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Women's Small-Scale Enterprises in Rural Kenya:
Influences of Spatial Isolation on Economic Linkages

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WOMEN'S SMALL-SCALE ENTERPRISES IN
RURAL KENYA: INFLUENCES OF SPATIAL
ISOLATION ON ECONOMIC LINKAGES

ABSTRACT

This paper investigates the impact of spatial isolation on Kenyan women's small-scale rural enterprises. Rural women are increasingly engaging in small-scale enterprises. This is a function of intrahousehold income allocation responsibilities and the increasing monetarization of the Kenyan economy. Despite the fact that Kenyan women are receiving greater recognition from the Government for their potential to contribute to development, few studies have focused on their participation in small-scale enterprises and none have considered influences of spatial isolation on the creation and operation of these enterprises by women. This paper analyzes influences of spatial isolation on the economic linkages that women's rural enterprises have with the rural agricultural sector, the rural informal sector and more distant urban centers.

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WOMEN'S SMALL-SCALE ENTERPRISES IN RURAL KENYA:
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Introduction

As development planners in Kenya focus their attention on the rural non-agricultural population, the potential for small-scale enterprises to contribute to local, regional and national economic development is receiving notice (Note 1). Recent studies have examined a variety of themes relevant to the rural informal sector. After investigating the rural nonfarm sector in Central Province, Freeman and Norcliffe argued for its more prominent position in development policies (1985). More recently, a study by Bendavid-Val et al (1988) concentrated on the economic interaction between a rural market, its informal sector and its immediate agricultural hinterland. Also, Ng'ethe and Wahome (1987) analyzed the subsector composition of the informal sector in various rural market centers.

In spite of the variety of themes investigated, a critical analysis of the role of rural women in small-scale enterprises is virtually non-existent. However, this invisibility is not undetected; advocacy for increased studies comes primarily from feminist scholars working in the field of Third World development and more recently from the Government of Kenya (INSTRAW, 1986; Government of Kenya, 1989c; Momsen & Townsend, 1988; Otero, 1987; Robertson, 1987; Tinker, 1990).

The research presented here examines the influence of spatial isolation on economic linkages of rural women's small-scale enterprises with the rural agricultural sector, the rural informal sector and more distant and larger urban centers.

Characteristics of Rural Small-Scale Enterprises

The two characteristics of rural small-scale enterprises mentioned most frequently in the literature are efficiency and competitiveness. Because these businesses rely on simpler, often indigenous technologies and local raw materials, they can enter and survive in markets that are too small or fragmented for the formal sector to operate profitably (Blayney & Otero, 1985; Elkan, 1988; Freeman & Norcliffe, 1985; Hunt, 1983; International Labour Organization, 1972; Ng'ethe & Wahome, 1987; Peattie, 1987; Robertson, 1987).

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Dulansey and Austin provide this concise summary of these two qualities (Dulansey & Austin, 1985, 88).

Small units are more efficient alternatives when labour, raw materials and markets are dispersed in rural areas, transport and infrastructure are poor, work is irregular or jobs cannot be standardized and products have low scale economies and serve small markets.

Small-scale rural enterprises are strongly consumer oriented with a tendency to produce similar or identical goods and services in a limited number of activities that do not require specialized skills and/or large capital investments. Business people have local knowledge of products and services that are needed by the rural population. The products and services may be of a lower quality than mass-produced items but they are acceptable to the lower incomes of the rural population because they are offered at affordable prices (Anderson & Leiserson, 1980; Annis & Franks, 1989; Dulansey & Austin, 1985; Elkan, 1988; Haggblade et al, 1986; Peattie, 1987).

Small-Scale Enterprise Activities

Small-scale enterprises are centered primarily in trade activities with smaller numbers represented in service and manufacturing.

Trade activities are played out in the theatre of the open-air periodic markets. Periodic markets meet on set days of the week, often in collaboration with nearby markets so that no two neighbouring markets are held on the same day (Wood, 1974). The open air market meets in a small, usually fenced, rectangular piece of land. At the entrance to the market, a clerk collects market fees from the sellers. Within the open arena, one finds the vendors of vegetables, fruits, dried foods, new and used clothing, shoes, household dry goods, hardware and utensils. Vendors selling similar products are grouped together.

Surrounding the open air market (usually on three sides) are small wooden kiosks and permanent stone buildings. Small retail shops, located in either the wooden kiosks or in the more permanent stone buildings comprise the other segment of the trade sector. Retail shops stock primarily tea, sugar, salt, soap and cooking fat to meet the simple daily needs of the rural household. Participation in the trade sector is the least demanding in terms of skills and start up capital. Turnover rates for the low cost goods is high thus making the businesses attractive for traders with little capital

(Muller, 1981). Trading is often viewed as a last choice option for many but some items do bring high profits, although they require greater capital investments at the beginning. These are new and used clothing and dried foods.

The service sector comprises such activities as catering, barbering, hair styling, photography, shoe making/repair, bicycle repair and blacksmithing. Again, these activities are simple in nature, have limited restrictions on training and are geared for the demands of the local markets. Although licensing is required, the appropriate license can usually be obtained with little effort. Capital investment is relatively low as necessary tools are few and can usually be acquired locally. These enterprises operate out of kiosks, permanent buildings, verandas or in the open-air but usually the operators pay rental fees for the space that is used. Some operators may own their kiosks or buildings.

