WOMEN'S WORK AND HOUSEHOLD INCOME: EVIDENCE FROM BANGKOK'S URBAN FRINGE

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(ABSTRACT)

This research asks whether the patterns of women's economic contribution and marginalization that previously have been identified apply to the emerging metropolitan fringe areas. I argue that women in metropolitan fringe communities are more marginalized than men in terms of type of employment, location of employment, hours of employment, and remuneration. Women contribute different amounts and proportions of time and income to the family than men and their contributions, productive and reproductive, significantly add to the household resources and are necessary for household survival. The research identifies women's economic contributions to the household and how they vary by household type and composition. This study uses data collected by Browder et al (1992) from a sample of families in Bangkok's metropolitan fringe to explore employment patterns and gender roles. Results show that women and men have different employment patterns, with women much more likely to be involved with informal, self-employed work. Women make significant contributions to household incomes, but they do so while being economically marginalized. Even in a lower-middle to middle class area, residents--particularly women--rely on informal sector employment. An important conclusion, which was overlooked in a previous analysis, is that self-employment is crucial to women's work patterns. Finally, *all* women significantly contribute to household income; unlike non-head males, non-head and non-spouse females contribute as much as female heads and spouses.

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I. Introduction

This research asks whether the patterns of women's economic contribution and marginalization that previously have been identified apply to the emerging metropolitan fringe areas. I argue that women in metropolitan fringe communities are more marginalized than men in terms of type of employment, location of employment, hours of employment, and remuneration. Women contribute different amounts and proportions of time and income to the family than men and their contributions, productive and reproductive, significantly add to the household resources and are necessary for household survival. The research identifies women's economic contributions to the household and how they vary by household type and composition.

To gain a better understanding of women's economic contributions in these newly developing areas, this study uses data collected by Browder et al (1992) from a sample of families in the metropolitan fringe to explore employment patterns and gender roles. My analysis focuses on two areas of women's economic contributions. First, I set out to determine if women in the metropolitan fringe are economically marginalized relative to men. Second, I try to identify the extent to which women's economic contribution to their family's earnings varies and is significant across different types of households and families.

Thailand, like other developing countries, is undergoing "rapid and fundamental social change affecting virtually all segments of the population" (Knodel et al 1987:35). The formation of an integrated market economy has caused increased rural to urban migration, shifts from subsistence to industrial production, changes in workers' employment and remuneration patterns, changes in the family structure, and redistribution of roles and responsibilities among family members. The extent and type of women's participation in the paid work force plays an ever important role in development. Their roles need to be explored to understand the different economic contributions that women and men make to the household, and thus to development.

Bangkok, the capital of Thailand, has a population of 5.8 million people and is home to nearly three million Thai women. Of them, approximately 43.4 percent were active in the 1980 paid labor force and 47 percent were active in the 1990 paid labor force. Thai women comprise 21 percent of managers and administrators, and they hold 4 percent of parliament's seats. Although Thai women are well educated by international standards, slight educational discrepancies by sex remain. The Thai female literacy rate is 89 percent of the male literacy rate, and the female schooling rate is 77 percent of the male schooling rate. Encouragingly, 96 percent of females fifteen to twenty-four years old, as a percent of males that age, are literate. Thai women's life expectancy is 71.3 years and the average age of a woman's first marriage is 22.7 years (UNDP 1994).

The Thai government has traditionally adopted a relatively progressive stance on women's legal equity issues. Since 1932, when Thailand changed from an absolute to a constitutional monarchy, women have had the same voting rights as men and polygamy has been abolished. The 1974 Constitution explicitly states that women and men have equal rights. The Thai government has traditionally supported international movement's on women's rights, including adopting International Labour Organization standards as a framework for labor laws.

Legal and cultural anomalies remain. In practice and even in law, women are not always treated as equals. For example, family law discriminates against women regarding engagement practices and divorce--on the grounds of adultery and in terms of payment. Women legally have to change their names to their husband's upon marriage. The laws still place additional burden of proof on women, restrict women financially, and deny them the right of identity within the family structure. While labor laws grant women the right to equal pay for equal work, *de facto* implementation of the law results in rampant discrimination and lower wages for women. Also, on the pretense of safety, women are prevented by law from some forms of employment, such as "working on scaffolding which is 10 metres or more above the ground, working with circular saws, producing or transporting explosives or inflammable materials, mining underground, [and] other work

as prescribed by the Ministry of Interior" (Muntarbhorn et al 1990:38-39).

Thai women's employment is overshadowed by discrimination and fewer opportunities for promotion. Occupations are still largely segregated in Thailand. Thai urban women's labor force participation, however, is not insignificant. Between 1970 and 1980, female participation in urban areas steadily increased from 39.2 percent to 43.4 percent (Chant 1989:163). The percent of Thai women working in urban (over rural) areas, 18.7 percent, was slightly higher in 1980 than the percent of Thai men working in urban areas, 18.0 percent (Suvannathat 1989:271). Most Thai women are employed in manufacturing, service, and informal sectors, "located at the lower strata of the occupational ladder with low pay" (Suvannathat 1989:275). "In urban areas, it is not uncommon for women to work for wages or as independent vendors" (Knodel et al 1987:38). Thus, labor force participation is much different for Thai women and men.

An extensive literature has shown that women and men make different economic contributions to the household in both developed and developing countries, and thus to development. However, economic development policies and programs have often overlooked women's roles in and out of the remunerated workforce, and the way those roles differ according to locational setting, such as urban or rural. Policy makers often ignore women's needs because they assume women's interests parallel men's, because women's domestic--or reproductive--labor is unremunerated and therefore unseen and unacknowledged, or because women's contributions to development and family survival are not well understood.[1]

Research shows that development policies affect women differently than men. To understand how development policies effect women and to assess the true impact of development planning and policy, it is first necessary to identify and characterize the roles--economic and otherwise--that women have in a society. Roles can be classified

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For a feminist critique of social science research, see Stanley and Wise. 1993. *Breaking Out Again: Feminist Ontology and Episemology*. London: Routledge.

according to sex and gender. As sex refers to the biological features of a person, sex roles refer to the biological actions of a person. For example, child bearing is a woman's sex role. Gender and gender roles, conversely, refer to socially constructed sex roles. For example, the beliefs that a man should drive a bus and a woman should not or that a woman should raise children and a man should not reflect perceived gender roles. Unlike sex roles which are constant, gender roles vary across societies.

One commonality that most women share across societies is the need to balance productive, reproductive, and community management roles (Moser 1993). Feminist theorists argue that women's responsibility for multiple roles is highly interrelated with women's subordination. A variety of ideologies and disciplines discuss women's subordination and agree that women are marginalized in relation to men. According to Marklund, "the *marginalization* concept is used to describe a wide range of problems of exclusion" (1990: 127).

Studies of developing nations show that women are economically marginalized in relation to men in both rural and urban areas. In urban areas of developing countries, women are frequently excluded from formal, contractual employment opportunities and have less access to resources than men. To date, little research explores the roles of women living in the fringes of urban areas. Studies related to the metropolitan fringe, the area of expansion on the edges of cities, are largely limited to women's roles and organization strategies in informal slum settlements.

As the majority of the world's urban population growth occurs in the cities of developing countries, the fringe of urban areas is the natural location for spatial expansion. Although many studies research the poorer areas of central Bangkok, little research has given attention to the socioeconomic characteristics of the recently occupied metropolitan fringe areas. A study by Bohland (1991), as part of a larger study of peri-urban areas by Browder et al (1992), indicates that the population in the metropolitan fringe areas of Southeast Asia is socioeconomically heterogeneous, and that there are important differences in the employment patterns of women and men.

The Bangkok metropolitan fringe is indeed a place of spatial expansion. The Kingdom of Thailand has one of the highest urban growth rates in the world, and Bangkok has a projected 3.73 percent population increase per year from 1985 to 2000 (Devas and Rakodi 1993:8).[2] Since the mid-1980s, housing development has shifted to the outlying areas of Bangkok, in a ring eleven to twenty kilometers from the central city (Dowall 1992; Crane et al 1994). Commuting times and distances have also increased as a result of outward expansion (Punpuing 1992). This research adopts the definition of the metropolitan fringe used by Browder et al. They chose to define the metropolitan fringe as the geographic area near an urban center that has "undergone recent (within 15 years) *unplanned* residential occupation" (Browder et al 1992:2).

I explore these questions by analyzing micro-data collected by Bohland (1991) in a recent study of one hundred households in the metropolitan fringe areas of Bangkok. (Although information was collected to identify differences between women and men, Bohland did not focus his analysis on gender differentiation.) I then review women's productive participation in light of various feminist theories that explain gender differences and women's subordination. I explore differences in women's and men's contributions. Finally, I propose changes that address gender issues in economic development planning and research.

Understanding women's economic contributions is an important first step in addressing their needs. Acknowledgement of women's needs, in turn, is fundamental for guiding development strategies and policies to be gender sensitive and hopefully beneficial to more than 50 percent of the population. It is my hope that research such as this will increase women's visibility in policy making and economic development strategies.

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Bangkok's population growth rate is slightly higher than Jakarta, at 3.53 percent, Metro Manila, at 3.32 percent, and Greater Bombay, at 3.25 percent.

Chapter Organization

The second chapter of this work reviews the literature of metropolitan fringe development, marginalization of women and gender division of labor, women in development, feminist critique of "development theory," models of the family and household unit, and the importance of women's economic participation. This summary encapsulates past research on a variety of topics, and offers a contextual backdrop for the research.

Chapter Three details the methodology and analytical approach that I use in processing the data. This includes the rationale for and the method of choosing the sample, the shortcomings of the data, and the method of analysis.

Chapter Four presents the study results. This section includes descriptive statistics and summary tables, as well as the results of higher level tests of association and relation.

In Chapter Five, I interpret the results of the data analysis and relate them to theoretical models. This section identifies the extent of women's marginalization and the significance of women's contributions to the household unit in the metropolitan fringes of Bangkok. I then outline development planning research recommendations that address women's multiple roles and employment structure in the metropolitan fringe areas.

Finally, in Chapter Six, I conclude and put forth remaining questions and issues about differentiation between the metropolitan fringe and urban areas, about different types of employment and unremunerated work, and about gender differences within these issues.

II. Literature Review

In contrast to the robust literature on women in agriculture and rural areas, much less deals explicitly with women in the urban areas: "The condition of women in their productive and reproductive roles are with few exceptions largely confined to rural areas in research priorities" (Datta 1990:13).

This study examines women's economic activities in the metropolitan fringe, which is the fastest growing sector of Thailand's urban landscape. By identifying sex differences in employment in different types of households and families, this work hopes to demonstrate that women's economic contributions substantially support metropolitan fringe families, and thus, significantly aid development.

Robinson (1988) asserts that production based on wage labor increasingly favors men over women, which leaves women to manage the less productive sectors of the economy. If women in the metropolitan fringes of Bangkok are excluded from forms of employment, then I expect to find that they have a narrower range of formal employment, receive lower wages, work longer hours per day, and that their household contributions vary in form from men's.

This thesis integrates a feminist perspective into several literatures that are not commonly combined: the metropolitan fringe, marginalization, women in development, and the household.

Metropolitan Fringe

The cities of developing countries are home to the majority of the world's urban population growth and spatial development (World Resources Institute 1990:66), and "much of this growth is occurring on the metropolitan fringe" (Browder et al 1992:5). "In absolute terms, metropolitan Bangkok is gaining between 150,000 and 200,000 persons

per year. This is equivalent to 30,000-50,000 households" (Dowall 1992:25). The metropolitan fringe, or peri-urban area, has been categorized in several ways. Alonso's (1964) description of urban land use implies that there is a sharp--and clearly identifiable--division of uses between urban and rural areas, and the point of intersection is the peri-urban area. Coquery-Vidrovitch (1991), in her study of African cities, and Mills and Hamilton (1994), looking at the United States, characterize the city edge as a dynamic entity of mixed-use urban sprawl, which constitutes a several-mile-wide band around the city. The OECD defines the metropolitan fringe as "the periphery of urban agglomerations where economic and social activities are directly affected by the presence and expansion of the city" (OECD 1978:9-10), thus stressing the connection between location and urban function (McKalip 1994).

Three models explaining population expansion into metropolitan fringe areas dominate the literature. The first suggests that urban expansion extends from crowded urban zones to the outskirts of the city in a "crowding out" fashion. The less affluent are forced from the inner city to less expensive, less serviced, fringe areas. The second model looks at peri-urban growth as a function of rural to urban migration; newcomers to urban areas locate on the city edges where they can access both urban amenities and rural roots, and maintain some degree of affordability in relation to central city prices. The third model of expansion on urban fringes follows the suburbanization model where established, middle-class urban families who are ready to settle seek low land costs and new employment opportunities, presumably available in metropolitan fringe areas.

Value-laden socioeconomic characterizations often parallel spatial definitions of the metropolitan fringe. An overriding belief, based on urban fringe patterns in Africa, is that metropolitan fringe areas are inhabited by the poor, are inadequately serviced, and the labor market relies on self-employment in the areas of trade and commercial vending (Barnes 1982; Coquery-Vidrovitch 1991; McClintock 1973; Mortimore 1975; Little 1992). Many studies explore the *de facto* role of women household heads and their informal activity in urban fringe areas. Browder et al (1992), who define the area as

unplanned, nevertheless find that residents of some metropolitan fringe areas in Bangkok, Jakarta, and Santiago are in the lower-middle to middle socioeconomic classes and are adequately serviced by infrastructure, including transportation, water, sewer, and electricity.

