AN ABSTRACT OF THE DISSERTATION OF

Lucy S. Chande-Binauli for the degree of Doctor of Philosophy in Family
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Household Economy: Examining the Mediating Roles of Income
Diversification and Home Production on Economic and Subjective Well-being
of Women in Malawi.

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Geraldine Olson

An integrated framework of Family Resource Management and Household
Economic theory was utilized to develop a model of relationships between
human capital, family characteristics and resources, number of income
sources, hours spent in home production, total income and subjective well-
being. This study utilized a sample of 129 women systematically selected
from Machinga and Zomba Districts in Malawi.

Results of Path analysis showed that place of residence, primary
education and secondary education or above had positive direct relationships
to number of income sources. Variables which had significant negative
relationships with hours spent in home production were place of residence
and age. Access to farm technologies had a positive relationship. The
positive predictors of total income were: primary education, secondary
education or above, number of income sources, place of residence, land

holding size and access to farm technologies. Home production time and health status were negatively related to total income. Total income and hours spent in home production were significant and positively related to a well-being score, derived from four measures of well-being. Health status was negatively related to this score.

Five variables: place of residence, age, primary education, secondary education or above and access to farm technologies had indirect effects on total income through number of income sources and home production. All independent variables entered had indirect effects on the well-being score through total income and hours spent in home production. Number of income sources only mediated the effects on the well-being score jointly with total income. On the whole, both intervening variables did a fair job of mediating the effects of independent variables on total income and subjective well-being (well-being score).

Finally, household size, health status and subjective well-being significantly affected overall satisfaction with life. This study has implications for policy, education/training and research in order to enhance women's well-being.

The Household Economy: Examining the Mediating Roles of Income

Diversification and Home Production on Economic and Subjective Well-being

of Women in Malawi

by

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Lucy S. Chande-Binauli, Author

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CHAPTER ONE

INTRODUCTION

National economic goals formulated by the Malawi Government in 1987

(Office of the President and Cabinet, 1987), generally emphasize the need to

improve the well-being of people by asserting that each individual should

have access to income earning opportunities and basic social services.

Implicit in this assumption is the notion that once basic needs have been met,

poverty will be alleviated and well-being enhanced. During the past three

decades, there has been remarkable progress in the economies of most

developing countries, as incomes and consumption have increased markedly

since 1965 (World Bank, 1990). Notable progress has also been observed in

the improvement of health, education, life expectancy and reduced mortality.

While some countries have shown considerable progress, others are still

struggling to improve the living standards of their people (World Bank, 1991).

According to World Bank (1990), the majority of the population in developing

countries has been left to live on $370 per annum. The bulk of this

population is from Sub-Saharan Africa, where most of the indicators of well-

being fall below international standards (Human Development Report, 1992).

African countries have been and are still experiencing tremendous

changes in economic, political and social spheres. According to the Human

Development Report (1992), Africa's share of the global GDP declined from 1.9 percent to 1.2 percent between 1960 and 1989. Africa's share of global trade also dropped from 3.8 percent to 1.0 percent between 1970 and 1989. The report also states that Africa's major problems have been rooted in its continuing reliance on primary products for export, which face stiff competition at world markets. It is further indicated in the report that "...wages in the industrial sector declined by 30 percent on average, and that social services, such as education, primary health care and access to safe water, received little funding " (p.42). Lastly, the literacy rate was 62 percent of the world literacy rate, falling behind other continents (Human Development Report, 1992).

Some of the rural economies in Africa have been characterized by their growth in agricultural production for export and their subsistence farming, from which most rural people derive income and food for their livelihood. In contrast urban economies have for a long time depended on the manufacturing and service sectors from which individuals draw salaries and wages, until recent times when growth in the informal sector has provided a lucrative supplement to salaries and wages for both urban and rural households (Freeman, 1991:1993; Eck & Kazemier, 1988; Livingstone, 1989; Rakodi, 1988:1994; Reardon et al. 1992). Women in particular play a major role in implementing economic goals through participation in subsistence crop and home production activities, and market work.

Because women's incomes from farming, wages and salaries are becoming increasingly smaller or negligible (Chipande et al., (1986), many women are opting for off-farm activities, non wage/salary activities or reliance on transfers from government and relatives to supplement their meager incomes. This trend is what Reardon et al. (1992) refer to as diversification, and it is on the increase (Chambers, 1989; Chopak, 1989; Kurwijila & Due, 1991; Peters & Herrera, 1989).

In the past decade, there has been a proliferation of income generating activities and increased use of home produced goods and services. Hence these activities have become an important panacea for alleviating poverty and enhancing well-being of individual persons and family members.

According to the Human Development Report (1992) and World Bank Report (1991), participation of women in both formal and informal sectors has increased tremendously in developing countries. In Malawi, labor force participation of women was 64 percent against 67 percent of males. Women participated mostly in subsistence agriculture, where they accounted for 70 percent of all smallholder farmers (United Nations in Malawi & Malawi Government, 1993). Although the women's participation figure was fairly remarkable, their wages/salaries were not comparable to men, as men continued to command high salaries (National Statistics Office, 1989). The Situation of Poverty in Malawi Report indicates that women were mainly engaged in "...nursing, teaching, labouring, clerical and secretarial work, where specifically 20 percent were in clerical, 27 percent were in sales

services and 23 percent in the service sector" (United Nations in Malawi & Malawi Government, 1993, p. 121).

The informal sector has also witnessed growth (Ettema, 1984). In 1992 it was reported that 10.5 percent of all individuals were engaged in medium, small and micro enterprises. In 1983, 3.8 percent of all women were deployed in the informal sector (United Nations in Malawi & Malawi Government, 1993).

Despite these clear figures in both formal and informal sectors, the majority of women are still impoverished and illiterate. Thus the roles of income diversity, income generating activities, labor force participation of women in the improvement of their economic well-being needs to be made explicit through research. Moreover, in a subsistence consumption-oriented society such as that of Malawi, the role of home production has not been recognized as an important complement and supplement to consumption levels. Little is known empirically about the importance of income diversification and home production time in enhancing both economic and subjective well-being.

Several factors may influence a woman's ability to generate on and off-farm incomes. Human capital characteristics, including age, health status and education are relevant to income diversification and home production activities. Family characteristics, which include marital status, number and ages of young children, family health status and household size may influence a woman's earning potential and time input in home production

activities. Other resources also affect a woman's income diversification and home production activities, such as information, time, access to farm and commercial credit, amount of land and farm technologies. Apart from these factors, geographical differences may influence the extent to which women can diversify their incomes and perform home production activities. These factors which affect income diversification and home production will also affect total earnings, subjective well-being and overall satisfaction with life.

Women's well-being should be a central concern of every government because women perform most of the economic and human development responsibilities for the next generation. In addition, the household economy, which consists of market and non-market work activities, provides a linkage between macroeconomic policies and well-being of family members. To identify this linkage explicitly, it is necessary to conduct an analysis of women's household economic and non-economic activities and their impact upon the economic and subjective well-being of the home maker and her family.

Purpose of Study

This study deals with an important phenomenon related to sustainable economic development -- family well-being as an output of all economic activities of women. While the assessment of family well-being is a major goal, both economic and subjective well-being will be emphasized as major outcomes of women's productive and reproductive behaviors. The study also investigates the effect of income diversification strategies on the behavior and

well-being of women in relation to the economic climate and natural environment. Another important question addressed is "how do women strike a balance between market work and subsistence production?". Thus, this study is intended to examine factors that affect women's participation in the formal and informal sectors of rural and urban economies and to examine the impact of those activities on well-being of women.

This study is designed to:

1. Describe the characteristics of Malawian women in terms of household characteristics, human capital, major occupation, family resources, economic and subjective well-being and to assess differences among rural and urban, and married and unmarried women;

2. Identify reasons why women engage in multiple economic activities;

3. Develop an integrated model of Family Resource Management and a Household Economic theory for analysing the relationship of human capital, family characteristics and resources, income diversification and home production to economic and subjective well-being; as well as a relationship of economic to subjective well-being;

4. Ascertain factors which affect overall satisfaction with life;

5. Examine the mediating effects of income diversification and home production on economic and subjective well-being; and

6. Identify implications for policy, research and training based on the findings.

Significance of the Study

An important outcome of this study will be the development of baseline data on women, their economic and non-economic behavior, and how they perceive well-being.

By disaggregating data, women's productive and reproductive roles will be recognized individually for the purposes of formulating policies to promote opportunity, equality and empowerment. It is assumed that such policies will help emancipate women. An understanding of the household economy may provide insights into labor choice and leisure theories and how the economic and non-economic activities of women enhance well-being. Frequently, the formulation of economic development policies are made on the assumption that the net benefits of increased economic growth will be translated into equal and equitable distribution of resources within households. Evidence has shown that this is not the case (Peters & Herrera, 1989; Kennedy & Peters, 1992). The needs of women are different from men. By targeting development programs to only female-headed households the needs of married women are precluded because it is again assumed that husbands will take care of the needs of their wives.

Consequently, the study of the effects of income diversification and household production on well-being of both married and single female heads of families has implications, first of all, on economic policy. This study will help identify whether or under what conditions women derive net economic returns from income diversification.

Second, policy makers may use information on the economic significance of diversified and home production activities to help with monitoring allocation of resources with greater awareness of the complementarity and substitutability of these activities.

Third, the study will also help in developing population policies, by elucidating the constraints women face in carrying out their activities. Policies that impact family planning may be intensified or relaxed, depending on the role children play in the household economy. Thus it is necessary to examine the nature of women's activities and time expended in such activities. Also, knowledge of the intensity of women's participation in market and non-market activities may help to formulate labor market policies. The study will also help nutritionists, agronomists, economists, health officials and family economists to plan and target their intervention programs according to the specific needs of women. Intervention programs sometimes group all women's needs into the household category, in which the male head of household may have greater access to resources. In this case, women who do not head a household are under represented. Therefore, this methodology which focuses on specific problems and their context within the target group, is important. Since women are involved in both market and non-market activities, academicians may incorporate women's issues in their curricula both for the purposes of enriching their academic programs, and ultimately, making them relevant to Malawi culture.

In summary, the most important outcome of this study will be an assessment of the relative effects of income diversification, household production, human capital, family characteristics and resources on the well-being of women in Malawi.

Definition of Terms

Farmer's Club. A club where registered farmers obtain credit and agricultural extension education. Club members themselves act as guarantors for the loans.

Household Economy. The economy whereby market, non-market and farm activities of individual members and intra-household dynamics in the household are recognized. In this particular study, the inclusion of income diversification and home production activities defined the household economy.

Home Production. Defined as "unpaid activities carried on by and for the members which activities might be replaced by market goods or paid services . . ." (Reid, 1934, p.11). For example: cooking, home maintenance, fuel and water collection.

Income Diversification. Dependence on a number of income sources for a livelihood for example, on and off-farm employment, self employment and trading of petty goods.

Total Income Earned. Total income earned according to Kirk (1953) includes "wages, salaries, interest, dividends, benefits to which specific individuals have a claim" (p. 37). For this study total income was a gross monthly income derived from all sources.

Well-being. The satisfaction derived from the consumption of goods and services, including home production of goods and services, leisure, freedoms and experiences.

Assumptions

The following assumptions were made prior to the study:

1) The women in the sample are rational in their choices and understand the risks and benefits generated in income diversification and home production activities in improving their well-being.

2) The responses obtained from the women are honest and accurate.

CHAPTER TWO

REVIEW OF LITERATURE

This chapter reviews literature on the theory, concepts and measurement of well-being and household economy (market and non-market work). In order to understand the economic behavior of women, it is necessary to define income diversification, household production and well-being. Recognition of human capital, family characteristics, production resources, and resource allocation to and within families could help to identify women and/or households who are in dire poverty. The first section of this chapter provides background of the economy of Malawi and the socio-economic position of women in general by drawing from existing literature. The second section deals with the motivations of women to generate income from multiple sources. The third section addresses the nature of income diversification and related literature regarding wages, salaries, self employment, petty trading, agricultural production and transfers. In the fourth section home production, its measurement and related studies are discussed. The fifth section includes an in depth discussion of well-being and its measurement, taking into account both objective and subjective aspects of well-being. The sixth section examines the household economy and "householding" as a unit of analysis. Finally, an integrated framework of Family Resource Management and Household Economic Theory is examined.

Background to the Economy of Malawi and Socio-economic Position of Women

Background to the Economy of Malawi

The socio-economic behaviors of women and their impact on economic

and subjective well-being must be examined within the context of rural and

urban poverty and the economy in general. The United Nations in Malawi and

Malawi Government Report (1993), has defined poverty in terms of

landlessness; female-headedness and wage labor.

Malawi's urban and rural economies are dualistic in nature, dichotomized

into a monetary economy on one hand and a subsistence economy on the

other. Some researchers (Freeman, 1991:1993; Rakodi, 1988; Memon &

Lee-Smith, 1993) have contended that, apart from reliance on money income,

most urban households in Southern African Countries also depend on

subsistence production from both urban agriculture and food coming in from

rural areas.

As of 1989, Malawi's population was registered at 8.8 million people, of

which 52 percent were females and 48 percent were males. Eighty seven

percent of the population lives in rural areas and depends on agriculture for

most of their livelihood, while 13 percent of the population lives in urban

areas depending on wages and salaries. (National Statistics Office, 1988).

The GNP per capita in 1987 was $180, but the United Nations in Malawi and

Malawi Government (1993) indicated per capita incomes of $287 for 1992.

Agriculture contributed about 35 percent to the Gross Domestic Product

(GDP), and to 90 percent of total exports in 1991-1992 (United Nations in

Malawi & Malawi Government, 1993). Main export crops were tobacco, sugar, groundnuts and tea, whereas crops predominant in the subsistence sector were mainly maize, millet, beans, potatoes and groundnuts. Livestock are raised primarily for cash but some are consumed. The Agricultural sector provides at least 80 percent of total employment. Manufacturing is mostly in small and intermediate industries, which tend to face stiff competition with imported goods and contributes about 12.9 percent to the GDP (United Nations in Malawi & Malawi Government, 1993).

According to the National Statistics Office (1989), labor force participation of women in various industries had increased. Women tended to predominate in agriculture, forestry and fishing industries and their participation was cyclical. Since these industries depend on natural conditions of weather, demand for labor would also shift according to changes in climatic factors. Manufacturing showed an increase in women's participation, maybe due to increased involvement of women in small-scale enterprises. Industries which required high educational qualifications, such as in the fields of electricity and construction, demanded women.

Literacy levels of Malawi's population have not been impressive. Only forty seven percent of the whole population is literate; and 67 percent of the rural population is illiterate, and 64 percent of rural women are illiterate (Human Development Report, 1992).

Malawi has been fairly successful in the health sector especially with immunization programs for under-five years old children. It has managed to

reduce to some extent the prevalence of childhood diseases and mortality (Economic Planning and Development, 1990). However, malnutrition still claims the lives of children due to inadequate food consumption, compounded by low incomes, low food supplies and mothers' lack of knowledge in nutrition (Peters & Herrera, 1989; Economic Planning and Development, 1990;1991).

The population explosion has exerted a great deal of pressure on the economy due to reduction in amount of available land for agricultural production and provision of basic social services in urban areas (Howse & Zimalilana, 1992). According to the Statement of Development Policies (1987), the average landholding size for the smallholder farmer was 2.5 hectares and that of the largest small-holder was 7.0 hectares. But most female-headed households in fact, have land-holding size of 0.5 hectares -- not adequate to sustain livelihoods (National Statistics Office, 1984). Farm incomes have become sporadic and unreliable because of macro-economic and environmental factors (Chipande et al. 1986; Pryor, 1990). Frequent devaluations of currency and inflation have made it harder for both urban and rural households to provide for their families. Malawi has also a high family dependency ratio, in which households are heavily burdened by those under the age of fifteen years, and those who cannot be absorbed in the labor force, and thus in need of a large share of social services (National Statistics Office, 1987).

Such a synopsis of the economic background of Malawi explains why women's dependence on farming and wages/salaries for livelihood is becoming increasingly difficult.

Women's Socio-economic Position

Scholars of rural and urban poverty have been mainly concerned with the poverty of women, using the term "feminization of poverty", to explain the increased incidence of poverty resulting from the migration of males to urban areas and from single parenthood (Northrop, 1990; Pearce, 1978; Peterson, 1987; Topouzis, 1990).

Pearce (1978) maintains that feminization of poverty is attributed to the nature and role of sources of income and the welfare system. In Africa, feminization of poverty may be attributed to the roles which different income sources play and the intra-household allocation of such incomes within the household (Kennedy and Peters, 1992; Topouzis, 1990).

Peterson (1987) supports Pearce in describing feminization of poverty as emanating from changes in demographic patterns. The author argues that feminization of poverty is not only due to changes in family structure, but also to institutional enforcement of how property and wealth is distributed in society (Stauldt, 1989). Men have had access to wealth and incomes through inheritance systems for a long time and continue that access within the modern economy, whereas women have tended to be marginalised to household production, which does not entail any tangible economic investment returns.

In her article of feminization of poverty, Northrop (1990) characterizes this phenomenon as affecting elderly women and female-headed households. But poverty may exist in male-headed households, especially where the husband is not employed -- a common scene in both urban and rural Africa where opportunities for employment are limited and competitive. The author states that demographic shifts and composition of economic growth have pushed women into poverty. Women are more inclined to work in the service sector because of flexible working hours, even though they are paid low wages.

According to Pearce (1978), women's participation in the labor force along with the marginalized wages has caused "pauperization and dependency on welfare programs" in industrialized countries (p.35). The status of women in Africa has also declined tremendously, exacebated by the absence of welfare programs and probable declining kin support (Ahmad, 1991), leaving many women to adopt other income earning activities to supplement their meager farm or paid work incomes.

Increased participation in wage earning sectors has not translated into economic security and improved well-being for most women (Peterson, 1989; Papps, 1992). This is because of work place segregation and marginalized work (Chipande et al., 1986). Topouzis (1990) states that:

"... as poverty levels in Africa continue to worsen, new evidence indicates that those getting poorest fastest are women. While reflective of the continent-wide economic decline, the impoverishment of women is also due to governmental neglect of women and drastic

cuts in social spending through structural adjustment programs and cultural denigration of women's role in society" (p.60).

Thus it is seen that women are vulnerable to the external shocks of macro-economic policies, hence prone to become victims of structural poverty. Topouzis notes that feminization of poverty is a new phenomenon in Africa because policy makers have not been greatly interested in women's problems, hence their concerns have been by-passed. The author attributes the problem of poverty to prolonged drought and debt crisis, which have increased male urban migration, leaving women to tend to farm production with limited labor and credit. Another reason given for increasing poverty is the growing number of dependents with fewer people earning a living. Diversion from subsistence to cash crop has contributed to declining food production and consumption, making huge masses of the population vulnerable to food and income insecurity (Lele, 1991; Pryor & Chipeta, 1990).

The National Statistics Office (1984) indicates that about 30 percent of families were headed by "de jure" heads of households (women without husbands), and the rest were "de facto" (women who are married, but husbands are working elsewhere) and male-headed households. Chipande et al. (1986) discovered that about 40 percent of households in rural areas were headed by females (this figure includes those whose husbands are away and those who do have husbands). Such large numbers of women living alone will need to stretch their energies to accommodate market work,

household and farm production resulting in poor harvests, malnutrition, food and income insecurity (Peters & Herrera, 1989).

It was reported that about 85 percent of the rural population in Malawi lived below the poverty line, according to international standards (Human Development Report, 1992). The United Nations in Malawi and Malawi Government reporting on the situation of poverty in Malawi indicate that about 60 percent and 65 percent of rural and urban households, respectively, live below the poverty line of US.$40 per year as measured by World Bank (United Nations in Malawi & Malawi Government, 1993). Among the population most likely to experience poverty are the urban poor, female-headed households, landless households and children (House & Zimalirana, 1992; United Nations in Malawi & Malawi Government, 1993). Lele and Adu-Nyako (1992) assert that: "...poverty in Africa is primarily a rural phenomenon. Its growing incidence is partly due to slow growth in GDP induced by economic policies that discriminated against agriculture. Urban bias in social spending has left the rural poor with little or no access to basic needs" (p.95). But Rakodi (1994) claims that the same problems experienced by rural households are faced equally by urban dwellers whose condition is compounded by lack of adequate land to grow food crops for subsistence consumption. While the percentage of each area in poverty are relatively equal, the high share of the population living in rural areas mean that most of the poor in Malawi live in rural areas, but money to urban areas is not necessarily a solution to poverty.

Although data on women's earnings are scanty, it can be concluded from

the incomes of other vulnerable groups in which women fall, such as

subsistence farmers and laborers that the incomes are not adequate for daily

maintenance (United Nations in Malawi & Malawi Government, 1993). The

information from the United Nations in Malawi and Malawi Government

Report shows that real earnings for farm smallholders dropped in 1992;

whereas in the informal sector, after dropping in 1988, these earnings have

been rising. These statistics, however, did not translate to high levels of

living because of high inflation and frequent devaluations of the Malawi

Kwacha (Pryor, 1990).

Another important factor in the feminization of poverty is the effect of

structural adjustment programs in Malawi, this has left women impoverished,

especially in urban areas, forcing them to seek marginalized jobs where the

pay is low (Due & Gladwin, 1990). Hence women have been found to be

engaged in small enterprises to augment their meager wages. These

earnings generally allow survival but do not build income security as a

cushion for future financial crises.

The Motivations and Nature of Income Diversification

Motivations

The traditional assumption that only economic needs necessitate

individuals to take up various economic activities no longer holds. Literature

reviewed suggests that individuals engage in the informal sector for many

other reasons. One of these reasons is for tax evasion (Eck & Kazemier,

1988); another is in order to meet survival needs, and thereby enhance family well-being (Freeman, 1991:1993; Grown & Sebtad, 1989; Memon & Lee-Smith, 1993; Rakodi, 1988); and a third is for professional growth (Whitener & Bokemier, 1993).

Whitener & Bokemeier (1993), in their study of moonlighting in rural America, found that apart from the economic motivations, couples reported that second jobs were for career enhancement. The authors identified both push and pull factors, which influenced participation in multiple activities. The push factors were low incomes, unemployment and the presence of children. The pull factor as high income derived from second jobs.

Freeman (1993); Memon and Lee-Smith (1993); and Rakodi (1988) suggest that women's goals for cultivation in urban open land in Kenya and Zambia were to supplement their husbands' incomes, whereas other women saw it as an avenue for gaining independence over the allocation of resources. Other reasons presented were those of feeding their children, self improvement, and that cultivation of open urban land represented a basic source of livelihood for most female-headed households. Rakodi (1988); and Freeman (1991:1993) contended that there are two scenarios to urban agriculture: survival and self-improvement, which might necessitate the reviewing of urban economic policies.

Schultz (1990) posits that women enter the labor force to obtain wages that would enhance their control over the returns of their labor and give them added power in making decisions regarding allocation of resources. The

paper also indicates the benefits generated from paid employment to be consumption, investments in health and education, and a decline in fertility.

Grown and Sebstad (1989) identified three motivational behaviors of women in selecting their survival strategies, depending upon location, access to or opportunities for informal sector activities, and other socio-demographic factors. The first motivational behavior is survival in which women are interested only in short-term remedies to alleviate the current poverty and resource insecurity. The second motivational behavior identified by Grown and Sebstad is security behavior. Once basic needs have been met, women go through the process of acquiring resources for security (Jiggins, 1989). For example assets such as goats, sheep and craft work are acquired easily and with some risk, since investment is required (Kurwijila & Due, 1991). The third motivational behavior identified by Grown and Sebstad is growth behavior. As women continue to diversify their assets and sell for a profit, they will engage in more risky enterprises. Cattle raising and small-scale businesses (tailoring, lime making, ceramics) have been identified as entrepreneurial strategies for increasing income security and growth (Grown & Sebstad, 1989); Jiggins, 1989; Kurwijila & Due, 1991).

Jiggins, however, argues that even though women might have these strategic goals for improving their livelihoods, they are constrained by seasonal climatic fluctuations (causing low supply and high demand for resources), lack of external markets, transportation problems, and the multiplicity of their roles as food producers, wives, mothers and part-time

income earners (Chipande et al. 1986). All these tend to limit their mobility and limit further exploitation of resources for larger enterprises (Chipande et al. 1986).

Reardon et al. (1992) noted that low levels of farm incomes force households to multiple earning activities and that off-farm/out of home incomes tend to off-set low levels of family income and consumption during lean years of harvest and unstable employment climate in urban areas (Freeman, 1991). However, Reardon et al. observed that these off-farm incomes did not improve income distribution among households.

The Nature of Income Diversification

Income diversification refers to dependence on multiple sources of income and non-cash income. These sources could be transfers, wages and salaries, trading, services, sales from crops, livestock and fishing, crafts and processed foods, intensification of subsistence crop production, foraging of wild plants and cultivation of "mini farms" in the back yards of most households in urban areas (Rakodi, 1988).

According to portofolio management theory, diversification is a response to risky ventures (Robison & Barry, 1987). Thus the critical question which confronts many households is "what number of income sources should an individual hold to arrive at a safety net?" Stark (1991), holds that portfolio investment theory helps to understand individual behavior regarding the selection of so many sources of income and the allocation of these incomes among so many competing consumption activities. The theory assumes that

households are influenced positively by stable incomes and balanced home production activities provided by women. It also assumes that joint, rather than unilateral, decision-making influences income diversification patterns of women and subsequent resource allocation (Stark, 1991).

Thus several writers have discussed strategies that families undertake during income and food insecurity (Chopak, 1989; Mead, 1989; Reardon et al. 1992; Schmink, 1984). Very few have dealt with the broader concept of income diversification in Africa for example; Reardon et al. (1992) in Burkina Faso who found that holding many sources of income increased household incomes. Peters and Herrera examined the effect of incomes derived from various sources on the nutritional status of children and women in Malawi and found that income received by female-headed households raised the nutritional status of children, when compared to male-headed households. On the whole, they claim that diversified sources of income increased the incomes of many housholds. Income diversification is classified here as formal and informal sector activities including paid employment and working on the farm. Danes et al. (1987) describe the informal sector as consisting of marginalized income earning activities, which are invisible in national accounts. These activities may not require much capital outlay and mainly rely on familial labor. Other scholars have extended the definition to include illegal activities that bring in income (Bonke, 1992; Menz & Wolff, 1993).

Scholars of the hidden/shadow economy view informal and household production as important income strategies in developing countries, whereas in

developed countries it is just a minor component of their total consumption (Merz & Wolff, 1993), but still significant enough to make a substantial contribution to the economic well-being of families.

In analysing these income strategies, the authors assert that informal activities for women may act as compensation for not working in the formal market. There are different views on the economics of these strategies, regarding the necessity for them and given the low amount of returns (Chipande et al. 1986; Chopak, 1989; Mead, 1989). However, the more one participates in the informal economy, the greater the returns in the form of income (Chopak, 1989). The discussion will therefore, center on five activities: paid employment, self-employment (petty trading and marketing), transfers, intensification of subsistence agriculture and home production.

Paid Employment -- Wages and Salaries. Women's labor force participation has increased tremendously, and varying factors have contributed to their participation. Several authors have asserted that women's participation in paid and other income earning activities have arisen out of economic necessity caused by declining real family incomes from agricultural produce or wages/salaries. (Boserup, 1970; Pearce, 1978). Other research has focused on socio-demographic changes as being the cause of women's involvement in wage employment (Pearce, 1978).

Literature on economic transformation and women's work suggests that gender and human capital are not factors that can prevent women from participating in paid employment, because where both men and women have

the same educational qualifications, they have tended to start at the same

level in terms of renumerations (Faulkener & Lawson, 1991; National

Statistics Office, 1987:1989). Faulkener and Lawson, rather, focus on the

nature of labor markets and social institutions which tend to reposition women

(Staultd, 1989). The primary and service sectors employ many women as

laborers at low pay (Faulkner & Lawson, 1991; National Statistics Office,

1987). This is with the assumption that women enter the labor force out of

necessity, and that if family financial resources should increase, they would

leave the job. Therefore, labor force participation by women is seen as a

transitory process.