Manufacturing represents the greatest capital investment in terms of tools, equipment and acquisition of a permanent place of operation. Hence, it comprises the smallest number of businesses. However, it is also considered to be a source of higher profits. Four broad categories include food processing, textile and wearing apparel construction, woodworking and metal working with some of these categories overlapping with the service sector when repair work is involved.

Small-Scale Enterprises and Rural Employment

While the United Nations and the Government of Kenya identify small-scale enterprises as those with fewer than fifty employees, the vast number of rural enterprises operate at the micro-scale with less than five employees (United Nations Development Program, 1988). Other than the owner-operator, a typical rural enterprise may include perhaps one or two additional unpaid family members assisting as needed. Some enterprises do have nonfamily wage employees but many are hired only on a part-time basis or at very low wages (Akinyemi, 1986; Ebert Foundation, 1986; Otero, 1989; United Nations Development Program, 1988). Advocates of the role of small-scale enterprises in raising levels of employment praise the sector's emphasis on labour-intensive activities and its ability to create jobs at reasonable costs (Akinyemi, 1986; Government of Kenya, 1989a; Johnson & Lawson, 1987). However, this may be an overly optimistic assessment of the ability of the small-scale enterprise sector to absorb large amounts of rural unemployed, especially when the wages

are low and hours long. While employment opportunities generated by a single enterprise are limited, the vast number of these enterprises does provide employment for a large population but severe competition for a limited and relatively low income market has kept overall earnings low.

Rural Women in Small-Scale Enterprises

Approximately eighty percent of Kenya's population is rural and a majority (fifty-two percent) of that population is comprised of girls and women (Pala, 1979; Smock, 1979). The United Nations Development Program (1988) estimates that one-half of Third World rural women get supplemental income from small-scale enterprises, and African countries appear to be no exception. In Kenya, small-scale enterprises may be the highest employers of women outside the agricultural sector (Government of Kenya, 1989c). While small-scale enterprises do provide opportunities for women to attain some semblance of independence, it is usually at low income levels. This high level of participation may reflect stagnant employment opportunities in the formal sector, lack of alternatives for cash income elsewhere and failure for women to receive cash crop income that accrues to the male household head in whose name the land is registered (Economic Commission of Africa, 1988). The true entrepreneurs who can establish a growing, thriving business that accumulates capital and provides good employment opportunities are a relative small number compared to the vast number whose primary concern is basic subsistence, job security and income stability.

The majority of small-scale business women are found in the trade sub-sector. Women business owners in this subsector are principally vendors of fruit, vegetables, dried foods, new and used clothing, burlap sacks, ropes and miscellaneous dry goods in the open air markets. Market women are full time business women; not casual produce sellers who only sell extra produce from their own plots when it is in abundance (Charlton, 1984; Pala, 1979).

Other traders operate out of retail shops that have a limited variety of items to supply basic necessities to rural communities. Hair saloons and small cafe/diners are the principal service enterprises for women and tailoring and knitting are the principal manufacturing activities.

Other uncommon or unusual businesses identified by the author are construction and sale of bean pots for cooking traditional Kenyan dishes, sale of

tobacco, paraffin, cooked arrowroot, firewood, fermented porridge, traditional herbs and soda ash. One laundry business was identified and in the are of a quarry, women crushed rock to sell as ballast to construction companies.

Intra-Household Economic Dynamics As a Theoretical Basis

For too long, the development community has wrongly assumed that income resources at the household level were pooled (Note 2). It was thought that increased financial benefits accruing to the household head (male) would be reflected in an increased standard of living for the entire household. Becker (1981) proposed that the multiperson household be treated as a single economic unit with a single set of household preferences. This thinking assumes common preferences among the household members and doesn't consider structural differences in the control of resource distribution primarily along gender lines.

Such thinking runs counter to the realities of intra-household economic dynamics, particularly those of the Third World. Feminist scholarship rejects the assumption that the household, through its patriarchal head maximizes utility for all its members. The household cannot be considered as a unit of analysis because domestic units do not necessarily pool resources. Allocation of resources is a function of who controls the income or other financial resources. Careful critiques of the intrahousehold economic debate are presented by Deere and Leon (1987), Dwyer and Bruce (1988), Fapohunda (1988), Guyer (1988), Jacquette (1982), Momsen and Townsend (1988), Staudt (1987) and Tinker (1990).

The carefully refined theory of gender stratification proposed by Blumberg provides the theoretical grounding for this research (Blumberg, 1981, 1984, 1988a, 1988b, 1989). The degree of gender stratification in a society refers to the extent to which women are systematically disadvantaged in their access to opportunities relative to the men in their own society (Chafetz, 1988). This includes access to economic resources, political power, material goods and such services as education or training.

According to Blumberg, economic stratification is the paramount issue because it influences other forms of gender stratification within a society. The most important contribution that Blumberg makes to gender stratification theory is her suggestion that economic stratification within the household has important economic repercussions at macro levels within the community and nation.

Within the household, men and women have different priorities for allocating resources. Blumberg suggests that women will tend to allocate their labour toward activities that will put income or food under their direct control. Control of these resources by women results in the increased well-being of the family in general, especially in the form of improved child nutrition.