Adopting Browder et al's definition of the metropolitan fringe, this thesis defines the metropolitan fringe locationally as a function of distance and age. That study, whose data is used here, defines the metropolitan fringe as areas that are located a given distance from the central business district, are less than fifteen years old, and have undergone unplanned residential occupation (Browder et al 1992). The socioeconomic characterizations of the metropolitan fringe areas of Bangkok, Jakarta, and Santiago are summarized in Chapter 3.

Development policies and plans affect the metropolitan fringe areas. Little research distinguishes between urban and the emerging metropolitan fringe areas to test the effects of policy approaches on distinct areas, on distinct groups within those areas, or on the social networks of those groups. Development policies are most effective when they are grounded in a solid understanding of the social and economic support systems of any area. This thesis examines the economic support that women provide to the metropolitan fringe areas of Bangkok.

The Marginalization of Women and Gender Division of Labor

Much of the existing gender specific urban development literature focuses on how gender inequalities change in urban areas as economies develop. Women in developing cities "have a very limited range of employment opportunities compared with men, and face severe constraints in overcoming their 'marginalization' in the labour market" (Chant 1989, 187). The concept of *marginalization* addresses the exclusion of one group relative to another; "the main focus in the marginalization tradition is on those social mechanisms that make it hard or impossible for parts of the population to support themselves, to

withhold an autonomous private economy or participate in conventional social activities" (Marklund 1990: 127).

Germani (1980) identifies a group's marginality as its lack of access to, or separation from or deprivation of, any form of participation within a society. This broad definition encompasses various forms of exclusion--or limited inclusion--including economic, political, and cultural, both within and across societies. That is, a subgroup can be marginalized within its group, just as the group can be marginalized in comparison to other groups. Germani measures marginality by the degree and form of insertion into various systems of one group in relation to other groups. In developing countries, "not only do women and men share in scant education, hard labor, general deprivation and, as a result, a short life, but there is reason to believe that women carry a disproportionate part of this burden" (Blau and Ferber 1986:334).

Among other subsystems, such as cultural, political, health, and public services, Germani identifies productivity and consumption as two subsystems of categorical marginalization. The degree and form of insertion in the productive subsystem includes a range of categories, including total unemployment, partial unemployment, invisible underemployment (due to occupation in redundant, low income jobs; to occupation in jobs for which the workers are overskilled; and, to employment in low productivity economic units), and unaccounted for subeconomic conditions (exchange and unpaid labor, including trade of goods and services). Productive marginalization must also account for the means of remuneration, and whether or not it is monetary. The degree and form of insertion in the consumption system refer to the ability of groups to participate in the market as consumers: "as many forms of participation in the cultural subsystem imply the use of goods and services, the insertion in the consumption subsystem refers to the economic aspect of this participation" (Germani 1980:56).

Some observers of developed countries' labor markets claim that beyond facing constraints in economic participation, marginalized individuals--including women--typically suffer from weakened "social networks, time structure, credit rating, skills or

motivation to work" (Marklund 1990:132; also see Germani 1980:11; Harrington 1984:123 ff.; and Murray 1984:129-132). While feminist observers agree that women are marginalized and have weaker political networks and lower credit ratings, they challenge the assertion that women suffer from weakened social networks. Especially in developing countries, "women draw . . . on specific cultural resources such as kinship networks" (Sinclair 1991:11). Socially, Thais maintain strong kinship and community ties. Typically, newly wed couples live with the bride's parents for a year or two, and the last daughter to marry remains with her parents. Extended families--across and through generations--are common (Knodel et al 1987). In Bangkok, "social relations and social exchange are important. These social relations play another important role for the survival of the households, because access to work and access to a place to set up a stall or shop depend on them. Furthermore, social relations provide access to money through different means" (Korff 1990:173). As noted, "female dominance in inter-household exchange might be partially explained by the fact that women who stay within the community have a greater chance of establishing bonds with their neighbours and friends" (Douglass and Zoghlin 1994:187). Even though "urbanization affects women the hardest, . . . it also opens the possibility for . . . participation in trade unions or in social movements, for friends, . . ." (Thorbek 1994: 16). Moreover, women who work locally have the advantage of maintaining traditional values and culture (Nørlund 1990).

Feminists also claim that women are marginalized within the household by intrahousehold distribution of entitlements, power, and added responsibilities due to multiple roles (Tinker 1990; England and Farkas 1986; Moser 1993). Furthermore, "within the household the differential distribution of products is often concealed ideologically by the sexual division of labor" (Geisler 1993:1966). Liberal, Marxist, socialist, and patriarchal feminists agree that the intrahousehold unit is the foundation of both development (Cloud 1995; Chant 1989) and subordination, and women's contributions to and gender relations within these structures need to be deconstructed and examined. This issue is explored later in this chapter.

Thus, marginalization varies in definition and form. While all forms of marginalization interrelate and are important, this thesis focuses on the productive marginalization. Broadly, productive marginalization emphasizes the relationship between structural political and economic factors and oppression. Liberal feminists explain women's productive marginalization as a result of market imperfections and inaccurate assumptions about women's roles; Marxist feminists, grounded in the teaching of Engels, explain the institutionalization of sexuality and oppression of women as a result of the shift in production from hunter/gatherer to agricultural to industrial, which led to increased privatization and devalued women's productive work; socialist feminists explain that women's productive subordination results from the capitalists' domination of society; patriarchal feminists claim that women are productively marginalized because they are institutionally and legally the property of men; and, global feminists argue that women's marginalization results from the international order of colonization and neo-colonization.

The feminization of poverty, where women are more likely than men to be impoverished, represents a structural oppression of women (Marklund 1990). In general and in East Asia, women in the labor market are discriminated against in terms of lower wages, discriminatory recruitment criteria, and occupational segregation (Jelin 1982; Addison and Demery 1988). Robinson makes two assertions regarding women's marginalization in the labor force. First, "the sexual division of labour in the periphery increasingly replicates that of the metropolis: forms of production based on wage labour selectively recruit males over females." Second, and as a consequence, "women are increasingly relegated to the less productive economic activities of the 'traditional' sector, and to the domestic sphere, performing devalued domestic labour in the home" (Robinson 1988:63).

Therefore, it is not surprising or uncommon that third world women predominately work in informal activities, which are characterized by "i) non-permanence and casualness, ii) lack of company and/or government regulations, and iii) taking place in small-scale and

less capitalised establishments, relying on household labour" (Heyzer 1981:3).[3] Theorists commonly assert that women are more likely to work in the informal sector than men and the roles that women play in the informal economy are different from mens (Heyzer 1981; Moser and Young 1981). For example, unlike men's, women's informal labor is often an extension of their reproductive responsibilities, such as food provision and child rearing. Also, unlike men, women are "with few exceptions concentrated in areas with lesser growth potential" (Heyzer 1981:5). The issue of women's "choice" to work in the informal sector rather than in other productive sectors is dealt with in a subsequent section.

Occupational segregation is one component of productive marginalization. Women experience horizontal segregation, "in limited range of occupations and of jobs within occupations," and vertical segregation, "at the bottom of the occupational ladder" (Sinclair 1991: 1; Moser 1993). Sinclair further contends that, although there are country-specific contextual differences, "in almost all cases the jobs carried out by women tend to be perceived as less skilled than those carried out by men, and the average wages paid to women are lower than those paid to men" (Sinclair 1991:14). In Southeast Asia, "the sexual division of labour, pre-existing gender inequality, and prevailing ideologies about women's proper roles, constrict their labour market opportunities and participation, thereby determining the pattern of their employment in female-intensive export factories" (Foo and Lim 1989:230).

Anker (1982) summarizes three models which explain sexual occupational segregation and pay differences in developing countries. The first model holds that women are considered less productive--due to inferior physical strength, higher rates of turnover and absenteeism as a result of their reproductive roles, and lower levels of human

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For this study, formal labor is defined as labor remunerated by salary or wage, and informal labor is defined as labor remunerated by self, sale of goods, service provision, individual job, or piece work.

capital such as education and training--and, thus, should work in jobs with less need for strength, long-term commitment, and skill. The second, explained by patriarchal feminist theory, is the overcrowding model, which supports that "women are restricted, or crowded, into particular occupations for cultural and/or conspiratorial reasons" (Anker 1982:42). The third model explaining women's marginalization in the labor market, the institutional model, differentiates between 'static' and 'progressive' jobs. This model is much like the dual labor market theory (Anker and Hein 1986), where the former type of job requires low levels of skill and the employer does not need to invest in training. Thus, static jobs accommodates high turnover with little skill loss to the employer. Conversely, progressive jobs require extensive on-the-job training, and employers are more invested in their employees to avoid significant skill loss. "For economic and cultural reasons women are supposedly pushed into the 'static'-type jobs . . . because . . . employers believe women are more likely to leave the job due to family responsibilities or because women are less well trained to begin with" (Anker 1982:43). Again, as socialist, Marxist, and globalist feminists concur, occupational segregation results from the means and order of production. As will be discussed later, these models are based on the myth of the male-breadwinner and discount the need to examine the importance of women's income to the family.

The unitary model of the household views the household "as a collection of individuals who behave as if they agreed on how best to combine their time, . . . home production, labor supply, and migration" (Alderman et al 1995:2-3). While supporters of the unitary model of the household argue that occupational segregation is a function of women's productivity and women's choice, others contend that women are forced into "female" jobs because of societal and economic constraints. In fact, "'choices' are . . . made within a context of inequality. Women and men enter into and participate in the labour market on an unequal basis owing to pre-existing gender assumptions and an unequal distribution of power" (Sinclair 1991:6). Strassmann maintains that analyses of economic relations obscure the importance of power and power relations by

"deemphasiz[ing] such background circumstances as 'constraints' or 'differences in natural endowments'" (Strassmann 1993:62), which essentially obliterates the fact that women often have fewer choices than men. In some cases, women who try to enter the labor market, or non-traditional occupations, face social repercussions. "Sanctions . . . such as malicious gossip and classification . . . are used against women when they try to press against the boundaries constructed by the ideology governing the sexual division of labour" (Heyzer 1981:5). Within the Thai family system, women are expected to be subservient, and "those who depart from the norm are regarded as aggressive and non-conformist" (Muntarbhorn et al 1990:9). Traditional explanations of choice overlook underlying social structures and relations of power, from both classist and sexist perspectives.

Heyzer argues that women are marginalized in the labor force because urban employment is insufficient to handle the population growth, and "certain groups (particularly women migrants) are incorporated at the margins of the urban economy" (1986:41). It follows that "'modernization' introduces new role possibilities that often cannot be handled by traditional perceptions of women" and in practice there is evidence that "the stress and conflict frequently produced are borne largely by women" (Heyzer 1986:iv). Thorbek agrees that this issue affects Thai women, and claims that "urbanization changes the relationships between the sexes, intensifying the gender struggle" (1994:13). Thus, there is need to further explore women's contributions and constraints to development.

Feminist critique of labor market segregation and gender division of labor is explored in greater detail in subsequent sections. First, it is useful to review the history of women in the development process.

Women in Development

The mainstream women-in-development (WID) paradigms stem from liberal feminist theory, and are rooted in the social contract theory of the 1700s. The main liberal feminist goal of gender equity for the individual is attained by changes within the bases of structures and institutions.

Since the mid-1970s, with the first World Conference of the International Women's Year in Mexico City, WID planning has been an influential and growing policy approach to development (United Nations 1991). International and national development programs began to pay more attention to the women's reproductive (domestic and family responsibilities) and productive (employment responsibilities) needs, particularly in terms of education and training, employment, health and nutrition, family planning and care, population, housing, and political participation.

Prior to the 1970s, the dominant policy approach to women's development was the *welfare* model (Buvinic 1983; Moser 1993). This approach paralleled the modernization development paradigm; women were treated as passive social welfare recipients and aid was designed to enhance women's maternal reproductive role. This type of development is seen by governments as non-threatening to institutional change and is still popular today. Critics claim that this form of development does little to address women's subordination.

With the advent of the UN Decade for Women, 1970s-1980s WID and liberal feminists theorists argued that women would gain equity status with men if women were provided with the right channels of employment opportunities, technological assistance, and credit within the system (Boserup 1970). Additionally, theorists claimed that women's work is intimately connected with and beneficial to industrialization, modernization, and economic growth (Boserup 1970; Chant 1989). This policy approach, the first adopted by WID theorists, is known as *equity*. The purpose of this model was to include women in the development process and eliminate political and economic inequalities between women

and men. However, the approach is criticized for being Western and inappropriate for the realities of third world women. Additionally, it was not taken well by governments, which found the approach threatening.

In response to the criticisms of the *equity* approach, the focus of women's development was moderated to address the increased economic participation and productivity among poor women. Also since the 1970s, the *anti-poverty* approach to women's development has been, and still is, practiced. Small-scale income-generating projects were seen to link women to a new wealth that would help them meet their basic needs. This is known as the second WID approach.

Brought on by the 1980's crisis of rising interest rates and by structural adjustment policies of economic stabilization, WID theorists promoted the *efficiency* approach of development. For development to be effective and efficient, it was first necessary to incorporate women into economic participation. Women's time was considered infinitely extendable, and women's role of production was not seen to be in conflict with other roles of reproduction and community management. This third WID approach, which does not challenge women's subordination but instead transfers the responsibility of social service provision from the state to women, has been popular with governments and development agencies and predominates today.