Women's participation in the labor force is triggered by the uncertainty

associated with future incomes and their husbands' income (Blau &

Grossberg, 1991). The authors refute that growth in real-wages for women

can attract more women into the labor force. The possible uncertainty

variable these authors suggested was related to the expected unemployment

rate, which influences decisions to keep jobs or not, and which affects

women rather than men.

Hill (1983) looked at females' decisions which determined female labor

force participation (LFP), and suggested that female earnings, male earnings,

non-earnings income, schooling, work experience, age, and number of

children are factors that may influence decisions to work. Barret et al. (1991)

suggested that female LFP rises in areas where there is increased

agricultural employment, educational levels, and a greater proportion of

female-headed households. Place of residency determines the intensity of labor force participation. Barret, et al. (1991) stated that rural areas in China showed a higher rate of participation when other variables were controlled. However, urban areas tended generally to show high rates of participation in the labor force. The authors purported that urban jobs were determined by education levels, whereas in rural areas, demographic and social factors (sex ratio and household structure) influence family labor force participation. Danes, et al. (1987), in a study done in Honduras on the level of living and participation noted that the formal sector attracted women who had education, were young and married with fewer children. However, Psacharopoulos and Winter (1992) observed that although education influenced women's participation in the labor force, many women pulled out of their jobs and reentered after child-bearing. Marital status and number of children were seen to be deterrents to market work, especially where very young children were present.

Self Employment and Petty Trading. Economic squeeze does influence some behaviors which people resort to when they are experiencing financial difficulties. By studying the structure of the hidden economy, Eck & Kazemier (1988) found that a dichotomy in the participation of this activity existed. They contended that not only do low income individuals participate in the hidden economy, but also those who command high incomes. This contradicts those who claim that low income people are the only ones who engage in self-employment (Danes et al. 1987).

Beck (1989) has indicated that families' survival strategies are taking on debts, selling assets, and migrating. However, the author found that survival strategies varied with each type of family and that these ranged from gleaning to gathering wild foods. Chambers (1989) states that poor people have a mix of strategies, including selling. Alauddin and Tisdell (1986), in their study on poverty, resource distribution and security in rural Bangladesh, found that the rural poor, especially the landless and near landless, survived mainly on wage income and non-income sources, which included wild foods, firewood selling, free-ranging of poultry, and some limited grazing or fodder livestock husbandry.

The economic problems experienced by rural households, are also threatening urban dwellers and constitutes a phenomenon that calls for policy consideration (Freeman, 1993). Literature on survival strategies of urban households has concentrated on the mini-trades of crafts, processed foods or taking up part-time jobs (Livingstone, 1991). But several researchers (Freeman, 1991:1993; Memon & Lee-smith 1993; Rakodi, 1985:1988) acknowledge that urban agriculture is carried out by both males and females to supplement their consumption. In Memon & Lee-Smith's study on urban agriculture in Kenya, it is documented that a variety of crops and livestock were planted and raised respectively, to the extent that some households even planted twice a year. Often the planters grew their crops on illegally on land not owned by them. But, in the absence of social welfare programs

(Ahmad, 1991), such ventures seem to have been viable alternatives for low income households (Rakodi, 1988).

Bigsten and Kayizzi-Mugerwa (1992) also point out that although most households in urban Kampala (Uganda) are working, some do have a little land and engage in petty trading for survival. Thus urban households do also diversify their incomes to off-set the adverse effects of structural adjustments (Bigsten & Kayizzi-Mugerwa, 1992). The authors observed that despite the low wages in the modern market sector, the urban households did not leave their jobs, but instead, supplemented their incomes with remittances from their relatives who had left the country, and also from engaging in income generating activities. On the extent of urban agriculture, it was noted that livestock production accounted for 30 percent of total farm production. Also noted was that 70 percent of the output was sold to other urban residents.

Land availability can be an obstacle in societies which depend on subsistence agriculture for consumption. Netting (1993) observed that where land was in short supply, most family members sought off-farm activities. In a study done on Japanese farms, the author noted that farmers with land of more than 0.5 hectares had more males working on the farm and spent one third of their time in off-farm activities. Lipton (1991) adds that where individuals have adequate land, involvement in off-farm market work tends to decrease.

Reardon et al. (1992) however, found land holding size not to be related to income diversification, in a study conducted on the effects and impact of income diversification among rural households in Burkina Faso.

Transfers. Chilowa and Roe (1991) reported that remittances from kin were an important component of the economy of Malawi, and that urban households received more remittances than rural households. About 71 percent of households in urban areas received remittances as compared to 23.9 percent of households in rural areas. Peters and Herrera (1989), when studying cash cropping, nutrition, and food security in Malawi, also found that remittances did improve the economic status of female-headed households (de facto), whose husbands were working in the mines of South Africa.

In studying migration patterns of Botswana households, Stark (1991) stated that drought influenced remittance of incomes. The worse the drought, the more money was sent to families, suggesting that altruism was very much at play. In a study done by Gustafsson and Makonnen (1994), on the importance of remittances for the level and distribution of economic well-being in Lesotho, found that remittances from miners working in South Africa, decreased the inequality in income distribution in urban Lesotho. The rural areas, however, faced a larger inequality in economic well-being.

Intensification of Subsistence Crop Production. One of the ways to diversify is to intensify agricultural production to the fullest potential. Davison (1993) observed that women in rural Zomba, which is a matrilineal society,

clung to their land and farmed mostly for subsistence to counterbalance the inadequacies of income obtained from their husbands.

In describing the situation in rural Zomba - Malawi, Hirschmann and Vaughan (1983) contend that there has been major structural transformation in terms of decreased dependence of subsistence agricultural production. This is because of land shortages. Eder (1993), noted that despite the agrarian changes in the Phillipines, subsistence farming still persisted. Longhurst (1985) and Redhead (1985) argue that for any rural development to succeed, there is need to develop the production of subsistence crops and wild plants, because they are important in household food security.

Home Production. Household production activities may provide a means of satisfying those economic needs which would have been purchased in the market place. These activities can complement or substitute for market activities. In most African rural households, these form the bulk of goods and services that fulfill the needs and well-being of families (Engberg et al. 1986).

Margaret Reid (1934) a pioneer in the work of household production, ably distinguished paid from unpaid work and defined which activities should be labelled "household production." Reid excludes from household production those activities done by household servants and nannies because they entail measurement problems in empirical analysis. The scholar makes also a distinction between production and consumption. Consumption activities, it is argued, are those derived from personal choices, in which individuals make decisions of whether to engage in the activity or not; whereas, production is

described as the generation of utility (Reid, 1934). But these activities do not have distinct boundaries; and hence they very often overlap (Engberg et al., 1986; Beutler & Owen, 1980; Reid, 1934). Household production, then, according to Reid is:

> "...unpaid activities which are carried on, by and for the members, which activities might be replaced by market goods, or paid services, if circumstances such as income market conditions, and personal inclinations permit the service being deligated to some one outside the household group..." (p.11).

Thus childcare, cooking, fetching firewood and washing are some of the production activities which can be deligated and a price tag attached if the one performing such activities so wishes (Reid, 1934).

In their study to determine relationships between extended household production and satisfaction with household production (Dillard et al., (1992) stated that hours spent by husbands in household work were significant. That is, as number of hours husbands spent in household production increased, husbands felt corresponding satisfaction with household production. In the same study, husbands' hours spent in market work were found to be significant and positive, but wives' hours spent in market work were found not significant. However the wives reported satisfaction if they had spent 40 hours or more per week in household production. The authors suggested that the satisfaction indicated by the wives was due to the responsibility they have for household production activities.

Merz and Wolff (1993) indicated that although men in developed countries carried out household production, they nevertheless saw it as an income

strategy. Married women however showed less participation in informal market work and put more time in home production activities (Danes et al. 1987).

Bonke (1992) argues that the exclusion of household production activities in the GNP is the root cause of inequality in the distribution of resources. The author asserts that women's incomes are unpredictable in the analysis of income distributions because of sporadic incomes and their greater involvement in household production activities. In the study, Bonke sets out three implications for home production: firstly, household production activities provided more goods and services than money income; secondly, household production tended to equalize distribution; thirdly, within households, inequality occurred where women were involved in both market and non-market work.

There are several actors affecting home production:

Time. Time is a resource that may constrain women's participation in various economic and non-economic activities (Skoufias, 1993; Singal et al, 1993; Engberg et al. 1986). In the editorial remarks, Harvey (1993) applauds the significance of time-use studies for both social and economic policy. He posits that time allocation has ramifications on how individuals value leisure, health and money. Therefore, he calls for an examination of the interactions between these three spheres. Skoufias looks at the whole interrelationship between market and home production and notes that these activities tend to compete each other. Tradeoffs in time allocation tend to exist, which means

that concentrating on one activity, leads to the deterioration of the other (Bennett, 1995). Skoufias suggests that in order to know time allocation patterns of rural households, there is need to know household preferences, tastes and production technology functions. Examining labor market opportunities and intra-family time allocation in rural Asia, Skoufias found that where the opportunity cost of time increased for one member in various activities, there was also a significant effect on time allocation of other family members. He further noted that where men had high wages, participation of women in the labor force slacked, but time in leisure increased thus affecting household production activities negatively.

Seasonal variations do determine the extent to which women will allocate time to various productive activities. Singal et al., (1993), examining women's work status and their time use patterns in rural households of Haryana - India, found that women's time allocation increased during peak seasons of cultivation and harvesting, leaving them with dismally little time to rest. Another important finding in the study was that most women were engaged in both unpaid and paid work (Singal et al., 1993). The authors suggested that there was need to redefine work so as to bring uniformity when studying time allocations across nations.

Time also determines the choice of work household members may wish to undertake (Khandker, 1988). Khandker identifies a four way choice structure for time allocation "...to work inside the home-home production; to work outside-for wage; to work on the farm-for home consumption and to work on

self-enterprise for generating incomes" (p.111). Thus the extent to which women will allocate time to these specific activities will depend on the intensity of the work and the need for investing such time in those activities (Khandker, 1988).

The allocation of time in both market and non-market work may also depend on the presence of children, their ages and gender. Studies have shown that children play a significant role in terms of contributing to the labor pool (Beckerson, 1983; Bergen, 1991), thus freeing up their mothers' time for agricultural and off-farm activities.

Mehretu and Mutambirwa (1992) examined gender differences in terms of time and energy costs of distance in Zimbabwe. They noted that the number of trips to facility sources (firewood, water, marketing) varied by season, with the dry season accounting for more trips. They recorded that the average time for collecting firewood per trip to be 1.73 hours, with women performing over 90 percent of the trips. Marketing was mainly done by men, who devoted most of their time to that sphere. Thus, since firewood and water collection required much time and energy, women's health had been affected.

The time spent in fetching water in developing countries may delay the completion of certain other activities. Whittington et al. (1990) stated that people in Ukunda, Kenya compared the time spent collecting water and the type of service provided eventually they pleaded for more improved and inexpensive services. The authors noted differences in time allocation

emanating from the choices people made on whether to collect water from a kiosk or a vendor and also differences arising because of the price of water.

Health. Pitt and Rosenzweig (1990) studied the effects of child health in relation to gender inequality in the allocation of time. The authors found that there was no significant relationship between health levels and gender differentials in time allocation. However, in their estimates, they indicated that a relationship existed between health (treated exogenously) and allocation of time. They concluded that infant health influenced the way time is allocated in the family.

Young Children. The presence of young children also determines how time will be allocated to various activities in the home. Malathy (1994) found that children under the age of seven years increased their mothers' time in household work. Studying education and women's time allocation to non-market work in an urban setting in India, Malathy found that there was a high demand for time when it came to physical caring of children. The presence of infants and pre-school aged children increased women's time in household work, but reduced time for market work when Bergen (1991) conducted a study on 2703 respondents in the United States. Solberg and Wong (1992) support Bergen in that women's time is affected by the presence of preschool children, when they studied time use: leisure, home production, market work, and work related travel in the United States.

Education. Bergen (1991) found education to be negatively related to home production. Bergen's findings are supported by Malathy (1994) who, on studying the effect of education on non-market activities, found that education reduced women's time in household production.

Age. Participation in household work increased with age for the Indonesian teenage children. Pitt and Rosenzweig (1990) found that the involvement in household work was greater for teenage girls than for boys.

Place of Residence. Bergen (1991) found that urban women spent less time in home production activities than rural women which was attributed to the availability of services that reduced drudgery for the urban women.

Several authors have suggested how time should be measured both in illiterate and literate societies (Acharnya, 1983; Beckerson, 1983; Goldschmidt-Clermont, 1993; Harvey, 1990:1993). Goldschmidt-Clermont, in the article, deals with valuation of time expended in household production in monetary form in order to equate it with market work. The author attaches a monetary value to the amount of time used in the process of producing something, for example, home made foods and clothing.

Harvey reviews the historical background of time-use studies and then provides methodologies for dealing with the intricate activities that go on in the households. He suggests that data can be collected by either the recall method, observations or keeping a diary. Diary notation has problems of respondents not recording the times because they cannot write and read,

especially in illiterate societies. Beckerson, apart from using the recall method, randomly selected a day in the week and did a spot check of activities and time put into those activities. This method is particularly important to validate the diary and the recall method of collecting time data.

Well-being

Quality of life or well-being research predominated in the Western countries in the 80's to reflect not only the objective measures of well-being but also subjective measures (Hafstrom, 1986; Mullis, 1992).

Different scholars have examined well-being from individual to community's sense of well-being (Andrews & Withey, 1976; Campbell et al. 1976; Hafstrom, 1986; Pavot & Diener, 1993). In developing countries quality of life research studies in relation to income diversification have been extensively done in Asia and Latin America, but very few in the African region (Dasgupta, 1993; Fields, 1994), for example, Reardon et al. 1992; and Peters & Herrera, 1989 who conducted studies in Burkina Faso and Malawi respectively. But these have concentrated more on economic measures than subjective ones. There is only one study in South Africa, by Moeller (1983), which comprehensively examined various domains of life satisfaction among Black and White South Africans, in a country where racial tensions existed.

Satisfaction or well-being has been conceptualized as having both cognitive and affective aspects, whereas happiness is an emotional state produced by positive and negative events and experiences in the life of an individual (Dasgupta, 1993; Magrabi et al., 1991; Pavot & Dierner, 1993).

Dasgupta, in his seminal essay, describes well-being as being composed of positive and negative rights and freedoms, as experienced by individuals. The author identifies indices that constitute aggregate well-being as "per capita national income, life expectancy at birth, infant survival rate, adult literacy rate, political and civil rights" (p.3).

Magrabi et al. (1991), however, examine well-being more from a micro-level perspective dealing with households and individuals. They define well-being as "... an output from consumption of goods and services that people tend to derive their satisfactions and happiness" (p. 11). Magrabi et al. perhaps present a more holistic and coherent framework for studying well-being.

Objective Measures

Money Income. Money income is derived from salaries, wages and cash transfers from government and relatives. For a long time money income has been used as a major tool for assessing economic well-being. Studies on well-being show that income has a great influence on both objective and subjective well-being (Dierner et al. 1993; Peters & Herrera, 1989; and Rettig & Bubolz, 1983). In a study done by Peters and Herrera (1989) on cash cropping, food security and nutrition in rural Zomba, Malawi, income played a significant role on the nutritional status of children, especially in female-headed households. Similar results were obtained by Kennedy and Peters (1992), when income interacted with gender. They found that income

controlled by females had a more positive impact on food consumption and nutrition than male controlled income.

However, critics claim that per capita income does not capture the salient non-cash exchanges that go on in developing countries (Haddad & Hoddinott, 1994; Sahn et al. 1990; Dreze & Sen, 1990). Therefore non-money income and household production have also been used in assessing well-being (Peters & Herrera, 1989). Both the median and the mean incomes have been used as measures of money income. Poverty indices and lines have been used in examining economic well-being of households and individuals. Poverty indices in the US are based on a thrifty food plan for one family, adjusted for family size and consumer price index (Orshansky, 1978). Poverty has been defined as the inability of an individual or household to possess adequate resources to meet basic needs (Blackwood & Lynch, 1994; Fields, 1994).

Fields identifies measures of poverty such as the Sen Poverty Index, the Lorenz Curve and the Gini Coefficient. The Lorenz Curve is a graphical representation of the relationship between the cumulative shares of income on the vertical axis and cumulative share of population (from the lowest to highest income bracket) on the horizontal axis. The wider the curve, the larger the inequality among the population (Fields, 1994; Blackwood & Lynch, 1994; Humphrey, 1971). The Gini Coefficient is a measure of income inequality. It is the ratio of the area between the Lorenz curve and the diagonal line. If the Gini Coefficient is zero, then income is equally

distributed among the population. Coefficients that are greater than zero depict inequality. Blackwood & Lynch criticize the relative measures as not showing (a) the number of people who fall below poverty line; (b) the severity of economic suffering and only providing a partial ranking of income distributions.

Factors Affecting Total Income/Earnings Human Capital: Education, Age and Health

Education. Human capital is a very important determinant of earnings and participation in economic activities (Becker, 1964; Sahota, 1978; Schultz, 1961) and may ultimately influence well-being. In analysing poverty, Sahota claims that human capital is the important factor in explaining differences in income distribution. Although work on human capital took its toll in early sixties, Gary Becker is the one who applied the theory to individual income earnings (Becker, 1981). The theorists of human capital purport that people's economic status is determined by their investment in education and training (Becker, 1964; Sahota, 1978; Schultz, 1961). Gary Becker (1976) asserts that education is used as a screening device for earnings differentials among individuals in the market place.

Psacharoppoulos and Winter (1992) noted that although education influenced women's participation in the labor force, many women would pull out of jobs and reenter after child bearing and raising. In Psacharoppoulos and Winter's study, human capital variables explained 20 percent of the variance in wages, despite controlling for type of education and career

interruptions. Both discrimination and human capital variables had substantial effects.

Mueller (1982), in her article on applying human capital theory to women's changing work patterns, found that years of schooling and work experience were poor measures of human capital. However, Jones and Peck (1993) found that human capital investment did have a positive impact on wages or earnings for white men and women who had post-high school qualifications. In their examination of the effects of wives' human capital, family size and family constraints, and labor market characteristics on earnings and employment decisions, Godwin and Marlowe (1990) concluded that changes in education affected off-farm earnings.

Work Experience. Mincer and Polachek, (1974) are said to be the first researchers to conduct a study on the determinants of female earnings using human capital. They found that discontinuity in market work was a major deterrent in earning capacity. Their study indicated that women's earnings declined during the period they were out of work. As for single women, uncertainity on the part of employers to invest in them influenced the earnings differentials.

Health. Health may affect earnings of individuals. Schultz (1990) proposed that health did have an impact on earnings and also on how individuals were going to respond to economic situations. Rudkin (1993)

reported that elderly individuals in Java who had better health had higher incomes than those who were ill.

Place of Residence. The place where one resides can determine the amount of income one can earn. When Rudkin studied gender differences in economic well-being among the elderly of Java, she found that residing in rural areas affected women negatively in terms of household resources -- including money. In her study, the economic measure included individual's receipts of money, housing quality, household income and assets.

Age and Marital Status. According to Becker's assertion that earnings typically increase with age at a decreasing rate; younger persons change jobs more frequently and receive more schooling and on the job training than older people. Wellen and Peck (1990), in their study on the effects of human capital on income and net asset amounts of older women in the US, found that age was not significant for incomes, but was significant for assets as age increased for these women in the sample. Jones and Peck (1993) indicated that earnings/wages tended to rise with age. The older women cohort showed a negative effect on net assets. They attributed the differences to the fact that young unmarrieds might have interrupted jobs because of school attendance, and also to the nature of the jobs themselves. For the unmarried older women, divorce and widowhood might have eroded the permanent source of income from their spouses. The authors argue that disaggregation

by marital status and age cohort can be beneficial in isolating pertinent problems faced by these women.

In summary, Sahota (1978) contends that human capital influences economic growth and equitable distribution of income. The author states that theoretically, consumption is the ultimate goal of economic systems and will be affected by the quantitative and qualitative nature of human capital. However, critics of this theory argue that intervening variables of opportunity and environment should not be ignored. Another limitation of this theory is that, it may neglect the impact of preschool and informal education a family invests in a child (Sahota, 1978). In African settings there is a great deal of informal/traditional education given to youngsters which includes skills for income generating activities.

Subjective Measures

In studying subjective well-being, researchers have utilized concepts such as life satisfaction, including marital satisfaction, presence of children, market and household work, perceived adequacy of resources, and neighborhood quality (Andrews & Withey, 1976; Campbell et al., 1976; Omsby & Fairchild, 1987).

To come up with a valid and a reliable measure, an instrument requires testing and retesting. Larsen et al. (1985) evaluated the various measurements of subjective well-being with the aim of developing a valid measure which could accommodate all components of well-being into one composite measure. They tested twelve measures of single and multi-item

instruments. The Fordyce single item measure had stronger reliabilities than the Gurin and Cantril multi-item measures. They suggest that different samples may respond differently, hence it is important to retest the measure on the sample one is going to study.

Glatzer and Mohr (1987) suggest the inclusion of housing, health, nutrition, and education as powerful predictors of quality of life and point out how these are related to subjective well-being. The authors refute the assumption that those individuals who live in better living situations are more satisfied than those living in poor conditions. This is because, they argue people "...tend to value their own living conditions and not for the whole population, have different expectations and value judgements and also different individual standards may result in different levels of satisfaction." (p.16). To minimize the inadequacy in measurement, the authors suggest a framework whereby income and consumption expenditures can be measured by adjusting for differences in the needs and satisfaction derived from those needs. This is because individuals are different and requiring different amounts of resources.

Factors Affecting Subjective Well-being

Marital Status. In her study, of the Impact of Family Life and Work on Quality of Life of Utah Dairy Farm Households, Gorham (1992) found that wives were more satisfied with work in the home, whereas husbands were more satisfied with market activities. Mastekaasa's study (1993) Norwegian sample of 3900 in 1973 and 5000 in 1980, 1983, 1987 and 1991 found that

marital status did influence subjective well-being positively. The author reported that never-married men were dissatisfied with their lives. In Nortn America, Glenn and Weaver (1988) showed that never-married men reported higher levels of satisfaction, whereas for single women this was not significant. White (1992) found different results with marriage and well-being when he used the General Social Survey (GSS) of Canada. When age and health were included in the equation, the author found that single women who were healthy reported higher subjective health than did married women.

Family Income. Family income and subjective well-being were significantly correlated when Dierner et al. (1993) studied a relationship between income and subjective well-being, suggesting that individuals view income as a primary component of well-being. However, the authors claim that even when income and well-being correlated strongly, respondents were not happy with their lives, suggesting that other factors may have affected their lives. Sumarwan and Hira (1992) found monthly income to significantly related to satisfaction with preparation for financial emergencies when they studied how the managerial behavior affects satisfaction with the preparation for financial emergencies. Olson and Schober, (1993) also claimed that a person can be satisfied with well-being, even though he/she is poor, because an individual does come to accept the conditions in which he/she lives. Douthitt et al. (1992) indicated that economic, psychological and non-economic variables were significant in explaining overall well-being. In their study with the Madison-Wisconsin households, they found that the

percentage of variance explained by the dependent variable increased when the weighted life satisfaction was used along with income and consumption. Therefore, there was a strong relationship between indices of life satisfaction and family income.

The study done by Lee and Liu (1992) on measuring socio-economic effects when using income as a quality of life indicator, suggested that per capita income or consumption expenditures are not adequate to explain quality of life. Other factors, such as crime rate, traffic conjestion, environmental and occupational hazards, might also have an effect on quality of life. Crider et al. (1991) found income as an important factor in explaining community satisfaction and happiness among urban residents, whereas, number of friends was more important to rural residents. Thai people with high incomes were more satisfied with their lives than low income group, when Leelakulthanit and Day (1992) did a study on quality of life in Thailand.

Number of Children. The extent to which women will describe their own quality of life depends on other socio-economic factors. In a study of determinants of quality of life in rural Nigeria, Oluwoye (1990), found that women indicated having many and well-educated children as major components of quality of life. This may be due to the value African societies place on children and the belief that children will provide financial and social security for their aged parents.

Place of Residence. The location where one stays determines how well-being is described. Rural households indicated that the presence of friends and not relatives was an important component, whereas, urban dwellers indicated money as very important (Crider et al., 1991). The authors concluded that there was an interaction effect between income and residence in explaining life satisfaction. Helmick (1986) examining social class and area of residence in relation to quality of life found that differences occured between metropolitan and nonmetropolitan residents in terms of satisfaction with life. Male residents in metropolitan areas indicated low satisfaction with their lives, whereas females were satisfied with half of the components of well-being. The author concludes that differences may occur because of differences in social class.

Age. Age was found not to be significant for satisfaction with preparation for financial emergencies when Sumarwan and Hira (1992) studied a sample of 297 money managers from rural counties of a mid western State in the USA. Heardy (1993) found there was no relationship between age and over all well-being, but found that the younger group tended to experience both satisfying and distressful lives. In a study done by Leelakulthanit and Day, (1992) in Thailand, found that there was no difference among the age groups on how they rated their satisfaction with life.

The Household Economy and the Householding

Several researchers (Becker, 1981; Lancaster, 1966; and Nerlove, 1974) have theorized that the structure of the household economy provides a meaningful linkage between market and non-market activities. Other researchers, (Bruce and Dweyer, 1989; Evans, 1991; Guyer and Peters, 1987; and Wilk, 1989), have studied the household economy from anthropological, sociological, and economic points of view with varying conclusions. Scholars have attacked the "household" concept from a conceptual perspective (Evans, 1991; Folbre, 1988), from a perspective of methodological problems (Guyer & Peters, 1987) and also from a theory integration perspective (Cheal, 1989; Peterson, 1989; and Wilk, 1989).

Wilk (1989) describes the household economy as consisting of interacting relationships in terms of production, division of labor, consumption activities and the inter and intra-household exchange. These activities, he contends, evolve into varying degrees of consumption demands and control of resources. Hence power relations in the household are dictated by access to economic modes of production (Davison, 1989:1993). Thus it is conjectured that there are variations in access to resources attributed to gender, wage income and transfers (Guyer & Peters, 1987; Kennedy & Peters, 1992) and these changes may constrain the process of enhancing well-being in households.

Wilk indicates men as the only individuals who can go for market work, when changes in the household structure and composition occur. But studies

have shown that women, too, are increasingly opting for off-farm activities, because of the need to generate income to supplement farm incomes (Chipande et al. 1986; Kurwijila & Due, 1991; Peters & Herrera, 1989). Individuals may have different motivations for certain economic pursuits, depending on their needs and goals at a particular time.

The study of the household economy is a multidisciplinary entity and includes the examination of inter and intra-household behavior, dealing with more salient activities of production and consumption. Thus, Peterson (1989) asserts that as more people diversify their activities from the home to the market, there is need to integrate the household and market economies. Peterson argues that the failure of economic anthropologists to integrate the household economy with the public economy precluded the role of market resources in the facilitation of home production activities. By integrating these economies, issues that may hinder increased productivity, such as access to technology, land, credit and money income, can be captured and the family's livelihood improved.

David Cheal (1989) views the economic behavior of households in relation to microstructures such as local labor markets, social networks and home production. The author argues that economic behavior is affected by long-term commitment to the structures of relationships within the household, such as child rearing/caring and household division of labor. Subsquently, he contends that in order to understand these structures fully, the examination of moral and political/economic models are inevitable. The moral economy

generates interesting insights, especially in agricultural based economies and where extended family plays an important role in household resource allocation decisions. In other words, there are activities that have no monetary value attached to them, and yet they contribute much to well-being of individuals in the household.

In the book, <u>Understanding Africa's Rural Households and Farming Systems,</u> Guyer (1986); and Peters (1986) draw on the importance of the household in embracing economic and cultural aspects in relation to gender and division of labor. Guyer (1986), Peters (1986) and Guyer and Peters (1987) all agree that decision-making is not done in a vacuum, but within the confines of socio-spatial-temporal boundaries (Schmink, 1984). Vaughan (1987) presents an historical approach to the conceptualization of the household. The author states that in order to understand gender relations in the household, it is necessary to examine historical roots of economic activities and resource distribution. Vaughan argues that colonialism encouraged the sexual division of labor by introducing cash crops and the commoditization of labor in Malawi (Davison, 1993). Thus Vaughan refutes the claim that the household is a collective entity of production and consumption which has collective access and control to resources in African settings. The author contends that such analysis of the household poses methodological problems, because of separated incomes and unilateral decision-making over financial transactions.