Traditionally, children's survival needs were met through subsistence agriculture which was primarily the women's responsibility. As the subsistence economy weakens and is replaced by increasing monetarization, we see women accepting responsibilities for providing goods and services for their children's survival that can only be purchased in the cash economy. In a survey of smallholders in rural Kenya, Barnes estimated that sixty percent of the household needs were met with cash expenditures (Barnes, 1983). Cash is necessary for purchasing supplementary food year round or for basic food supplies before harvest time. Cash is needed for such daily necessities as soap, sugar, salt, tea, cooking fat, clothing, medical services, household utensils and transport (Barnes, 1983; Flora, 1987; Huston, 1979; McCall, 1987). In the context of providing for their children's welfare, women are also accepting the responsibility for educating their children. They must then face additional costs of school fees, books and uniforms. These responsibilities are documented for Nigeria (Fapohunda, 1988), Tanzania (Mbilinyi, 1985), the Luo (Pala, 1979), the Kikuyu (Davison, 1989) and more generally by Staudt (1987) and Stamp (1975/76).

The phenomenon of the woman-headed household provides additional impetus for addressing women's economic status at the household level. The percentage of households in the world that are headed de facto by women either through death, permanent or intermittent migration of the husband, marital breakdown or women opting for single parenthood is estimated to be as high as fifty percent (Momsen & Townsend, 1988). Estimates vary about the number of women-headed households in Kenya, but Joekes (1987) suggests that at any one time, forty percent of rural households in Kenya are headed by women. Feldman's estimate of twenty-five percent is lower but still significantly large and in one survey of small-scale farming households, Barnes found that twenty-two percent were headed by women at the time of the interview (Barnes, 1983; Feldman, 1983).

In the context of women's economic responsibilities toward their families, small-scale enterprises offer an option for women to achieve access

to a cash income. Many women view the informal sector as the only source of a cash income available locally, particularly when farm income does not accrue to them or when they are landless.

The strength of Blumberg's theory is that it places intrahousehold income responsibilities in the context of local, regional and national economics. Blumberg suggests that the lack of returns to labour for women has repercussions at local, regional and national levels primarily in the context of the African food crisis. When development planners ignore the internal economy of the household at the micro level, women's possibilities and incentives for food production may be reduced with implications for national food output. Conversely, enhanced control of production resources and revenues by women has implications for improving the amount of food that is grown in the country as a whole.

Spatial Perspectives of Rural Women in Development

Planners working in the field of geography focus on the perspective of spatial organization as an important factor in development planning. Too frequently development studies treat single sites as independent economic units or focus on macro-level data bases with little attempt to integrate findings with issues of spatial organization. More specific geographical studies examine spatial economic interaction, economic networks, relative locations and spatial distributions (Freeman & Norcliffe, 1985; Gaile, 1989; Gaile, 1979; Gaile, 1976; McKim, 1972; Obudho & Taylor, 1979). Through these examinations, an attempt is made to promote development with equity and efficiency so that production is increased and its economic benefits spread to a larger proportion of the population across a given areal unit.

The Government of Kenya maintains a strong spatial component in its planning program. Implicit in the Rural Trade and Production Center Program is the notion that a system of small towns will improve opportunities for agricultural producers by serving as channels for marketing agricultural produce as well as providing the rural population access to consumer goods and agricultural inputs (Bendavid-Val et al, 1988).

Unfortunately, the spatial component of studies relating to Third World women's economic development has been largely ignored. Competent feminist scholars recognize a variety of variables worthy of investigation but the spatial dimension is only hinted at and never distinctly addressed

(Deere & Leon, 1987; Fernandez Kelly, 1981; McCormack et al, 1987; Staudt, 1975-76). Some indication of spatial differentiation is found in studies addressing differing economic needs between rural and urban women (Arizpe & Botey, 1987; Benton, 1988; Dulansy & Austin, 1985).

Spatial isolation is a factor with which business women in rural areas must cope on a daily basis. Yet, the impact of spatial isolation on their economic development has not been addressed. Bernard suggests that spatial distance contributes to psychological and social distance that in turn serves to exclude women from development programs (Bernard, 1987). Barnes agrees that isolation is a contributing factor in women's lack of awareness of economic issues (Barnes, 1978). Women in rural areas of the developing world must cope with distances that are intensified by expensive, inadequate or infrequent transportation modes. Isolation is synonymous with lack of access to health care, electricity, telephone service, postal services and clean public water supplies. All of these are issues affecting women who are engaged in small-scale businesses (Ebert Foundation, 1986). The profitability of those businesses may also be affected by the size of markets in which the women participate. In the most isolated cases, women sell in small markets with low populations and few infrastructural amenities. The alternative is to spend precious funds and time on expensive and long distance transportation to reach larger but questionably more profitable markets.

Returning to Blumberg's theory of gender stratification, it is reasonable to place the spatial dimension of women in development in her proposal. When Blumberg suggests that gender stratification affects women's economic status at various scales of operation, it is also possible to suggest that spatial isolation occurs on a continuous scale of intensification and its impact affects economic development for women.

Government Interest in Women's Participation in Small-Scale Enterprises

In recent years, economic planners have recognized the inadequacy of neoclassical paradigms that emphasized large-scale industrial development projects as the basis for economic growth in Third World countries. In the context of that development paradigm, the rural non-agricultural informal sector was viewed

as a labor pool to be accessed as needed by modern industry (Fai & Rarus, 1961; House et al, 1977; Todaro, 1978). Now with renewed attention on the rural non-agricultural population, the potential for the rural informal sector to contribute to development is examined. The 1972 International Labor Organization (ILO) study provided stimulus for examining the informal sector as a development potential in its own right. The ILO recognized the informal sector not as a short-lived phase but as a source of permanent employment opportunities (International Labor Organization, 1972). The Government of Kenya acknowledges the importance of rural small-scale enterprises as major generators of rural employment at a reasonable cost (Central Bureau of Statistics, 1989; Government of Kenya, 1989b). Enhancement of this dimension of the economy may lead to more equitable employment patterns throughout the country and help stem rapid rural to urban migration flows (Government of Kenya, 1986).