The only WID approach not rooted in liberal feminism is *empowerment*, which is grounded in third world women's feminist literature. Bottom-up, grassroots, social mobilization is seen as the key to challenge third world women's reliance and subordination. This movement is largely supported by voluntary organizations who see women's subordination as a function of men and colonial and neo-colonial oppression (Moser 1993; Geisler 1993). The ideology parallels the global feminist movement, which recognizes that the "oppression of women in one part of the world is often affected by what happens in another, and that no woman is free until the conditions of oppression of women are eliminated everywhere" (Bunch 1993:249). The dual goals of global feminism are to attain women's equity, freedom of choice, and control over their lives, and to

eliminate all forms of social and economic oppression, both nationally and internationally.[4]

Despite a variety of policy approaches to women in development, today it is evident that "the worldwide progress in social and economic development over the past three decades has not translated into proportional gains for women. . . . Many more women than men are in low-paying, low-skill informal activities; but those in the formal labor force are not better: occupational segregation channels them into less productive and less remunerative segments of the labor market" (World Bank 1994:10). Despite attempts by early WID strategies to address the subordinated position of women, women in the urban sector continue to be marginalized (United Nations 1991).

Feminist Critique of "Development Theory"

Not only have women been marginalized with respect to employment, they have also been conspicuously absent from formulations of economic and development theories. Neoclassical economic models of free choice assume that women and their interests parallel men and theirs for various economic and class levels, but "on closer examination we find that these groups are differentiated and that the lives of the men and women within each group are structured in fundamentally different ways, with women usually located in the lower ranks of each group" (Heyzer 1986:121). Feminist critiques of neoclassical economic theory question the androcentric conceptualizations of rationality (Strober 1987), patriarchal biases (Folbre and Hartmann 1988; Bergmann 1987), and utility (Sen 1990): "Models of free individual choice are not adequate to analyze behavior fraught with issues of dependence, interdependence, tradition, and power" (Ferber and Nelson 1993:6).

Boserup's liberal feminist critique of traditional development theory explains

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For further exploration, see Bunch, Bunster-Bunalto, Enlow, and McLaughlin. 1993. *Feminists Frameworks*, eds. Jaggar and Rothenberg. New York: McGraw-Hill, Inc.

women's subordination as a flaw in the capitalist system and claims that "economic progress benefits men as wage earners in the modern sector, while the position of women is left unchanged, and even deteriorates when competition from the growing modern sectors eliminates the traditional enterprises carried out by women" (Boserup 1970:139).

Other feminist attacks on development theory, however, argue that women's subordination results from more than just market imperfections. They argue that development theory fails to recognize what Datta terms as the *productive-reproductive nexus*, the "necessary and contradictory interrelationship between production and reproduction" (1990:10). "Women, because they need to integrate reproductive and productive work, are inadequately placed into standard models" (Moore Milroy and Andrew 1988:178). In reaction, feminists challenge the ideological premises for gender division of labor and argue that, with the exception of physical child bearing, there is no natural reason why labor has to be divided by sex.

The historical separation of productive and reproductive functions, according to some feminists, is a result of Western capitalism (Moser 1993). A pervasive ideology of separation between the "production of life (new people and the welfare of those who already exist) and the production of things (or value)" (Thorbek 1994:14) follows where women are responsible for the former, reproduction, and men are responsible for the latter, production. In a capitalist system, production is valued over reproduction. Marxist and socialist feminists argue that the connection between different values for production and reproduction and sexual division of labor explains women's subordination. "Lack of recognition of the economic cost of reproductive work under capitalism has resulted in the separation of paid work, which is allocated an exchange value, from that of unpaid 'domestic' work, which is allocated only a use-value" (Moser 1993:30).

Global feminists further argue that sexual division of labor interrelates with racial oppression, and together they are manipulated to advance capitalistic aims of material gain and economic profit for those in power. Benería and Sen criticize the market model and view women's marginalization as a consequence of the global system of capitalist labor

relations, "a system that generates and intensifies inequities" and "place(s) women in subordinate positions" (1981:290).

Moser and others recognize that gender division of labor exists in non-capitalist societies as well. Huntington (1975), taking a radical feminist perspective, insists that development theories are inappropriate because they fail to acknowledge that male dominance and discrimination are important factors in women's economic marginalization. In her view, WID programs that focus on equity (as supported by Boserup) are inadequate for achieving women's full participation.

The common thread across economies is that the economic relations within households are also structured by gender and patriarchy. "Women's performance of domestic work, especially the care of children within the home, both express their dependence and subordination within marriage (since men actively benefit from this work) and also weakens their position within the labour market, contributing to their low wages and poor conditions as wage workers" (Mackintosh 1981:11, in Moser 1993:31).

As is true globally, statistics on women's employment in Thailand "run the risk of neglecting or underestimating the economic role of women in the family setting in their capacity as housewives. They also fail to present the contemporary picture of more and more women being expected to do housework as well as taking up employment outside the home in order to supplement the family income" (Muntarbhorn et al 1990:19). The 1980 census data show that "women's share of unpaid family work outweighed that of men's" (Suvannathat 1989:272). In particular, urban women who are linked to the industrial sector follow this pattern.

Feminists who recognize patriarchy as a form of subordination argue that no analysis of women's production is complete without an examination of the underlying household pattern of gender relations and the interrelationship between production and reproduction. In general, today's economic models fail to look beyond the household; those that do are inadequate for assessing gender and power relations.

Just as classical economic models fail to see households as a collection of

individuals with differing power, roles, and interests, models of development further exclude women by defining an individual's identity by his/her relationship to work. Such definitions either deny women identification through family relations and through household and non-wage work, or deem women's status as inferior due to the relatively low value placed on 'women's work;' this "implies 'invisibility' of women and families in the analysis of 'human' behavior" (Ferber and Nelson 1993:5).

The relationship between feminist critique of development and the household unit is strong. These theories commonly recognize the need to look beyond the household as a unit to the value and intricacies of individual relations and choices within the household. That is, women's subordinate position in the labor market and in the household are interrelated (Anker and Hein 1986). The following section addresses the issue of using individuals, not households, as a unit of analysis.

Models of the Family/Household Unit

Feminists of numerous ideologies agree on the need to move from a household to an individual unit of analysis (Moser and Young 1981; Schlyter 1990; Roberts 1991; Andrew and Moore Milroy 1988; Anker and Hein 1986; Anker 1992; Ferber and Nelson 1993; Moser 1993; Alderman et al 1995). While groups and organizations are seen to be a collection of individuals, the household is often accepted as a homogenous unit of common interests and experiences. Traditional analyses based on the household overlook the differences in both roles and the relations that condition those roles. Appropriately, Moser and Young ask, "how then does accepting the household as the basis of the analysis clarify the problem, not so much of the type of work a woman may take up, but rather of the conditions under which she may offer herself on the labour market?" (1981:58). Feminists argue the need to examine the power relations that influence women's choices by questioning the assumptions of free choice, access to the production process, and patriarchal control.

Little attention is given to differences among types of households and the roles of household members in different types. Contrary to the neoclassical model of modernization and the shift to the nuclear family, ". . . Third World cities often contain considerable numbers of non-nuclear households as well [as nuclear households], particularly women-headed and extended structures. These structures should not be dismissed as insignificant since there is considerable evidence to show that they are directly related to economic development and urbanization" (Chant 1989:159). Furthermore, women and men have different preferences for family structures. In Thailand,

> . . . big-city women find living together with other women with whom they can cooperate on a reasonable equal footing, often mothers and sisters or other female relatives, an advantage. Men see things differently and look upon a small family, a nuclear family, as preferable because they fail to see why they should share their incomes with relatives of the wife, or, for that matter, why other women should interfere in their family life (Thorbek 1994:16-17).

Moreover, the intrahousehold distribution of entitlements is often biased against women (Tinker 1990). Women also shoulder extra social burdens and responsibilities through their triple role of reproducer, producer, and community manager (Moser 1993). In view of their household position, women's activities (economic and otherwise), women's share of resources, and women's degree of marginalization need to be included in characterizing a population's economic development and well-being.

From a feminist anthropological perspective, Roberts advocates a development model that "produces a notion of the household which is not independent in its resources and decision-making capacity from wider society. It also does not conceptualise the household as a unity of interests between members nor does it assume that the functions of the household are performed jointly by all its members" (1991:64). Alderman et al (1995) promote a collective model of the household analysis: for theoretical reasons this model addresses intrahousehold differences in incomes, resources, entitlements, power, and roles;

for practical implementation reasons, the collective model is a more effective policy approach.

Cloud (1995) argues that the successes of development work and important development shifts have been motivated and possible because of the reproductive work that occurs within the family unit, which is largely pursued by women who invest enormous upfront costs in childbearing and rearing. The production of a healthier, more educated, higher quality labor force results from women's intrahousehold reproductive efforts. Women's shift from quantity to quality drives greater human capacity. Cloud emphasizes the need to look at the household and certain family members as a development force.

Thus, there is a strong case for looking at the household as a collection of individuals. This approach allows us to identify the roles of individual family members and how those roles influence economic and social development.

The Importance of Women's Economic Participation--From a Household Perspective

It is clear that women in urban areas are not necessarily bound to the house. Rather, "the majority of working class women have to supplement the family budget by undertaking a variety of badly paid, unskilled income generating activities. Without their active participation, their families would not survive" (Moser and Young 1981:56). Korff (1990) demonstrates that in Bangkok the "necessary relationship between the reproduction of labour power and the importance of petty trade as a source of income leads to the insightful conclusion that trading relations are strongly rooted in people's own creativity in their everyday strategy of survival and adaptation to changing social conditions" (Datta 1990:18). In Bangkok, women's urban labor force participation increased from 39.2 percent in 1970 to 43.4 percent in 1980 (Chant 1989:163). Women's economic contributions often support the family's reproductive processes. There is evidence that women take a more prominent reproductive role than men. "Most

examples of income pooling revolve around the fact that women spend more of their income on food and child care" (Alderman et al 1995:7). Men are more likely to spend their incomes on individual consumption, such as alcohol, cigarettes, and other women, than on general household consumption (Alderman et al 1995).

Thus, women play a critical role in supporting family development through their participation in the market economy and their use of income on reproduction. Directly and indirectly, household support forms the backbone of regional, national, and global economies.

Conclusion

Extensive literature shows that women's marginalization and household relations are intimately connected. Very little research explores women's marginalization within metropolitan fringe areas. This study attempts to bridge the literatures of marginalization in metropolitan fringe areas by addressing women's productive roles in the metropolitan fringes of Bangkok.

III. Methodology

Overview of Methodological Process

This research uses a micro-data set collected in metropolitan fringe areas of Bangkok by Bohland (1991). This chapter explains the study, details how the sample and households were chosen, discusses the shortcomings of the data, and outlines the method of analysis.

The initial study of three metropolitan fringe areas, Bangkok, Jakarta, and Santiago, was undertaken by Browder et al to investigate the "spontaneous expansion of metropolitan fringe areas in developing countries" (1992:1).[5] The research aimed to characterize the demographic process of metropolitan fringe expansion, to characterize the social and economic typology of the area, and to identify the patterns of public service utilization and human needs of the residents. Specifically, the researchers investigated the geographic and socioeconomic origins of the residents, the type and location of economic activities that the residents were involved in, and the interaction of residents with market economy activities such as earnings, savings, investments, borrowing, and lending. Their research results draw the following conclusions about patterns of development in metropolitan fringe areas:

- "the metropolitan fringes are populated mainly by middle and lower-middle income households that are formally employed in single jobs, largely in the service sectors;
- informal activity exists, but not on a significant scale;
- micro-enterprises are the exception, not the norm;
- most . . . residents were born in other urban places and previously resided in other neighborhoods within the capital city; and,

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The research was supported by the Settlement and Resource Systems Analysis (SARSA) Cooperative Agreement with the Agency for International Development.

- most . . . sites are well-integrated into the metropolitan economy" (Browder et al 1992:2).[6]

The results also demonstrate that there are significant differences between the employment patterns of men and women.

Bangkok was selected for study because of existing professional linkages as well as to develop literature on the metropolitan fringe areas of Asia. Within Bangkok, researchers identified metropolitan fringe areas based on the following criteria. First, their age had to be less than fifteen years old, so that the sites within the sample represented ages of 0-5 years, 6-10 years, and 11-15 years. Second, the sites had to be absent of planned development, such as planned unit developments or government estates. Third, the sites had to be absent of large industry so that the primary use of the neighborhood was residential. The researchers chose two districts, Tung Song Hong and Tung Si Kan, located north of Bangkok, and isolated five neighborhood sites within the districts. Each of the sampling sites was "generally less than one square kilometer in size and each had a minimum of 50 individual residences for possible sample selection" (Browder et al 1992:Appendix A).

From within each metropolitan fringe area, the researchers chose twenty households by a random sampling technique of enumerating each residence and then taking every n^{th} dwelling, where n was calculated according to the total number of residences in each area. The interviewers, Thais trained in questionnaire administration, attempted two interviews at each household.[7] If no response was acquired, the interviewers selected another residence.

Before the survey was administered, it was reviewed by Thai nationals for clarity of concepts and translation. The instrument was pilot tested, revised, and implemented.

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[6]Bullets added.

[7]The Thais who administered the survey were all women.

The surveys were conducted over a four week period from the middle of October to the middle of November, 1990. All one hundred surveys were administered on a Friday, Saturday, or Sunday to increase the head of household response rate. Finally, the data were coded and entered into "machine readable form by trained personnel at the University of Mahidol" (Browder et al 1992:Appendix A).

I supplement sample data with data from secondary sources. Important to my analysis are the Kingdom of Thailand Population and Housing Census: Bangkok Metropolis (National Statistical Office 1983) and results from anthropological, qualitative studies of social relations and responsibilities.

Data Shortcomings

My preview of the data reveals that there are some weaknesses. To begin with, there were some technical coding errors. If messy data could be corrected without making excessive assumptions, then I adjusted it. For example, a three year old individual who was coded as a grandparent was recoded as a grandchild. In cases where stronger assumptions would have had to be made, I recoded the inconsistent data as missing. Although elimination of variables in certain cases reduces the number of observations, it is preferable to analyzing obviously faulty data.