A more recent analysis of the household and gender relations in Malawi has been eloquently documented by Davison (1993). Studying the tenacity of women and why they hold on to "banja" (family) household production, Davison enchos what Vaughan established -- that the cause of women's and men's differential access to productive resources is the introduction of commercial farming. The author asserts that because of the low price attached to women's labor, women in rural Zomba were not willing to give up producing food for consumption on their land. This was because they obtained low wages whenever they worked for their husbands' cash crop farms. Similar conflicts occurred in the Cameroonian rice growing schemes, in which wives and children rebelled against their husbands and fathers while working on the their farms for not receiving renumerations proportionate to the amount of time worked (Jones, 1986).

Despite the many factors which must be taken into consideration, Schmink (1984) believes that the household is a convenient unit for the collection of data and analysis of collective consumption, and therefore can be considered a most plausible analytical tool which accommodates the varying behaviors of individuals.

In conclusion, the literature reviewed suggests that there are gaps in research regarding the integration of Family Resource Management systems and Household Economic Theories in examining the relationships of market and non market work and in examining the relationships of objective and subjective well-being in Africa, and in Malawi in particular. The studies also

show that the subjective well-being constructs are culture specific. For example, the effects of marital status on subjective well-being have been conflicting, with European and Amerian samples showing negative and positive relationships with well-being. There have been non significant results with human capital, personal and family characteristics, resources, market and non market work on both objective and subjective well-being in different countries. The literature reviewed also shows that there is lack of empirical data to effectively assess the determinants of economic and subjective behavior. Most data have been descriptive and fail to define the relationships among variables.

An Integration of Household Economic Theory and Family Resource Management Frameworks

A Family Resource Management framework derives its concepts from the general systems framework, which provides an arena for analysing "goal oriented behavior" of families as they deal with the changing social and economic living situations (Deacon & Firebaugh, 1988). Families respond to changes by incorporating past experiences in the present context relative to the impetus exerted by other systems, be they physical, social, technological, or economic (Deacon & Firebaugh, 1988; Axin & Paulucci, 1977). Therefore, it is necessary to examine the dynamic interactions that exist between family members and their environment. The Family Resource Management System (FRMS) is ideal for such an analysis, as it provides those tools which are

integral to day-to-day operations of families and individual members as they strive to achieve their desired goals.

The Family Resource Management system adopts the input-throughput-output paradigm to better explain the changes that take place from the period a family formulates its goals until those goals are achieved depending on the availability of resources (Deacon and Firebaugh, 1988). The input in the systems framework consists of energy, information and matter, and flows into the family system as resources, demands, goals and events. The throughput includes two transformation process subsystems -- personal and managerial (Figure 2.1), which deal with value and goal orientation, plus the planning, organizing, controlling and implementing related to input factors. The output consists of met demands or goals, and in this study, the overall goal of enhanced well-being.

In this particular study, the goals of adequate income and managing time in home production activities relative to demands and resources are best captured in the model. Managerial behavior is assumed to enhance well-being. through control over resources and allocation to priority goals. Malawi households are seen to be relatively open systems within which both internal and external changes are seen to have equal potential to affect resource flow and management.

The Household Economic Theory, formulated by Becker (1981) originates from a neo-classical perspective and indicates that a household is both a production and a consumption unit. This unit allocates its resources both to

Fig.2.1 The Original Personal/Management Subsystems

INPUT

DEMANDS

External

Family values, goals, claims
Social norms, claims
Events

Internal

Personal goal orientations

RESOURCES

External

Family supports
Social supports
Income and net worth

Internal

Personal capabilities, qualities
Life experiences/relationships

- - - Feedback - - - - - -

THROUGHPUT

Environment

PERSONAL SUBSYSTEM

Developing capacities
Evolving values

MANAGERIAL SUBSYSTEM

Planning
Implementing

Environment

- - Feedback - - - -

OUTPUT

DEMAND RESPONSES

Goal orientations
Goal achievements
Personality development

RESOURCE CHANGES

Personal capacities/qualities
Income and net worth

Source: R.E. Deacon and F.M. Firebaugh, (1988). <u>Family Resource Management</u>. (p.22)

market and non-market activities to obtain the ideal "commodity" output. In the process of producing and consuming, a household utilizes time and goods as production functions (inputs) for the purpose of maximizing utility. However, a household may be constrained by income, prices, technologies and time (Becker, 1981; Lancaster, 1966; Nerlove, 1974). Time then, is considered to be both an input and a constraint.

The Household Economic Model gives us a perspective from which to interpret rural and urban household behavior patterns, as resources are allocated to sustain livelihood (Low, 1986). According to this theoretical model, a household will allocate time, either to household production of Z-goods (things produced and consumed at home) and leisure, or it will allocate time to market activities, such as the production of market goods and services or paid employment (Low, 1986; Becker, 1981). Implicit in this theory is the assumption that one will do home production activities as long as the time used produced higher satisfaction than could be obtained if that same time had been used to earn money for the purchase of desired goods and services.

Household Economic Theory assumes that there is a substitution between market and non-market production activities, thus, trade-offs exist, depending on the comparative advantage (relative human capital) of the individuals undertaking such tasks (Becker, 1981). Becker suggests that those individuals who have a comparative advantage for working in the

market would specialize in that area; similarly, those who have a comparative advantage for working in the home would specialize in that arena.

An integrated framework of Family Resource Management Systems and Household Economic Theory (Figure 2.2) is being proposed for this study. It utilizes the managerial component of throughput in order to provide an integration of consumption, production, reproductive and management behaviors and decisions which rural and urban women make. Deacon and Firebaugh (1988) describe management as, "...a series of decisions throughout the planning and implementing processes, which constantly involves one's value system as choices are made." (p. 21).

The unique contribution of the integrated framework in relation to the maximization of utility, is its incorporation of such concepts as: inputs, throughputs, and outputs; planning, implementing, and controlling market and non-market work; and preferences and choices of women to engage or not engage in income diversification. Central to this analysis is the assumption that different goal achievement strategies exist among women despite their having the same amount of resources or having been exposed to the similar demands. At the same time, Becker's theory predicts that individuals will respond to economic incentives in rational ways, based on maximization of economic well-being, as an output. Consequently, a multifinality of outcomes will emerge (Deacon & Firebaugh, 1988).

Resources, demands and preferences are the building blocks of this integrated model. These are important in explaining women's managerial

Input	Throughout	Output
Human Capital Demands • Personal and • Family characteristics Family Resources • Material • Non-material	Managerial behavior Market Practices: • Income diversification Non-market Practices: • Home Production	Utility Maximization Objective Well-being • Economic well-being Subjective Well-being • Satisfaction with well-being

Feedback
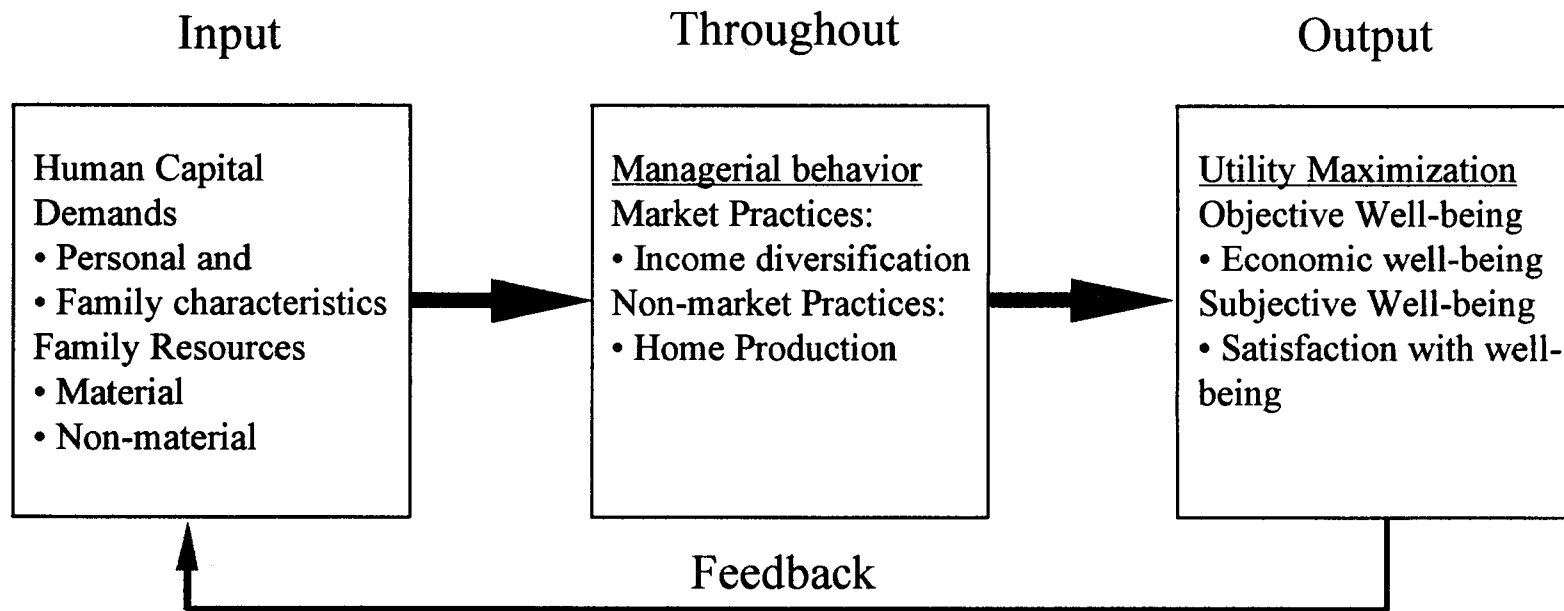
Figure 2.2 An Integrated Conceptual Model of Family Resource Management and Household Economic Theory for Examining Factors Affecting Economic and Subjective Well-being.

decisions to adopt multiple economic and managerial strategies. The financial insecurity that women may experience might be due to differences in their adaptive strategies to secure adequate income. Thus, differences will occur in their ultimate goals of achieving consumption levels and well-being, as well as in their assessment of well-being.

A feedback process either inhibits or promotes change, depending on the outcome (Deacon and Firebaugh, 1988). Therefore, feedback to the household may result in increased allocation of time for a specific strategy or the diversion of energies completely to a new income strategy. The strategy which is most effective in producing the desired goals will be adopted.

In this study, the assumption is made that women will make decisions to diversify their incomes or economic activities (market practices); or they will combine home and subsistence production activity with help obtained from the extended family. This contention is based on the premise that the traditional role is a stable and efficient household production system which a woman may rely on for her livelihood should market opportunities fail. However, a woman will turn to economic activities outside the home, when household production is inadequate to sustain livelihood. Once home based production has been disturbed by both external and internal demands on the family system, the woman has to make choices of whether to diversify her income sources or remain in the current level of production. Thus an individual may remain at zero income level, have only one outside source, or acquire a number of income generating activities to promote both economic

and subjective well-being. These processes of income diversifying and allocating time to home production activities are influenced by resources, whether human capital or material resources, and accompanied by the demands that may motivate a woman to engage in market work or concentrate on subsistence/home production.

In this integrated model, the input variables consist of human capital characteristics such as age, education and health status; and family resources such as marital status, land size, access to farm inputs, location, and number of adults in the household. It is predicted that choices of engaging in market or non-market activities may be constrained by demands, such as household size, number of children under seven years old and family health.

The throughput, or transformation variables, are 1) managerial strategy of deriving income from zero to many sources; and 2) allocating variable amounts of time to home production activities. The output component of the integrated model consists of met demands and goals dealt with in the input and throughput sections respectively. Thus, maximization of utility can be achieved, by utilizing either the transformed resources or input resources and the demands directly. In this analysis, the output is economic well-being (measured by woman's earnings) and satisfaction with well-being (which is a composite of satisfaction with an array of household resources including household expenditures, work and economic contributions and family relationships).

Several researchers have utilized a Family Resource Management framework to study economic well-being and general family financial management (Beutler & Mason, 1987; Rowland et al. 1985; Sumarwan & Hira, 1992). Sumarwan and Hira (1992) utilized the Family Resource Management Systems Framework to explain relationships among socio-economic variables, financial management practices and satisfaction with preparation for financial emergencies. They concluded that age and monthly income were the best predictors of the managerial behavior index and of monthly debt payments. The authors, however, advocated the use of savings for implementing financial events, and as a base for income security. The authors further stated that insurance was needed to manage risk when an individual is in financial crisis. Therefore, larger savings and insurance would promote well-being (Sumarwan & Hira, 1992).

Rowland et al. (1985), examined how US families perceived the adequacy of their resources. The study was mainly intended to test the scale for internal consistency, rather than have generalizable conclusions. However, it is a useful study that tests one component of the Family Resource Management System -- the input.

In examining resource allocation within the household, Cheal (1989) utilizes the Household Resource Management paradigm to unravel the relationships between social units and diversified amounts of resources. In the article on resource allocation in the household, Cheal identified land,

capital, time, information and social identity as critical factors in enhancing a household's well-being.

One striking work on the conceptualization of family resource management, is in the area of development and testing of measurement instruments for management concepts. Heck and Douthitt (1982) tested the Family Resource Management Systems Framework by examining management processes and components. Heck (1983) examined the relationship of family input conditions and throughput activities leading to family outputs. The author found that throughput activities had a significant impact on family satisfaction with the cleanliness of the house. She further indicated that management behavior was influential on one output variable.

Beutler and Mason (1987) used both the homehold production model, developed by Beutler and Owen (1980), and the Family Resource Management Framework to explain the impact of household production on expenditure patterns. They found that household production activities had a profound effect on expenditure patterns, thereby influencing consumer behavior. Level of education was another key influence upon the relationship between household production and consumer behavior. Beutler and Mason noted that money saved by concentrating on household production can increase/improve the welfare of family members, as well as contribute to their accumulation of wealth. In conclusion, they stated that market employment is an input to household production; whereas human capital which is an output (at least partly) from household production, is said to be an input to market

work. Such a symbiotic relationship does promote human capital development and would be a needed input to the general well-being of women and family members.

A more comprensive integration of family resource management and production concepts has dealt with by Owen and Beutler (1981). Their study of household production and market employment examined the effects of demands and resources variables on home production and market employment, and expenditures. Household size and stage of the family life cycle influenced positively and negatively on home production. Education and marital status were also significant, but positively related to home production, market employment and income. Household size was positively related to market employment as well.

In summary, the studies reviewed on theory suggest that it possible to integrate theories to examine the complex set of individual behaviors. The studies also show that there is an interrelationship between input, throughput and output variables.

In their review of the "New Home Economics Framework," Ferber and Birnbaum (1977) acknowledge rational household decisions and the simplicity in analysing behaviors of household members. Just like other critics, the authors advocate the bargaining and conflict management that goes on in the household, not just a single household analysis. Because of differences in preferences and tastes of family members, the authors maintain that all members interests should be acknowledged in household analysis.

While Household Economic Theory has been commended for its contribution in explaining the economic and market place behaviors of individuals within the household and for recognizing both consumption and production activities, it suffers certain methodological problems (Evans, 1989; Folbre, 1988; Guyer & Peters, 1987). Berk and Berk (1983) criticise Household Economic Theory for its conflicting assumptions and methodologies on the analysis of the household unit. However, the authors concede that in the absence of a more holistic model which incorporates both market and non-market work into a single unit of analysis, the Household Economic Theory remains the only tool for micro-level analysis (Schmink, 1984).

This study, therefore, attempts to incorporate concepts from both Family Resource Management Systems and Household Economic Theory for the purpose of defining the managerial behavior of women and not households in both market and non-market activities. This approach has not been developed or used in empirical research in Malawi. The overall hypothesis is that human capital characteristics, family resources, income diversification and home production will influence the economic (Becker, 1981) and subjective well-being of women (Deacon & Firebaugh, 1988).

CHAPTER THREE

METHODOLOGY

This is a descriptive and an exploratory study designed to quantify the economic and non-economic behaviors of Malawi women and the subsequent effects on economic and subjective well-being. The objectives of this study are first, to describe the demographic, economic and subjective characteristics of women in the sample and find out why they engage in various earning activities; second, to explore and develop an integrated model of Family Resource Management Systems (FRMS) and Household Economic Theory to help explain relationships between input, throughput and output variables. This chapter is divided into the following sections: 1) study site and sample; 2) techniques of data collection and coding; and 3) data analysis.

Study Site

The study took place in two districts in Southern Malawi -- Zomba and Machinga. In Machinga, the study was conducted in Liwonde trading center (about 50 km from Zomba) and Balaka area (about 80 km) from Zomba. These two sites are important growth points and have been categorized as urban/town by the National Statistics Office (Population Census and Housing, 1987). The Rural Machinga included four villages in the Traditional Authorities of Liwonde, Sithola and Kalembo.

According to the National Statistics Office (1987), Machinga was recorded

as the district with the highest proportion of economically active population.

In urban Machinga (which is comprised of the District Headquarters, Liwonde

and Balaka), females recorded as working were 2310, of these, 1,460

females were engaged in subsistence farming, 667 were in paid employment

and 183 were self employed (National Statistics Office, 1987). Rural

Machinga had 127,518 females engaged in subsistence farming, 2,178 in

paid employment and 2,572 in self employment. Apart from this, Machinga is

blessed with a game reserve which is an attraction to tourists.

Zomba District which, is 66 Kilometers away from the major industrial city

Blantyre, was the former Capital of Malawi. In Urban Zomba females were

engaged in manufacturing, trading and wholesaling; construction, community,

and social services. Those recorded as working were 2927, out of this figure,

633 were engaged in subsistence farming, 1,683 in paid employment and

611 were engaged in self employment. Thus both districts are characterized

by a dual economy -- monetary and subsistence.

Sample

The unit of analysis in this study is the household, since it is the only one

which can accommodate the analysis of individual family members' needs.

The study was targeted at unmarried and married women in varying

economic activities. Seven hundred and fifty names of women for the study

were compiled from three different sampling frames -- National Statistics

Office, Liwonde Agricultural Development Division (LWADD) and National

Business Women Association in the two districts. The advantage of using the three lists was to make sure that those women who were in farmers' clubs and women's business association lists would have an equal chance of selection. Also it was done to include similar numbers of rural and urban women on the list. From this list, a systematic random sample of 150 women was drawn (picking every fifth name on the list) in Urban Zomba and Rural and Urban Machinga. Where the respondent was not available, the team members made second visits. Finally, the team ended up interviewing 136 women, due to limited funds and time. The other reason was declining from participating. Seven questionnaires were discarded due to missing data. The final sample utilized in the analysis was 129. Since the sample was selected from different sampling frames, it is not representative of the whole population of women in these districts, nor Malawi in general. Therefore, the results are not generalized to the whole population, but only to the women studied. Appendix B shows how the sample was selected and the distribution in the districts.

Data Collection

Questionnaire Construction

The questionnaire for this study consists of questions on socio-demographic, economic, health, time allocation and satisfaction with various domain of life variables.

Socio-demographic Questions. The questions dealt with information relating to age, education of the respondent and children, marital status,

family structure or type, household size and household composition. This information is obtained from Questions 2-8. (Appendix C).

Economic Questions. This set of questions (Q10-Q14) focused on the major occupations, sources of income and amounts, reasons for engaging in various economic activities, how frequently these activities were done, and at which times of the year. The other question, Q16, which followed in this category, asked whether women had access to farm credit, fertilizers, equipment, and seeds. Question Q17, about consumer loans was also asked. Women were asked to indicate the source of loans and amounts. Questions Q18-20 dealt with access to land, type of land and estimated size. Questions Q34 & Q35 asked about savings. Other questions were on expenditures, decision-making and assets (see Qs 21-25; Q26-Q29 respectively).

Time Allocation. This part of the questionnaire (Qs36-39) dealt with time allocated to selected home production activities such as food processing, child care, home maintenance and firewood collection, wage and self employment and farm work.

Satisfaction with Well-being Indicators. The last section had questions on satisfaction with various aspects of well-being, ranging from employment to overall satisfaction with life. The items were selected from a variety of instruments developed by Andrews and Withey (1976); Campbell and Angus (1976); and Moellor (1983). The items were modified to suit the type of

sample and culture studied. The Instruments from which the items were extracted had Cronbach's alpha reliability coefficients of at least .70.

In all these items, questions were developed on a Likert five-point scale, ranging from "very dissatisfied" given a rating of "1," to "very satisfied," rated "5."

Focus Group Methodology

Interviewing people in small groups helps researchers to gain insights into problems which may affect many people (Fuller et al. 1993); Morgan & Kruger, 1993;). For example Fuller et al. studied subjective crowding, lack of privacy, norms about family interaction and family conflict. They asserted that the data generated were reliable and that concrete hypotheses were formulated for the next study. Morgan and Kruger also state that focus group information can be used to validate quantitative data which failed to capture salient and sensitive issues or global issues.

For this particular study, three focus groups were conducted in the two districts. In rural Machinga, the principal researcher and two research assistants conducted one focus group with adult women and another with girls, aged between 11 years and 17 years old. In urban Zomba, only adult women were included. The objective of the focus groups was to get first hand information from these women on how they perceive and define well-being and poverty. The discussions also focused on the constraints these women faced in their day to day living, and what visions they had for the future if they could change their present state of affairs.

Personal Interviews

The survey for quantitative data was carried out in urban Zomba and urban Machinga (Balaka and Liwonde) as well as in rural Machinga. The survey utilized a structured questionnaire, with both open and close ended questions on personal and family characteristics, economic and non economic activities and personal evaluation of their well-being.

The questionnaire (Appendix C) which was developed at Oregon State University was reviewed and revised twice by peers at the University of Malawi for ambiguity and sensitivity, and some questions were rephrased. The questionnaire was then translated into Chichewa (national official language), and pretested on 10 women in rural Machinga. The questionnaire was then modified in terms of wording and actual items relevant to the study. The final translated questionnaire was then used for field interviews.

The questionnaire was administered by the principle Researcher and two assistants who conducted door to door personal interviews. A challenge with face to face interviews is the development of rapport with respondents. Agricultural Officers in rural Machinga introduced the team to the village headmen before conducting interviews. In order to facilitate this, two letters of introduction one from the District Commissioner (Appendix A1) and a letter to participants (Appendix A2) were presented to the Village headmen who granted the team permission to conduct interviews. The team explained the purpose of the study to participants and asked if they were willing to be interviewed. In urban areas, women were approached first, to see if they

were willing to participate. Because of the sensitivity of the issues addressed in the study, the team did not coerce people to answer questions with which they did not feel confortable. This resulted in having a somewhat reduced sample, as discussed earlier. In rural areas because of the high illiteracy rate the interviewers marked the questionnaires for women; whereas, in urban areas, most of the respondents filled out the questionnaires with occasional checking and clarification when the respondents needed help. This was done to encourage honesty in responding to very sensitive questions, such as those related to incomes and the subjective questions.

The survey was conducted from August 15, to September 9, 1994 at the peak of severe drought which had hit Malawi for two consecutive years.

Research Questions

This study seeks to answer the following questions:

1) What are the characteristics of women in the sample in terms of personal and family characteristics, economic and non-economic resources and subjective well-being?

2) What motivates Malawian women to undertake income generating activities?

3) Are there significant differences between urban and rural women in Malawi in terms of income diversification, time in home production, total income, subjective well-being and overall satisfaction with life?

4) Are there significant differences between unmarried and married women in Malawi in terms of income diversification, time in home production, total income, subjective well-being and overall satisfaction with life?

5) Does an integrated model of Family Resource Management and Household Economic theory identify relationships among human capital, demands and resource variables as inputs; income diversification sources and home production as throughputs; and economic and subjective well-being as outputs.?

6) What are the best predictors of economic and subjective well-being?

7) To what extent do the intervening variables of income diversification and home production mediate the effects of independent variables on economic and subjective well-being?

8) Is there a relationship between economic and subjective well-being?

9) How does overall satisfaction relate to human capital, family characterisitics, economic and non-economic resources and satisfaction with well-being?

One of the major objectives of this study was to develop an integrated model of Family Resource Management Systems and Household Economic Theory in order to explain relationships of input (exogenous), throughput (endogenous) and output variables. Table 3.1 shows the empirical model for examining factors influencing income diversification, home production, economic and subjective well-being.

Table 3.1

An Empirical Model for Examining Factors Influencing Economic and Subjective Well-being.

INPUTS	THROUGHPUTS	OUTPUTS
Independent Variables	Intervening Variables	Dependent Variables
Human Capital: · Age · Education · Health Status	Income Diversification: · Total number of Income sources	Economic Well-being: · Total income
Family characteristics: · Household size · Number of children under seven years old · Family health		Subjective Well-being: · Well-being Score
Family Resources: · Marital Status · Land holding size · Access to farm Inputs · Number of Adults · Place of Residence	Home Production: · Total Hours spent in Household work	

The Empirical Model

The input variables in the integrated conceptual framework are presented

as explanatory, or independent variables, in the empirical model. These are

age, education, health status, household size, number of children under

seven years old, family health, marital status, place of residence, land size,

number of adults in the household, and access to farm inputs. The

throughput variables are those classified as transformation variables in the

conceptual framework, and are presented as intervening variables in the empirical model. They represent the total number of income sources and total hours spent in home production. The output consists of two outcome variables: total income (economic well-being) and subjective well-being (satisfaction measure) as the response or dependent variables.

Tables 3.2 and 3.3 show how the variables in the empirical model were operationalized. Variables in the model are either presented in their original format (measurement) or recoded categorically, and some variables were summed to obtain a composite score or index. Since some of the requirements of regression is linearity and normal distribution, and so income was transformed by adding a quadratic term (natural log). The following is a detailed presentation of variable operationalization.

Mesurement of Variables in the Empirical Model

Well-being Score

This is satisfaction derived from consumption, income, environmental resources, family life, leisure, freedoms and work activities (Magrabi et al., 1991; Dasgupta, 1993). Respondents were asked to state how satisfied they were considering their employment, household production, household resources, home production, community resources, household expenditures, family relationships, land resources and farm work on a five-point Likert scale, from very dissatisfied (1) to very satisfied (5).

Table 3.2

Measurement of Independent Variables

VARIABLE LABEL	VARIABLE DESCRIPTION	MEASUREMENT
Age	Age of respondent	Continuous: Actual age in years
Educat1	educational level of respondent	dummy: 1 if primary, 0 otherwise
Educat2	educational level of respondent	dummy: 1 if secondary or above, 0 otherwise
RHealth	Respondent's health	dummy: 0 if not ill last month 1 if ill last month
FHealth	Family's health	dummy: 0 if not ill last month 1 if ill last month
Marstat	Marital status of respondent	dummy: 0 if never married, widowed, separated, and divorced 1 if married
FarmInp	Access to farm seeds, tools and fertilizers	discrete: a score of three items--0 to 3.
landsize	land size acquired by respondents in hectares.	continuous: actual land size in hectares
Chld	Number of children under seven years old born to the respondent	discrete--treated as continuous. actual number of children under seven years old
Hsize	Number of people currently living in the household at the time of interview	discrete--treated as continuous: Actual number of people residing in household
Nadlt	Number of adults in the household	discrete--treated as continuous Actual number of adults in the household
Plresd	place of residence of the respondent at the time of interview	dummy: 0 if rural 1 if urban

Table 3.3

Measurement of Dependent Variables

VARIABLE LABEL	VARIABLE DESCRIPTION	MEASUREMENT
THRS	Total number of hours put in Home Production the past week	continuous: actual hours per week
WBSCORE	A sum of four satisfaction sub items	descrete--treated as continuous: A score ranging from 4 to 20
Divers	Total number of income sources a woman was holding	discrete--treated as continuous: actual number of sources ranging from 0 to 5
LOGINC	Total women's Income per month	continuous: total income in Malawian Kwacha

In the final score four items were retained -- work contribution and economic support, household resources, family relationships and household expenditures from a principle component procedure of factor analysis. Number of Income Sources -- Respondents were asked to indicate how many sources of income they had during the year. Number of actual sources ranged from 0 to 5.