Specific strategies for addressing small-scale enterprises in rural areas were defined in the 1966 Sessional Paper and more recently in a report devoted to small-scale enterprises (Government of Kenya, 1986; Government of Kenya, 1989a). The Government of Kenya seeks to make the small-scale enterprises sector more self-reliant and actively involved in its own promotion. To achieve this, the government's strategies are in the form of facilitatory efforts. One goal is to provide incentives and infrastructural support to accelerate and sustain development in this sector. Another goal is to enhance the image of small-scale enterprises and the role they can play in social and economic development.

The Government expresses a general consensus that women are equal to men in entrepreneurial capabilities, irrespective of the size of the undertaking, but it recognizes a number of special constraints that limit women's potential to thrive in their small-scale businesses. Among these are limited access to credit, legal constraints limiting women's participation, inappropriate design of women's entrepreneurship programs and cultural barriers. In order to synthesize a coherent policy that addresses the crucial needs of these business women, disaggregated data bases must be accumulated. Systematic research must address socio-economic and sectoral aspects that affect women's entrepreneurship. With such a large percentage of these potential business women located in the rural areas, the government is in need of a clearer understanding of women's adaptation to issues of isolation in establishing and maintaining their small businesses. This research focuses on the influence of isolation on linkages of women's businesses with other aspects of the rural and regional economy.

Hypotheses

A principal reason for encouraging development of small-scale enterprises in the rural areas is to promote economic linkages with the local agricultural sector and intrasectoral linkages with other small-scale enterprises in the areas. Strong linkages between and within these sectors helps to promote regional development through increased rural production and increased income. Women's small-scale enterprises are economically linked with the local agricultural sector, the informal sector within the surrounding rural district, and with more distant but larger urban centers in the following ways. Women may receive additional income from farming or from other small-scale enterprises. Likewise, women may acquire raw products, equipment or resale products for their businesses from the agricultural sector or from other small-scale businesses in the region. However, women may also have economic linkages with larger, more distant urban centers outside of the district that serve as a source of additional income or as a source of raw materials, equipment, or resale products in their businesses.

An examination of the differences in the scale of these linkages as enterprises are associated with more remote and structurally poorly served markets has not been examined. Some efforts to classify rural markets have been attempted but the issue of isolation has not been a core feature (Ochiro, 1975). The hypotheses examined here attempt to fill some of the void in that literature. The principal purpose of this study is to identify any differences in economic linkages that may exist between enterprises associated with smaller, more isolated markets and enterprises associated with larger market centers (Figure 1).

Methodology

In order to examine the hypotheses, data was collected from market centers in Kirinyaga District during the period of October 1 to December 31, 1990. The time period was selected because it overlapped different agricultural and social seasons: the pre-rain season, the season of the short rains and the school/Christmas holiday month.

Kirinyaga District was selected because its economic base is strongly agricultural. Markets are fairly evenly dispersed throughout the district, are of varying sizes and are generally well connected to each other by transportation routes and transportation services. The district contains a hierarchy of market and population centers including dispersed farms, small centers with only one or two retail shops, active periodic markets, towns and district level market centers. Secondly, there was a strong indication of women consistently involved in small-scale enterprises throughout the hierarchy of market sizes.

The district is far enough away from Nairobi to insure that the economic pull factors of the country's primate city would not seriously affect the quality of data collected. No large scale industrial development has occurred in the district; therefore, agriculture remains the main focus of economic activity. Agriculture crosses the zones for tea, coffee, maize/beans and cotton. Irrigation in the Mwea Division allows for cultivation of rice and french beans for export.

Finally, the presence of recent data on the topic of small-scale enterprises was helpful for bases of comparison (Bandavid Val et al, 1988).

All regularly scheduled periodic markets in the district were visited and within the limitations of public transportation, any market center that has businesses owned by women was also visited. In the context of this research, a market center is any place with two or more shops. A total of thirty-four market centers were visited. A census of the number of open-air businesses, businesses housed in wooden kiosks, businesses housed in permanent stone buildings, market days and market fees was collected. Infrastructure information was also collected on the status of connecting roads (tarmac or dirt), public transportation, the presence of a stage (a designated location for public transportation vehicles to load and unload passengers and goods), postal services, petrol station, clinic, hospital, bank, public water supply and cooperatives.

A count of the number of women selling in the open-air market or housed in kiosks and permanent buildings was then taken. It is recognized that the data reflects just those businesses that were in operation on the days of the visits and the ephemeral quality of business practices in the rural areas may mean that more businesses would be opened during a different agricultural season or during the evenings when people leave farm work and come to the local markets to make purchases,

From the total count of business women, a five percent stratified random sample of women operating in the open air markets, in kiosks and in permanent buildings was taken. Within these three major categories, an attempt was made to sample from the variety of businesses represented in the particular market area. While five percent was considered a reasonable sample a larger sample was usually acquired, and in a few cases, all business women in a center were sampled. An informal attempt was made to sample women across all age ranges but this was not entirely successful. In some cases, women from a specific age group would decline to be interviewed, and the interviewer

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admitted that it was easier to interview educated women because the terminology of some of the questions didn't have to be reinterpreted or explained in such detail. Each interview required approximately forty-five minutes, depending on the number of customers that the business women had at the time. Each business woman was reminded that her customers had first priority and that the interviewers would willingly wait. Such an approach limited the amount of interruption that the interview made on the women's business and helped insure cooperation from the business women.