Second, although the data were designed to identify whether informal and cottage industry activity exist, the questions designed to target information on the types of goods and services that are produced and provided locally proved inadequate. While the data provide information on a person's job category, the data fail to accurately identify market activities of business owners and entrepreneurs. The data did not sufficiently address the activities of business owners, vendors, and service providers, such as food, products for export, domestic work, or nightclub worker. Categories identifying sector and activity would have been more helpful in ascertaining the type of work self-employed people do. As will be evident later, the data do not allow an accurate assessment of the activities of

approximately half of the women in this study who reported that they work for themselves, for an individual, or for a family member. Since self-employment proves to be a major activity of women in this study, inadequate activity classification is a significant omission.

Third, like much international research, as previously indicated this survey instrument was not designed to be gender sensitive. Feminist critiques of the development literature have demonstrated that the household is a differentiated unit whose members have different roles and responsibilities in and outside of the home. This study collected employment data for each individual worker, female and male, but did not collect information about individuals' non-economic activities. From a gendered perspective, this is a serious omission. This omission has deeper repercussions in that researchers cannot develop an accurate typology of the social and economic relations within the metropolitan fringe areas. An understanding of the contributions of non-remunerated labor, such as reproductive and community management responsibilities, is crucial to identifying the characterization, patterns, and effects of economic development in the metropolitan fringe areas of Bangkok.

Fourth, in some places the unit of analysis was inappropriate. Although some of the data were collected at the household level and some at the individual level, in some cases questions were asked of the household that would have been more appropriate at the individual level. For example, the questions ascertaining the migration patterns were directed at the head of household. In a society where extended families are common, it is quite possible that the head of household moved into the city, became established, and other family members--such as cousins, siblings, and inlaws--moved into the metropolitan fringe afterwards. Likewise, there are perceptual questions that might be answered differently according to the sex of a respondent. For example, while a man may believe that public transportation is safe, a woman may feel differently. For questions like these, it would have been better to collect the information on an individual basis. Also, no information was collected on education, literacy, and other measures of social

characteristics, which are useful for drawing conclusions about a population.

Fifth, the gender-blind data does not address power relations between different groups of people. There is no observance of the relations among members of a household, such as who has decision making power over what issues. Also, there is no data on women's reproduction or sexuality. Feminists see gender not as a variable, such as being male or female, but as a set of relations that revolve around division of labor, sexuality, and power. Thus, this exclusion from the data set inherently limits the strength and depth of the results.

A Comparison of the Sample Data to that of the Bangkok Metropolis

This preliminary analysis compares the sample data to data presented in the 1980 Kingdom of Thailand Population and Housing Census: Bangkok Metropolis (National Statistical Office 1993). To date, the results of the 1990 census are unavailable to me. Although the 1980 statistics may seem outdated, at least they indicate trends and distributions of populations and employment. This comparison will explore some basic statistics on population and demographics, standard of living, and employment by activity.

Population and Demographics. In some aspects, the sample data from the metropolitan fringe areas of Bangkok clearly resemble the census data from the Bangkok metropolis. Out of a city of nearly 4.7 million persons (1990 figures are closer to 6 million), 48.8 percent are men and 51.2 are women. The sample statistics are similar; out of 488 household members, 45.5 percent are men and 54.5 percent are women. Table 3.1 displays the sex numbers, percentages, and ratios.

Table 3.1
Sex Structure

	Sample		Census	
	Number	Percent	Number	Percent
Males	222	45.5	2,292,052	48.8
Females	266	54.5	2,405,019	51.2
Total	488	100.0	4,697,071	100.0
Sex Ratio		0.83		0.95

Source: Sample data (Bohland 1991) and 1980 Population and Housing Census for Bangkok Metropolis

This comparison shows that there is not enough difference between the sex ratios to warrant concern. However, if the sample data accurately indicate a trend toward a greater proportion of females, then one question to investigate is where they are coming from.

The age structure of the two populations, as noted by the dependency ratio, is comparable. The dependency ratio is defined as the ratio of the number of people less than fifteen years of age and sixty-five years or older to the number of people aged between fifteen and sixty-five years. The sample dependency ratio is 46 and the census ratio is 47.

To the best I can ascertain, the family composition in the sample is very different from the greater metropolitan area. A recent study by Edwards et al (1994) reports the census's breakdown of family structure. It is presented, along with the sample breakdown, in Table 3.2. The first category, unrelated, includes all households with non-related members and persons living single. The second category, nuclear, includes the parents or parent (in the sample data, all single parent households are headed by females) and children. A vertical family is a family of three or more generations, such as parents, children, and grandparents or grandchildren. A horizontal family includes the nuclear family and/or other relatives the same generation as members of the nuclear family, such as

a parent, child, and a brother to the parent. A combined vertical and horizontal family is one that is extended across and within generations, such as a bi-nuclear, three-generation family. Table 3.2 clearly shows that the amount of extended families (vertical, horizontal, and combined vertical and horizontal) in the metropolitan fringe areas is more than twice the amount in the census, at 53 versus 22 percent. Extended families are much more common in the metropolitan fringe areas sampled, while nuclear families are more common in the city as a whole.

Table 3.2
Family Composition

	Sample		Census*	
Unrelated	5 %		8 %	
Nuclear	42		70	
Vertical	22	⎫	18	⎫
Horizontal	14	53 %	3	22 %
Combined Vertical and Horizontal	17	⎭	1	⎭
Total	100 %		100 %	

Source: sample data and 1980 Population and Housing Census for Bangkok Metropolis
* Data from Edwards et al (1994).

Sample data also differ from the census data in the area of migration. While the census data indicate that nearly 70 percent of the population was born in the Bangkok metropolis, the metropolitan fringe data show that only 30 percent of the heads of households were born in Bangkok. However, it is important to recognize that one explanation for the differential is that the sample data only report where the household head was born. Presumably, a large proportion of heads' children were born in Bangkok, thus increasing the percentage significantly. Another possible explanation is that households in the metropolitan fringe areas are more likely to be comprised of recent immigrants to Bangkok who, after a period of acculturation, become established, look for their secure housing, and settle on residency in the newly developing metropolitan fringe

areas. However, as I mentioned previously, for a true assessment of the metropolitan fringe areas' migration patterns, analysis should be conducted on an individual, not household, basis. Table 3.3 presents the percent of persons born in various areas.

Table 3.3
Migration--Birthplaces

	Sample--Birthplace of Heads of Households (%)	Census--Birthplace of All Bangkok Residents (%)
Bangkok Metropolis	30	69
Other Province	70	28
Foreign	0	3
Total	100	100

Source: Sample data (Bohland 1991) and 1980 Population and Housing Census for Bangkok Metropolis

Standard of Living. A comparison of the sample and census data reveal that the standard of living between the two areas is comparable. Using indicators such as availability of electricity, sanitary toilets, and piped water, both areas appear to be serviced to approximate levels. Nearly all households in both areas have electricity and sanitary toilets, though the metropolitan fringe ranks slightly higher. Approximately three-quarters of all households in both areas have piped water. One indicator that differs across areas is the level of permanent construction. The Thai census describes permanent construction as houses made of wood or cement. While the metropolitan level is 93 percent of all households, only 67 percent of metropolitan fringe area houses are considered permanent structures. Table 3.4 summarizes the standard of living indicators.

Table 3.4
Standard of Living Indicators

Percent of Households with:	Sample (%)	Census (%)
Electricity	99	96
Sanitary Toilets	99	97
Piped Water	74	76
Permanent Construction	67	93

Source: Sample data (Bohland 1991) and 1980 Population and Housing Census for Bangkok Metropolis

Employment by Sector and Activity. This section examines the distribution of employment activities according to occupation. The census reports the top four important activities by sex. Accordingly, I present the corresponding percent of employment for the metropolitan fringe area sample. The main categories include crafts (production), sales, administration, clerical, and service provision. Table 3.5 summarizes the results.

Table 3.5
Labor Force Distribution by Sex and Activity

Sex	Activity Category	Sample (%)	Census (%)
Male	Craft (production)	28	32
	Sales	12	19
	Administration	6	11
	Clerical	12	9
Female	Craft (production) *	38	26
	Sales	24	24
	Service	22	18
	Clerical	13	11
	Administration	<1	?

Source: Sample data (Bohland 1991) and 1980 Population and Housing Census for Bangkok Metropolis

* Many of the female employees active in the "Craft" category are dress makers. When they are omitted from the count, the percent of women involved in Crafts decreases to 23 percent.

There are proportionally fewer male administrators and more male clerks in the metropolitan fringe areas than in the Bangkok metropolis. Significantly more women work in craft production, though, as the note indicates, this might be explained by the number of self-employed women who are dress makers.

Although it is hard to make an accurate comparison of the levels of self-employment in the two areas, I give a broad-brush overview of the city's level of self-employment by examining and summing the proportion of workers classified by the census as "own account worker" and "unpaid family worker." I compare these figures to the rates attained in the sample by summing the proportion of workers who report to be employed by self, by an individual, or by a family member. Table 3.6 presents the results.

Table 3.6
Self-Employed Workers as a Percentage of the Labor Force

	Sample (%)	Census (%)
Men	32	27
Women	51	38

Source: Sample data (Bohland 1991) and 1980 Population and Housing Census for Bangkok Metropolis

As displayed, there is a much higher proportion of self-employed women in the sample than in the Bangkok metropolis. While this may be explained by poor tabulation techniques or a poor sample, it may represent a difference in the female workforce by location: metropolitan fringe women are more likely to be self-employed than inner-city women.

It appears that the characteristics of the sample metropolitan fringe areas do not differ from the Bangkok metropolis in regards to age and sex distribution and standard of living indicators. For the most part, the distribution of employment activity is comparable. However, sample metropolitan fringe areas do differ from the Bangkok metropolis regarding family composition, migration patterns, and amount of self-employed women. In the following chapter I present the results of further analysis, especially with respect to the sexual division of labor and gender differences in employment patterns.

Methods of Analysis

For my methods of analysis, I first created new variables from the data by:

- disaggregating household data according to family type by sex to provide a specific look at economic contributions, hours of labor, type of employment, location of employment, and differences between males and females;
- identifying the different types of household and family structures--for example, I look at female headed households, male headed households, nuclear families, and

extended families; and,

- comparing the types and amounts of productive labor contributed by women and men, using indicators such as the amount of hours spent working per day per job.

The data lend themselves to multiple levels of analysis. In some instances I analyzed them as a whole as five metropolitan fringe areas, in others I analyzed them according to household or individual.

Second, to analyze the data and the newly created variables, I first identified the variable types and ran an exploratory data analysis to identify the variables to be further tested for statistical significance. I then ran a series of statistical significance tests to determine the strength of differences. For some variables and relationships, a simple, one-tailed t-test sufficed. For categorical data, I used logit loglinear models to examine the relationships. Loglinear models determine an expected cell frequency of a crosstabulation as a function of parameters representing characteristics of categorical variables and their relationships with each other: logit loglinear is a special class of loglinear models.

Logit loglinear analysis for categorical variables is analogous to regression for continuous variables. The purpose is to identify the structure underlying a set of categorical variables by determining the odds that a dependent variable will happen when other independent variables happen. The odds that an event will happen is defined as the probability that the event will happen divided by the probability that the event will not happen: the dependent event is presented in the form of a log of the odds, which is the *logit* of that event happening. The model declares a dichotomous dependent variable, and determines how one or more independent categorical variables affect it by assessing the odds of an event based on the odds of the independent events. Logit loglinear models assume that the error term has a logistic distribution. Also, logit loglinear models adapt well to ordinal data, and handle variables such as income and other non-dichotomous

groupings of interval data.[8]

A two variable example illustrates the use and interpretation of logit loglinear analysis. Examine the relationship between a person's type of remuneration (formal or informal) and sex (male or female). Set type of remuneration as the dependent variable and sex as independent variable. The probability that a form of remuneration occurs when a given sex occurs, as displayed in Table 3.7, determines the association between remuneration and sex.

Table 3.7
The Association Between Remuneration and Sex
Frequency, Odds Ratio, and Logit

		Sex (independent variable)		
		$j = 1$ male	$j = 2$ female	Row Total
Remuner-ation (dependent variable)	$i = 1$ formal	$F_{11}=30$ ($F_{11}/F_{21}=30/8=3.75$) logit = 1.32	$F_{12}=12$ ($F_{12}/F_{22}=12/32=0.38$) logit = -0.98	$\sum_{i\text{-}1} F^{remuneration}$ = 42
	$i = 2$ informal	$F_{21}=8$ ($F_{21}/F_{11}=8/30=0.27$) logit = -1.32	$F_{22}=32$ ($F_{22}/F_{12}=32/12=2.67$) logit = 0.98	$\sum_{i\text{-}2} F^{remuneration}$ = 40
	Column Total	$\sum_{j\text{-}1} F^{sex}$ = 38	$\sum_{j\text{-}2} F^{sex}$ = 44	$\sum_{i\text{-}1,j\text{-}2} F$ = 82

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For an in-depth description of loglinear models, see Reynolds (1977) and Knoke and Burke (1980).

The logit (log of the odds ratio) of each cell is a probability measure that an event will happen. If the logit is zero, then there is no relationship between the variables. If the logit is positive, then there is direct covariation between the variables (i.e., male and formal, female and informal). If the logit is negative, then there is an inverse covariation between the variables (i.e., male and informal, female and formal). Notice the additive inverse property of the independent variables. The log odds for male and formal (1.32) is the additive inverse of the log odds for female and formal (-1.32).

