerica.

I have read and strongly endorse Professor Fischer's Career Development Plan. We anticipate that it will not only benefit his already rapidly developing career, but it will also add immeasurably to our program of instruction and our research mission in Latin America. We will therefore make every effort to support and encourage his work.

Professor Fischer's first full-time tenure-track appointment was at Vanderbilt University, and began on September 1, 1996.

Thomas Gregor 5-28-99

Thomas Gregor
Professor and Chair

I. Household Data

1. Location of house compound:
2. House construction: adobe, cinder block, wattle and daub, other (_____)
3. Note roof type, water supply, electricity, and stove/hearth type.
4. How many people live in the household, including yourself?
5. How many rooms are in the house?

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[NOTE: Questions 12-22 will have a separate entry for each household member.]

12. What is the age of person x?
 13. What is his or her relation to you?
 14. What is his or her the level of education?
 15. What language(s) does s/he speak? Note proficiency for each.
 16. What are his or her primary and secondary occupations?
 17. What religion is s/he?
 18. What style clothing does s/he wear: local traditional dress, traditional dress from another community, Western style, mixed
- . . .
23. What year did you set up this household? Who were the household members at that time?
 24. What job(s) did you and other household members hold at that time? What did these jobs pay?
 25. Compare current household income and standard of living to what it was at that time (much better, better, same, worse, much worse) and explain why.
 26. What lands did you own when you began the household?
 27. What lands have you acquired or sold since (record dates)?
 28. What other large capital goods (e.g., houses, vehicles, mills, etc.) have you acquired or sold?
 29. What land, houses, and other assets does the household presently own? Rent?
 30. What sources of non-farm income does the household have? (Note for each household member and relative percentage of total household income).
 31. For what is the non-farm income used?
 32. Estimate time allocation between agriculture and other productive activities in a given week/month/year.
 33. What are the household's main expenses? Estimate amounts.
 34. What is the volume of annual agricultural production on household lands?
 35. What percentage of its own corn does the household produce?
 36. What do you do with any surpluses?

. . .

II. Plot Data [NOTE: These data will be recorded for each household plot]

42. Do you own or rent the land? (if owned go to question 45)
43. From whom do you rent the land? Note ethnicity of landowner.
44. What is the rent?

45. When was the land acquired? From whom (note ethnicity)? (if renting go to question 47)
 46. What price was paid for the land? What do you think it is worth today?
 47. Do you grow milpa on the land? (if not skip to question 53)
 48. How many quintals of corn do you produce?
 49. How many quintals of corn does your household consume per year?
 50. If a surplus, what do you do with it? If a deficit, where do you buy corn from?
 51. Do you use pesticides or fertilizer? Estimate amounts and costs.
 52. How many days per season do you work the land?
 53. Do you grow nontraditional crops? Which ones?
 54. When did you begin to grow nontraditionals?
 55. How often do you rotate production?
 56. Have you ever lost money on a nontraditional crop? If so explain.
 57. How are seeds or seedling obtained? Note costs.
 58. What fertilizers and pesticides are used? Estimate amounts and costs.
 59. Has production increased or decreased over the last year? Note production levels
 60. To whom do you sell nontraditionals?
 61. Do you work under contract? What are the terms of this contract? Is it fair?
 62. Does the company make advances on production? What collateral do you use?
 63. Do you hire any workers? What is the cost of this?
 64. Calculate work days contributed by you and your family per growing season.
 65. How do you transport your product? What is the cost of transportation?
- [NOTE: Interviewers will construct a financial accounting for the past year in collaboration with the informant]

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III. Ethnicity

70. Do you view yourself as an Indian/ladino?
71. What makes you an Indian/ladino?
72. Should Maya children be allowed/encouraged to wear traditional dress to school?
73. Should children be taught Kaqchikel?
74. Do children today speak Kaqchikel properly
75. What role does Maya religion play in the modern world?
76. What are the advantages or disadvantages of being an Indian/ladino?
77. Will your children be Indians/ladinos when they grow up?
78. What is the role of the Maya in Guatemalan society today?
79. How has growing nontraditionals affected ethnic relations in your community?
80. Do you attend Maya rituals? How frequently, for what occasions?
81. Have you ever sponsored a Maya ritual? Note frequency.
82. Do you participate in any local or national Maya organizations? Note time/financial commitments.

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