Each woman was requested to make oral responses to a questionnaire that was administered by two women who lived in the district and were consequently conversant in the local dialect of language, were familiar with prevailing social attitudes and customs, knew the locations of the markets and had a reasonable knowledge of the geographical characteristics of the three divisions within Kirinyaga District.

The use of questionnaires is widely accepted as a consistent technique for obtaining detailed quantitative and qualitative information unavailable through macroscale census information (Bifani et al. 1982; Bowden, 1969; Guyer, 1984; Hopkins & Mitchell, 1974; O Barr, 1974). Both quantitatively and qualitatively formatted questions were included in the questionnaire. This was advisable because quantitative information is not always readily available owing to the nature of small scale operations. In most cases, records are not kept and the respondent relies on recall for all information (Armer, 1974). Open-ended questions accompanied by follow-up probes gave verbal stimuli to business women and allowed them to make free responses.

Preparation of the questionnaire followed rigorous translation back-translation and pre-testing procedures prior to actual administration. Such a procedure helped to identify any ambiguities in the questions and to clarify coding techniques on the questionnaire forms. Completed questionnaires were promptly checked for accuracy and legibility in order to clarify any terminology used by the interviewers. A total of 369 business women were interviewed. Of this total, 171 were open air business women, 107 were housed in kiosks and 91 were housed in permanent building.

Analysis

Quantifying Market Isolation

Before identifying levels of intersectoral participation among the small-scale businesses, it was necessary to devise a scheme for quantifying

the concept of isolation for the markets that were visited. Size of market and availability of infrastructure were used as indicators of degree of isolation. The size of the markets was calculated using the data for the number of businesses housed in permanent kiosks and permanent buildings plus number of regularly scheduled market days. All figures were based on the census taken on the days of the visits.

Infrastructure qualities were used as an additional indicator of isolation for each market. The infrastructure was divided into two sub-categories: the first (connectional infrastructure) include those aspects that would serve to connect the market centre with the rest of the district. These were the presence of a stage, tarmac road, dirt road, public transportation, electricity, telephone service, postal services, bank and petrol station. The second category (social infrastructure) include those aspects of the market center that might serve as stimulus to bring people to that center to obtain special services. These were the presence of posho mills, clinics, hospitals, cooperatives and a public water supply. A value of one was given for the existence of each of these features in the market and the values were summed.

Following summation of the values collected for each market, classification by means of natural breaks was used to divide the markets into three distinct classes (Table 1). The use of natural breaks was advisable since twenty-two of the thirty-four markets were classified at the lower end of the range and had a summed value of less than 100. Seven had value between 100 and 300 and the remaining five markets had values between 300 and 600.

Class 1, the most isolated group, was characterized by a low number of businesses in all of the three categories (open-air, kiosk and permanent building). Only six of the twenty-two markets had regularly scheduled market days. As Table 1 shows, the centers were poorly served by connectional or social infrastructure.

Class 2, the less isolated group, had more businesses but still, only four of the seven market centers had regularly scheduled market days. The greatest improvement over Class 1 is in the availability of connectional and social infrastructure. All were served by a formal stage, public transportation, telephone access and post offices. Social infrastructure reflected an improvement over Class 1 but not all services were available. Two of these markets were divisional headquarters, consequently, they had police offices and an office where division residents must come to obtain identification cards and business licenses.

Class 3, the least isolated group was characterized by the large number of businesses, a feature that strongly differentiated this group from the other two classes. The mean number of businesses was 612 and all markets had at least two regularly scheduled market days per week.

All were served by tarmac roads, consequently they had a formal stage where vehicles could pull off the road for loading/unloading, and public transportation was numerous and regular. All had electricity and telephones but not all had banks, postal service or a patrol station. Except for hospital services, this category was served the best by social infrastructure.

Analysis of Intersectoral Linkages

If isolation has no influence on intersectoral linkages, then we would expect to obtain observed values that closely approximate the number of businesses in each of the three classes of isolation. Because the observed and expected frequencies differed, a chi-square one sample test was used to determine if the sample differences reflect population differences. The significance level for rejection of all null hypotheses was 05 for two degrees of freedom. A calculated chi-square value greater than 5.99 was therefore required in order to reject each null hypothesis (Taylor, 1977) (Note 3). Values for the chi-square tests of the following hypotheses are listed in Tables 2a, 2b and 2c.

Linkages of Small-Scale Enterprises with the Agricultural Sector.

Ho/Ag1: There is no difference between the three classes of isolated markets and the number of business women who receive additional income from the agricultural sector.

A chi-square value of 8.78 leads to rejection of the null hypothesis.

Ho/Ag2: There is no difference between the three classes of isolated markets and the number of business women who acquire their raw materials from the agricultural sector.

A chi-square test could not be performed because expected frequency values were less than five in more than 20% of the cases.

Ho/Ag3: There is no difference between the three classes of isolated markets and the number of business women who acquire equipment from the agricultural sector.