Total Income Earned

This a measure of economic well-being. Only women's monthly income in Malawi Kwacha obtained from self employment, wages/salaries, sale of agricultural produce and livestock, transfers, and other petty trades. Thus

non-cash incomes and in-kind payments women received were excluded. Spouses' and other earners' incomes were treated as transfers.

Home Production

All activities done in the home or non-monetary activities which can be replaced or substituted for market work. It was measured by amount of total time (in hours) allocated to selected household work the previous week. Such activities as food processing and preparation, child caring, laundry, fuel collection/usage time, water collection, attending to the sick, visit to the health center, and home maintenance.

Educational Level

This was the level of education attained -- whether the respondent had no education; primary (1-4); primary (5-8); secondary (1-2) secondary, College (2 years program), university and other (adult literacy). For purposes of this analysis the educational levels were collapsed and measured as follows: No formal Education = 0; Primary = 1; Secondary education or above = 2. Adult literacy was included in the no formal education category. The inclusion of those women who attended adult literacy in the no formal education was because the number was small (only 4) to have it as a separate category and also when they were asked if they knew how to read and write, one person responded "No" the others did not indicate anything.

Age

Age was measured by asking respondents their actual age at the time of interview. For the analysis, age was entered as a continuous variable. Categories of 20-30 years; 31-40; and 41+ were used for descritive analysis.

Respondent's and Family Health Status

Health status was defined as the physical state of health for the time prior to the interview. Respondents were asked if their family members and they themselves had become ill in the last month; type of disease, number of attacks and how many times they visited the health clinic. For the analysis dummy variables Yes = 1 and No = 0; for both a respondent's and family health status were created.

Household Size

This was defined as the number of people residing in the household and eating from one pot at the time of interview. This was treated a continuous variable.

Number of Children Under Seven-years-old

This was the actual number of respondent's children, excluding extended family, and was treated as a continuous variable.

Marital Status

Respondents were asked to indicate whether they never got married = 1; were separated/divorced = 2; widowed = 3; or married = 4. In the regression

analysis, a dummy variable was created with never married, separated/ divorced, widowed = 0; married = 1.

Place of Residence/Location

Respondents were asked to indicate whether they lived in urban/town (Municipality of Zomba, Balaka and Liwonde) or rural (only in Machinga). A dummy variable of urban/town = 1; and rural = 0 was used.

Access to Land and Land-holding Size

This was defined as acquired land regardless of size, whether in rural or urban areas, provided they grew some kind of a crop or vegetables for subsistence. Approximate land size was measured as continuous, in hectares.

Number of Adults in the Household

This was the actual number of adults residing in the household at the time of the interview, related or not related, ages 15+.

Access to Farm Technology

Respondents were asked if they had access to farm inputs of fertilizers, farm tools and seeds by indicating, "yes" = 1 and "no" = 0 for each item. A farm technology score was created by summing all the responses on the three farm inputs.

Data Analysis Procedure

After field work, it was necessary to recode some question items because of having used open ended questions, and also to accommodate a match with the type of analysis needed. Where respondents indicated not applicable, the researcher recoded it as either "no" if it was a categorical variable, or zero if it was a continous variable. Thus variables for time in home production activities were recoded zero if the respondent was not sure or had indicated "not applicable."

Due to the variety of economic activities these women were engaged in, it was necessary to recode the income sources. The following is how the sources were grouped:

Wages/Salaries. Wages/salaries were defined as all renumerations in cash from regular and casual employment paid daily, bi-weekly, monthly, or per piece of work.

Self Employment. Because of the diversified enterprises of the self employed women, this category was divided into two major types: a) trading, and b) services. Trading was defined as any small enterprise having at least two employees and engaged in wholesaling and retailing such as owning bottle stores, grocery shops, selling of tailored and knitted garments in bulk. Services were defined as any economic activity which was service oriented to

the community, in such areas as resthouses/motels, transportation, bakery, saloons, childcare services, maize milling and restaurants.

Transfers. Transfers were defined as cash transfers/gifts from friends and relatives and pensions from government.

Crafts and Household Goods. These are any petty trading or selling of items on a small scale, such as mats, second hand and imported new clothing, shoes, plates, cups and pots.

Processed Foods & Sodas. These are the selling of processed snacks or selling of fantas, cokes and fizzes.

Crops/Livestock/Fish. This category constitutes the sale of crops and livestock whether from one's own garden, bought from another person and reselling them, such as cattle, chicken, fish, maize, beans and sugarcane.

Return to Capital. This is considered to be any investment in real estate by either building and selling the houses or renting buildings or houses.

Hypotheses Testing

The household is both a production and consumption unit as suggested by Becker, (1981). It is assumed that within each household there exists a number of mechanisms for allocating and controlling resources. Thus, households may allocate resources towards the enhancement of personal

goals or well-being of all family members, bringing in the elements of self-interest and altruism.

Women's income diversification and the simultaneous use of household production time, do improve both quantitative and qualitative resources, such as the amount of income and satisfaction with life and well-being. The simultaneity of economic diversification and time spent in household production activities may tend to complement or supplement each other to ensure an increased level of well-being, or to compete for limited household resources. Due to the complexity of the problem at hand, it is hypothesized that income diversification and household production may or may not enhance economic well-being and the satisfaction with well-being of individual women. Specifically, the study tested the following two-tailed hypotheses at p <.05 significance level using t-tests, to see if there were differences between unmarried and married, and between rural and urban women on income diversification levels, home production, total income and subjective well-being:

Hypothesis 1: There are no differences between unmarried and married women in income diversification levels.

Hypothesis 2: There are no differences between rural and urban women in income diversification levels.

Hypothesis 3: There are no differences between unmarried and married women in the amount of time spent in home production activities.

Hypothesis 4: There are no differences between rural and urban women in the amount of time spent in home production activities.

Hypothesis 5: There are no differences between unmarried and married women in total income earned.

Hypothesis 6: There are no differences between rural and urban women in total income earned.

Hypothesis 7: There are no differences between unmarried and married women in the levels of satisfaction with well-being.

Hypothesis 8: There are no differences between rural and urban women in the levels of satisfaction with well-being.

Hypothesis 9: There are no differences between unmarried and married women in overall satisfaction with life.

Hypothesis 10: There are no differences between rural and urban women in overall satisfaction with life.

Summary of Hypothesized Relationships

Figures 3.1 to 3.6 presents hypothesized relationships in a path model to examine the relationships of human capital, demand, resources, income diversification, home production, economic and subjective well-being and these tend to answer questions 5 to 8. The following is a summary of the hypothesized relationships.

Figure 3.1. Hypothesized Relationships in a Path Model Between Human Capital; Income Diversification; and Economic and Subjective Well-being.
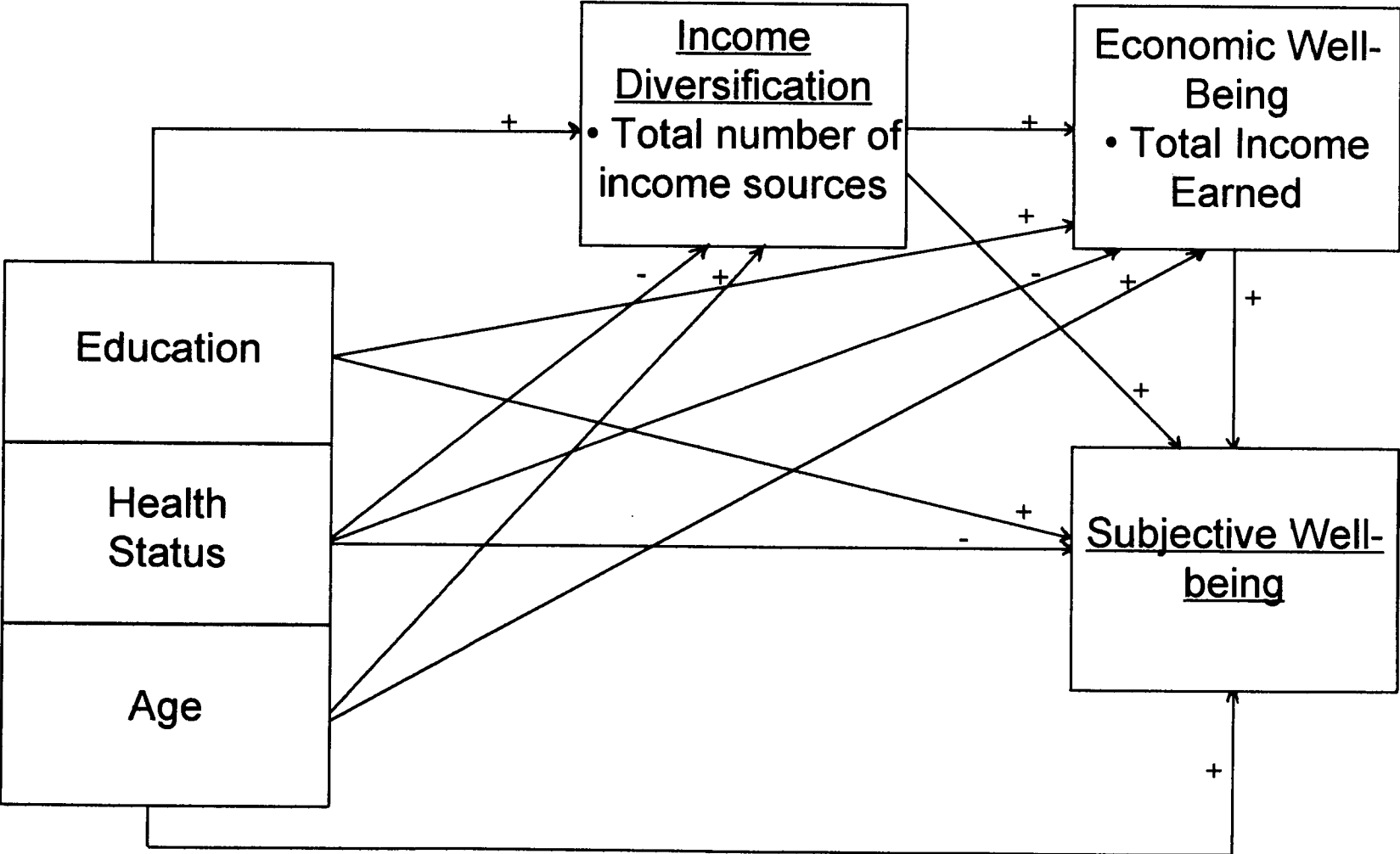
Figure 3.2. Hypothesized Relationships in a Path Model Between Human Capital; Home Production; and Economic and Subjective Well-being.
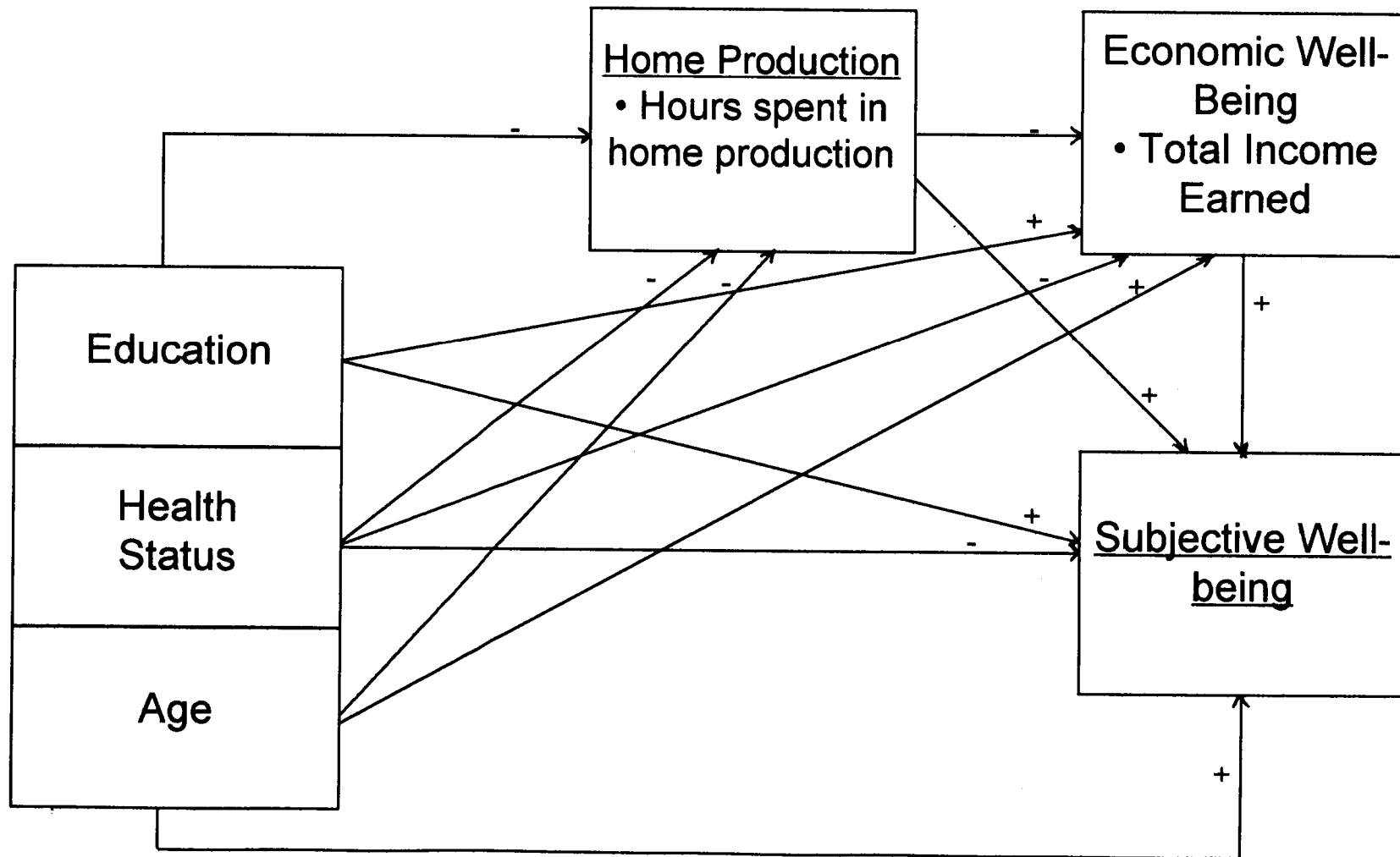
Figure 3.3. Hypothesized Relationships in a Path Model Between Demand Variables; Income Diversification; and Economic and Subjective Well-being.
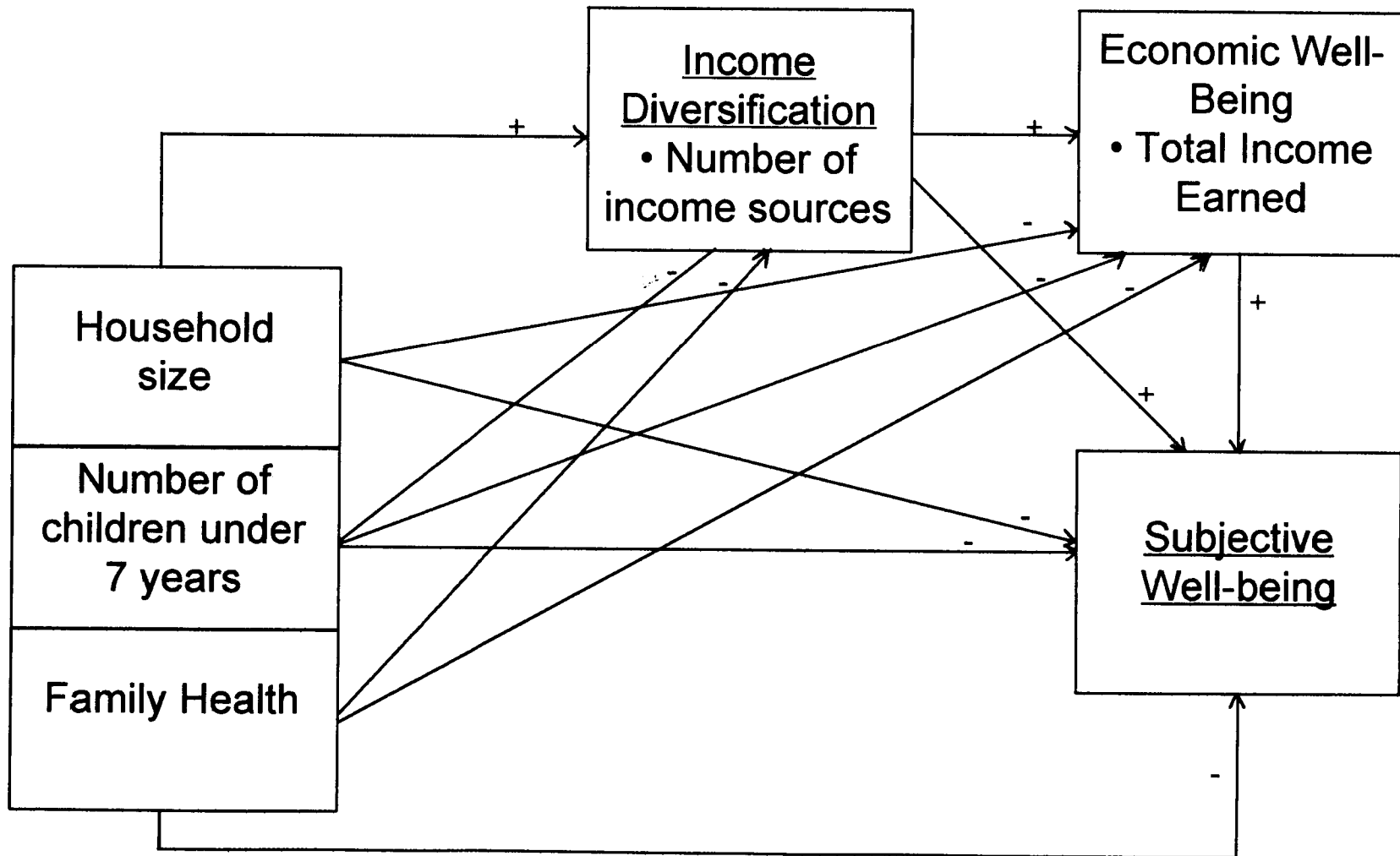
Figure 3.4. Hypothesized Relationships in a Path Model Between Demand Variables; Home Production; and Economic and Subjective Well-being.
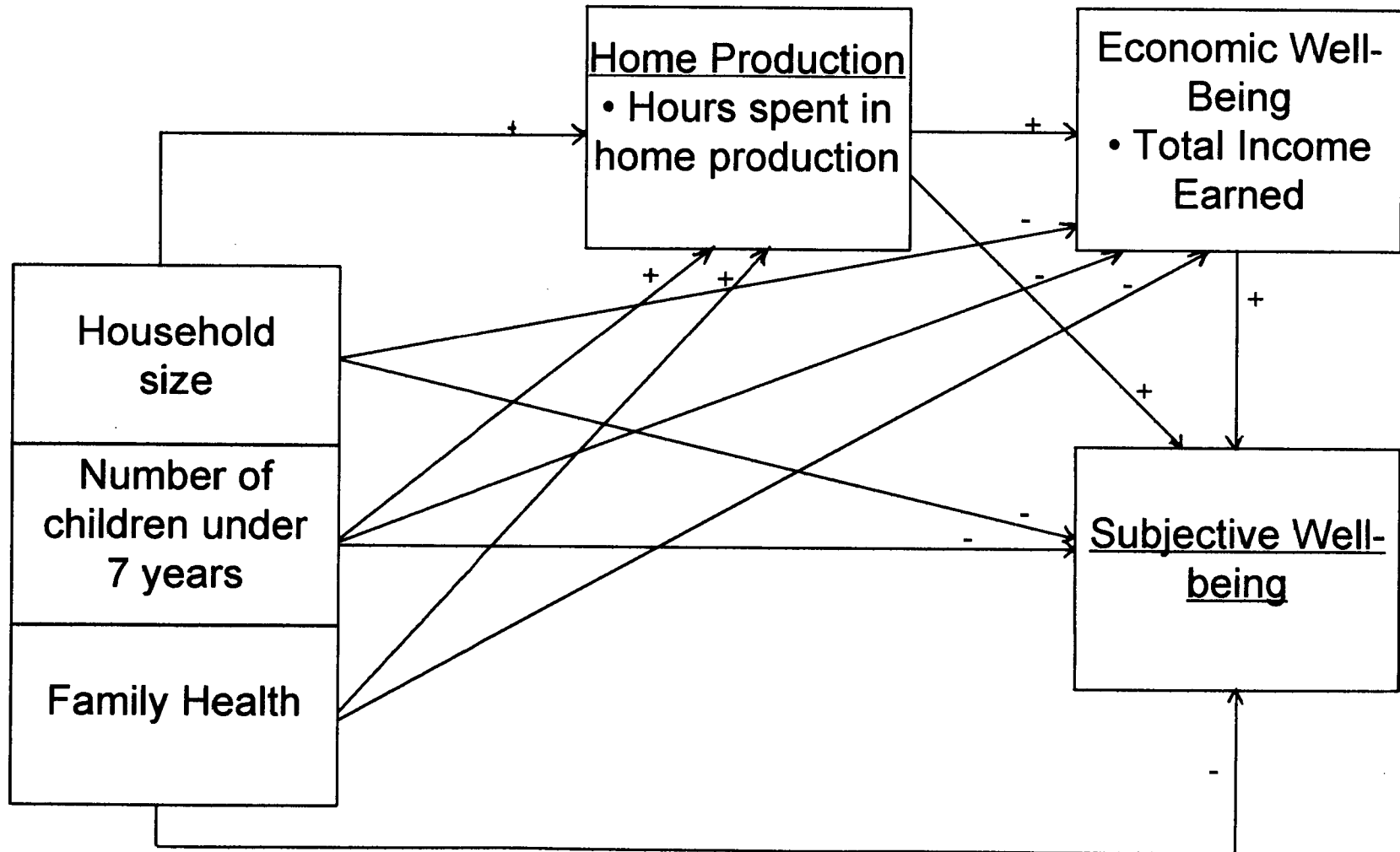
Figure 3.5. Hypothesized Relationships in a Path Model Between Family Resource Variables; Income Diversification; and Economic and Subjective Well-being.
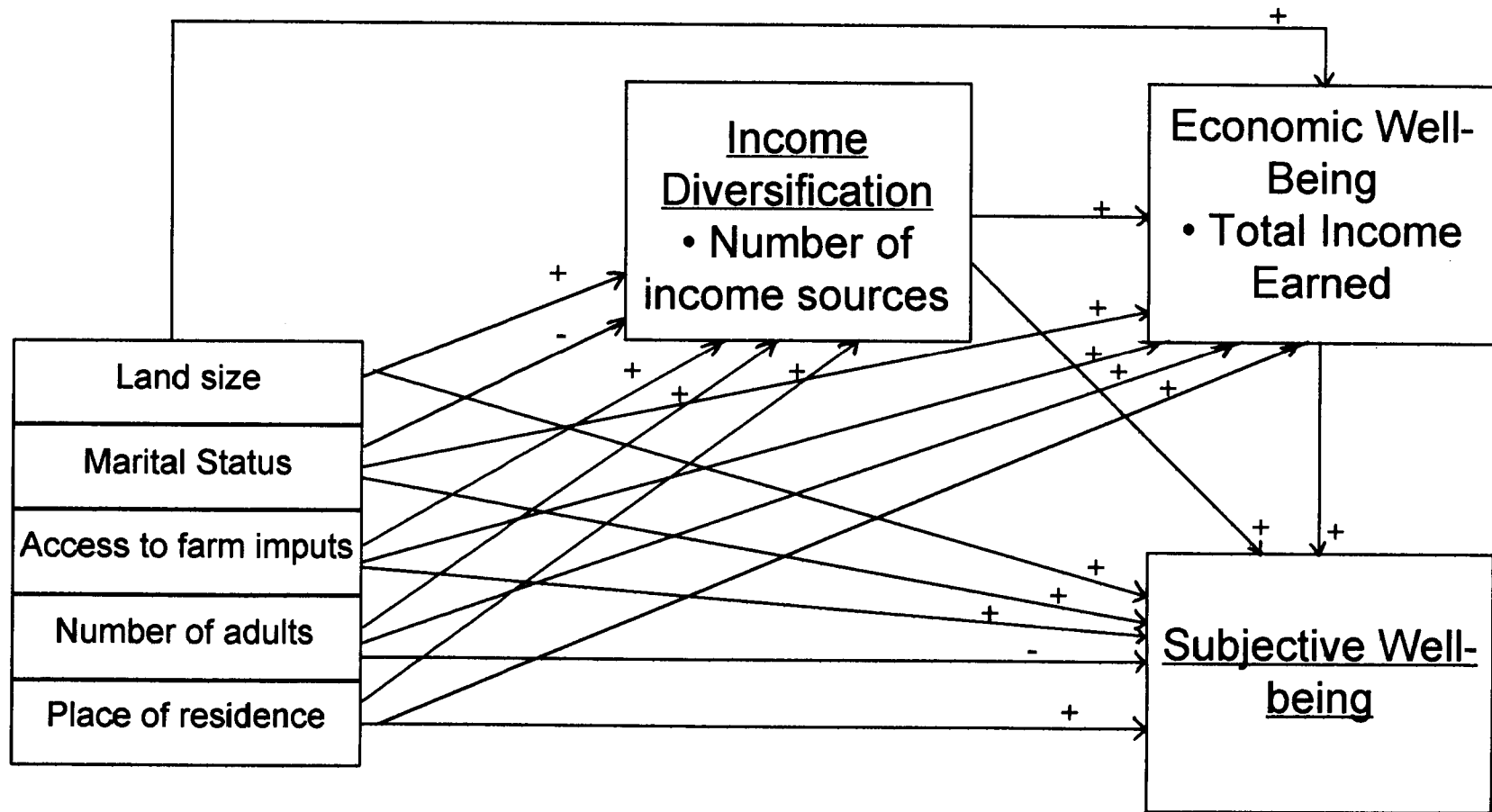
Figure 3.6. Hypothesized Relationships in a Path Model Between Family Resource Variables; Home Production; and Economic and Subjective Well-being.
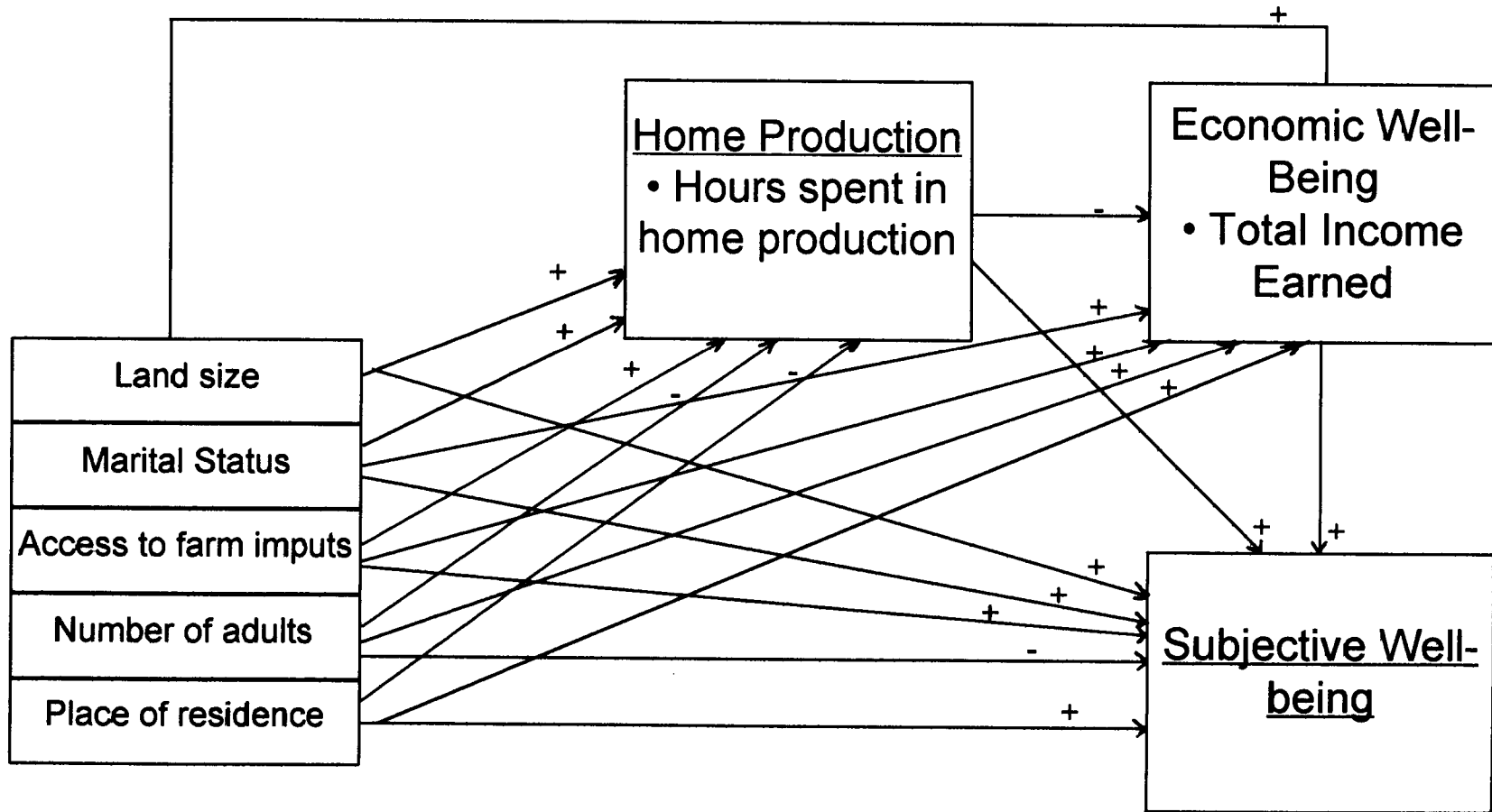
Effect of Human Capital Variables on Income Diversification and Home Production

- as education increases, total number of income sources increase;

- as education increases, time spent in household work decreases;

- age is positively related to total number of income sources a woman holds;

- there is a negative relationship between age and time spent in household production;

- health status is negatively related to the total number of income sources a woman holds; and

- there is a negative relationship between health and time spent in household production.