This example shows that there are strong associations between sex and form of remuneration. Males are more likely to be paid formally, and females are more likely to be paid informally. Conversely, men are not likely to be informally employed, and women are not likely to be formally employed.

These models allow me to examine the relationship between women in different household structures and their productive patterns. My results of this analysis follow in the next chapters.

IV. Findings

This chapter presents the results of my analysis, which are grouped into three categories. I first look at sex differences in paid employment. The second category concerns whether sex differences in employment constitute a form of women's economic marginalization. I then examine the sex differences in employment structure in different types of households and across different types of family compositions. For complete identification of the variables, see Appendix A.

A. Differences in Employment for Women and Men

This section reports on the relationships between sex and variables that pertain to employment. Data were assembled on employment activity, employer, income, location of employment, form of remuneration (and hence, formal or informal sector status), type of job, and number of jobs. The first set of results summarizes the bivariate interactions between the variables, as attained by crosstabulation and tests of association. The second set of results examine multivariate interactions and relationships, as attained by logit loglinear analysis. In all cases, the analysis focussed on individuals working for pay, and individuals who claimed to be in school or unemployed were eliminated from the analysis.

Bivariate Relationships between Sex and Employment Variables

This section presents the relationships between sex of worker and employment variables. The important conclusion is that each of the variables, with the exceptions of type of job, number of jobs per employee, age of employee, and number of hours worked, vary significantly and are correlated according to the sex of a worker. For categorical data, I used tests of association such as Pearson Chi-Square, Likelihood Chi-Square, Phi

Coefficient, and Cramer's V. For continuous variables, I used Somer's D and Gamma tests of association. Table 4.1 summarizes the variable names, tests of association, and their significance.

Table 4.1
Tests of Association of Employment Variables by Sex

Variable	Pearson Chi-Square	Likelihood Chi-Square	Phi Coefficient	Cramer's V Coefficient	Significance Level*
Activity	22.99	24.95	0.31	0.31	0.00**
Employer	19.28	20.39	0.28	0.28	0.00**
Income***	27.58	28.77	0.35	0.35	0.00**
Location	30.07	33.20	0.36	0.36	0.00**
Form of Remuneration	15.51	15.72	0.25	0.25	0.00**
Type of Job	2.08	1.71	0.09	0.09	0.15
Number of Jobs	3.36	3.89	0.12	0.12	0.19
Age of Employee***	2.00	2.00	0.09	0.09	0.57
Number of Hours***	0.72	0.72	0.06	0.06	0.87

Source: Author's calculations from Bangkok survey (Bohland 1991)
*The p-value recorded is the smallest for which all tests are significant.
** Indicates a significance level of less than 0.002.
***For continuous variables, I ran other tests including Somer's D and Gamma. While the tests showed an association between income and sex (Somer's D= -0.32, Gamma= -0.52), they showed no association for age and sex (Somer's D= -0.05, Gamma= -0.09), or for hours and sex (Somer's D= -0.02, Gamma= -0.03).

Activity by Sex. Activities differ significantly by sex for nearly every category. The most dramatic differences are in the categories of trade/business/service and labor/transportation. In the first case, 27.9 percent of the men and 44.2 percent of the women work in trade/business/service. In the labor/transportation category, 26.6 percent male participation compares to only 5.3 percent female participation. Table 4.2 summarizes the number of workers and their percentage by sex.

Table 4.2
Labor Force Distribution by Activity and Sex
Percentage of Employees (Number of Employees)

Activity	*Male*	*Female*	*Total*
Professional/ Clerical/Administrative	18.6 (24)	14.2 (16)	16.5 (40)
Trade/ Business/ Service	27.9 (36)	44.2 (50)	35.5 (86)
Production	27.1 (35)	36.6 (41)	31.4 (76)
Labor/ Transportation	26.4 (34)	5.3 (6)	16.5 (40)
Total (n)	100 (129)	100 (113)	100 (242)

Source: Author's calculations from Bangkok survey (Bohland 1991)

Employer by Sex. The important differences between the type of employer and sex are self-employed (includes working for a family member) and government-employed. While the proportion of employees who work in enterprises is constant across sexes, proportionately many more females are self-employed (50.9 percent versus 31.5 percent of males), and far fewer females than males are employed by the government (8.8 percent versus 30.0 percent). Table 4.3 displays the percentage of employees, by sex, and the number per type of employer.

Table 4.3
Labor Force Distribution by Employer and Sex
Percentage of Employees (Number of Employees)

Employer	*Male*	*Female*	*Total*
Self-Employment	31.5 (41)	50.9 (58)	40.6 (99)
Enterprise	38.5 (50)	40.4 (46)	39.3 (96)
Government	30.0 (39)	8.8 (10)	20.1 (49)
Total (n)	100 (130)	100 (114)	100 (244)

Source: Author's calculations from Bangkok survey (Bohland 1991)

Notice the importance of self-employment in relation to all employees. Over 40 percent of the employees in the Bangkok metropolitan fringe areas claim to be self-employed, working for another individual, or working for a family member. This lends credence to the belief that much of the income generation does not come from large private and public corporations. Also, notice that women constitute more than half of the self-employed workforce.

Income Distribution by Sex. The income distribution also differs by sex, with men earning on whole much more than women. A comparison of the distributions, displayed in Table 4.4, and a t-test of independent means, illuminate the discrepancies in incomes.[9]

[9] In 1990, $1 equaled approximately 25 Baht.

Table 4.4
Distribution of Income by Quartile and Sex (Dollars per Month)

Income	*Male Workers*	*Female Workers*	*All Workers*
Mean	$ 187	$ 134	$ 162
Upper Quartile	234	135	200
Median	148	104	120
Bottom Quartile	108	72	84

Test of Significance for Income Difference Between Male and Female Workers

t-value	3.26
Level of Significance	0.00*

Source: Author's calculations from Bangkok survey (Bohland 1991)
*Indicates a significance level of less than 0.001.

Regardless of sex, the mean is consistently higher than the median. This indicates that a few people earning very high incomes skew the distribution. The more interesting figure is the median income level, the point at which half the people earn more than and half earn less. While the median for males is relatively close to the overall median, the female median is significantly lower. A low median combined with a high mean relative to the distribution suggest that even though there are a few women earning very attractive salaries, the majority earn significantly less than men. Table 4.5 displays the income distribution by sex according to categories defined by the quartiles of the overall income distribution for all workers.

Table 4.5
Labor Force Income Distribution by Quartile and Sex
Percentage of Employees (Number of Employees)

Income	*Male*	*Female*	*Total**
Upper Quartile	32.8 (39)	10.6 (11)	22.4 (50)
Third Quartile (income ≤ $200)	24.2 (29)	15.4 (16)	20.2 (45)
Second Quartile (income ≤ $120)	29.4 (35)	35.6 (37)	32.3 (72)
Bottom Quartile (income ≤ $84)	13.4 (16)	38.5 (40)	25.1 (56)
Total (n)	100 (119)	100 (104)	100 (223)

Source: Author's calculations from Bangkok survey (Bohland 1991)
*Note that the total percentages do not break down into exact quartiles. The reason for this is that 38 individuals claim their income to be $120. Since $120 falls at the median, and the median value is included in the second quartile, the second quartile reports a percentage higher than 25 percent. The extra values in the second quartile reduce the values in the third quartile.

Note that 38.5 percent of women earn in the bottom quartile range, as opposed to only 13.4 percent of men. Conversely, while 32.8 percent of men earn in the upper quartile range, only 10.6 percent of the women do. Thus, there are significant differences between the distributions of male and female earnings, with females earning less than men.

Location of Employment by Sex. The location of employment is also divided by the sex of employee. Most notably is the difference in dwelling employment. Whereas 27.5 percent of the women work at home, only 3.4 percent of the men do. The difference is very important. With the aggregation of dwelling employment and neighborhood employment, there are still significantly more women than men working locally. Proportionally, nearly twice as many women work in either the home or neighborhood than men. Conversely, women are only 60 percent as likely as men to work within the city of Bangkok. Therefore, these results suggest that, compared to men, women are more likely to work locally. Considering that 41.2 percent (14.9 + 26.3) of all employees work

locally, it becomes clear that the female contribution from the home and neighborhood is significant. Table 4.6 presents the percentage and numerical locational distribution of employees by sex.

Table 4.6
Location of Workplace by Sex
Percentage of Employees (Number of Employees)

Location	*Male*	*Female*	*Total*
Dwelling	3.4 (4)	27.5 (30)	14.9 (34)
Neighborhood	26.1 (31)	26.2 (29)	26.3 (60)
Bangkok: CBD and Other	63.9 (76)	40.3 (44)	52.6 (120)
Other Cities and Rural	6.7 (8)	5.5 (6)	6.1 (14)
Total (n)	100 (119)	100 (109)	100 (228)

Source: Author's calculations from Bangkok survey (Bohland 1991)

Form of Remuneration by Sex. The form of remuneration is also significantly different between women and men. Nearly twice as many men as women receive remuneration in the form of a salary. Conversely, proportionately more women than men receive payment from wages and sales and services. The proportion and numbers of women and men who receive payment from individual jobs and piece work are nearly identical. The numerical and percentage differences in remuneration form by sex are presented in Table 4.7.

Table 4.7
Form of Remuneration by Sex
Percentage of Employees (Number of Employees)

Form of Remuneration	*Male*	*Female*	*Total*
Salary	59.2 (77)	36.8 (42)	48.8 (119)
Wage	8.5 (11)	13.2 (15)	10.7 (26)
Self/ Sales of Goods/ Services	11.5 (15)	27.2 (31)	18.9 (46)
Individual Job/ Piece Work	20.8 (27)	22.8 (26)	21.7 (53)
Total (n)	100 (130)	100 (114)	100 (244)

Source: Author's calculations from Bangkok survey (Bohland 1991)

Based on these results, I present the proportion of each sex working in the informal sector, defined as non-salary and non-wage labor. The data reveal that 50 percent (27.2 + 22.8) of the women sampled and 32.3 percent (11.5 + 20.8) of the men are involved in informal sector activity. This represents a substantial difference between the two and supports the claim that women rely on informal employment more than men.

Type of Job by Sex. The final employment variable, type of job, does not seem to discriminate by sex. Unlike all the other variables thus far, both women and men work nearly equal proportions of permanent and non-permanent labor, which includes day labor, seasonal labor, and other temporary labor. Approximately 68 percent of men are permanently employed, as compared to approximately 60 percent of women. This indicates that permanent jobs are equally important to both women and men, and one can infer that even self-employed and locally employed women consider their jobs permanent. Table 4.8 summarizes the percentage and numerical distributions of job type by sex.

Table 4.8
Type of Job by Sex
Percentage of Employees (Number of Employees)

Type of Job	*Male*	*Female*	*Total*
Permanent	68.2 (88)	59.3 (67)	64.0 (155)
Non-permanent	31.8 (41)	40.7 (46)	36.0 (87)
Total (n)	100 (129)	100 (113)	100 (242)

Source: Author's calculations from Bangkok survey (Bohland 1991)

Age Distribution and Hours Worked by Sex. The distributions of age and hours worked by sex reveal no significant difference. Tables 4.9 and 4.10 summarize the distributions of age and hours, respectively, for all workers and by sex, as well as t-values to show the lack of significance.

Table 4.9
Distribution of Age Divided by Quartile and Sex (years)

Age	*Male Workers*	*Female Workers*	*All Workers*
Mean	34.9	33.4	34.2
Upper Quartile	43	40	41
Median	36	33	34
Bottom Quartile	26	26	26

Test of Significance for Age Difference Between Male and Female Workers

t-value	1.06
Level of Significance	.14

Source: Author's calculations from Bangkok survey (Bohland 1991)

Table 4.10
Distribution of Paid Hours Worked Divided by Quartile and Sex
(Number per Week)

Hours	*Male Workers*	*Female Workers*	*All Workers*
Mean	48.6	46.3	47.5
Upper Quartile	56	56	56
Median	48	48	48
Bottom Quartile	40	36.8	40

Test of Significance for Difference of Paid Hours Worked
Between Male and Female Workers

t-value	1.09
Level of Significance	0.14

Source: Author's calculations from Bangkok survey (Bohland 1991)

Number of Jobs by Sex. One final variable concerning sex differences in employment is the number of jobs a person holds. Out of the sample's 397 paid employees, only ten hold multiple jobs. The division by sex is seven men and three women, which is proportional to the overall distribution of worker by sex. The amount of people working two or three paid jobs is insufficient to represent a significant deviation from the norm of one job.

Summary of Employment Variables by Sex. All aspects of employment, except the permanence of a job, the number of jobs held, age of employee, and hours worked, vary according to sex. This suggests that women's and men's employment patterns, as pertains to activity, employer, income, location, and form of remuneration, differ. Women are more likely than men to work in a service or sales position, to be self-employed, to earn less than men, to work in the dwelling or neighborhood, and to be remunerated by sales and services. Conversely, men are more likely than women to be employed in a

professional, clerical, or transportation position, to be employed by the government, to earn more than women, to work in downtown Bangkok, and to receive their pay by salary. These data clearly demonstrate that a sexual division of labor exists for paid work for sampled residents of the metropolitan fringes of Bangkok.

Multivariate Relationships Among Employment Variables: Use of Logit Loglinear Models

Using a logit loglinear model, which is a tool for analyzing relationships among categorical or discrete variables, I found a number of three-way interactions that are important for ascertaining employment patterns in the metropolitan fringe areas of Bangkok. For the most part, the interactions revolve around the variables of sex, income, activity, employer, location, type of remuneration, and relationship of employee to the head of household. One note should be made about income. Although normally a continuous variable, for the following analyses, I classified income into four ordinal categories corresponding to the quartile divisions of the overall income distribution. Thus, if a person earns $135, which falls in the third quartile, his/her income was recoded into category three. Recoding allowed me to examine the relationships between income and other categorical variables.