No women in any of the market classes reported acquisition of equipment from the agricultural sector, which is a reasonable expectation. Hence, no chi-square value was calculated.

H₀/Ag4: There is no difference between the three classes of isolated markets and the number of business women who acquire their products for resale from the agricultural sector.

A chi-square value of 2.94 does not lead to rejection of the null hypothesis.

Linkages of Small-Scale Enterprises with the Informal Sector

H₀/Inf1: There is no difference between the three classes of isolated markets and the number of business women who receive additional income from other small-scale enterprises.

A chi-square test could not be performed because expected frequency values were less than five in more than 20% of the cases.

H₀/Inf2: There is no difference between the three classes of isolated markets and the number of business women who acquire their raw materials from other small-scale enterprises.

A chi-square test of .47 does not lead to rejection of the null hypothesis.

H₀/Inf3: There is no difference between the three classes of isolated markets and the number of business women who acquire equipment from other small scale enterprises.

A chi-square value of .08 does not lead to rejection of the null hypothesis.

H₀/Inf4: There is no difference between the three classes of isolated markets² and the number of business women who acquire their products for resale from other small-scale enterprises.

A chi-square value of 3.78 does not lead to rejection of the null hypothesis.

Linkages of Small-Scale Enterprises with Distant Urban Centers.

Ho/Urb1: There is no difference between the three classes of isolated markets and the number of business women who receive additional income from urban centers.

None of the women listed the urban center as a source of additional income so this hypotheses was not tested.

Ho/Urb2: There is no difference between the three classes of isolated markets and the number of business women who acquire their raw materials from urban centers.

A chi-square value of 49 does not lead to rejection of the null hypothesis.

Ho/Urb3: There is no difference between the three classes of isolated markets and the number of business women who acquire equipment from urban centers.

A chi-square value of .59 does not lead to rejection of the null hypothesis.

Ho/Urb4: There is no difference between the three classes of isolated markets and the number of business women who acquire their products for resale from the urban centers.

A chi-square value of 2.40 does not lead to rejection of the null hypothesis. Test results are summarized in Figure 2.

Discussion

The specific type of economic linkage (agricultural sector, informal sector or urban sector) seems to be a determining factor in the differences acquired in the test results. With respect to the different sectors as additional sources of income, the hypothesis addressing the influence of isolation on the agricultural sector was the only one to be rejected. The raw data shows that a greater percentage of women in the isolated class (Class 1) reported that they receive additional income from the agricultural sector. One possible explanation is that the smaller, more remote markets provide limited profits. This in turn may lead to greater dependence on other sources of income and these women usually have access to farmland. Women who identified farming as an additional source of income were those who stated that they had control of the income acquired from the farm. Only three women in the total survey reported additional income from other sources in the informal sector and they were all in the isolated class (Class 1).

Generally, women may not have time from either farm work and their current small-scale enterprise to seek additional sources of income, especially in other enterprises. Within the confines of this research, the explanation is limited. However, in the questionnaire that was administered to the women, several questions asked about their time allotments and the general consensus among the women was that their small-scale enterprises used most of their time. In most cases, women reported

spending six days per week and approximately ten to twelve hours per day on their businesses. Future analysis of time allotment will probably explain this more clearly.

None of the women in any of the classes reported the urban sector as an additional source of income. If remittance payments do come from absent husbands or family members, they were reported as irregular or payments-in-kind so it was difficult to quantify this contribution. None of the women reported direct income for themselves from any activities in the urban sector.

Because of constraints related to use of the chi square test, the influence of isolation on agriculture as a source of raw materials for small-scale enterprises could not be tested. Only three women (in Class 3) reported acquisition of their raw materials from the agricultural sector. The raw data shows that these were all women who purchased banana leaves from local farms to use in wrapping tobacco for resale. Isolation was not related to women's acquisition of raw materials from other businesses in the informal sector nor from distant urban centers. The raw data shows that these materials were primarily thread, fabrics and knitting yarn used in tailoring and knitting enterprises which are found in all markets. In one case sisal was purchased in Muranga for rope construction. The four urban centers reported as sources of raw materials were Nairobi, Embu, Karatina and Muranga. Embu borders the district on the east, Muranga on the west and Karatina on the northwest.

As might be expected, none of the women reported using the agricultural sector as a source of equipment. The null hypotheses regarding the influence of spatial isolation on women's acquisition of equipment from the informal sector or urban sector could not be rejected. Again, an examination of the raw data offers a possible explanation. The principal purchases in this category were sewing machines and knitting machines used in tailoring and knitting enterprises and scales used in retail shops. All of these represent one-time purchases for which the demand is relatively low in the rural areas, hence women in all classes of isolation had to travel to a larger urban center to acquire these machines.

Finally, with respect to acquisition of items for resale, none of the null hypotheses could be rejected. This suggests that acquisition of goods for resale from the agricultural sector, the informal sector and from more distant urban centers is not influenced by isolation. However, a closer examination of the raw data shows that the women who sell in the open air markets (regardless of classes of isolation) are primarily the ones who acquire their resale products from the agricultural sector. This is not surprising since a majority of items sold in the open air markets is food items. Eighty-eight percent of the open air market women in Class 1, ninety percent of the open air market women in Class 2 and ninety-eight percent of the open air market women in Class 3 obtained their resale products from the agricultural sector. Those who acquired their resale goods from the informal sector were primarily women selling in retail shops located in kiosks or permanent buildings, and those who acquired resale goods from the distant urban centers were mainly business women selling new or used clothes and household dry goods. While isolation does not appear to affect acquisition of resale goods, the differences appear to be a function of the sub-sector in which the women are operating.