Effect of Demand Variables on Income Diversification and Home Production

- household size is positively related to total number of income sources a woman holds;

- household size is positively related to time spent in household production by women;

- number of children under seven years old is positively related to time spent in household production activities by women;

- number of children under seven years old is negatively related to total number of income sources a woman holds;

- family health is positively related to time spent in household production; and

- family health is negatively related to total income earned by women.

Effect of Family Resources Variables to Income Diversification and Home Production

- marital status is negatively related to total number of income sources;

- marital status is positively related to time spent in household production;

- land size is positively related to number of income sources a woman holds;

- land size is positively related to time spent spent in household production;

- there is a positive relationship between number of adults in the household and number of income sources a woman holds;

- there is a negative relationship between number of adults in the household and time spent in household production by women;

- living in an urban (versus rural) area is positively related total number of income sources a woman holds than living in rural areas;

- living in an urban (versus rural) is negatively related to time spent in household production activities;

- access to farm technology is positively related to time spent in household production activities; and

- access to farm technology is positively related to number of income sources a woman holds.

Effect of Human Capital Variables on Economic and Subjective Well-being

- as education increases, total income of women increases;

- education is positively related to subjective well-being;

- as age increases, subjective well-being increases;

- age is positively related to total income of women;

- health is negatively related to total income of women; and

- there is a negative relationship between health and subjective well-being

Effect of Demand Variables to Economic and Subjective Well-being

- household size is negatively related to subjective well-being;

- household size is negatively related to total income earned by women;

- number of children under seven years old is negatively related to total income;

- number of children under seven years old is negatively related to subjective well-being;

- family health negatively affects total income; and

- family health is negatively related to subjective well-being.

Effect of Family Resource Variables on Economic and Subjective Well-being

- marital status is positively related to total income;

- marital status is positively related to subjective well-being;

- land size is positively related to total income;

- land size is positively related to subjective well-being;

- living in an urban (versus rural) area is positively related to total income;

- living in rural (versus urban) area is positively related to subjective well-being;

- number of adults in a household is positively related to total income; and

- number of adults in a household is negatively related to subjective well-being;

- access to farm technology is positively related to total income; and

- access to farm technology is positively related to subjective well-being.

Effect of Intervening Variables on Economic and Subjective Well-being

- total number of income sources is positively related to total income;

- there is a positive relationship between total number of income sources to subjective well-being;

- there is a negative relationship between time spent in household production and total income; and

- there is a positive relationship between time spent in home production to subjective well-being of women.

Effect of Economic Well-being on Subjective Well-being

There is a positive relationship between total income and subjective well-being of women.

To answer question 9, the following null hypothesis was tested:

Education, age, respondent's health, household size, number of children under seven years, family health, marital status, number of adults, place of

residence, access to farm technology, land holding size, income diversification, time spent in home production, primary income and well-being score will not affect overall satisfaction with life.

Data Analysis

The data were cleaned, formatted and analyzed using the Statistical Analysis System (SAS) (Cody & Smith, 1991). For Questions 40a to 56, (Appendix C), the satisfaction scores were "1" for very dissatisfied, and "5" for very satisfied. A well-being score was computed on four items after conducting a factor analysis procedure. These four items were satisfaction with family relationships, household resources, household expenditures, and work contribution and economic support from family members.

Kerlinger and Pedhazur (1973) have indicated that factor analysis is a multivariate method in multiple regression that is used to reduce a large number of scaled items to a smaller number, known as factors (pg. 360). Variables, or items that correlate above zero, are the ones that constitute a factor (Darlington, 1990). A Rotated Varimax Test was run to identify which seven variables loaded well on one factor. The standard scores are the factor loadings (Pedhazur, 1982). Variables with factor loadings of less than .5 were eliminated in the model, until at least 1 factor was retained. At the conclusion of factor analysis, it was necessary to name the factors. In this study, this factor was named "satisfaction/well-being" since it consisted of four items expressing satisfaction with conditions assumed to affect well-being.

It is also important in factor analysis to observe the communality component which is a variance shared with other items. When there is more than one factor, a final communality is determined which shows the pooled variance explained by the factors (Darlington, 1990; Kerlinger & Pedhazur, 1973). In this study only one factor was retained. A Cronbach's Alpha Reliability Test for the scaled items was also computed for internal consistency. The internal consistency after running a reliability test, was a Cronbach's alpha of .62, which is judged to be in the low range of acceptability.

Research question 1, "What are the characteristics of women in the sample in terms of personal and family characteristics, economic and non-economic resources and subjective well-being," was answered by descriptive statistics such as frequency distributions, means, ranges, medians and standard deviations. Research question 2, "What are the motivations of women in generating incomes from many sources?" was answered by frequencies and percentages.

Questions 3 and 4 dealt with differences between unmarried and married, and between rural and urban on income diversification levels, time spent in home production, total income, satisfaction/well-being, and overall satisfaction with life. Kruskal-Wallis Chi-square approximation and t-test were used to ascertain if there were any associations of group frequencies in the cells and with selected socio-demographic variables, and to test for the differences in the group means respectively. According to Cody and Smith (1990), t-tests

work on the assumption that two group means are independent and normally distributed and where the variances of the two groups are approximately equal.

For questions 5 to 9 Stepwise and Ordinary Least-Squares Regression and Pearson Product Moment Correlation Analyses were performed. Correlation analysis is useful when: 1) one wants to eliminate multicolinearity among variables before regression is conducted. Schumm et al., (1980) and Afifi & Clark (1990) indicate that multicollinearity becomes a problem when the coefficients are .75 and above; and 2) to examine the strength of the relationship between two variables.

When these variables correlate well, then a linear relationship exists (Kerlinger & Pedhazur, 1973). A correlation coefficient (r) is a number that takes values ranging from -1 to 1. A Correlation Coefficient close to 1 means that the two variables are positively correlated. A coefficient close to zero means there is very little correlation. Finally, a coefficient of -1 means that the two variables are negatively correlated. Ordinary Least Squares Regressions (OLSR) were performed where the dependent variable was a continuous variable or a score. Ordinary Least squares Regression can be performed on discrete variables or ordinal dependent variables, with the assumption that there are underlying continuous values in between (Agresti, 1990; Schumm et al. 1980).

For question 5 to 8 which examine the relationship between exogenous (input), endogenous (throughput/intervening), and output variables, a Path

Analysis was utilized because of the theoretical model chosen (see Figure 3.1 to 3.6). Path analysis is a way of analysing causal or predictive relationships in a model and it is used for testing theory already formulated by the researcher (Kerlinger & Pedhazur, 1973). In order to effectively utilize Path analysis, Kerlinger and Pedhazur suggest that assumptions of linearity, residual correlations, unidirectional and interval scaled items should be observed. Thus, curvilineality or non-linearity, and reciprocal flows are excluded.

A path analysis utilizes a series of multiple regression procedures to test the relationship between independent and dependent variables. It is important when using Path Analysis to select variables correctly to avoid biased parameters, a selection process known as "external specification" (Schumm et al. 1980). Thus only theoretically relevant variables should be included in the model. It is also necessary in theoretical and empirical models involving intervening variables to identify direct and indirect effects in order to calculate total effects of the reduced final model, an identification process called "internal specification." Consequently, specification of positive, negative and zero paths are inevitable (Kerlinger & Pedhazur, 1973; Schumm et al., 1980).

Path Analysis uses standardized regression coefficients that are significant. Therefore, coefficients that are not significant are to be eliminated from the final model (Kerlinger & Pedhazur, 1973). In Path models, exogenous variables are not analysed because it is assumed that their

variability is externally determined (only correlated, (Kerlinger & Pedhazur,

1973). In this analysis a recursive model is presented, which means that the

" direction of the causal relationships in the model are unidirectional"

(Pedhazur, 1982, p. 308). Thus a variable cannot be both a cause and an

effect.

Since the empirical model exceeded the required number of 10

independent variables per dependent variable, stepwise regression was

conducted first to reduce the number of variables to be entered in the model.

Only variables which were significant at $p = .15$ and had large contributions to

the overall R-square were retained.

The four proposed recursive linear regression equations used in the

model are presented below.

For number of income sources:

$Y1 = f (X1, X2, X3, X4, X5, X6, X7)$;

For hours spent in home production:

$Y2 = f (X1, X2, X3, X4, X5, X6, X7)$;

For total income earned:

$Y3 = f (X1, X2, X3, X4, X5, X6, X7 Y1, Y2)$; and

For Satisfaction/well-being (well-being score):

$Y4 = f (X1, X2, X3, X4, X5, X6, X7 Y1, Y2, Y3)$.

Where X1 = place of residence

X2 = age of respondent

X3 = primary education

X4 = secondary education or above

X5 = landholding size

X6 = access to farm inputs

X7 = health status

Y1 = number of income sources

Y2 = hours spent in home production

Y3 = total income earned

Y4 = satisfaction with well-being (well-being score).

The first step in this Path Analysis was to conduct a series of regression equations.

The first two equations were those with throughput and input variables. Two throughput variables, Number of Income Sources (income diversification) and Hours spent in Home Production were the dependent variables and Input variables -- age, education, respondent's health status, place of residence, land size, access to farm technology were explanatory (independent) variables.

The third regression equation dealt with Total Income Earned (economic well-being), an output variable, as a dependent variable. All input and throughput variables were treated as independent variables. The final equation dealt with satisfaction/well-being (subjective well-being) as a dependent variable and all input, throughput and total income (economic well-being) variables treated as independent variables. At each stage of model

testing, standardized Beta cofficients which were significant at $p = \leq .10$ were retained in the final Path model. Schumm et al. (1980) suggest that in family research, especially exploratory studies, significance levels of .10 and .20 are acceptable when conducting Path analysis. This is to ensure that most theoretically important variables are not omitted in the model for future research.

Question 9 was, "how does overall life satisfaction relate to personal and family characteristics, economic and non-economic resources, and satisfaction with well-being?" The regression equation for overall satisfaction used independent variables which were reviewed in the literature. The "overall satisfaction with life" variable could not be included in a Path model because it is a single item, and Path analysis utilizes only ratio, interval variables,and descrete ordinal variables which can be treated as interval (scores) although it uses Ordinary Least Squares Regression equations (Schumm et al. 1980).

The following is the equation for examining the relationship of independent variables to overall satisfaction:

$Y = f(X1,X2,X3,X4,X5,X6,X7,X8,X9,X10,X11,X12,X13,X14,X15)$

where

X1 = place of residence

X2 = age of respondent

X3 = household size

X4 = primary education

X5 = secondary education or above

X6 = marital status

X7 = number of children under seven years old

X8 = number of adults

X9 = respondent's health

X10 = family health

X11 = land holding size

X12 = number of income sources

X13 = hours spent in home production

X14 = primary income

X15 = well-being score

CHAPTER FOUR

RESULTS AND DISCUSSION

The major objective of this study was to develop and test an integrated conceptual framework for examining economic and subjective well-being in relation to human capital, family characteristics, economic resources, income diversification and home production.

The results of the study are reported as follows. First, a socio-demographic profile of the sample in terms of human capital characteristics, family demographics, economic resources, income sources, hours spent in home production activities and subjective well-being are presented. The figures are then compared to national demographic characteristics where applicable. Second, results on the motivations of women in carrying out various economic activities are reported. Third, differences in diversification levels, home production, and the economic and subjective well-being of both urban and rural & married and unmarried women are discussed. Fourth, stepwise regression, collinearity diagnostics, correlations and results of path analysis are presented, as generated from the hypotheses posed in chapter three.

General Characteristics of the Sample

The study included both married and single women living in rural and urban areas. The descriptive statistics for this sample are presented in Tables 4.1 to 4.6 and are organized as human capital, demands (family

characteristics), family economic and non-economic resources and subjective well-being.

Human Capital Characteristics

Table 4.1 shows frequencies, percentages, means and standard deviations for human capital variables. Overall educational levels of women in the sample were comparable to national averages at the "no education" level, but different at the other levels. Much of the difference is due to a better educated urban sample than national data would predict. Nearly 30 percent of the sample reported having no education at all, 35 women (27.1 percent) reported having reached primary school level, and 56 women (43.4 percent) reported having attained 2 years of secondary education or above. National educational figures indicate no education at 30.2 percent, primary education 1-4 at 37.2 percent, primary education at 5-8 for 25.9 percent and secondary education or above for 6.1 percent (National Statistics Office, 1994, p.10). The urban and rural samples showed marked differences in educational levels. The urban women were more educated than rural women, with the majority (78.4 percent) attaining secondary school education or above compared to about 8 percent of rural women. About 58 percent of the rural women had no education compared to 1.15 percent of the urban women. The national figures indicate that about 14.3 percent of urban women have no formal education, whereas 33 percent of rural women have no education. About 21 percent of urban women

Table 4.1

Human Capital Characteristics of Women in Machinga and Zomba Districts-Malawi: Percentages, Means, and Standard Deviations.

Characteristic	Whole Sample %	Rural %	Urban %
Education (n)	(129)	(64)	(65)
No Education	29.5	57.8	1.15
Primary	27.1	34.4	20.1
Secondary (1-2)	18.6	4.7	32.3
Secondary (3-4)	17.8	3.1	32.3
College/University	7.0	0.0	13.8
Health Status (n)	(128)	(64)	(64)
Not ill = 0	46.9	40.6	53.1
Got ill = 1	53.1	59.4	46.9
Age (n)	(128)	(63)	(65)
20-30 years	25.0	34.9	15.4
31-40 years	35.1	31.7	40.0
41+	39.1	33.3	44.6
Mean	38.4	37.20	39.60
SD	9.85	10.86	8.70

nationally have secondary education or above, compared to 3.8 percent of
rural women (National Statistics Office -- Demographic & Health Survey,
1994). The Human Development Report (1992) states that over 60 percent
of rural women had no formal education, and a study done by Chipande et
al., 1986 reported that 40 percent of rural women had no formal education.

Another Human Capital factor that may influence income diversification
and well-being is health. Over half (53 percent) of women reported having
poor health the previous month, and 47 percent reported to be in good
health. About 47 percent of urban women reported having some health
problems, and 60 percent of rural women reported being ill. Generally, the
urban sample (53.1 percent) was healthier than rural sample (40.6 percent).

The ages of the women in the sample ranged from 20-61 years old, with
an average age of 38.4 years and a standard deviation of 9.85. The average
age of the urban sample was slightly higher than the rural sample, the mean
= 39.6 years with a standard deviation of 8.70. The average age of the rural
women was 37.2 years with a standard deviation of 10.86. The age ranges
for urban and rural women were 25-61 and 20-61 respectively. Thus in the
sample, urban women were slightly older than rural women.

In summary, these figures may indicate that urban women in the sample
had more opportunities for education and may have had access to health
facilities, compared to their rural counterparts; hence, their human capital was
higher.

Demand Variables (Family Characteristics)

Table 4.2 shows the percentages, frequencies and means for the demands variables. Household sizes were relatively large, ranging from 2 to 16 people in the household. The average household size was 6.88 persons, with a standard deviation of 2.86. The national averages are lower, reporting an average size of 4.5 persons (National Statistics Office -- Demographic and Health Survey, 1994).

Urban households tended to have larger household sizes than rural households. Over 75 percent of urban households had at least 6 people staying in the house; whereas, about 47 percent of rural women reported having at least 6 people staying with them. The average household size for urban women in this sample was 7.9 people, and for rural women it was 5.8 people, with standard deviations of 3.0 and 2.1 respectively.

The national averages are still lower than the average sizes represented in this sample. The National Statistics Office -- Demographic & Health Survey report indicates that the average urban household size was 4.8 people, and for the rural it was 4.4. But the Report indicates that urban households tended to be larger than the rural households, which is consistent with these findings.

The number of children under seven years of age was defined as the number of birthed children who were 6 years and under, not including extended family. The range for children under seven years was 0 to 4.

Table 4.2

Demand Characteristics of Women in Machinga and Zomba Districts-Malawi

Characteristics	Whole Sample %	Rural %	Urban %
Household Size (n)	(129)	(64)	(65)
1 - 5	38.0	53.1	23.1
6 - 9	41.9	39.1	44.6
10 +	20.2	7.8	32.3
Total	100.0	100.0	100.0
Mean	6.8	5.8	7.9
SD	2.8	2.1	3.0
Number of Children under 7 years (n)	(129)	(64)	(65)
0 - 1	68.0	58.7	76.9
2 - 3	29.7	36.5	23.1
4 +	2.3	4.8	0.0
Total	100.0	100.0	100.0
Mean	0.96	1.25	0.69
SD	1.06	0.59	0.58
Family Health (n)	(127)	(64)	(63)
Not ill = 0	47.2	35.9	58.7
Got ill = 1	52.8	64.1	41.3

About 68 percent of women reported having, at most 1 child, nearly 30 percent having between 2 and 3, and only 2.3 percent reported 4 children and above. The average number of children under seven years old was 0.96 with a standard deviation of 1.06 children under seven years. About 76.9

percent of urban women reported having, at most 1 young child, who were young compared to 59 percent of rural women. The rural women (4.8 percent) reported having more than 4 young children compared to none of urban women. The average number of children under seven years old for urban and rural women was 0.69 and 1.25 respectively.

Family health is another factor which may affect economic and subjective well-being, as well as market and non-market activities. About 47 percent of the women reported that no family member was ill the previous month, whereas nearly 53 percent reported having one or more family members having been ill. When comparing urban to rural, 41.3 percent of urban women, reported that their family members became ill the previous month against 64.1 percent of rural women who, reported family members having become ill.

Family Resource Characteristics

Descriptive statistics for family resource variables are presented in Table 4.3. Most women in the sample were married (69 percent); 12.4 percent were widowed; 16.3 percent were divorced/separated and 2.3 percent were never married. Of the women studied, about 60 percent of urban women were married, compared to 78 percent of rural women. The urban sample had more divorced/separated women 23.1 percent than rural, which had about 9 percent.

Table 4.3

Family Resouce Characteristics of Women in Machinga and
Zomba Districts-Malawi

	Whole Sample %	Rural %	Urban %
Marital Status n=	(129)	(64)	(65)
Never Married	2.3	0.0	4.6
Divorced/Separated	16.3	9.4	23.1
Widowed	12.4	12.5	12.3
Married	69.0	78.1	60.0
Family Type n=	(129)	(64)	(65)
Male-headed	65.9	75.0	56.9
Female-headed (husband-away)	31.0	21.9	40.0
Female-headed (no husband)	3.1	3.1	3.1
Number of Adults n=	(129)	(64)	(65)
1-4	65.9	84.4	47.7
5-8	30.2	15.6	44.6
9+	3.9	0.0	7.7
Access to Land n=	(129)	(64)	(65)
No	9.3	1.6	16.9
Yes	90.7	94.4	83.1
Land size (in hectares)			
Mean	1.20	0.69	1.34
SD	1.31	0.33	1.77

Table 4.3 Continued:

Family Resource Characteristics of Women in Machinga and
Zomba Districts - Malawi

	Whole Sample %	Rural %	Urban %
Farm Technology n=	(127)	(63)	(64)
0	56.7	66.7	46.9
1	12.6	14.3	10.9
2	18.1	9.5	26.6
3	12.6	9.5	15.6
Mean	0.86	0.61	1.10
SD	1.11	1.00	1.16
Primary Occupation n=	(129)	(64)	(65)
Farming	48.8	78.1	20.0
Paid employment	25.6	32.0	49.2
Self employment	25.6	20.0	30.8
Primary Income	(128)	(63)	(65)
MK0-150	51.2	87.5	15.4
151+	48.8	12.5	84.6
Mean	583.82	83.93	1068.32
SD	921.11	228.39	1071.79

Table 4.3 Continued:

Family Resource Characteristics of Women in Machinga and Zomba Districts - Malawi

	Whole Sample %	Rural %	Urban %
Total Number of Income Sources			
n=	(129)	(64)	(65)
0	7.8	15.6	0.0
1	30.2	51.6	9.2
2	30.2	18.8	41.6
3	24.8	12.5	36.9
4	4.7	1.5	7.7
5	2.3	0.0	4.6
Mean	1.94	1.32	2.55
SD	1.12	0.94	0.93
Total income from all sources per month n=	(129)	(64)	(65)
Mean	MK1357.02	217.45	2479.05
SD	MK1801.52	403.80	1937.32
Hours in home production n=	(129)	(64)	(65)
0-10	21.7	4.7	48.4
11-20	23.3	9.3	36.9
21+	55.0	86.0	24.7
Mean	30.26	42.38	18.33
SD	23.03	20.61	18.73

Due to the attention given to family structure in the literature and by development agencies, it was necessary to include a family type variable to categorize women as either belonging to female-headed (no husband), female-headed (husband away) or male-headed households. Nearly 66 percent of women in the sample belonged to male-headed households, and 34 percent were in female-headed households. These findings are consistent with national figures of between 28 percent and 40 percent for female-headedness. About 57 percent of the urban sample were in male-headed households compared to 43.1 percent who were female heads. Of the rural sample, 75 percent lived in male-headed households, whereas only 25 percent were female heads. Chipande et al. (1986) indicated that there were about 40 percent of female-headed households in rural areas. The national figures show between 28 percent and 30 percent of rural women are female-heads (National Statistics Office, 1984).

Most of the women (65.9 percent) had, at most, four adults staying with them. Nearly 34 percent of women had at least five adults staying in the household. Urban households tended to have more adults than rural, averaging 5.01 and 2.93 respectively.

About 9 percent of the sample had no access to land, whereas nearly 91 percent had access. The average landsize was 1.2 hectares, with a standard deviation of 1.31. The majority of rural women 94 percent had access to land. Some of the urban women (83.1 perecent) had acquired freehold or leasehold or customary land. Although most of the women had access to

land, the average land size was small. The average land size for urban women was 1.34 hectares, whereas rural women had average land size of 0.69 hectares. It is important to note that this land allocation is "customary land" for most of the rural women as well as urban women and urban women may acquire land in both urban and rural areas. The large land-holding size for urban women might be attributed to access to either leasehold or freehold land. This is because urban women may have income to defray the legal fees involved in the allocation transactions. The figures in the statement of development policies (Office of the President and Cabinet), indicate that most smallholder farmers had land size ranging from 0.5 to 3 hectares. In this same report it is indicated that about 34 percent of female-headed households had land size of less than 1.0 hectares (p.22).

Access to fertilizers and other farm inputs may influence women to diversify their incomes through increased production of crops which can be sold and thereby diversifying their income sources. Of the women who responded to the question of whether or not they had access to fertilizers, seeds and farm tools through purchase or farm credit, over half of the women in the sample (56.7 percent) said they had no access to these inputs. About 13 percent had access to one type of farm technology; 18.1 percent had access to two types and 12.6 percent had access to three types of farm technology.

About 67 percent of rural women had no access to farm technology, whereas about 47 percent of urban women had no access to farm

technology. Twenty one rural women (33.3 percent) had at least one type of farm technology, compared to thirty four urban women (53.1 percent) who had at least one type of farm technology. Overall urban women had greater access to farm inputs than rural women.

The major sources of primary income were from farming, paid employment and self employment. The majority of women were subsistence farmers, 48.8 percent, followed by those in both self employment, 25.6 percent and paid employment 25.6 percent. The report on the "Situation of Poverty in Malawi" (United Nations in Malawi & Malawi Government, 1993) indicates that about 70 percent of women are farmers (pg.81). The same report shows that over 90 percent of rural women participate in small-holder agriculture, about 4 percent in non-agricultural self employment and 3.7 percent were employed in the formal sector (p. 120-121). To summarize, the largest share of women in the sample generally engage in farming as a source of livelihood, although they did not harvest enough in that year (1994) because of drought (Focus group discussions, 1994). The average primary income was MK583.82, with a standard deviation of Mk921.11. About fifty one percent of women had incomes below the median of MK150.00. Urban incomes on the whole were higher, averaging MK1068.32 per month, with a standard deviation of MK1071.71. The average primary income for rural women was MK83.93 with a standard deviation of MK228.39. National figures give the poverty line of $40 per annum (about MK285.32 during the

study period) where the majority (60 percent) of households barely make a livelihood.

Number of Income Sources

Nearly 62 percent of women (Table 4.3) had 2 or more sources of income compared to (38 percent) who had, at most one source. On average, urban women had more sources of income (mean = 2.55) than rural women (mean = 1.32). Compared to rural women, no urban woman had no sources of income sources. The average total income from all sources was MK 1,357.02 per month with a standard deviation of MK 1,801.52. The range was from MK 0 to MK 7,800, with a median of MK 490. When total income was adjusted by household size, the average income was MK 203.81 per capita per month, with a Standard deviation of MK 302.50. The range was from MK 0 to MK 1,875, with median income of MK 75. The Document on the Situation of Poverty in Malawi indicates that per capita income for households was $287 per annum, converting this to Malawian Kwacha per annum (MK2,047), gives MK170.00 per month (at the time of interview the exchange rate was about 7.133 Malawian Kwacha to the US dollar). The per capita incomes for these women overall are higher than the national averages. However, for urban and rural women there were major differences in the amount of income generated from all economic activities. The average total incomes per month for urban and rural women were MK 2,479 and 217.45 with standard deviations of MK 1937.32 and MK 403.80 respectively.

Hours Spent in Home Production

Number of hours spent in home production activities (Table 4.3) ranged from 0 to 91 hours per week. The majority of the women (55.1 percent) reported putting in 21 hours and above, whereas 21.7 percent reported putting in 10 hours or fewer. Another 23.3 percent said they spent between 11 and 20 hours per week. The average number of hours spent in household work was 30.26 with a standard deviation of 23.03.