A saturated logit loglinear model has as many parameters as there are cells and exactly predicts cell probabilities, but does not parsimoniously describe the relationships among variables. For that reason, I chose to use an unsaturated logit loglinear model, which looks at the highest possible interaction terms only and is the next best predictor of cell probabilities and relationships. Although I tried an extensive number of variations, in no case did the model with four-way interactions fit better than the model with three or two terms. To be parsimonious, the results of this section pertain to three-way interactions.

The following results were run with income as the dependent variable. Setting other variables as dependent yielded similar significant relationships among variables. For the sake of intuition and prediction, I assigned income as the dependent variable. Appendix B contains the logit loglinear printouts for the models that follow.

Also note that relationships in logit loglinear models are determined significant by both a z-value and a standardized residual value. While the z-value should be greater than

the absolute value of 1.96 to be significant at the α=.025 level, the standardized residual should be less than 1.96 to indicate that residuals are normally distributed with a mean of zero and a standard deviation of one.

Income as the Dependent Variable against Activity and Sex. The first result is from the model where income is the dependent variable and activity and sex are the independent variables. Significant z-values and low residuals indicate that there are relationships among these variables. The specific relationships are displayed in Table 4.11. The first column represents the direction of the relationship, the second column is the dependent variable, the third and fourth columns are the independent variables, and the remaining column is the z-values.

Table 4.11
Logit Loglinear Results
Significant Relationships of Income by Activity and Sex

	Dependent Variable	**Independent Variables**		
Direction of Association	**Income**	**Activity**	**Sex**	**z-value***
-	bottom quartile	professional/ administrative/ clerical	female	-2.32
+	third quartile	professional/ administrative/ clerical	female	2.89
-	bottom quartile	trade/ business/ service	male	-2.88
+	bottom quartile	trade/ business/ service	female	2.88
+	third quartile	trade/ business/ service	male	2.33
-	third quartile	trade/ business/ service	female	-2.33

Source: Author's calculations from Bangkok survey (Bohland 1991)
*For these combinations of variables, the standardized residual is less than 1.96 and thus is normally distributed.

To interpret this table, read each row as a set of relations. For example, the first row

shows that income in the bottom quartile is associated with professional activity and sex. A professional women is not likely to earn an income in the bottom quartile. Conversely, as the second row shows, a professional female is likely to earn in the third quartile. Women involved in trade, business, and service are more likely than men to earn an income in the bottom quartile, and men are more likely to earn a higher, third quartile income for the same employment activity.

These results show that professional and clerical women earn more for their employment activity classification than men, but non-professional and business men earn more for their employment activity classification than women. Considering that more men than women are classified as professional, and that many more women than men are involved in trade, business, and service, the implication is that there are not many women earning large incomes.

Income as the Dependent Variable against Employer and Sex. The interactions among income, employer, and sex result in earning differentials by sex. Significantly, self-employed men are likely to earn in the second, not the bottom, quartile. Conversely, self-employed women are likely to earn in the bottom, not the second, quartile. Keep in mind that the standardized residual for self-employed women in the bottom quartile is high, indicating that some self-employed women earn very high incomes, which skews the residual distribution. Again, these results support the hypothesis that women are more likely than men to be self-employed and earn less, whereas men tend to earn more in their jobs. Table 4.12 summarizes these findings.

Table 4.12
Logit Loglinear Results
Significant Relationships of Income by Employer and Sex

	Dependent Variable	Independent Variables		
Direction of Association	**Income**	**Employer**	**Sex**	**z-value***
-	bottom quartile	self-employed	male	-2.11
+	bottom quartile	self-employed	female	2.11**
+	second quartile	self-employed	male	2.97
-	second quartile	self-employed	female	-2.97

Source: Author's calculations from Bangkok survey (Bohland 1991)
*For these combinations of variables, the standardized residual is less than 1.96 and thus is normally distributed.
**The standardized residual is greater than 1.96. This indicates that there are a few self-employed women who earn very large incomes, which skews the distribution of the residuals.

Income as the Dependent Variable against Location and Sex. The general results of income against location and sex, as presented in Table 4.13, show that men, whether they work at home or in Bangkok, are not likely to earn in the bottom or second quartile. Men who work in Bangkok are, however, likely to earn incomes in the upper quartile. Conversely, women who work at home and in Bangkok are likely to earn incomes in the bottom two quartiles. Wherever women work, they are more likely to fall into the bottom quartiles of income earnings. Women who work in Bangkok have little chance of earning in the upper quartile.

Table 4.13
Logit Loglinear Results
Significant Relationships of Income by Location and Sex

	Dependent Variable	Independent Variables		
Direction of Association	**Income**	**Location**	**Sex**	**z-value***
-	bottom quartile	dwelling	male	-2.20
+	bottom quartile	dwelling	female	2.20
-	bottom quartile	Bangkok	male	-2.37
+	bottom quartile	Bangkok	female	2.37
-	second quartile	Bangkok	male	-2.56
+	second quartile	Bangkok	female	2.56
+	upper quartile	Bangkok	male	5.24
-	upper quartile	Bangkok	female	-5.24

Source: Author's calculations from Bangkok survey (Bohland 1991)
*For these combinations of variables, the standardized residual is less than 1.96 and thus is normally distributed.

Collectively, the results of Tables 4.11, 4.12, and 4.13 reinforce the hypothesis that women receive different earnings for different economic activities than men do. In every case, women earn less than men regardless of their activity, employer, or location; women earn more than men only in activities largely dominated by men.

Income as the Dependent Variable against Type of Remuneration and Sex. Men who are remunerated by self/sales/service are not likely to earn in either the bottom or upper income quartiles. Alternately, women who are remunerated by self/sales/service are likely to earn in the upper income quartile. Men who earn salaries are likely to earn in the upper quartile and not likely to earn in the second quartile. Conversely, women who earn

salaries are more likely to earn incomes in the second quartile than in the upper quartile. These results demonstrate the important association between women's informal employment and high income earnings. They also show the bias against women's formal employment income. Table 4.14 displays the results.

Table 4.14
Logit Loglinear Results
Significant Relationships of Income by Type of Remuneration and Sex

	Dependent Variable	**Independent Variables**		
Direction of Association	**Income**	**Type of Remuneration**	**Sex**	**z-value***
-	bottom quartile	self/sales/service	male	-1.97
-	second quartile	salary	male	-3.01
+	second quartile	salary	female	3.01
+	upper quartile	salary	male	4.67
-	upper quartile	salary	female	-4.67
-	upper quartile	self/sales/service	male	-2.42
+	upper quartile	self/sales/service	female	2.42

Source: Author's calculations from Bangkok survey (Bohland 1991)
*For these combinations of variables, the standardized residual is less than 1.96 and thus is normally distributed.

Income as the Dependent Variable against Activity and Relation to Head. The data indicate that a head of household who is professionally employed is not likely to earn in the third quartile range. However, there is no evidence to conclude whether the professional head has an income category higher or lower than the third quartile. Perhaps the distribution is dispersed based on other factors such as sex (refer to Table 4.11). Also, the data show that household heads employed in trade, business, service, or production are likely to earn an income at the third quartile level. Table 4.15 summarizes this data.

Table 4.15
Logit Loglinear Results
Significant Relationships of Income by Activity and Relation to Household Head

	Dependent Variable	Independent Variables		
Direction of Association	**Income**	**Activity**	**Relation to Household Head**	**z-value***
-	third quartile	professional/ administrative/ clerical	head	-2.12
+	third quartile	trade/ business/ service	head	2.00
+	third quartile	production	head	2.01

Source: Author's calculations from Bangkok survey (Bohland 1991)
*For these combinations of variables, the standardized residual is less than 1.96 and thus is normally distributed.

Summary of Three-way Interaction Relationships. In conclusion, these significant interactions of three variables demonstrate that the patterns of employment of the people sampled from the metropolitan fringe areas of Bangkok are interconnected and intrinsically tied to a variety of factors. These logit loglinear results indicate that the combination of two variables leads to the probability of a third variable. Income and sex are likely to be associated with a variety of variables, as seen in Tables 4.11 through 4.14. Income is also a function of activity and relation to household head, as seen in Table 4.15.

I summarize that women and men have different income distributions by activity, employer, location, and type of remuneration, with women usually earning less than men and less likely to be formally employed. Incomes in the third quartile are explained by household heads that work in trade, business, service, or production. These results also highlight the important relationship between women's informal employment and high level incomes.

B. Analysis to Test Women's Economic Marginalization

Employment Opportunities by Sex

Choice of Jobs by Sex. Theorists argue that economically marginalized groups have a narrower choice of jobs relative to other groups. In this sample, there is no difference in the number of economic activities that women are involved in relative to men. However, while there is no difference in the number of job positions, it is important to note clusters of employment activities that differ by sex. For example, in the service sector, women's employment activities tend toward restaurant, maid, child care, cleaners, and hair stylist work, whereas men's employment activities tend toward night watchman and laundry work. Likewise, in the production sector, women tend toward self-employment and vendor work, whereas men tend toward machinery and mechanical work. Also, women are less represented in professional, administrative, and transportation sectors (refer to Table 4.2). This suggests that, while women maintain a broad range of activities, their employment is still largely limited to certain sectors.

Earnings by Sex. Economically marginalized groups earn less per hour than other groups. In fact, t-tests reveal that women receive statistically less income per hour than men in certain divisions of activity, employer, location, and type of remuneration. Table 4.16 displays the areas, by category and division, where women's remuneration is significantly less per hour than men's. All areas not listed here are not significantly different. Except for informal remuneration, there are no other cases where men's income per hour is significantly less than women's.

Table 4.16
Areas Where Women's Income per Hour is Significantly Less than Men's

Category	Division	t-test	Level of Significance	Form of Marginalization
Activity	Clerical	1.51	0.073	yes*
Activity	Service	2.21	0.017	yes
Employer	Government	3.16	0.002	yes
Location	Bangkok	2.46	0.008	yes
Paid	Salary	2.32	0.011	yes
Paid	Formal (salary and wages)	2.54	0.006	yes
	Else	not significant		no

Source: Author's calculations from Bangkok survey (Bohland 1991)
*In this case, the level of significance is not as small and this result is not as strong as the others. However, I still believe that it indicates a trend and should not be overlooked, especially considering that the amount of female clerical workers (15) nearly equals the amount of male clerical workers (18).

The first important result is that the government appears to not pay its employees equally.[10] This either means that there is wage discrimination within jobs, or that women employed by the government are relegated to less productive jobs. In either case, this a form of discrimination. An interesting, and encouraging, result is that women's income per hour appears to be even with men's when controlling for age. While there is great income per hour sex discrepancy in persons over thirty years, there is not for persons less than thirty years. In fact, controlling for age, younger women earn significantly more than younger men (possibly a function of both equal/higher wages and longer hours). This

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This statement is made with the caveat that the data does not allow for analysis by education, skill, or particular job.

suggests that more younger women are entering higher paying jobs, such as in the professional area. It could also mean that women and men's initial earnings are on par, but men's earnings surpass women's after a certain age. Certainly, this issue needs to be explored further.

The second important result is that women who work in Bangkok receive less pay per hour than men. This is important considering the transportation and time costs necessary to travel to Bangkok. Without equitable pay, what is the incentive for women to work in Bangkok? Perhaps women who work in Bangkok do so as a last resort. Third, the sex difference in hourly pay according to remuneration is important. If women receive significantly less than men in salaried positions, then either they receive less per the same job, or the salaried positions that they have pay less than the salaried positions that men have. Again, they are economically marginalized. Fourth, the significance of greater hourly earnings per formal (salary and wage) versus informal (all other forms) remuneration is striking. This result is especially important considering that half of the women workers--as compared to only 32.3 percent of the men--are classified as informal workers (refer to Table 4.7) and rely on informal pay. This result supports the claim that women are economically marginalized on the metropolitan fringes of Bangkok.

Number of Hours by Sex. Economically marginalized persons work longer hours in paid jobs. In this data set, there is no indication that women and men work different numbers of hours per week, regardless of the employment activity. However, keep in mind that while this result does not support the concept of economic marginalization, a complete understanding of its meaning is unattainable without complementary information concerning the division of labor in non-paid activities of reproduction and community management. Thai literature cautions that women contribute more domestic labor hours than men (Muntarbhorn et al 1990; Suvannathat 1989).

Higher Paying Jobs by Sex. Marginalized persons have less access to higher paying jobs. The hourly income distributions by quartile, displayed in Table 4.17, indicate that women consistently earn less than men. The proportion of women earning below the overall median, 63.4 percent, is much greater than the proportion of men earning below the median, 39.3 percent, by 24.1 percent. Conversely, the proportion of women earning above the overall median, 36.6 percent, is much less than the proportion of men earning above the median, 61.1 percent, by 24.5 percent. This difference is significant at the .044 level (t-value = 1.74).

Table 4.17
Distribution of Workers' Pay per Hour by Sex
Percentage of Row Total (Number)

Pay per Hour	*Male*	*Female*	*Total*
Upper Quartile	31.5 (34)	18.3 (17)	25.4 (51)
Third Quartile	29.6 (32)	18.3 (17)	24.4 (49)
Second Quartile	17.6 (19)	33.3 (31)	24.9 (50)
Bottom Quartile	21.3 (23)	30.1 (28)	25.4 (51)
Total (n)	100 (108)	100 (93)	100 (201)

Source: Author's calculation from Bangkok survey (Bohland 1991)

Summary of Women's Employment Opportunities. In terms of lower income per hour (overall and in certain divisions across activity, employer, location, and type of remuneration), greater reliance on lower-paid informal remuneration, and less access to higher paying jobs, this sample of women in the metropolitan fringes of Bangkok is economically marginalized in relation to men.