Recommendation and Conclusions

The influence of isolation on the linkages of women's businesses with other sectors in the economy was not as profound as originally hypothesized. However, the division of the markets into the three classes does indicate that the remote market centers are poorly served by infrastructure. A large number of the market centers that were examined fall in the class that is least served by infrastructure amenities. Of the twenty-two markets in the isolated class, each market averaged only six of the nine connectional amenities and only four of the six social amenities. The data collected on these markets strongly supports continuing governmental efforts to reach the rural population with a comprehensive package of infrastructural facilities.

The analyses for this research addressed aggregated data for the subsectors. Since some differences appear to occur between subsectors, additional analyses will examine the influences of isolation on the different subsectors of trading, services and manufacturing.

The lack of differentiation in terms of spatial isolation may also be an overall function of the general market structure. Markets across the range of isolation classes were remarkably similar and appeared to vary only in quantity, not in variety of goods and services offered to the rural consumers. Within the larger markets, more sellers offer the same types of goods and services. In the larger centers, this appears to result in saturated markets, higher competition and lower overall incomes as more and more sellers share the same number of buyers. This may be a function of the overall low incomes and limited purchasing power of the rural population.

This suggests that the issue of demand needs to be addressed. Bottlenecks that affect the purchasing power of the rural population need to be identified and where possible eliminated. Informally, the women advised that lack of purchasing power among their customers was an inhibiting factor. This may be a function of irregular and unreliable payments received for cash crops consequently limiting the rural population's ability to budget their incomes and make purchases on a regular basis.

Another aspect of women's businesses worthy of future study is the issue of marketing and marketing analysis. Many women reported that competition was not a real issue in their businesses because they had managed to acquire a core group of regular customers or clients. Their clientele was formed on the basis of personal friends and acquaintances who became their regular customers. This appears to be a major marketing mechanism when one considers that there is lack of diversity or even quality among the products/services that are offered for sale.

This research represents the initial analysis of a larger body of research and data collection that addresses the influence of isolation on other issues of women's small-scale enterprises in the rural areas. Other topics yet to be analyzed include women's marketing skills, subsectoral participation, time allocation and infrastructural usage.

The singular characteristic that motivates continued research on rural women's participation in the informal sector is that these women are active agents for economic change in their own lives. They are bystanders in

the economic arena, nor do they view themselves as victims of larger socio-economic processes over which they have no control. These women are taking an active role in generating changes in their economic situations and that of their families. Continuing research on their efforts should lead to enhancement of their current economic positions and benefits to their families which in turn contributes to the economic growth of their communities, their regions and the country as a whole.

Notes

Note 1: In order to be consistent with Government of Kenya terminology, the terms small-scale enterprise and small-scale business are used to denote business operating in the rural nonfarm informal sector of the economy.

Note 2: The Central Bureau of Statistics defines a household as a person or group of persons, generally bound by ties of kinship, who normally reside together under a single roof or several roofs within a single compound and who share the community of life in that they are answerable to the same head and share a common source of food.

The Central Bureau of Statistics defines a household head as the senior member of the household resident in the household compound or though residing elsewhere, returns at frequent intervals. When both husband and wife are resident, the man is considered the head. (Central Bureau of Statistics, 1982).

Note 3: The sensitivity of the chi-square test to small expected frequencies places operational constraints on its application for some of the hypotheses tested in this research. Generally, the chi-square test should not be used when expected frequencies are calculated to be less than five in more than twenty percent of the cells. Also, no cell should have an expected frequency of less than one. These constraints have caused some loss of information in the hypotheses testing of this research.