When urban and rural women were compared, there were some distinct differences. About 24.7 percent of urban women had worked at least 21 hours in home production the previous week, compared to 86 percent of rural women who actually reported having spent at least 21 hours in household work. About 48 percent of urban women reported spending 10 hours or less in home production the previous week, compared to 4.7 percent of the rural women. Among urban women 61.5 percent spent at least 11 hours the previous week, compared to rural women of whom 95.3 percent spent at least 11 hours in home production. The average time spent in household production by urban and rural women in the sample was 18.33 hours and 42.88 hours with a standard deviation of 18.73 and 20.61 respectively.

Sources of Income

Table 4.4 shows the frequencies, percentages, means and standard deviations for diversified sources of income. About one third of the women in the sample (31.8 percent) obtained their income from trading. The average

Table 4.4

Source of Income and Average Monthly Income of Women in Machinga and Zomba Districts-Malawi.

Source	Frequency[1]	Percent[2]	Mean[3]	SD
Trading	41	31.8	1022.71	1223.81
Return to Capital	7	5.4	954.28	739.99
Wages/Salaries	43	33.3	898.46	831.74
Services	35	27.1	897.17	962.56
Processed Foods & Sodas	36	27.9	573.32	1034.46
Crafts/Clothing/H.Goods	40	31.0	520.27	634.14
Crops/Livestock/Fish	32	24.8	423.84	847.04
Transfers	17	17.2	106.41	104.94

[1] Shows only those who responded "Yes" to the question

[2] Percentages do not add up to 100 due to multiple responses

[3] Presented in Malawian Kwacha

income obtained from this source was MK1022.71 with a standard deviation of MK.1223.81. About 5 percent of women received income from return to capital. The average income from this source for those receiving was MK954.28, (SD = MK739.99). The average income received from wages/salaries was MK898.46, with a standard deviation of MK831.74 for about 33.3 percent of women. About 27 percent of women received income from services, averaging MK897.17 with a standard deviation of MK962.56. Nearly 30 percent of women received income from selling processed foods and sodas. The average income from this source was MK573.22 with a

standard deviation of MK1034.46. Thirty one percent of women derived income from selling crafts, clothing, and household goods. The average income from this source was MK520.27, with a standard deviation of MK634.14. Although there has been on-going drought in the study areas, some women managed to obtain income from sales of agricultural crops and livestock. Nearly 25 percent of women sold some crops, livestock and fish for their livelihood. The average income from this source was MK423.84, with a standard deviation of MK847.04. Finally, some women (17.2 percent) received income from transfers, mainly from relatives and government pensions. The average income from this source was MK106.41, with a standard deviation of MK104.94.

Satisfaction Levels of Women

One way of measuring subjective well-being was to ask women several questions on the selected components of life satisfaction developed by Campbell, Converse and Rogers (1976) and Andrew and Withey (1976). Table 4.5 shows frequencies, means, standard deviations for the whole sample and breakouts for rural and urban women. When women were asked how satisfied they were with the work contribution and economic support from other family members, about 21 percent reported dissatisfaction with the support and work contribution, 16.5 percent said they were neither satisfied nor dissatisfied and about 62.2 percent were satisfied with the economic support and work contribution of family members.

When asked about their satisfaction with family relationship 6 percent were dissatisfied but the majority, 81 percent, were satisfied with family relationship. Nearly 41 percent of women were dissatisfied with household resources, 17.8 percent were neutral and 41.1 percent were satisfied. With household expenditures, about 58 percent were dissatisfied, 23.6 percent were satisfied and 19.7 percent were neither satisfied nor dissatisfied.

A well-being score was obtained by summing the above satisfaction items after conducting a Principle Component analysis in Factor analysis to find a single measure of well-being from seven satisfaction items. These seven satisfaction items are: satisfaction with home production, community resources, household resources, household expenditures, work and economic support, family relationships and land resources. These items were rotated, and at each stage those which did not load well were deleted. Four items were retained as factor one: satisfactions with work and economic contribution (0.763); household resources (0.698); household expenditures (0.744); and family relationships (0.524). The total pooled variance for the four items was (47.5 percent).

Results of correlation are presented in the Appendix D, Table D. There were siginificant positive relationships at (p = .05) or less between a) work contribution/economic support with family relationships (r = 0.20), b) household resources (r = 0.39) and c) household expenditures (r = 0.40). There was a modest positive relationship between family relationships and

Table 4.5

Satisfaction Levels of Women in Machinga and Zomba Districts-Malawi:
Percentages, Means, and Standard Deviations.

	Whole Sample %	Rural %	Urban %
Satisfaction w/work & economic support (n)	(127)	(62)	(65)
Very dissatisfied	6.3	9.7	3.1
Dissatisfied	15.0	21.0	9.2
Neither satisfied/dissatisfied	16.5	16.0	16.9
Satisfied	38.6	33.9	43.1
Very satisfied	23.6	19.4	27.7
Mean	3.58	3.32	3.80
SD	1.18	1.27	1.03
Satisfaction with family relationship	(129)	(64)	(65)
Very dissatisfied	0.8	1.6	0.0
Dissatisfied	5.4	6.3	4.5
Neither satisfied/dissatisfied	12.4	6.3	18.5
Satisfied	57.4	56.3	58.5
Very satisfied	24.0	29.7	18.5
Mean	3.98	4.06	3.90
SD	0.81	0.87	0.74

Table 4.5 Continued

<u>Satisfaction Levels of Women in Machinga and Zomba Districts-Malawi:</u>
<u>Percentages, Means, and Standard Deviations.</u>

	Whole Sample %	Rural %	Urban %
Satisfaction with household resources	(129)	(64)	(65)
Very dissatisfied	11.6	20.3	3.1
Dissatisfied	29.5	28.1	30.8
Neither satisfied/dissatisfied	17.8	15.6	20.0
Satisfied	33.3	25.0	41.5
Very satisfied	7.8	10.9	4.6
Mean	2.56	2.78	3.13
SD	1.05	1.32	1.01
Satisfaction with household expenditures	(127)	(64)	(63)
Very dissatisfied	13.4	20.3	6.3
Dissatisfied	43.3	40.6	46.1
Neither satisfied/dissatisfied	19.7	17.2	22.2
Satisfied	20.5	20.3	20.6
Very Satisfied	3.1	1.6	4.8
Mean	2.56	2.42	2.71
SD	1.05	1.08	1.02
Well-being Score	(125)	(62)	(63)
4-9	9.6	16.1	3.1
10-14	58.4	56.5	60.3
15+	32.0	27.4	36.6
Total	100.0	100.0	100.0
Mean	13.08	12.58	13.57
SD	2.97	3.32	2.50

Table 4.5 Continued

Satisfaction Levels of Women in Machinga and Zomba Districts-Malawi: Percentages, Means, and Standard Deviations.

	Whole Sample %	Rural %	Urban %
Overall Satisfaction with life	(129)	(64)	(65)
Very Dissatisfied	9.3	14.1	4.6
Dissatisfied	18.6	15.6	21.5
Neither Satisfied/Dissatisfied	13.2	7.8	18.5
Satisfied	41.1	39.4	43.1
Very Satisfied	17.8	23.4	12.3
Total	100.0	100.0	100.0
Mean	3.39	3.42	3.36
SD	1.40	1.37	1.09

household resources ($r = 0.17$). The relationship between family relationship and household expenditures was significant and positive ($r = 0.26$). Finally, the relationship between household resources and expenditures was also significant ($r = 0.317$). In all cases, however, the correlations are .40 or less.

The results suggest that the satisfaction items have an underlying theme - satisfaction with the array of family resources and relationships. The significance of work contribution/economic support to family relationships, household resources and expenditures is that an individual who has support from relatives or family will be more satisfied with overall levels of resources and expenditures, providing there is a free exchange of these resources.

The positive relationship between household resources and expenditures suggests that spending more (resulting from higher incomes) leads to higher satisfaction with well-being. A Cronbach's alpha reliability coefficient of 0.62 was obtained. It was considered large enough for the satisfaction items to be combined into one, overall measure of satisfaction with well-being.

About 10 percent of the women scored between 4 and 9; 58.4 percent scored between 10 and 14, and 32 percent scored above 15. The average score was 13.08, with a standard deviation of 2.97. The expected minimum score was 4 and maximum score was 20. The women in the sample scored between 4 and 19. When urban and rural women were compared on their well-being scores, nearly 37 percent of urban women scored above 15 and only 3.2 percent scored between 4 and 9. Slightly over 16 percent of rural women scored between 4 and 9; 58.5 percent scored between 10 and 14 and about 27 percent scored above 15. The majority of urban women, 60.3 percent, scored between 10 and 14. The average scores for urban and rural women were 13.57 and 12.58 respectively with urban women showing higher well-being scores than rural women.

Overall Satisfaction with Life

Finally, women were asked about their global satisfaction with life, taking into consideration all the resources, family, health and employment opportunities. About 28 percent were either very dissatisfied or dissatisfied with life; 13.2 percent were neither dissatisfied nor dissatisfied with life and nearly 59 percent were satisfied with their lives in general.

Comparing rural and urban women, nearly 30 percent of women in rural areas were dissatisfied with life, 7.8 percent were neither dissatisfied nor satisfied and about 63 percent were satisfied. The average score was 3.42, (SD = 1.37). About 26 percent urban women were dissatisfied, 18.5 percent were neither dissatisified nor satisfied, and 55 percent were satisfied with their lives. On the whole rural women were slightly more satisfied than urban women using this measure with (means equaling 3.42 and 3.36 respectively).

In summary, the women in the sample were in their late 30's, the average age of the rural sample being a little younger than that of the urban sample. The women had educational levels somewhat above the national averages, especially in urban areas. The women had slightly poor health. Most women were married and had larger household sizes, with the urban sample containing more people than the rural sample. Over half of the women reported their family members to have been ill the previous month. The women in the sample on average, had less land to cultivate and less access to farm inputs than national averages indicate. The majority of women had more than one source of income, and the average incomes were higher than the national averages per capita. Finally, over half of the women studied (59 percent) were satisfied with their lives (27.9 percent) were not.

Reasons for Generating Income

Women were asked to indicate reasons why they engaged in diverse income generating activities. Table 4.6 shows the reasons and percentage responses from women. The majority of the respondents (77.9 percent)

indicated, as a first priority, that they generated income for day to day survival or for household maintenance. Their second indicated priority was that of supplementing family income. Thirty three percent said they had to supplement their incomes, which were becoming increasingly inadequate to meet household basic needs.

About 29 percent of the women in the sample indicated that various income sources helped them to invest in a business for expansion purposes. Women were also asked whether they needed the money for paying school fees and only about 25 percent agreed. The women also indicated helping relatives and financial independence as other reasons for generating income (17 perecent each).

Nearly, 12 percent said the money obtained was for other things, like building/repairing and repaying loans. Only 3.3 percent indicated using money for paying workers. In summary, the findings on reasons for generating income from diverse sources support Grown and Sebtad's (1989) theory on income generation in Africa, that women's most important goal in generating income is for survival rather than for security or the growth of their micro enterprises.

Table 4.6

<u>Reasons Given by Women in Machinga and Zomba Districts for Engaging in Income Generating Activities: Frequencies and Percentages</u>

Reason	#[1]	Percent[2]
Survival/Household Maintenance n=122	95	77.9
Supplement family income n=121	40	33.1
Expand business n=121	35	28.9
Paying school fees n=121	30	24.8
Help Relatives n=121	21	17.4
Financial independence n=121	16	17.4
Other (paying back loans, building) n=122	14	11.5
Paying workers n=122	4	3.3

[1] Refers to those who responded "yes"

[2] Percents do not add up to 100 due to multiple responses

Differences Between Unmarried and Married; and Rural and Urban Women on Selected Variables

To compare unmarried and married; and rural and urban women to selected variables, ten hypotheses were tested using the t-test and two-tailed probability test set at $p \leq .05$ to answer questions 3 and 4.

Hypothesis 1: There is no difference between unmarried and married in income diversification levels.

The literature read emphasized the need for income for female-headed households. It is assumed that since unmarried women may not have adequate financial resources from a second earner, they would engage more actively in income generating activities (diversifying income sources) than would married women. Table 4.7 shows income diversification estimated from reported number of income sources, by marital status. There was no significant difference between unmarried and married women in terms of income diversification. Thus the null hypothesis was retained. Unmarried and married women seemed to be equally involved in income generating activities.

Hypothesis 2: There is no difference between rural and urban women in income diversification levels.

The results of testing for differences in the means (Table 4.8) showed that there were significant differences between urban and rural women in terms of number of income sources. The null hypothesis was rejected. Urban women had more income sources than rural women. The Document on the Situation of Poverty in Malawi (United Nations and Malawi Government, 1993) also indicates that urban households tend to diversify more than rural households.

Table 4.7

Differences Between Unmarried and Married Women in Number of Income
Sources (Income Diversification)

	Mean	Standard Deviation
Unmarried Women (n=40)	2.02	1.02
Married Women (n=89)	1.90	1.16
T = 0.48 DF = 127 p = 0.62 ns (two-tailed)		

ns not significant

Table 4.8

Differences Between Rural and Urban Women in Number of Income Sources
(Income Diversification)

	Mean	Standard Deviation
Rural Women n=64	1.32	0.943
Urban Women n=65	2.56	0.943
T = -7.50 DF = 127 p = 0.0000*** (two-tailed)		

***$p \leq 0.001$

Hypothesis 3: Unmarried and married women do not differ in the amount
of time put into home production activities.

Table 4.9 shows the differences in the allocation of time weekly, to
household work (home production) by unmarried and married women. There
was a significant difference between unmarried and married women in terms
of how they allocated time to household work. The null hypothesis was

Table 4.9

Differences Between Unmarried and Married Women in Hours Spent in Home Production

Variable	Mean	Standard Deviation
Unmarried women n=40	21.42	18.28
Married women n=89	34.23	23.91
T = 3.33 DF = 96.7 p = 0.0012** (two-tailed)		

**p ≤ 0.01

rejected. From the findings, married women in the sample put more hours into household production than did unmarried women, with means of 34.23 versus 21.42 respectively. Being married includes a commitment to time for household work. Married women, with increased responsibilities of taking care of young children (under seven years) and marital responsibilities, tended to result in a large number of hours in household work. It is worth noting that marital status was positively and significantly correlated with the number of children under seven years of age.

Hypothesis 4: Rural and urban women do not differ in the amount of time put into home production activities.

There were also significant differences between rural and urban women in household work time (Table 4.10). With a mean of 42.38, rural women spent more hours in household work than did urban women with a mean 18.33. This null hypothesis was also rejected. One explanation may be the

Table 4.10

Differences Between Rural and Urban Women in Hours Spent in Home
Production

Variable	Mean	Standard Deviation
Rural Women n=64	42.38	20.61
Urban women n=65	18.33	18.73

T = 6.93
DF = 127.0
p = 0.0000*** (two-tailed)

***$p \leq 0.001$

ready availability of energy and time-saving technologies in urban areas but
not in rural areas. Rural women would also be likely to spend more time
collecting water and firewood, and in meal preparation.

Hypothesis 5: There is no difference in total income earned between
unmarried and married women.

The average income for unmarried women was MK 1440.55, and that of
married women was MK 1319.47. The results show that there were no
significant differences between married and unmarried women on the amount
of income generated (Table 4.11) and the null hypothesis was retained. It
seems that the economic hardships which are being experienced by all
households in this study are equally affecting women, whether married or
unmarried.

Table 4.11

Total Monthly Income Comparisons Between Unmarried and Married Women
on Total Income (in Malawi Kwacha)

Variable	Mean	Standard Deviation
Unmarried women n=40	MK 1440.55	MK 1729.00
Married women n=89	MK 1319.47	MK 1841.52

T = 0.35
DF = 127
p = 0.72 ns (two-tailed)

ns not significant

Hypothesis 6: There is no difference in total income earned between rural

and urban women.

Urban and rural women showed marked differences in the amount of

income (Table 4.12) and the hypothesis was rejected. The average monthly

incomes for rural and urban women were MK217.45 and MK2479.04

respectively. The results suggest that for women in this sample, living in

rural areas is associated with very low incomes, while living in urban area is

associated with high incomes. Urban women may have many more

opportunities to earn incomes and earn more because of access to good

jobs, and invest in secure businesses. They also have opportunities to attain

a good education -- secondary school or college -- which tends to increase

their incomes. It should be noted here that place of residence was positively

correlated to education, showing urban women attaining a higher education

Table 4.12

Total Monthly Income Comparisons Between Rural and Urban Women on Total Income (in Malawi Kwacha)

Variable	Mean	Standard Deviation
Rural Women n=64	MK 217.45	403.80
Urban Women n=65	MK 2479.04	1937.32
T = -9.21 DF = 69.4 p = 0.000*** (two-tailed)		

***$p \leq 0.001$

than rural women. Urban women may also have access to credit and markets which would likely contribute to the profitability of their businesses.

Hypothesis 7: unmarried and married women do not differ in their well-being scores.

Comparison of unmarried and married women's well-being scores are found in Table 4.13. There was no significant difference between unmarried and married women in terms of their well-being score. The unmarried women had a mean score of 13.15, and married women had a mean score of 13.04. The null hypothesis was retained.

Hypothesis 8: rural and urban women do not differ in their well-being scores.

Table 4.14 shows the comparison between rural and urban women on their well-being scores. The hypothesis was retained at $p \leq .05$. However, at

Table 4.13

Differences Between Unmarried and Married Women on Well-being Score

Variable	Well-being Score		
	n	Mean	Standard Deviation
Unmarried women	40	13.15	3.02
Married women	89	13.04	2.96
T=0.179 DF = 123.0 p = 0.857 ns (two-tailed)			

ns not significant

Table 4.14

Differences Between Rural and Urban Women on Well-being Score.

Variable	Well-being Score		
	n	Mean	Standard Deviation
Rural women	64	12.58	3.32
Urban women	65	13.57	2.50
T = -1.87 DF = 113.4 p = 0.062 † ns (two-tailed)			

ns not significant at p ≤.05; but significant at †p ≤ 0.10

p ≤.10 this was significant. With these slight differences, rural women had lower scores than urban women, with mean scores of 12.58 and 13.57 respectively. Since the items in this index were comprised of resources in terms money or food harvests, except for family relationships, it can only be concluded that the greater availability of resources and economic support

tend to raise well-being. The reduced levels of satisfaction for rural women may coincide with the problems of drought. Many households harvested literally nothing in the area studied (Focus group discussion notes, 1994). It can only be concluded that higher levels of resources for basic needs (food, money, clothing, shelter) enhances well-being. However, given the very large differences in rural and urban incomes, it seems incredible that the mean satisfaction scores are not even more divergent. This may be partly explained by the high cost of living in urban areas, caused by high inflation. The item on family relationships may have caused this small difference for women in rural areas who might depend on the extended kin for economic support. Please note that it is also possible that the scores relate to self comparisons with earlier times in each district and that the women did not compare themselves to others. It is support for the idea that well-being is not a function of an objective level of resources.

Hypothesis 9: unmarried and married women do not differ in overall satisfaction with life.

Table 4.15 shows differences between unmarried and married; and between rural and urban women on overall satisfaction. The mean satisfaction level for unmarried women was 3.25 and for married women 3.46. The means were not different and the Kruskal-Wallis chi-square approximation for ordered and unordered variables along with the null hypothesis were retained. The literature on life satisfaction suggests that

Table 4.15

Kruskal-Wallis Test Results and Mean Differences Between Unmarried and Married Women on Overall Satisfaction with Life.

	n	Mean
Unmarried women's satisfaction levels	40	3.25
Married Women's satisfaction levels	89	3.46
Kruskal-Wallis Chisq. Approx. = 0.456 DF = 1 p = 0.499 ns		

ns not significant

being married is associated with higher levels of satisfaction with life (Mastekaasa, 1993). Glenn and Weaver (1988), however, indicate thatmarriage is associated with low levels of satisfaction. White (1992) found that when health and age were controlled for in the model, unmarried women registered more satisfaction with their lives than married women. In this sample, it can be concluded that whether or not one is married, the rating on satisfaction with life is the same.

Hypothesis 10: Rural and urban women do not differ in overall satisfaction with life.

There were no significant differences between rural and urban women on satisfaction levels (Table 4.16), with means 3.42 and 3.36 respectively). The null hypothesis was retained. Whether or not one resided in an urban area, the rating on satisfaction levels of life in general was the same.

Table 4.16

Kruskal-Wallis Test Results and Mean Differences Between Rural and Urban
Women on Overall Satisfaction with Life

	n	Mean
Rural Women's Satisfaction levels	64	3.42
Urban women's satisfaction levels	65	3.36
Kruskal-Wallis chisq. Approx. = 0.464 Df = 1 $\underline{p}$ = 0.495 ns		

ns not significant

Examining Relationships Between Input, Throughput, and Output Variables Through Path Analysis

Pearson's Product Moment Correlations and Path Analysis (using

Ordinary Least Squares Regression) were used to answer questions 5 to 8 in

which an integrated conceptual model was utilised to examine relationships

between Input (independent) variables and Throughput (intervening)

variables; between Input and Output variables; between Throughput and

Output variables; and finally between objective (economic well-being) and

subjective well-being. Question 9 was also analyzed by correlations and

Ordinary Least Squares Regression, but in a separate model.

Prior to conducting Ordinary Least Squares Regression, Stepwise

regression was performed to reduce the number of variables to be entered in

the path model. Tables E1 to E4 (Appendix E) show results for the four

stepwise regressions and the variables retained in each step. For number of

income sources; place of residence, primary education and secondary education were retained. The variables retained in hours spent in home production were place of residence, age, access to farm technology, and number of children under seven years. For total income (log income) the following variables were retained: place of residence, primary and secondary education or above, land holding size, access to farm technology, health status, family health, number of income sources, and hours spent in home production. Finally, for the model to explain the subjective well-being (well-being score), only three variables were retained; health status, hours spent in home production and total income (log income). Number of children under seven and family health were dropped in the Ordinary Least Squares Regression (OLSR) since little was contributed to the R-square in the respective models and also to fulfill the of 10 independent variables per dependent variable.

After the stepwise procedure, collinearity procedures were conducted to detect multicollinearity among independent variables entered in the regression models. Tables F1 and F2 (Appendix F) show results of the eigenvalues, variance inflation factor and condition index (number). Freund & Littell (1991) state that variance inflation factor values of more than 10 should be of concern. Two other detectors are eigenvalues and condition numbers. Eigenvalues of zero, and condition numbers of more than 30 denote serious multicollinearity. The results suggest that multicollinearity was not a serious problem in this analysis.

Zero Order Correlations for All Variables in the Path Model

Prior to running the regression, a correlation matrix is produced to examine the direction and strength of the variables in the models. Table G in Appendix G, shows that place of residence and education 2, which is secondary education or above had a correlation of (r =.694) but in the stepwise regression procedure it showed that they can be entered together. The other variables which showed high correlations were number of income sources and total income (log income) (r = .697); place of residence and total income (log income) (r =.665) and secondary education or above with primary education (r = .553). Total income (log income) and number of income sources are part of the path analysis, therefore they could not be dropped. Afifi and Clark (1990) ; and Judge et al. (1982) indicate that multicollinearity becomes a serious problem when r is .75 and above. Darlington (1990) states that: "...collinearity is often a far less serious problem than researchers fear...but a significant value of beta is just as conclusive when collinearity is present as it is absent..." pg.130. The author further explicates that "...a covariate Xj which correlates highly with an independent variable Xk can substantially increase SE(bk) and thus lower power .... The collinearity between Xj and Xk will also raise SE(bj), perhaps making bj nonsignificant. Therefore, the nonsignificance of a covariate's regression slope is not a good reason for deleting it from the model." (p.131)

Since, in Path analysis, the models utilize the same independent variables, it was not possible to exclude intercorrelated variables in one

model and include them in another. Therefore, there might be a multicollinearity problem in one model, but that it is judged not to be very severe.

Results of Path Analysis

The results of the path analysis are based on the hypotheses in the empirical model presented in Chapter 3, Figures 3.1 to 3.6 and the goal was to develop an integrated model for examining relationships among independent, intervening, and selected dependent variables. Four recursive regression equations were tested and the standardized Beta coefficients are presented in a path model (see Figure 4). This final path model shows the significant effects of individual independent and intervening variables on economic (total income) and subjective well-being (measured by well-being score) as well as the effect of economic well-being (total income) on subjective well-being (well-being score).

The path model in this analysis utilized only significant, standardized Beta Coefficients equal to .10 or less. While the initial sample used for other analyses in the study was 129, the regression procedure eliminated those cases with missing values. As a result only 124 respondents were used.

Figure 4 shows significant path coefficients for the final path model for two output variables -- Total Income (log income) and Subjective well-being (well-being score).

The first eight variables had significant direct relationships with Total income (log income): place of residence $(p = .08)$, aproximate land holding

Figure 4. Final Reduced Path Model for Examining Factors Influencing Economic and Subjective Well-being (with significant Betas only).
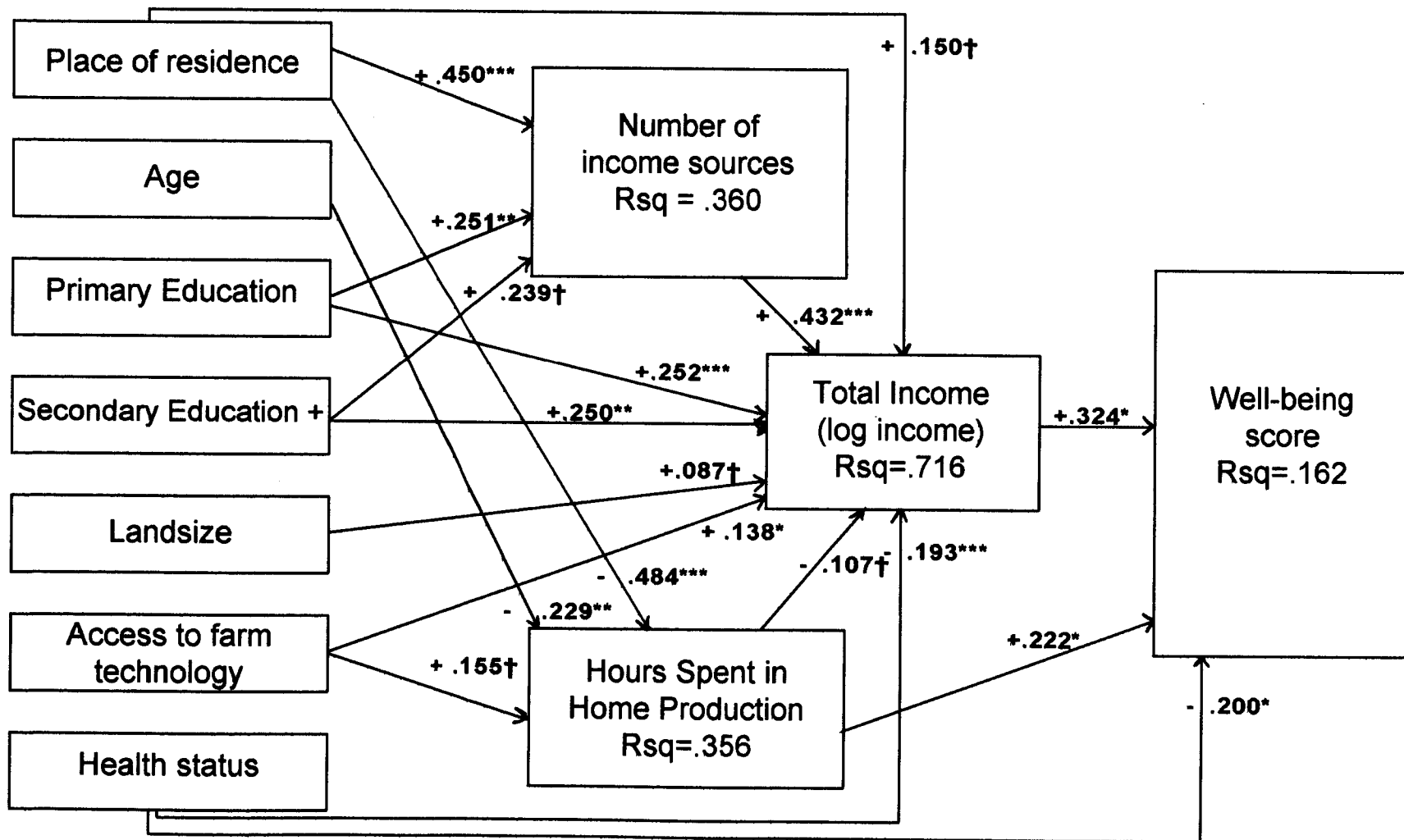
†p≤.10; *p≤.05; **p≤.01 ***p≤.001

size (p = .09), primary education (p = .000), secondary education or above (p =.008), health status (p = .000), access to farm technology (p = .013), number of income sources (p = .000), and hours spent in home production (p = .085). Only health and home production were negatively related to total income.