Comparison of Earnings by Variable

Hourly Income per Activity. Hourly income per activity shows significant differences between professional/administrative/clerical work and the divisions of production and labor/transportation. In all cases, professional workers earn more per hour than other workers. The interesting, and pleasing, result is that there is no significant difference in income per hour between professional and self-employed/sales/service workers.

Hourly Income per Employer. Differences by employer arise in the case of government workers. Government workers earn significantly more than those who are self-employed or working for an enterprise. Recall, however, that the percent of women employed by the government is 8.8 percent, as opposed to 30.0 percent of men. This suggests that men benefit more than women from the government's relatively high hourly pay. Alternately, women are at a disadvantage due to their high self- and enterprise-employment rates.

Hourly Income per Location. Bangkok workers earn significantly more than neighborhood workers. However, there is no significant difference in earnings between Bangkok and dwelling workers, which suggests that women who work at home have no economic incentive to work in the city center. This result is consistent with the indifference of earnings between professional and self-employed/sales/service workers, as many of the self-employed persons work at home.

Hourly Income per Form of Remuneration. As previously presented, formal pay is remuneration from salary and wage, and informal pay is remuneration from self-paid, sales, service, individual job, or piece work. On whole, formal remuneration pays significantly more than informal remuneration. Individual job and piece work consistently

pay less than other forms. Salary remuneration pays slightly more than wage remuneration, significant at the 0.03 level. Interestingly, the difference between salary or wage remuneration and self-remuneration/sales of goods/services is not significant. This indicates that workers who are not formally employed are better off financially if they work in self-paid/sales/service jobs. Over 27 percent of women and 11 percent of men are remunerated by self-paid/sales/service. This result highlights the importance, and relative lucrativeness, of informal sector employment, especially for persons who are paid by their self, sales, or services.

Table 4.18 summarizes the significant results and indicates if they can be interpreted as a form of women's economic marginalization relative to men.

Table 4.18
Forms of Women's Economic Marginalization by Intra-Variable

Variable	Summary of Income per Hour Significance	Form of Women's Economic Marginalization
Activity	*Professional and trade/ business/ services pay the most. *Women are excluded from professional employment but are heavily represented in trade/ business/ service. *Younger professional women are earning on par with men.	mixed
Employer	*Government pays significantly more than other employers. *Only 8.8 percent of women work in government.	yes
Location	*Bangkok workers earn more than neighborhood workers but not more than dwelling workers.	mixed
Paid	*Formal remuneration pays more than informal, but out of informal, self-paid/sales/services are not significantly less than formal pay. *Although half the women (as opposed to 32 percent of men) work informally, most of that half are paid by self/sales/services.	mixed

Source: Author's calculations from Bangkok survey (Bohland 1991)

Summary of Women's Economic Marginalization

While forms of women's economic marginalization are evident, there are encouraging signs that women compensate for them. Women are marginalized in terms of income per hour both within and across activities, employers, locations, and types of remuneration. Yet, even women who are self-employed in trade, business, or sales, and work at home compete with the professional who works in Bangkok. Institutional forms of discrimination, such as the government paying women less than men, are countered by lucrative informal employment.

C. Differences in Employment Patterns Across Household Types and Family Structures for Women and Men

This final section of results explores how women's economic contributions are important to the family and how women's contributions vary by household type and family structure. I demonstrate that female income is important to family earnings for all household types and family structures. Women's contributions, especially income, are more variable than men's, which is consistent with the claim that women's employment is less stable than men's and is seen as "reserve labor."

Description of Household Types, Family Structures, and Family Positions

Household Types. As previously mentioned, I classified households as married and male headed (MHH) and unmarried and female headed (FHH). Out of the hundred households surveyed, eighty-five are male headed (with wife present), two are male headed and contain unrelated individuals, eleven are female headed with no spouse, and two are female headed of unrelated individuals. For the sake of clarity, I aggregated the male and married-couple headed households together (eighty-seven) and the female headed households together (thirteen). There were no cases where a single male headed a family.

Family Structure. Family structure, according to Thai classifications, groups households as unrelated and single, nuclear, vertically extended, horizontally extended, and both vertically and horizontally extended. A crosstabulation of family structure by household type reveals that distributional differences exist. As Table 4.19 shows, MHHs are clustered around nuclear families, while FHHs are evenly distributed across the five structures. Notably, non-married women are as likely to live with a nuclear family as alone. Perhaps this is a trend away from the extended and nuclear family structures.

Shifting household structures is an area that needs further exploration. Another important result is that, regardless of household type, extended families (combining all types of extensions) constitute 53 percent of families. As a cultural commentary, more families are likely to be extended than otherwise.

Table 4.19
Family Structure by Household Type
Percent of Households (Number of Households)

	MHH	extend-ed MHH	FHH	extend-ed FHH	All House-holds	extend-ed HH
Unrelated/ Single	2.3 (2)		23.1 (3)		5.0 (5)	
Nuclear	44.8 (39)		23.1 (3)		42.0 (42)	
Vertically Extended	21.8 (19)	⎫	23.1 (3)	⎫	22.0 (22)	⎫
Horizontally Extended	13.8 (12)	52.9 (46)	15.4 (2)	53.8 (7)	14.0 (14)	53.0 (53)
Vertically and Horizontally Extended	17.2 (15)	⎭	15.4 (2)	⎭	17.0 (17)	⎭
Total	100 (87)		100 (13)		100 (100)	

Source: Author's calculations from Bangkok survey (Bohland 1991)

Family Positions. The next set of results refers to classifications of workers by position in the family. The reason to disaggregate family members into family positions is to show that all persons, not just the head of household, contribute to the family earnings. Based on the hypothesis that women and men contribute significantly but differently to the household economic welfare, a division by position and sex are necessary to identify which people contribute in which way. The main classifications are head of household, spouse of head, and other. Since there are no male spouses, the following groups remain: male head

(MH), male other (MO), female head (FH), female spouse (FS), and female other (FO). First, I present the average percent of income, percent of hours, and income per hour of each position to the household by household type. These averages are conditional on the number of households to which people contribute; for example, if women contribute to seventy-three households, I calculate their average income for only those seventy-three households. Thus, out of the seventy-three households where women contribute, their average income contribution is *x* percent. Then, I compare positions to see if there are significant differences in employment patterns and contributions between groups. Table 4.20 displays the number and type of households to which each family position contributes.

Table 4.20
Number of Households to which Family Positions Contribute

		MHH = 87	FHH = 13	Total = 100
Number Contributing Income	all Males	81	4	85
	all Females	60	13	73
	MH	77	X	77
	MO	28	4	32
	FH	X	11	11
	FS	48	X	48
	FO	25	6	31
Number Contributing Hours	all Males	73	4	77
	all Females	55	11	66
	MH	69	X	69
	MO	27	4	31
	FH	X	10	10
	FS	44	X	44
	FO	18	5	23
Number Contributing Pay per Hour	MH	70	X	70
	MO	27	4	31
	FH	X	10	10
	FS	45	X	45
	FO	22	5	27

Source: Author's calculations from Bangkok survey (Bohland 1991)

The average percent of household income, percent of hours worked, and income per hour contributions of each family position, conditional on participation, are presented in Table 4.21. A value indicates the average that persons in that family position contribute to the household type listed, and an X indicates that the position contributes nothing to the household type. The first row shows that, of the males who contribute, all males' average household income contribution is 72.3 percent to a MHH, 49.7 percent to a FHH, and an average of 71.0 percent for all households. The second row shows that, of the females who contribute, all females' average household income contribution is 42.2 percent to a MHH, 80.9 percent to a FHH, and 49.1 percent to all households. Table 4.21 can also be read column-wise. For example, in a MHH, the male head contributes 63.9 percent of the income and other males contribute only 32.1 percent. In a FHH, the female heads that participate, on average, contribute 54.4 percent of the income and other females, on average, contribute 56.7 percent. Thus, in a MHH, of the male heads who contribute, a male head earns 63.9 percent of the income, works 56.7 percent of the hours, and earns a higher wage of $1.22 per hour. In a FHH, the female head earns 54.4 percent of the household income, works 58.2 percent of the hours, and earns only $0.70 per hour.

The average of all working women's income represents between 42.2 and 80.9 percent of the household income. In households where women contribute, their average contribution in nearly 50 percent. Also note that women's hourly contributions, ranging from 45.7 to 84.3 percent, are all higher than their respective percent of income contribution. This supports the fact that women's income per hour is generally less than men's. Another interesting result is that other females on average contribute a larger percent of both income and hours than other males. This indicates that there is a greater reliance on non-head and non-spouse female economic contributions than on non-head male economic contributions, reinforcing the idea that the distribution of women's contributions throughout household positions is different from men's. Thus, when women contribute to the household's income, their contributions are substantial and probably necessary for household survival.

Other data support the importance of women's economic contributions (refer to Table 4.20). Females contribute to 73 percent of all households (59 percent by heads/spouses, 31 percent by others, and 17 percent by both). Males contribute to 85 percent of all households (77 percent by heads, 32 percent by others, 23 percent by both). In twenty-nine, or 40 percent, of the seventy-three households where women contribute, their contribution is greater than or equal to 50 percent of the total household *income*. In thirty-six (49.3 percent) of those households, women work the same or more *hours* than men. In twenty-nine (40 percent) of those households, women have an *hourly income* equal or greater to men's. These data support the claim that women's income adds significantly to the household income. Appendix C contains additional data on the households' distributions of income, hours, and hourly income.

Table 4.21
Income and Hour Contributions of Paid Employment to Different Household Types by Family Position, Conditional on Participation in the Paid Labor Force

Variable	Family Position	MHH	FHH	All Households
Percent of Household Income	all Males	72.3%	49.7%	71.0%
	all Females	42.2	80.9	49.1
Percent of Household Income	MH	63.9%	X	63.9%
	MO	32.1	49.7	34.8
	FH	X	54.4	54.4
	FS	35.9	X	35.9
	FO	35.2	56.7	40.7
Percent Hours Worked in Paid Employment	all Males	69.0%	37.8%	67.0%
	all Females	45.7	84.3	52.5
Percent Hours Worked in Paid Employment	MH	56.7%	X	56.7%
	MO	41.8	37.8	40.6
	FH	X	58.2	58.2
	FS	39.7	X	39.7
	FO	42.9	61.3	48.1
Mean Earnings per Hour Earned ($)	all Males	$1.37	$0.87	$1.34
	all Females	1.05	1.00	1.04
Mean Earnings per Hour Earned ($)	MH	$1.22	X	$1.22
	MO	0.62	$0.87	0.66
	FH	X	0.70	0.70
	FS	1.03	X	1.03
	FO	0.69	0.66	0.69

Source: Author's calculations from Bangkok survey (Bohland 1991)

To assess whether the categories of MH, MO, FH, FS, FO are similar or different to each other, I ran a series of chi-square and t-tests to identify if certain variables change per category. Table 4.22 displays the results, where a value indicates the level of significance for two categories to be different, and an X represents interactions where there is no significant difference.

For example, the first row of Table 4.22 assesses the difference between male heads and male others. There is no difference in the type of activities, hours worked, and rent paid between male heads and male others. However, male heads and male others have different employers, location of work, type of remuneration, type of job, income, and age. Thus, even though all males are involved in the same activities, other employment factors vary.

The second row of Table 4.22 assesses the difference between female heads and female spouses. There are no significant differences in female heads and spouses' employment patterns.

A number of conclusions are drawn from Table 4.22. First, FH and FS can be treated as one. They do not have any differentiating characteristics. Second, although FH/FS and FO have different employment patterns, their income and hours are not different. This suggests that *all* women contributors, regardless of position, maintain equal economic importance within the family. Third, the characteristics between MH and MO are significantly different, indicating that the male economic burden falls on the head. Fourth, MH and FH/FS are not alike in either employment patterns or income contributions (thus confirming the greater reliance on FO). Fifth, FH/FS and MO are not alike in employment patterns, but they have similar income patterns. This illustrates that income is important regardless of sex, despite different jobs allocations. Finally, MO and FO have similar characteristics and contributions except for activities, which indicates that employment patterns among non-heads and non-spouses are fairly stable and common.

Table 4.22
Significance Tests of Household Position Categories

		Categorical Variables Likelihood Ratio Chi-Square*					Continuous Variables t-test*			
Position 1	Position 2	Activity	Employer	Location	Paid	Type of Job	Income	Hours Worked	Rent	Age
MH	MO	X	0.008	0.065	0.044	0.021	0.001	X	X	0.000
FH	FS	X	X	X	X	X	X	X	X	X
FH	FO	0.012	0.017	0.015	X	X	X	X	X	X
FH/FS	FO	0.040	0.000	0.000	0.001	X	X	0.063	X	X
MH	FH	0.000	0.003	0.001	0.030	X	0.000	X	X	X
MH	FS	0.000	0.000	0.000	0.000	0.007	0.007	0.050	X	0.001
MH	FH/FS	0.000	0.000	0.000	0.000	0.009	0.003	X	X	0.033
MH	FO	0.001	0.000	X	X	X	0.000	X	X	0.000
FH/FS	MO	0.003	0.000	0.000	0.000	X	X	X	X	0.000
MO	FO	0.082	X	X	X	X	X	X	X	X

Source: Author's calculations from Bangkok survey (Bohland 1991)
* I replaced significance levels with an X when p-value > 0.10.