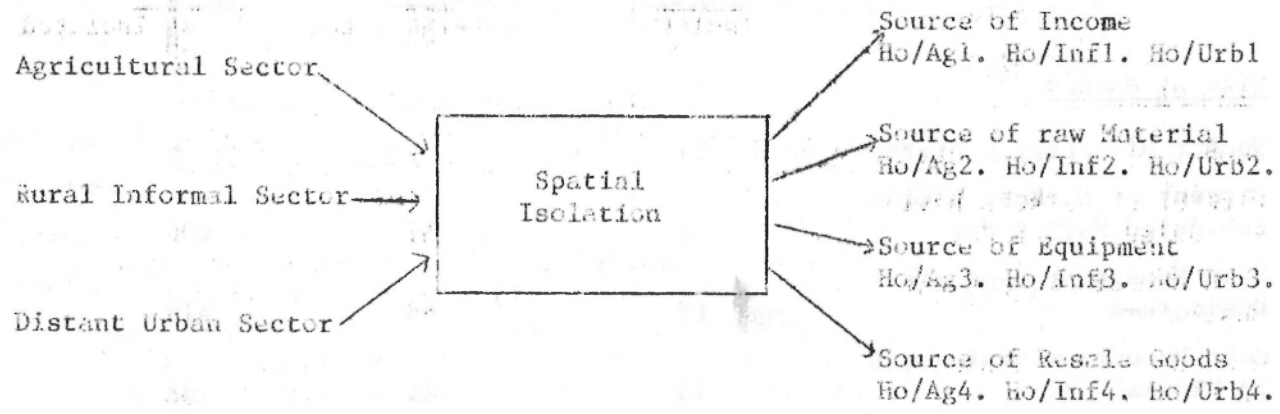


Figure 1

Table 1: Market Classification to Reflect Isolation

	<u>Class 1</u> Isolated	<u>Class 2</u> Less Isolated	<u>Class 3</u> Least Isolated
<u>Size of Market</u>			
Number of Market Centers	22	7	5
Percent of Markets having Scheduled Market day	27	57	100
Mean Number of Open Air Businesses	15	60	419
Mean Number of Businesses in Kiosks	13	44	98
Mean Number of Businesses in Perm. Bldgs.	14	61	95
Mean Total Businesses	42	165	612
<u>Connectional Infrastructure</u>			
Percent of Markets Having			
Stage	95	100	100
Tarmac Roads	50	71	100
Dirt Roads	100	100	100
Public Transport.	95	100	100
Electricity	41	100	100
Telephone	41	100	100
Post Office	14	100	60
Bank	0	57	40
Petrol Station	0	43	60
<u>Social Infrastructure</u>			
Percent of Markets Having			
Posho Mills	77	100	100
Public Water	95	120	100
Clinic	57	86	100
Hospital	5	43	20
Cooperatives	42	57	60

Table 2a: Chi-square Calculations for Markets/Agricultural Linkages

χ^2 ($\alpha = .05$, $df=2$) = 5.99. The computed chi-square values must exceed 5.99 in order to reject each H_0 .

$H_0/Ag1$: There is no difference between the three classes of isolated markets and the number of business women who receive additional income from the agricultural sector.

	Ag.1 Obs.	Ag.1 Exp.	$\frac{(O-E)^2}{E}$
Class 1	27.0	17.7	4.89
Class 2	15.0	14.1	.06
Class 3	17.0	27.2	3.83
Total	59.0	59.0	8.76

$H_0/Ag4$: There is no difference between the three classes of isolated markets and the number of business women who acquire their products for resale from the agricultural sector.

	Ag.4 Obs.	Ag.4 Exp.	$\frac{(O-E)^2}{E}$
Class 1	43.0	35.5	1.58
Class 2	22.0	28.1	1.32
Class 3	53.0	54.4	.04
Total	118.0	118.0	2.94

Table 2b: Chi-square calculations for Markets/Informal Sector Linkages

χ^2 ($\alpha = .05$, $df = 2$) = 5.99 The computed chi-square values must exceed 5.99 in order to reject each H_0 .

$H_0/Inf2$: There is no difference between the three classes of isolated markets and the number of business women who acquire their raw materials from other small-scale enterprises.

	Inf.2 Obs.	Inf.2 Exp.	$\frac{(O-E)^2}{E}$
Class 1	10.0	10.5	.02
Class 2	7.0	8.4	.23
Class 3	18.0	16.1	.22
Total	35.0	35.0	.47

$H_0/Inf3$: There is no difference between the three classes of isolated markets and the number of business women who acquire their equipment from other small-scale enterprises.

	Inf.3 Obs.	Inf.3 Exp.	$\frac{(O-E)^2}{E}$
Class 1	7.0	6.9	.00
Class 2	6.0	5.5	.05
Class 3	10.0	10.6	.03
Total	23.0	23.0	.08

$H_0/Inf 4$: There is no difference between the three classes of isolated markets and the number of business women who acquire their products for resale from other small-scale enterprises.

	Inf.4 Obs.	Inf.4 Exp.	$\frac{(O-E)^2}{E}$
Class 1	35.0	37.6	.18
Class 2	39.0	29.8	2.84
Class 3	51.0	57.6	.76
Total	125.0	125.0	3.78

χ^2 ($\alpha = .05$, $df = 2$) = 5.99 The computed chi-square values must exceed 5.99 in order to reject each H_0 .

H_0 /Urb2: There is no difference between the three classes of isolated markets and the number of business women who acquire their raw materials from the urban centers.

	Urb.2 Obs.	Urb.2 Exp.	$\frac{(O-E)^2}{E}$
Class 1	9.0	7.5	.30
Class 2	5.0	6.0	.17
Class 3	11.0	11.5	.02
Total	25.0	25.0	.49

H_0 /Urb2: There is no difference between the three classes of isolated markets and the number of business women who acquire their equipment from the urban centers.

	Urb.3 Obs.	Urb.3 Exp.	$\frac{(O-E)^2}{E}$
Class 1	14.0	13.8	.00
Class 2	13.0	11.0	.36
Class 3	19.0	21.2	.23
Total	46.0	46.0	.59

H_0 /Urb4: There is no difference between the three classes of isolated markets and the number of business women who acquire their products for resale from the urban centers.

	Urb.4 Obs.	Urb.4 Exp.	$\frac{(O-E)^2}{E}$
Class 1	20.0	26.5	1.50
Class 2	22.0	21.0	.05
Class 3	46.0	40.5	.75
Total	88.0	88.0	2.40

	Additional Income	Raw Materials	Equipment	Resale Products
Agriculture Sector	Reject Ho/Ag1	**	++	Do not reject Ho/Ag4
Informal Sector	**	Do not reject Ho/Inf2	Do not reject Ho/Inf3	Do not reject Ho/Inf4
Urban Sector	++	Do not reject Ho/Urb2	Do not reject Ho/Urb3	Do not reject Ho/Urb4

** Expected frequencies in more than 20% of the cells were less than 5 so chi-square test could not be used.

++ Non reported this sector as a source.

Figure 2

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