Only one independent variable, health status had a significant, direct relationship with well-being score (p = .039). One intervening variable, hours spent in home production, had a significant relationship with well-being score (p = .048). Total income (log income) was also significantly related to well-being (p = .045).

Some independent (input) variables had significant direct effects with the intervening variables, namely, number of income sources and hours spent in home production. The independent variables which had significant direct effects on number of income sources (income diversification) were place of residence (p = .000), primary education (p = .010), and secondary school education or above (p = .083). Place of residence (p = .000), age (p = .004) and access to farm technology (p = .056) had significant direct effects on hours spent in home production.

Because some of the independent and intervening variables had significant, direct effects on both total income (log income) and well-being score, they created indirect effects on these three output (dependent) variables. Tables 4.17 and 4.18 present the direct, indirect and total effects on total income (log income) and the subjective well-being (well-being score)

Table 4.17

Decomposition of Direct, Indirect and Total Effects on Total Income (Log Income) (n=124)

Variables	Direct Effects	Indirect Effects Through. . .	Total Effects
Place of residence	+0.150	+0.194 (income sources) +0.051 (hrs. in home production)	+0.395
Age	------	+0.024 (Hrs. in home production)	+.024
Primary education	+0.252	+0.108 (income sources)	+0.360
Secondary education & above	+0.250	+0.103 (income sources)	+0.353
Land holding size	+0.087	---------	+0.087
Health status	-0.193	---------	-0.193
Access to farm technology	+0.138	+0.016 (hrs. in home production)	+0.122
Number of income sources	+0.432	---------	+0.432
Hours spent in home production	-0.107	---------	-0.107

respectively. The indirect and total effects were obtained by first multiplying each direct significant Beta linking to the output dependent variable to derive indirect effects; then, direct and indirect effects were summed to obtain total effects of that variable on the dependent variable (Schumm et al. 1980). Where there was no direct or indirect effect, the original Beta coefficients were entered as total effects.

Table 4.18

Decomposition of Direct, Indirect and Total Effects on Well-being Score
n=124

Variables	Direct Effects	Indirect Effects Through . . .	Total Effects
Place of Residence	_____	+0.016 (hrs./h. prod. & log income)	+0.019
		-0.107 (hrs. in home production)	
		+0.048 (log income)	
		+0.062 (log income & income sources	
Age	-------	+0.024 (log income & hrs./h.prod.)	-0.026
		-0.050 (hrs. in home production)	
Primary Education	-----	+0.035 (log income & income sources)	+0.116
		+0.081 (log income)	
Secondary Education & above	-----	+0.33 (log income & income sources)	+0.114
		+0.081 (log income & income sources)	
Approx. land holding size	-----	+0.028 (log income)	+0.028
Health status	-0.200	-0.062 (log income)	-0.262
Access to farm technology	-----	+0.034 (hrs. in home production)	+0.073
		-0.005 (log income & hrs./h. prod.)	
		+0.044 (log income)	
Number of income sources	-----	+0.139 (log income)	+0.139
Hours in home prod.	+0.222	-0.034	+0.188
Log income	+0.324	---------------	+0.324

Direct, Indirect and Total Effects on Total Income (Log Income)

Place of residence, primary education, secondary education, land holding size, access to farm technology, number of income sources and hours spent in home production had direct effects on Total income (log income) (Table 4.17). Variables which had indirect effects were place of residence through number of income sources and through hours spent in home production. Age had an indirect effect through hours spent in home production. Primary and secondary education and above had indirect effects through number of income sources, and access to farm technology through hours spent in home production.

Of the variables entered in the regression model, number of income sources had the largest total effect on total income (log income) (+.432), followed by place of residence (+.395), primary education (+.360), secondary education or above (+.353), health status (-.193), access to farm technology (+.122), hours spent in home production (-.107), and land holding size (+.087). Age had the smallest total effect (+.024) on total income (log income). Most indirect effects were small compared to direct effects, except for place of residence which displayed a large indirect effect on total income.

Direct, Indirect and Total Effects on Subjective Well-being (Well-being Score)

The following variables had direct effects on well-being score (Table 4.18): health status, hours spent in home production and total income (log income).

Several variables had indirect effects on the well-being score. Place of residence had indirect effects through hours spent in home production and log income, hours spent in home production only, log income only and through number of income sources and log income, respectively. Age had an indirect effect through log income and hours spent in home production and through hours spent in home production only. Primary and secondary education and above had indirect effects through number of income sources and log income. These variables had indirect effects also through log income alone. Land holding size, health status, number of income sources and hours spent in home production had indirect effects through log income. Access to farm technology had indirect effects through hours spent in home production, through log income, and through both hours spent in home production and log income.

The variables which had the largest total effects on the well-being score, in order of the magnitude, were log income (total income) (+.324), health status (-.262), hours spent in home production (+.188), number of income sources (+.139), primary education (+.116), secondary education and above (+.114), access to farm technology (+.073), land holding size (+.028) and age (-.026). Place of residence had the smallest total effect (+.019).

In summary, many independent variables acted indirectly to affect well-being, suggesting that the intervening variables, especially hours spent in home production and total income, did a good job of mediating the effects of independent variables to enhance well-being. Number of income sources

only mediated when total income was included. But the two throughput

variables adequately mediated the effects on total income (log income), since

five independent variables out of seven had indirect effects through them.

Since the major hypothesis was to examine factors which influence

number of income sources (income diversification), hours spent in home

production, total income, subjective well-being (well-being score), (see

research questions 5 to 8 in Chapter three), it was necessary to examine

these relationships. Both unstandardized and standardized Beta coefficients

are reported in the tables. The discussion is reported as presented in the

summaries of hypothesized relationships (see Figures 3.1 to 3.6 in Chapter

Three).

Relationship of Human Capital and Family Resources to Number of Income Sources

It was hypothesized that education and age would be positively and

health status negatively related to number of income sources (income

diversification). The hypotheses were confirmed for the education variables

and not for age and health status. Results are presented in Table 4.19.

Primary education and secondary education or above (Beta = +.251, p =

.010) and (Beta = +.239, p = .083) had significant and positive relationships

to number of income sources. As hypothesized, compared to women with no

education, having primary and secondary school education or above

increases the chances of women to diversify their income sources. This

Table 4.19

Relationships of Independent Variables to Number of Income Sources
(Income Diversification). n=124

Variables	b	Beta	P-value significance
Place of residence	1.019	0.450***	0.000
Age	-0.003	-0.032	0.680
Approx. land holding size	0.000	0.000	0.996
Education 1 = primary 0 otherwise	0.632	0.251**	0.010
Education 1 = secondary + 0 otherwise	0.546	0.239†	0.083
Health status	0.065	0.028	0.710
Access to farm technology	-0.018	-0.018	0.820
F = 9.430 p = 0.0001 Rsq = 0.360			

†$p \leq 0.10$; **$p \leq 0.01$; ***$p \leq 1$ 0.001

in education increases opportunities for individuals to participate in market

work (Becker, 1981). Danes et al. (1987), found education to be positively

related to both formal and informal sector market work. Women with some

education can read literature related to their micro businesses and be better

able to access credit and other resources. The significance of primary

education may be explained by the small renumerations they get due to labor

market discrimination. Hence they find themselves engaging in multiple

income generating activities. Whereas, for secondary education or above,

the importance lies on the ability of these women to command high salaries which can be used as start up capital and invested in the businesses.

Age and health status were not significant in this model. One would expect that with good health a woman would put more energy into market work. The lack of significance of health here could mean that during economic hardships material (money) needs override health needs. Similarly, older women might have been more involved in market work than younger ones. But this did not turn out as hypothesized. Malathy (1994) found that older women were more involved in market work in a study done in an urban setting in India, but Reardon et al., (1992) found age to be not significant in income diversification which supports the finding in this study but not the hypothesis. An additional factor could be the way health was measured in this study, that is women were asked if they had any illness last month. Also those with chronic illness may not have been included in the sample, harder to find and less willing to participate.

Of the family resource variables entered, two variables -- marital status and number of adults were eliminated. It was hypothesized that place of residence, land holding size and access to farm technology would be positively related to number of income sources. However, of the variables entered in the regression models only place of residence had a significant and positive relationship to number of income sources (Beta = +.450, p = .0001). Thus, living in an urban area increased the chances for women to diversify their incomes. The report on the Situation of Poverty in Malawi

(United Nations in Malawi and Malawi Government, 1993) indicates that there are more diversified economic activities in urban areas than in rural areas. Living in urban versus rural locations may have given these women opportunities to develop their entrepreneurial skills, since they have access to business training institutions and commercial banks. The urban area is also a source for marketing, as many of the businesses these women were engaged were those of providing services such as: saloons, restaurants, resthouses and dry cleaning services to working people. Finally, urban areas have better facilities for education and have additional opportunities for diverse employment. The United Development Program and Malawi Government (1993) indicate that urban areas have more diversified economic activities than rural areas. Previous study by Reardon et al. (1992) in Burkina Faso found that income diversification was prevalent in areas of poor geographical zones and places where agricultural productivity was high. Given this situation, two factors help to explain the lack of diversification in the rural areas where this study was conducted. Machinga was one of the districts which was severely hit by drought for nearly two consecutive years. As a result, most of the households literally harvested nothing. Since most rural area households depend on agricultural work for income, this situation prevented most of the women from generating income from agricultural sources. Second, the rural employment infrastructure is not well developed to absorb the rural mass, although Machinga is considered to be one of the districts with a high proportion of economically active population (National

Statistics Office, 1987). Machinga has manufacturing and service sectors which are too small to employ everyone, especially women and its urban centers are just developing.

Land holding size and access to farm technology were not significant. Therefore, hypotheses that land-holding size and access to farm technology can influence income diversification were not confirmed. Reardon et al. (1992) reported that land size did not influence income diversification, but rather variations in ecological factors within the areas studied. The overall model was significant with 36 percent of the variance in number of income sources explained by the variables entered in the regression equation. The lack of significance of land in this analysis may be due to the drought situation. Since one of the income diversification activities is likely to be selling crops from farming, this particular year was not good enough for such activities. The lack of significance for access to farm technology may be that it was regarded as a liability, and that whether one had access to farm technology or not, their income diversification levels may have been the same.

Relationships of Human Capital and Family Resources on Hours Spent in Home Production

It was also hypothesized that education, age and health status would negatively affect women's time spent in home production. Results of factors affecting hours spent in home production are presented in Table 4.20. Only

Table 4.20

Relationship of Independent Variables to Hours Spent in Home Production.
n=124

Variables	b	Beta	P-value significance
Place of residence	-22.5	-0.484***	0.000
Age	-0.54	-0.229**	0.004
Approx. land holding size	0.06	0.003	0.960

Education
   1 = primary
   0 otherwise
	-5.59	-0.108	0.268

Education
   1 = secondary +
   0 otherwise
	-5.18	-0.110	0.424

Health status	-3.47	-0.074	0.339
Access to farm technology	3.25	+0.155†	0.056
F = 9.262 p = 0.0001 Rsq = 0.356			

†$p < 0.10$; **$p < 0.01$; ***$p < 0.001$

one human capital variable -- age was significant at $p \leq .10$, (Beta = -.229, p = .004). The hypothesis that as age increases, time spent on household work decreases was confirmed. Thus women who were older spent less time in home production. This finding does not support Hersch & Stratton, (1990) who found that younger women spent less time on housework. However, Malathy (1994) found that older women spent more hours in household work than younger women, only if involved in market work. Since the age range of

this sample was 20 to 61, it could mean that these women may have had help from their children or relatives. Another explanation would be that older women, because of physical limitations emanating from aging or ill health, may not fully do the tedious work in the home where few or energy-saving devices are available.

Land holding size, place of residence and access to farm technology were hypothesized to increase time spent in home production. Two variables in the family resource category were confirmed. Place of residence was significant and negatively related to hours spent in household work, and access to farm technology was significant and positively related to hours spent in home production (Betas = -.484, p = .0001; +.155, p = .056) respectively. Both hypotheses were confirmed. Women who lived in urban areas were likely to spend less time in household work. The decreased number of hours spent in home production by urban women may be attributed to 1) time spent in paid employment or other market activities, 2) being able to afford hired help, 3) access to day care facilities, 4) access to energy and labor saving technologies, 5) access to electricity or gas, and a water supply within the vicinity of their homes and 6) the fewer number of very young children. It was noted that number of children under seven years old was positively correlated with hours in home production, and it did show in the descriptive data that rural women had more of children under seven years and spent more time in home production.

Increased access to farm technologies also demanded more of women's time in household work. Although the correlation coefficient was not significant, the result in regression analysis was significant at $P \leq .10$. The finding suggests that since farm technologies increase crop productivity, it is possible that farm work was extended to home production, such as food processing and home maintenance.

All other variables were not significant. The results of the education variables were surprising because other researchers, such as Malathy (1994), have found that increases in education reduced the number of hours women spent in home production. However, especially in times of drought, home production may substitute for cash and market produced goods. The overall model was significant (F = 9.262, p = .0001, R-square = .356). About 36 percent of the variance in hours spent in home production was explained by the variables entered.

Relationship of Human Capital and Family Resources and Intervening Variables to Total Income—Log Income

The hypotheses for human capital variables on total income were that education and age would increase total incomes of women and health status would reduce the incomes. Table 4.21 shows the ordinary least squares regression (OLSR) results for total income. Human capital variables of education and health status were confirmed as hypothesized. Both primary and secondary school education were significant and positively related to total income (log income) (Betas = +.252, p = .0001; +.250, p = .008 at

Table 4.21

Relationship of Independent and Intervening Variables to
Total Income (Log Income)

Variables	b	Beta	P-value significance
Place of residence	0.913	0.150†	0.084
Age	0.005	0.017	0.747
Approx. Land holding size	0.200	0.087†	0.098
Education 1 = primary 0 otherwise	1.707	0.252***	0.000
Education 1 = secondary + 0 otherwise	1.534	0.250**	0.008
Health status	-1.180	-0.193***	0.000
Access to farm technology	0.376	0.138*	0.013
Number of income sources	1.161	0.432***	0.000
Hours in home production	-0.014	-0.107†	0.085

F = 32.30
p = 0.0001
Rsq = 0.716

†p < 0.10; *p < 0.05; **p < 0.01; ***p < 0.001

p<.01). Health status was significant and negatively related to total income
(Beta = -.193, p = .0001). Mincer and Pollack (1974) found that education
increased earnings of women in the United States. Also, human capital
theorists have posited that an increment in one's education translates into
proportionate increases in earnings (Becker, 1964:1981; Schultz, 1961;
Sahota, 1978). In a study done by Danes et al. (1987) in Honduras,

education was found to be related to formal and informal market sector earnings. Thus education is an important factor in increasing women's earnings. The acquisition of primary and secondary education or above increased the probability of women in the sample to work either in the formal or informal sector. Educated women are more likely to take jobs which tend to pay more and to also take on other income earning activities. Educated women may have access to credit, where they can borrow money and reinvest in businesses. Because of the lifestyle associated with high education, and the economic squeeze experienced by every Malawian at the time of the interview, it was necessary for these women to earn income from other sources, hence they were likely to have had diversified incomes.

Illness tended to decrease earnings of women in the study. Women who had reported being ill in the past month were likely to earn less from their economic activities. Illness may have prevented some women from taking high paying jobs which could earn them high incomes. Age was the only human capital variable which was not confirmed, but it was also uncorrelated with log income (total income) ($r = .073$, $p = .423$). One would expect that older women would have more "human capital" in the form of experience, hence command high incomes. While this may hold true, this human capital may not contribute to higher earnings because of one job or holding multiple economic activities which do not entail greater renumerations. Conversely, assuming younger women may have more energy to off-set experience, they may earn more income from the multiple economic activities.

It was also hypothesized that land holding size, place of residence and access to farm inputs would positively influence total income earned (log income) of women. The hypotheses were confirmed. Place of residence (Beta = +.150, p = .084); land holding size (Beta = +.087, p = .098), were modestly related to total income (log income). Women who lived in urban areas had higher incomes compared to those who were living in rural areas. Rudkin (1993) also found that there was a significant but negative effect on economic well-being when one resided in a rural area. In this analysis, only income derived from the women's economic activities was utilized as a measure of economic well-being, whereas Rudkin included housing conditions. The high incomes for urban women in this sample could be attributed to paid employment and businesses opportunities, educational facilities, and access to credit and business institutions. Their counterparts in rural areas may have had low income levels probably due to lack of paid and self employment opportunities exacerbated by drought (Focus Group Discussions, 1994). Credit and business institutions are limited in rural areas, where women need places to borrow money for their businesses and learn skills for increasing their earnings.

Women who had large land holding sizes were likely to have increased incomes. This is opposite to what Reardon et al. (1992) found. Reardon et al. found that land was not a good predictor of income. The importance of land in predicting income here, is, may be related to the ability of some women to grow and sell crops. The result should be interpreted with caution

because at the time of the study there was drought which affected the incomes from many farmers, whether large or small. Nevertheless, increased land can provide income to sustain livelihood at a higher level if the rains have been good and women have access to farm technologies.

Access to farm technology was also confirmed and was significant and positively related to total income (Beta = +.138, p = .013). As access to farm technology increased among women in the study, their incomes increased. Access to farm technologies may be associated with the ability of women to acquire credit from farmers clubs or commercial banks and be able to increase crop productivity. However, the effect of farm technology on total income can better be explained by a longitudinal study, to see whether it is high incomes which affect access to technologies or farm technologies which affect total income.

The hypotheses that number of income sources and hours spent in home production would increase and decrease (respectively) total income were confirmed. Number of income sources was significant and positively related to total income (Beta = +.432, p = .0001). As number of income sources increased, women's total earnings from various sources increased. Reardon et al. (1992) indicated that having many sources increased households' incomes. But how many income sources should a woman hold to arrive at a safety net? Diversification can increase income and well-being if the net benefits offset the costs of running such enterprises. Danes et al. (1987) found that women who were involved in the formal and informal sector

earnings had high incomes. Conversely, women who spent more hours in home production, had decreased incomes, (Beta = -.107, p = .085). The demands of home production, such as care of young children, extension of farm work to the home and the distances to water and fuel sources, may have prevented these women from participating in income generating activities, hence, their incomes decrease. Note that hours spent in home production was negatively correlated with number of income sources and total income (r = -.361 and r = -.465) respectively. The overall model did an excellent job of explaining 72 percent of the variance in total income (log income). However, the inclusion of domestic help and earnings (as independent variables) from other household members could have improved the model.

Relationship of Independent, Intervening and Economic Well-being Variables to Subjective Well-being

Education and age were hypothesized to positively enhance well-being, and health problems to negatively affect subjective well-being. Table 4.22 shows the results of the regression procedure to explain the well-being score.

The model did not confirm the relationships for the two education variables and age. The only human capital variable confirmed was health status which was significant (Beta = -200, p = .039) and negatively related to the well-being score. Compared to women who did not suffer from any illness during the past month, women who were ill rated their satisfaction with family resources low. One has to be in good health to be satisfied, as health

Table 4.22

Relationship of Independent, Intervening, and Economic Well-being Variables to Well-being Score

Variables	b	Beta	P-value significance
Place of Residence 1 = urban	0.031	0.005	0.971
Age	0.022	0.079	0.404
Approx. land holding size	0.047	0.022	0.813
Education 1 = primary 0 otherwise	-1.056	-1.167	0.179
Education 1 = secondary + 0 otherwise	0.166	0.028	0.862
Health status 1 = got ill	-1.147	-0.200*	0.039
Access to farm technology	0.045	0.017	0.856
Number of income sources	-0.343	-0.134	0.292
Hours in home production	0.027	0.222*	0.048
Log income	0.321	0.324*	0.045
F = 2.14 p = 0.027 Rsq = 0.162			

*p < 0.05

is an important factor in determining a person's physical capabilities and mental outlook. In addition when one is ill and loses personal physical energy and control, family resources become more important.

Place of residence, land holding size and access to farm technology were hypothesized to positively influence subjective well-being. None of the family resource variables were confirmed, nor did they correlate with the well-being score. The lack of significance for these variables may be that since most households in subsistence economies rely on these factors of production (land and farm inputs) it did not matter when it came to rating well-being. Similarly, it did not matter whether one lived in urban or rural areas, their rating on well-being was the same.

The two intervening variables (number of income sources and hours spent in home production) were hypothesized to positively affect subjective well-being (well-being score). Only hours spent in home production was confirmed. It was significant and positively related to satisfaction with family resources (Beta = +.222, p = .048). Those women who spent more time in home production were likely to rate their satisfaction with well-being high. Work in one's own home tends to be under the control of the woman and may have some autonomy. The work activities which tended to substitute for market work, such as growing and processing your own food, and child caring, may instill feelings of worth and gender identity and render these women to high levels of well- being, than their counterparts, who put in less time in home production. Number of income sources was not confirmed. Whether one had more or less income sources did not change one's level of satisfaction with well-being. One explanation for the lack of significance could be that since the period of the study was during an economic crisis,

holding more income sources come at the cost of reduced time for more satisfying activities, and therefore feelings of subjective well-being may not have been enhanced.

Relationship of Output Variables to Each Other

It was hypothesized that total income would enhance well-being. The hypothesis was confirmed. Total income (log income) was significant and positively related to well-being score (Beta = +.324, p = .045). Women who had high incomes were more likely to rate high on well-being, a subjective score. Dierner et al., (1993 and Heardy, 1993) found level of income to be positively related to satisfaction with income, a subjective well-being measure. The subjective construct in this study consisted of a summation of satisfaction levels for household expenditures, resources, family relationships and work contribution and economic support. Income was used as one of the components to measure well-being. From these findings, income is an important source of satisfaction, although other studies suggest that income is not the only factor that can enhance subjective well-being. Perhaps during times of severe economic problems, money may supercede social attributes. During the focus group discussions, it was observed that money was frequently mentioned as very important in defining economic and subjective well-being. However the study did not ask whether women were happy with their incomes. The overall model was significant (F = 2.140, p = .027, R-square = .162). Sixteen percent of the variance in well-being score was

explained by the variables in the model. However, the variance was very small, which suggests that other factors not entered in the equation may also influence satisfaction with well-being such as neighborhood quality, and availability of consumer goods. Also, since the satisfaction sub-items were independent items and minimally correlated, they might have created low variation. Moreover, the reliability of the index was not high enough, suggesting a different measure of well-being for future research. The exclusion of some satisfaction items due to having excessive missing values, and the problem of indicating "not applicable" may have reduced also the variability as a small number of items were included in the factor analysis.

Factors Affecting Overall Satisfaction with Life

In order to answer question 9 ' how does overall satisfaction with life relate to human capital, family characteristics, resources and well-being score?', a stepwise regression was conducted to reduce the number of independent variables, by selecting those which contributed to the overall model's R-square. The same variables which were used for the Path Analysis were utilized in this model, with the exception of log income. Instead primary income of respondents was utilized in the model. This was done to see the real effects of their income overall satisfaction with life rather the diversified incomes.

Only four variables were retained in the stepwise regression procedure (see Appendix H), and these were: household size, land holding size, respondent's health and the well-being score.

Correlations for All Variables in the Overall Satisfaction with Life Model

The remaining variables correlated well, with no sign of multicollinearity. Table I in Appendix I shows the correlation matrix for the variables which entered in the final model. Household size did not correlate with health status, land holding size and well-being score, but it did correlate with overall satisfaction with life, ($r = -.198$, $p = 0.030$). Health status correlated with well-being score, ($r = -.246$, $p = 0.007$); and with overall satisfaction with life ($r = -.253$ $p = 0.005$). There was no correlation between health status and land holding size. Land holding size did not correlate with either well-being score or overall satisfaction with life. Finally, well-being score was highly correlated to overall satisfaction with life ($r = 464$, $p = 0.0001$).

Relationship of Human Capital Variables to Overall Satisfaction with Life

Table 4.23 shows results of Ordinary Least Squares Regression (OLSR) for Overall satisfaction with life.

Health status of the respondent's was significant and negatively related to overall satisfaction with life (Beta = -0.181, $p = 0.029$). Women who reported being ill the previous month, rated low on the satisfaction with life scale.

Ill-health may alter people's attitudes, work patterns, and relationships to others, and because of this, women in the sample seemed to be dissatisfied with their lives.

Table 4.23

Relationship of Independent Variables to Overall Satisfaction with Life.

Variables	b	Beta	P-value significance
Household size	-0.079	-0.181*	0.025
Health status	-0.451	-0.181*	0.029
Land holding size	-0.097	-0.104	0.192
Well-being score	0.162	0.383***	0.000

*p≤ 0.05; ***p≤ 0.001

Demand Variables

Household size was the only family characteristics variable retained in the model, and it did not enhance women's overall satisfaction with their lives (Beta = - 0.181, p = 0.025). A large household size may increase expenditures, may generate conflicts and reduce living space for individual members, therefore one may be less satisfied with life. Douthitt et al. (1992), using family size as an explanatory variable for measuring satisfaction with life and well-being, found that family size was negatively related to overall satisfaction with life. In Heardy et al's (1985) study of measures of well-being and ill-being, health was not significant.

Family Resource Variables to Overall Satisfaction with Life

Land holding size was the only resource variable which was retained after stepwise regression procedure, but did not become significant at p <.05.

Women in the sample, regardless of land size, may have rated the same on the overall satisfaction scale.

Subjective Well-being Related to Overall Satisfaction with Life

Well-being measured as a score was significant and positively related to overall satisfaction with life (Beta = 0.383, p = 0.0001). Therefore, the hypothesis of no relationship was rejected. Women who rated high on well-being score also rated high on the overall satisfaction with life. Since the well-being score is comprised of resources, work and economic support, household expenditures and family relationships, the contribution made by family members may have enhanced the overall satisfaction with life. Similarly when one is satisfied with resources and relationships, the rating may tend to be high as opposed to those women who may not have such resources. Heardey et al. (1985), found that social network enhanced satisfaction with life and well-being.

The overall model was significant, with 25 percent of the variance in overall satisfaction with life explained by the four variables entered in the model. The variance explained is rather small, suggesting that other factors may have influenced overall satisfaction with life, such as the availability of support groups, clubs, education, religion, work and business opportunities may enhance satisfaction with life. The other explanation of the small variance may be how the variable was measured. The variable is a single item, which may not have much variation. Douthitt et al. (1992) found that a multi-indicator measure of life satisfaction yielded more variance than the

single measure. Therefore, the authors recommended that researchers use the Andrew and Withey's multi-indicator measures of well-being.

Study Limitations

Any research has its own limitations, and this study is no exception. There are a number of problems listed below which were encountered during the field work.

1) The sample utilized in the study is limited to women selected from Zomba Urban, Machinga Urban/towns and rural. The women selected may not be representative of the women in the two districts studied nor women in Malawi in general. Therefore, any inferences made are attributable to the sample studied and not generalized to the whole population of women in Malawi and the two districts in particular.

2) The study is cross-sectional in nature, in that it was done at one point in time, during the dry season and at a time when the country had been experiencing the effects of two year drought spells. It is possible that there might be confounding variables of seasonal variation and time lag effects which may cause changes in the perception of well-being among women.

3) Since some women filled out the questionnaire and others had face to face to interview, it is possible to have different responses, especially on income questions. That is there might have been under-reporting and over-reporting of their financial resources.

4) The questionnaire was translated into Chichewa language. There is a possibility of loss of information (especially with technical words) when the team were interviewing the women.

5) Missing values do tend to distort findings as the missing cases may be the ones with important information. Missing values reduce the sample size and this might cause bias in making conclusions.

6) Another limitation is the methodology, since it was the first study to address subjective well-being issues in Malawi. It was necessary to conduct focus group discussions first, in order to determine the characteristics that would define objective and subjective well-being in the study. Due to time and funding limitations, this component of the study, was done after the interviews. Thus the results were used in interpreting findings, but not in instrument design.

7) Because of having so many variables in the model, stringent tests were used to eliminate variables which did not contribute to overall model's R-square, therefore the parameter estimates might be biased. Future research should ensure having adequate sample size to make generalized conclusions.

CHAPTER FIVE

CONCLUSIONS AND IMPLICATIONS

This section consists of conclusions and implications for research, education/training programs and policy, based on the findings presented in Chapter Four. Limitations of the study are also presented. The presentation will be as follows. First, a summary of objectives is presented, followed by the general characteristics of women in the sample. Second, a brief discussion of differences among the women is reported. Third, a summary of the findings of path analysis is presented. Finally, implications for research, education/training programs, policy and limitations are discussed. Since the sample was a non- probability one and some stringent data analysis procedures were conducted, the conclusions should be interpreted with caution.

Conclusions

The study's major focus was on the development of an integrated model of Family Resource Management Systems and Household Economic Theories for examining relationships between input (independent), throughput (intervening) and output (dependent) variables. The study was also intended to examine relationship between objective (economic) and subjective (psychological) well-being; and ascertain the mediating roles of income diversification and home production on economic and subjective well-being. Another related objective was to ascertain which factors affected overall

satisfaction with life. In addition, differences between rural and urban; and unmarried and married women were ascertained in terms of income diversification, home production, economic and subjective well-being and overall satisfaction with life.

The women in the sample were in their late 30's with the average age of 38.9 and ranging from 20 to 61 years old. The rural sample was younger than the urban one. The women, especially the urban sample, were more highly educated than one would predict. Some women in rural areas reported quite a number of their family members, having been ill the previous month. Most women were married and they had large household sizes, with urban women reporting having more people staying with them than their rural counterparts. The women in the sample on average had less land to cultivate and less access to farm inputs than would be expected. The majority had more than one source of income and average incomes were higher than the national average per capita. Over half of the women studied (59 percent) were satisfied with their lives in general.

There were significant differences between rural and urban women, with urban women having more diversified income sources and income. They were slightly satisfied with family resources. Rural women spent more time in home production actvities than urban women. The differences in expressed well-being and the level of overall satisfaction between rural and urban women were not significant.

There were no significant differences between unmarried and married women in terms of number of income sources, total income, well-being score, and overall satisfaction with life. However, there were significant differences in the allocation of time in home production activities between unmarried and married women. Married women on average spent about 34.23 hours per week in home production.

Summary of Path Analysis

The integrated model was fairly successful in ascertaining relationships between input, throughput and output variables. The intervening variables also mediated the relationships between input (independent) and output (dependent) variables.

First, there were significant direct relationships between place of residence and number of income sources and total income (log income). Thus living in urban areas gave women opportunities to diversify their income sources which resulted in high incomes. This may be attributable to availability of market work, education facilities, credit and business opportunities. However living in rural areas increased women's time in home production. This may be explained by lack of labor and energy saving technologies and the ability to contribute to family well-being in this way. In addition, some women may not have help from extended family or paid labor.

Education was another important factor in determining income diversification and total income (log income). Primary education was more important than secondary education or above. This may be because of the

underemployment rate among this group of school leavers. The findings

provide support for the hypothesis obtained from the integrated model of

Family Resource Management Systems and Household Economic Theory

that there are relationships between the identified input, throughput and

output variables. The integrated framework, also supports the human capital

theorists, who posit that investment in education acts as a screening device

in the market place and increases earnings (Becker, 1964;1981; Schultz,

1961). The net benefits from education may not be observable in the short

term, but rather in the long term (Schultz, 1961; Becker, 1981), thus women

should be encouraged to invest in education to improve their well-being.

Health was an important factor in determining total income and satisfaction

with well-being (well-being score). When health of the women in the study

was problematic, their incomes decreased suggesting physical limitations

may have hindered them from participating fully in income earning activities.

Overall, however health was a poor indicator of income diversification in this

analysis.

Women who had ill health had lower well-being scores. When health

reduces one's energy and ability to make money, other family resources such

as the extended family and friends' help may become more important.

However, the obvious answer is that the whole family suffers when one is ill.

Access to farming technologies and land holding size tended to influence

total income positively. Increased land size and access to farm inputs should

be expected to increase crop productivity, which in turn may translate into

surplus which women can sell for cash. Here it is assumed that the rains

come regularly. During the focus group discussions women lamented over

the drought and the lack of adequate farm inputs. This is what the women

had to say:

> "We have had no rains for two years now. We do not know whether
> we will get any rains this year. If we do not, then we do not know what
> to do. But even if the rains come, we cannot afford fertilizers. It is
> very expensive. Some people got fertilizers but there was no rain.
> They still have to pay back the loans." (September, 1994)

Access to farm technology increased women's time in home production,

this may have been the extension of farm related work to the home such as

processing maize and clearing up after shelling and pounding.

Number of income sources and hours spent in home production

influenced total income positively and negatively, respectively. Holding many

sources of income seemed to increase women's earnings in this sample.

However, holding many sources of income may not be the answer to the

adequacy of income, but rather increasing opportunities for paid employment

through increased education levels. However, the study did not ascertain

how many income sources, or what level of combined income sources would

be adequate to sustain livelihood. In fact, larger numbers of income sources

seemed to reduce hours spent in home production and thereby may have

lowered the quality of the goods and services produced. Conversely, women

who put in more hours in home production had lower incomes but not lower

well-being scores. This maybe, because of the time demands in household

work, attributed to lack of improved household technologies and distances to water and fuel sources or perhaps because it was the only opportunity they saw for increasing family well-being.

Number of hours in home production and total income (but not number of sources of income) positively influenced subjective well-being (well-being score). The "do-it- yourself" jobs of growing your own food, child care, and providing home made goods and services, may have contributed to the satisfaction with well-being of the women in the sample.

It was noted in the study that increased income leads to higher well-being scores for the urban women. The availability of money income to use for household maintenance may have influenced these women to rate higher on well-being than rural women.

The results showed that the two intervening variables did fairly well in mediating the indirect effects of independent variables on the dependent variables. However, the explained variance for the well-being score by the variables in the model was only 16 percent. The inclusion of satisfaction with neighborhood, housing, crime rate, transportation services and availability of goods and other services may have improved the model. Schumm et al. (1980) indicates that the low power in empirical models should not be of a concern where the major objective is not for prediction. Since this study was set to develop a conceptual model for examining relationships of input, throughput and output variables, then the explanation by Schumm et al. suffice in this analysis. However, future research should clearly define the

components of subjective well-being. The results also confirmed the relationship between economic (objective) and subjective well-being. Having more income increased the well-being of these women.

The only variable which was well explained by the independent and intervening variables, was total income (log income) (R-square = 72%). The model might be improved by inclusion of number of other earners.

From the results of the path analysis, it appeared that there were trade-offs between market work and household production, and the effects of these on well-being would depend on how these women balance their time between market, non-market and leisure. Further development of the integrated framework of family resource management systems and household economic theory is needed in assessing the factors related to economic and subjective well-being, especially the input variables. On the whole, the integrated theoretical model is important in understanding the relative tradeoffs women undertake to enhance their economic and subjective well-being. This is evidenced in the results that income diversification and home production were positively and negatively related to economic well-being respectively and both had indirect effects on subjective well-being. Apart from that income diversification and home production variables mediated very well the effects of input variables on economic well-being. Home production and total income (log income) did a good job of mediating the effects of input variables on subjective well-being, whereas income diversification mediated through total income.

Household size was an important indicator of overall satisfaction with life. As the number of people in the household increased, the women's overall satisfaction with life decreased. More people in the house may increase the demands for food and other resources. Women who were ill the previous month expressed lower satisfaction with life. Ill health may alter the relationships with other people and may change the attitude toward life, thus women may have expressed lower satisfaction with life. Women who were satisfied with the components of well-being, were also satisfied with their life in general. The feeling that one has resources and family members from which to get emotional and economic support may lead to high satisfaction levels of life. The exposure to media or outside world through travelling may make urban women rate differently to overall satisfaction with life because of referring to reference group.

Study Implications for Research, Policy and Education/Training

Research

This study was conducted cross-sectionally and during a drought spell, which had hit the country for two consecutive years. It is suggested that seasonal variations should be considered in future research. A longitudinal study is also called for to assess changes and influences over time. The following questions could be addressed - "Do women's economic and subjective well-being vary with income diversification and human capital over the seasons and over time?" In the long run, does having more income drive

income diversification or does having more income sources lead to high incomes? Cross-sectional studies do not reveal the 'cause-effect' issues adequately.

Since place of residence was important in predicting income diversification, home production, and total income and indirectly affecting satisfaction with well-being, future research should look into determinants of job availability and accessibility in rural and urban areas. Thus a detailed study on determinants and effects of labor markets in both rural and urban areas is called for. Another need is to look at energy and labor demands for women in both rural and urban areas in order to make effective policy on energy use and introduction of appropriate technologies in the home.

The results of the study suggest a redefining of economic and subjective well-being measures to include assets, housing conditions and livestock ownership in the case of economic well-being. For subjective well-being, community sense of well-being, social clubs, health and type of work should be included in order to examine the effects of non-material resources on quality of life. It is also suggested that satisfaction with income generating activities, should be included to see if women are satisfied with what they do for a living and what contributes to their satisfaction.

This study has dealt with market and non-market work components of a household economy. There is the need to address issues of gender relations in the household economy to fully ascertain the effects of resource accessibility, allocation and control. Some of the questions to include in

further research would be, "Do incomes controlled by women lead to high levels well-being?" "Does inclusion of other family members earnings increase economic well-being of the households." "What factors affect the division of labor in the family?"

Future research should also address income distributions and inequality issues within the community and within households, so that intervillage/ interhouseholds variations can be identified for policy changes. Future research should address the value of time (attaching a monetary value) allocated to home production.

Land holding size was important in determining total income. There is need to examine the effects of land tenure policies on the economic well-being of both rural and urban households, dissaggregated by gender and family type.

Policy

It was found that income diversification was more prevalent in urban than rural areas. These results should encourage policy makers to promote rural industries or off-farm activities, so that rural women can have access to these income earning activities. More importantly, development and intensification of cottage industries should be encouraged. It was observed during interviews that some women were going into light industries of manufacturing, tailoring, roofing tiles, pottery and soap making, but lacked the technologies which could increase productivity. The main problem cited by women during focus group discussions, was the unavailability of credit to start or expand the

businesses. Therefore, access to commercial and farm credit should be available not only to those registered with farmers clubs or National Business Association of Women, but also to others who might have interest in starting up businesses. The rural banks which are in existence now should extend to women. This is because access to farm technology has increased women's incomes. Access in this study, was defined as the ability of women to acquire farm inputs either through direct purchasing or through farmers' clubs credit. There is need to improve the infrastructure, especially roads, transportation services, energy and water supply to enable women to carry out their market and non-market work effectively. It is clear that time must be released from home production to take on market work. During the focus group discussions, women talked about the high cost of transportation services to major trading centers and hospital. The rural women also complained of the shortage of water and the distance to fuel sources.

Education was important in determining income diversification and total income. Since nearly 40 percent of the women in the sample had no education, there is a need to intensify campaigns on functional adult literacy or encourage young girls to attend universal education, which has just started in the country.

The women who were more involved in home production did not earn high incomes. The stepwise regression showed that the presence of children under seven years old increased women's time in household work in rural areas. Therefore, there is a need for provision of day care centers to free up

time for education and market work. Apart from this, women themselves may organise a "Child Care Services Coop" where women may take turns in caring for the children, while others engage in market work.

Education/Training

In order for women to go into business they need business skills. It is suggested that Development of Malawian Traders (DEMATT) and Project Officers and Entrepreur Training (POET) institutions establish village-based training centers to allow women who are fully committed with farm and home production activities, and those who cannot leave young children behind to participate in these programs.

Family resource management specialists should develop community based resource management and business training curricula for women and men as well. Women should be taught how to priortize their needs and plan for their work, so as not to cause conflict between market and non-market activities.

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APPENDICES

Appendix A:
Authorization to Conduct Study

APPENDIX A1

Our Ref. _____15/5/73_____

All communications should be addressed to:
The District Commissioner

DISTRICT COMMISSIONER
PRIVATE BAG 1
MACHINGA

10th August, 1994

TO WHOM IT MAY CONCERN

The bearer of this letter is Miss Lucy S. Chande of Institute of International Education (IIE) in Califonia, U.S.A.

She has been given a clearence to conduct a research on the Household Economy: Impact of Income Diversfication And Household Production on Well-Being of Women Farmers in Malawi.

The purpose of writing this letter is to ask for your utmost assistance that she may require during her research.

Thanking you in advance.

C.C. Ngwira
DISTRICT COMMISSIONER

Appendix A2
Letter of Introduction and Informed Consent

Oregon State University
Corvallis Oregon (7331

To Participants:

The Household Economy and Well-being Study

I am Lucy Chande, a graduate student at Oregon State University in the United States. I am conducting a study for my Ph.D. dissertation on women's market and non-market activities, and how these impact their economic and subjective well-being. Apart from this, I would like to discuss with you as a group the definitions of poverty and well-being. Our discussions will be recorded on tape. This study may provide useful information for enhancing women's well-being.

Your name was selected for this study. I would like you to spend at least 40 minutes to respond to the questions which my colleagues and I will be asking you. If you feel you cannot participate, please let us know.

You may be assured of complete confidentiality. The study will not reveal your name. All recorded tapes will be destroyed after the completion of the write up.
I thank you for your cooperation.

Sincerely,

Lucy Chande
Investigator

Appendix B:
Sample Selection and Distribution

Table B

<u>Sample Selection and Distribution</u>

	Sample Selection
Number of Women selected	150
Number interviewed	136
Number utilized in the Analysis	129
	Distribution of Sample Utilization
Rural	64
Urban	65
Machinga Rural	64
Machinga Urban	25
Zomba Urban	40

Appendix C:
Questionnaire

HOUSEHOLD INDIVIDUAL QUESTIONNAIRE

1. NAME: _____
   IDENTIFICATION NUMBER: _____
   DISTRICT: _____
   PLACE OF RESIDENCE 0 = RURAL 1 = URBAN _____
   _____
   VILLAGE: _____
   TRADITIONAL AUTHORITY: _____

2. What is your age? _____

3. What is the highest level of education that you attained?

No Education	1	
Primary (Std 1 - 4)	2	
Primary (Std 5 - 8)	3	
Secondary (Form 1 - 2)	4	
Secondary (Form 3 - 4)	5	
Some College	6	
University	7	
Other	8	

4. If other, can you read and write Chichewa?

NO	0	
YES	1	

5. Do any of your children go to school?

NO	0	
YES	1	

6. What is your marital status?

Never married	1	
Divorced/separated	2	
Widowed	3	
Married	4	

7. Are you currently living in a

Male headed (husband present)	1	
Female headed (no husband present)	2	
Female headed (husband away)	3	

8. How many people are living permanently in this household?

_____

9. What are their names, ages, gender and relationship?

No.	Name	Age	Sex	Relationship
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

Sex = female 1   Relationship
      male 2   child = 1   worker = 3
                    spouse = 2   other = 4

10. What is your primary occupation and amount you get per month?
    Occupation   Amount/month

    Farming

    Agricultural office

    Teaching

    Clerical/Secretarial

    Self-employed

    Office administration

Farming = 1　　　　　Teaching = 3　　　　　Self-employed = 5
Agricultural offices = 2　Clerical/secretarial = 4　Office administration = 6

11. What activities for generating income did you engage in during the past agricultural season and what amount (including those in primary occupation) did you get per month (1992/93)?

IGA　　　　　　　　　　　　Amount/month

Paid employment

Transfers

Sale of Agriculture crops/Livestock

Regular self-employment

Sale of crafts/clothing

Sale of processed foods

Other

12. What activities for generating income did you engage in during this agricultural season and what amount did you get per month (1993/94)?

IGA　　　　　　　　　　　　Amount/month

Paid employment

Transfers(from gov't, relatives)

Sale of agriculture crops

Self-employment

Sale of crafts

Sale of processed foods

Other

13. Why did you choose to engage in these particular activities?

1

2

3

4

5

14. Which months did you engage in these activities?

Months	Activties
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	

15. What other non-cash items did you have (probe food; clothing for exchanging labor, harvested crops)?

Type of non-cash item	Estimated value

16. During the past season did you have access to

	Quantity	Amount of money got/paid

Farm. credit

Fertilizer

Farm Equipment

Seeds

17. How much did you borrow (this season) other than farm credit and state the source?

Source	Amount

Commercial banks

Relatives

Friends

Employer

Commercial banks = 1   Friends = 3
Relatives = 2   Employer = 4

18. Do you own land?

NO	0
YES	1

19. If yes, is it

Customary	1
Leasehold	2
Freehold	3

20. What is the approximate size in a normal year? (How many bags of maize approximately?)

21. What have been your major expenditures this year (e.g. car, furniture, farm inputs, cattle, etc.)?

Item   Estimated Amount

22. What household expenditures have you incurred the last month?

23. During the past month, did you suffer from any illnesses?

NO

0	
1	

YES

24. During the past month, did any member of your family suffer from any illnesses?

NO

0	
1	

YES

25. If yes, what was the cause of the illness, number of attacks, and relationship of the person to you?

Member   Illness   Number of Attacks   Visit to HC

26. I am now going to ask you a question related to decision-making. Who makes decisions regarding the following?

	Self	Other	Both
Land allocation to people or children			
Working off farm			
Allocation of income			
Selling of grain and other crop produce			

27. If other, specify _____

28. For those who are not heads (married)
    Do you pool income together with your husband?

    NO

    YES

0	
1	

If yes, who decides income allocation?

Self
Husband
Both

29. Do you own the following assets? What is the value and who controls it (enumerator estimate the value if respondent fails to give the value).

Item	Value Quantity/Value	One who controls/decides
Land		
House		
Oxcart		
Cattle		
Goats		
Others (specify)		

Enumerator record the following features concerning the dwelling unit.

30. Walls

    Brick-made (sundried)/Mud

    Brick-made (burnt)

    Concrete-plastered

1	
2	
3	

31. Roofing

    Iron sheets

    Grass roofing

    Tiles

1	
2	
3	

32. <u>Floors</u>

Cement floor	1
Mud floor	2
Tiles	3

33. <u>Other Amenities</u>

Indoor plumbing	1
Indoor water supply	2

34. Have you saved any money?

NO	0
YES	1

35. If yes, approximately how much? _____

I am now going to ask you about the time you put in the following activities last week.

Activity	Hrs spent last week	Wage rate
36. Household Production		

Food processing
 	
    Cooking
 	
    Household maintenance
 	
    Collecting firewood
 	
    Collecting water
 	
    Doing laundry
 	
    Shopping
 	
    Attending to the sick
 	
    Visits to the health clinic
 	
    Child caring & rearing		

37. Wage Employment Casual farm work		
38. Self Employment		
39. Agricultural Work Land preparation		

Lastly, I am going to ask you questions you need to indicate how satisfied you are with various categories of life, by indicating very dissatisfied, dissatisfied, neither dissatisfied nor satisfied, satisfied, or very satisfied.

Very dissatisfied = 1   Satisfied = 4
Dissatisfied = 2   Very satisfied = 5
Neither dissatisified nor satisifed = 3   Not applicable = 8

	1	2	3	4	5	8
40. Paid self-employment						
The type of work you do						
The income you get						
Job security (pensions, benefits, sick leave, etc.)						
41. On the whole how satisfied are you with your paid job (general atmosphere--pleasant, attractive, comfortable)?						

42. Contribution to work and economic support						
Support you get from relatives on work						
Economic support you get from husband						
Economic support you get from children						
Time contribution from children						
Time contribution from husband/adult male						
43. On the whole how satisfied are you with contribution made for work and economic support?						
44. Family Relations						
Relationship w/your children						
Relationship w/your husband/male adults						
Relationship w/your extended family						
Relationship w/your neighbors						
45. On the whole how satisfied are you with your family relationships?						
46. Household Resources						
Consumer goods in your house						
Time to do everything you want						
Amount of food you grow/harvested						
Amount savings/income						
Amount of clothing						
47. On the whole how satisfied are you with household resources?						
48. Household expenditures						
Cost of health services						
Water service costs						
Transport costs						
Fuel costs (parafin,firewood)						
49. On the whole how satisfied are you with your household expenditures?						
50. Land resources						
Amount of land						
Quality of land						
51. On the whole how satisfied are you with your land?						

52. Community resources							
Distance to health centres							
Access to main roads							
Distance to water supply							
Distance to gardens							
Means of transportation							
53. On the whole how satisfied are you with community resources?							
54. Home production							
Child caring							
Cleaning the house and premises							
Collecting firewood							
Collecting water							
Food preparation							
Laundry work							
Other							
55. On the whole, how satisfied are you with home production?							
56. Farm work							
Animal tending							
Weeding crops							
Harvesting produce							
Transporting produce							
Marketing produce							
57. On the whole, how satisifed are you with farm work?							
58. On the whole, how satisfied are you with your life in general?							

Appendix D:
Correlation Matrix for Well-being Subitems

Table D

Correlation Matrix of Satisfaction with Well-being Subitems. n=125

	1	2	3	4
1. Work contribution & economic support	1.00			
2. Family relationships	0.20*	1.00		
3. Household resources	0.39***	0.17†	1.00	
4. Household expenditures	0.40***	0.26**	0.31***	1.00

†p < 0.10; *p< 0.05; **p < 0.01; ***p < 0.001

Appendix E:
Stepwise Regression Procedure

Table E1

Summary of Stepwise Regression Procedure for Number of Income Sources (a)

Step	Variable	Prob.>F	R-Square (b)	F	Partial R-Square (c)
1.	Place of residence	0.000	0.31	54.70	0.31
2.	Education 1 = primary 0 otherwise	0.06	0.33	3.57	0.01
3.	Education 1 = secondary + 0 otherwise	0.09	0.34	2.88	0.01

(a) Stepwise regression significance level set at p=0.15 or less
(b) R-sqaure for overall model
(c) R-square individual variable contribution to overall model

Table E2

Summary of Stepwise Regression Procedure for Hours Spent in Home Production (a)

Step	Variable	Prob.>F	R-Square (b)	F	Partial R-square (c)
1.	Place of residence	0.000	0.27	46.48	0.27
2.	Age	0.002	0.32	9.34	0.05
3.	Access to farm technology	0.082	0.34	3.06	0.016
4.	Number of children under 7 years	0.080	0.36	3.10	0.016

(a) Stepwise regression significance level set at p=0.15 or less
(b) R-sqaure for overall model
(c) R-square individual variable contribution to overall model

Table E3

Summary of Stepwise Procedure for Total Income (Log Income) (a)

Variable Entered	Prob.>F	R-square (b)	F	Partial Rsq (c)
1. Total number of income sources	0.000	0.49	119.58	0.490
2. Place of residence	0.000	0.60	32.03	0.100
3. Health status	0.009	0.62	7.0	0.022
4. Access to farm technology	0.004	0.64	8.27	0.024
5. Education (primary)	0.008	0.66	7.14	0.020
6. Education Secondary +	0.009	0.68	6.91	0.018
7. Family health	0.06	0.69	3.48	0.009
8. Land size	0.04	0.70	4.00	0.01
9. Hours in home production	0.11	0.71	2.47	0.006

(a) Stepwise significance levels were at p = 0.15 or less
(b) R-square for overall model
(c) Partial R-square contribution by individual variable entered.

Table E4

Summary of Stepwise Regresssion Procedure for Well-being Score (a)

Step	Variable	Prob.>F	R-square (b)	F	Partial Rsq (c)
1	Health status	0.007	0.06	7.74	0.06
2	Education 1 = primary	0.06	0.08	3.45	0.02
3	Log income	0.11	0.10	2.46	0.01
4	Hours in home production	0.044	0.13	4.13	0.03

(a) stepwise regression significance level set at p= 0.15 or less.
(b) R-square for overall model
(c) R-square individual variable contribution to overall model

Appendix F:
Collinearity Diagnostics

Table F1

Summary of Collinearity Diagnostics for Total Income (Log Income)

Variable	VIF (a)	Eigenvalue (b)	Condition Index (c)
Place of residence	3.033	2.778	1.000
Age	1.194	0.693	2.001
Education-primary	1.827	1.344	1.437
Education-secondary +	3.554	1.212	1.513
Approx. land size	1.121	1.068	1.612
Health status	1.109	0.871	1.785
Access to farm technology	1.227	0.528	2.292
Number of income sources	1.573	0.331	2.896
Hours in home production	1.563	0.171	4.027

(a) Variance Inflation Factor of >10 denotes multicollinearity
(b) Small eigenvalues of 0.000 denotes serious multicollinearity
(c) Condition numbers >30 denotes multicollinearity

Table F2

Summary of Collinearity Diagnostics for Well-being Score

Variable	VIF (a)	Eigenvalue (b)	Condition Index (c)
Place of residence	3.029	3.355	1.000
Age	1.198	1.366	1.567
Education-primary	2.027	1.333	1.586
Education-secondary +	3.656	1.105	1.742
Approx. land holding size	1.153	0.877	1.955
Health status	1.219	0.700	2.188
Access to farm technology	1.270	0.533	2.507
Number of income sources	2.121	0.342	3.130
Hours in home production	1.632	0.222	3.881
Log income	3.363	0.162	4.538

(a) Variance Inflation factor of >10 denotes multicollinearity
(b) Eigenvalues of 0.000 denotes serious multicollinearity
(c) Condition numbers >30 denotes multicollinearity

Appendix G:
Zero Order Correlations for the Variables in the Path Model

Table G

Zero Order Correlations for All Variables in the Path Model

	1	2	3	4	5	6	7	8	9	10	11
1. Place of residence 1 = urban	1.0										
2. Age	.13	1.0									
3. Land holding size	.25**	.23	1.0								
4. Education 1 1 = primary 0 otherwise	-.16†	-.05	.00	1.0							
5. Education 2 1 = secondary + 0 otherwise	.69***	.04	.17†	-.55***	1.0						
6. Health status 1 = got ill 0 otherwise	-.10	.16†	.03	.01	-.03	1.0					
7. Access to farm technology	.20*	.05	.10	-.02	.27**	.17†	1.0				
8. Number of income sources	-.54***	.02	.14	.03	.39***	-.02	.13	1.0			
9. Hours in home production	-.52***	-.28**	-.19*	.03	-.34***	-.01	.00	-.36***	1.0		
10. Log income	.66***	.07	.26**	.08	.50***	-.19*	.26**	.69***	-.46***	1.0	
11. Well-being score	.11	.02	.06	-.16†	.18*	-.25**	.07	.03	.07	.18*	1.0

†p ≤ 0.10; *p ≤ 0.05; **p ≤ 0.01; ***p ≤ 0.001

Appendix H:
Stepwise Regression Procedure for Overall Statisfaction with Life

Table H

Summary of Stepwise Regression Procedure for Overall Satisfaction with
Life. (a)

	Prob >F	R-Square (b)	F	Partial Rsq (c)
Well-being score	0.000	0.204	30.05	0.20
Household size	0.018	0.241	5.69	0.037
Health status	0.040	0.268	4.27	0.027
Land holding size	0.133	0.281	2.28	0.014

(a) stepwise significance levels were at p=0.015 or less
(b) R-square for overall model
(c) Partial R-square contribution by individual variable entered

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Appendix I:
Zero Order Correlations for All Variables in the
Overall Satisfaction with Life Model

Table I

Zero Order Correlations for All Variables in the Overall Satisfaction with Life
Model

		1	2	3	4	5
1	Household Size	1.000				
2	Health Status	-0.079	1.000			
3	Land Size	0.108	0.030	1.000		
4	Well-being Score	-0.017	-0.241**	0.067	1.000	
5	Overall Satisfaction	-0.189*	-0.266**	-0.118	0.464	1.000

*$p \leq 0.05$; **$p \leq 0.01$; ***$p \leq 0.001$