Variations in Women's Contributions by Household Type and Family Structure

Women's economic contributions differ substantially across household types, but very little across family structures. The notable differences by household type are that women in FHHs earn less per hour but work longer hours and earn more than women in MHHs. The notable difference by family structure is that women in extended families have the highest average income per hour.

Variations by Household Types. On average, women contribute 42.2 percent of the income to a MHH and nearly twice that much, 80.9 percent, to a FHH. Also, the average percent of paid hour commitment nearly doubles, from 45.7 to 84.3 percent, as

households change from MHH to FHH. Thus, a FHH is much more likely to rely on female income contributions than a MHH (although, in the previous section I showed that even MHHs are significantly supported by of female income). Ironically, in the FHH where female contributions are vital, women on average earn the smallest income per hour across household types ($1.00 per hour). Finally, the number of working women is significantly greater in a FHH than in a MHH. It appears that women compensate for low hourly incomes by having more people in the family work; the additional workers are *women!*

Variations by Family Structure. To examine how female contributions vary by family structure, I combined all extended families into one category and compared them to unrelated/single and nuclear families. Female heads contribute proportionally more in an unrelated/single family than they do in an extended family. This is not surprising, especially as the women in single families did not report relying on another person's income. There are absolutely no significant differences by family structure in terms of women's paid working hours. Thus, women's work is important to all kinds of families, and the level that women work is not driven by the family structure.

Other females earn significantly more in nuclear and extended families than they do in an unrelated family. Further research is needed to understand this phenomenon fully, but one possible explanation is that women in extended families rely on other family members, especially women, to care for reproductive work while they focus their energies on high-paying productive work. Finally, the number of female workers increases as the family structure becomes more extended, indicating that the need for support is proportional to family size. The same process happens for men.

Variability in Women's Contributions

Women's income varies more than men's, but number of hours worked does not. This section tests the hypothesis that women's income is more variable than men's. I ran a series of t-tests to see if the ranges of income earned and hours worked are greater for women than for men. I compared values for all males against females, for male heads (MH) against female heads and spouses (FH/FS), and for other males (MO) against other females (FO). For income, every test shows a significant difference in the range of values that women and men earn. For hours worked, the only significant difference in range of hours is between MO and FO. Other females, therefore, have a broader range of both income and hours worked over men. The lack of difference in range of hours worked for MH against FH/FS indicates that each sex is equally likely to fluctuate in terms of hours.

Summary of Differences across Household Types and Family Structures for Women and Men

The analysis summary demonstrates that *all* women's economic contributions are important and significant to the household. This is true across household types and across family structure. The role of the "other females," the non-heads and non-spouses, is crucial to the economic well-being of the family; but this is not true for "other men." Women's contributions dramatically differ by household type, where FHH rely heavily on women's contributions. However, women's contributions do not vary by family structure. Finally, I proved that women's economic contributions are more variable than men's by comparing women's broader range of income to men's. These results support the hypothesis that employment patterns have sex differences and that those differences vary by household type.

D. Conclusion of Analysis

Women and men have different employment and remuneration patterns, clearly indicating a sexual division of labor. Women are more likely than men to be self-employed or work in a service or sales job, work at home, be paid informally, and earn in the lower income quartiles. Women are less likely to be professionally employed, work for the government, work in Bangkok, and earn in the upper income quartiles.

The sexual division of labor parallels women's economic marginalization. Women sampled are economically marginalized in terms of lower incomes per hour, greater reliance on lower-paid informal remuneration, and less access to higher paying jobs. Despite marginalization within and across activities, employers, locations, and types of remuneration, there are signs of change. Women under thirty in professional jobs earn on par with men under thirty. Also, some of the sampled self-employed women earn substantial incomes that compare to professional salaries.

Finally, women's employment patterns are different than men's and vary by household type. *All* women's economic contributions are important and significant to the household. Unlike the male income burden, which falls heavily on the male head, the female income burden is distributed among the household's females--other females contribute as much as female heads or spouses. Women's economic contributions differ by family type, with women contributing proportionately more to female headed households than to male headed households. Evidence suggests that households compensate for income deficiencies by having more women work. *All* women's economic contributions, although more variable than men's, significantly augment household income.

V. Interpretations

This research on female contributions to household incomes is a small part of broad research examining the household as a set of individuals controlled by gender, race, and class relations. The analysis reveals that women sampled in the metropolitan fringes of Bangkok have very different employment patterns from men, but that women's paid employment significantly augments household income. This reinforces Anker and Hein's observation that "women do have a real need for income and that the ideal of men as sole providers for women and children is myth. . . . a dangerous myth, since it affects government labour policies as well as government and family decisions on training and education" (1986:42).

Women's income is important for all household types and all family structures in the sample. Even if women's employment is "relegated to the less productive economic activities of the 'traditional' sector" (Robinson 1988:63), women's income is important to both male and female headed households, regardless of family composition and size.

Women and men in the metropolitan fringe have different employment patterns. Jelin proposes that women who have domestic responsibilities seek jobs that have flexible hours, are easy to get to, and easy to leave. It is conceivable that women in Bangkok's metropolitan fringes find flexible employment in informal, self-employed work.

Although evidence from this sample deconstructs the myth of the male breadwinner and demonstrates the importance of women's paid work, women are economically marginalized in lower-paying, less-skilled jobs. The pattern of occupational segregation and economic marginalization evident in Bangkok's metropolitan fringe areas replicates the patterns found in other developing countries' urban areas (Jelin 1982). Women compensate for insufficient income by increasing female labor force participation, as evidenced by the important contributions of non-head and non-spouse females.

Women's economic contributions are more impressive when one also considers

their non-economic contributions. "Women play an important economic role in all countries. . . [their unremunerated labor] contribution to the family's well-being is non-monetized, and it frequently goes unrecognized and unrecorded by governments and social scientists" (Anker 1982:32). A study of Thai women revealed that 75 percent spent their leisure time [sic] on housework and their families (Suvannathat 1989:9). Although there are no comparable data for men, women's domestic time is significant.

As evidenced by this study, women in the sample metropolitan fringe areas are important participants in productive processes who make choices different from men about participation in the labor force and type of employment. This study points to further research questions and agendas that explore the constraints women face in making production choices. For a complete understanding of intrahousehold dynamics, researchers must observe and understand the intimate relations within the household as well as the political economy which influences changes and distribution of entitlements, resources, and power.

We need to know more about the structures and relations reinforcing women's occupational segregation. This will most likely require probing the *productive-reproductive nexus* (Datta 1990), and looking at the relationship among women's domestic responsibilities, their value, and economic marginalization.

Until women's subordination is understood and action is taken to alleviate it, women should not be deprived of informal sector employment, which was the sample women's most lucrative form of employment. Women's work in sales and services can earn nearly as much as a professional salary and substantially add to the household income. This is especially crucial in female headed households where women on average contribute 80 percent of the income. Also, the government should reassess its hiring practices. Even though Thai women and men should have equal access to jobs by law, metropolitan fringe women sampled are not proportionally represented in government jobs. Perhaps the list of forbidden jobs should be reexamined too.

Just as women are affected by policy decisions, they need to be included in

research. As the 'why' is more interesting and informative than the 'what,' researchers should explore women's decisions more carefully. Social science research methods need to include study of gender relations--power and control issues--so that appropriate questions are asked to obtain an accurate understanding of women's choices. Also, research methods need to address the intimate connections among gender roles, production, and reproduction.

Accounting for gender relations in research does not follow a "mix and stir" formula. Researchers "show that simply adopting non-sexist language and producing some tabulations by sex does not necessarily rid data of androcentric bias" (Moore Milroy and Andrew 1988:182). The following steps can be taken to ensure that research more accurately reflects women's true contributions. First, qualitative studies designed to understand gender relations, household type, and sexual division of labor should precede traditional surveys. A pre-study would allow researchers to incorporate details that are crucial for understanding a household's distribution of work, time, responsibilities, resources, and power. Research with feminist grounding might reveal that women are the main caretakers of the children and domestic responsibilities, otherwise known as the reproductive role. Then, questions concerning employment might include both "What is your primary activity?" and "What prevents you from working professionally outside the home?" Also, as women traditionally carry the burden of reproductive work, there is urgent need to collect data on all kinds of activity, not just remunerated work.

Second, data need to be collected at the individual level. Women and men have different experiences, and one cannot speak for the other. As discussed previously, the results of this study would be richer had information been collected on an individual basis. Also, questions should be posed to the person in question when possible. For example, a husband might not answer a question in the same way a wife would, and conversely, a wife might not respond as a husband would. In cases involving household women and men, where the constructs of life are different, data collected from someone other than the respondent could be misleading.

Third, researchers need to be aware that respondents may answer questions differently depending on who asks the questions and who is listening at the time of the answer. Responses are not objective, but rely on the relationship between the interviewer and interviewee. Women, because of their household's gender relations, may (unintentionally) give misleading or incomplete information in the presence of a man. Therefore, it is in the researcher's interest to acknowledge the relationship between themselves and the respondents. Moore Milroy and Andrew recommend action research, which aims to "[bridge] the gap between researcher and group members, a gap occasioned by differing experiences, knowledge, and perspectives" (1988:181).

Thus, there needs to be better theoretical awareness and inclusion of gender sensitivity into the survey methods. Although this may be more expensive and require more time, researchers need to balance costs with richness and accuracy of results.

VI. Conclusions

This research set out to determine the employment patterns of women sampled in the metropolitan fringes of Bangkok; to determine whether the women sampled are economically marginalized; and to determine if women's contributions to household income are significant. Results show that women and men have different employment patterns, with women much more likely to be involved with informal, self-employed work. Women make significant contributions to household incomes, but they do so while being economically marginalized.

Past research on the urban fringe areas is limited, and much of it concerns the poor's economic survival strategies of working in the informal sector. An interesting conclusion of this study is that, even in a lower-middle to middle class area, residents--particularly women--rely on informal sector employment. Another important conclusion, which was overlooked in a previous analysis, is the importance of self-employment. Self-employment and dwelling unit employment add substantially and are *critical* to household income and metropolitan fringe earnings. Whether self-employment is attractive because it is the only option people have or because it suits their productive and reproductive needs remains unknown. Further research in this area should study the reasons for and growth patterns of metropolitan fringe informal employment. Development policies should recognize the relationship between this form of employment and women's earnings and should promote systems that support and encourage informal economic activity.

Women sampled in the metropolitan fringe areas are economically marginalized, with less participation in higher paying jobs, less remuneration per hour, and less formal employment. Government employment pays significantly more than any other employer, and less than 9 percent of women workers are hired by the government. However, there are signs of change which are consistent with liberal feminists' call for integration into the system: women under thirty earn incomes nearly on par with men; *some* self-employed

women earn as much as a professional salary; and remuneration from sales and services pays nearly as much as formal remuneration.

Women on the metropolitan fringe also seem to have little incentive for working in downtown Bangkok. Unless they are professionally employed, which is rare, they will not earn more downtown than they would locally. Rather, women who work at home and in the neighborhood have the opportunity to earn a substantial income.

Another important conclusion is the fact that *all* women, in the seventy-three households where they contribute, significantly contribute to household income. Unlike non-head males, non-head and non-spouse females contribute as much as female heads and spouses. In fact, the "other female" employment patterns more closely resemble male heads than any other group. This result implies that women heads and spouses do not have the same employment patterns as men because of additional reproductive responsibilities (whether by choice remains unknown). It also implies that other women whose employment patterns resemble male heads may rely on the female head or spouse to help care for their children. Further research is needed to assess reproductive roles. Evidence also suggests that women who need more income compensate by having other female family members work.

There are limitations to this study. Gender analysis of the data set reveals the importance of using an individual unit of analysis. When data are aggregated into broad categories, they may gloss over the significant underpinnings of relations and activities. The results raise many more questions about women in the metropolitan fringes of Bangkok. A larger, more widespread study is warranted to see whether this sample represents the whole fringe area, to see whether it differs from urban areas, and to explore explanations of women's economic marginalization.

Researchers should start by reexamining from where women on the metropolitan fringe come. Do metropolitan fringe women have the same migration patterns as men? Is the slight difference in the sex ratio between the census and metropolitan fringe indicative of greater female migration to urban fringe areas? Perhaps male heads settle in the

metropolitan fringe, and the family's women (wife, sister, mother, etc.) then follow. The traditional importance of Thai social and family networks raises the need to investigate metropolitan fringe women's proximity to family and friends. By definition, families are recent immigrants to the metropolitan fringe areas, and it is important to examine to what extent rural and urban social and family network patterns replicate in the metropolitan fringe.

Another area of investigation is why women move to the metropolitan fringe, and whether their reasons differ from men's or differ by household type. It would be interesting to know whether women's choice of residence is related to their choice of employment. Also, for a true characterization of metropolitan fringe women, future study should compare the roles and constraints of metropolitan fringe women and urban women. Researchers might ask if women are more or less economically marginalized in the metropolitan fringe than in other areas, or if the metropolitan fringe represents a spatial location for unabsorbed labor as Heyzer theorizes. Research on the processes that enforce and reduce women's subordination in metropolitan fringe areas should be encouraged.

Development planning and policy making needs to incorporate the importance of female contributions in Bangkok's metropolitan fringe areas not only as an efficiency measure, but to recognize women's work and establish women as a unique development force. "It is also felt that studies of women as consumers and contributors to family/household incomes must gradually give way to studies of women as producers in their own right. This kind of research will reflect a real recognition of women as unique and able individuals, whose employment is not to be seen as simply a part of a family's strategy for economic survival, but as an essential component in women's own development" (Suvannathat 1989:297).

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Appendix A: List of Variables

Activity

- *Professional/Administrator/Clerical*--includes professional, technical, administrative, managerial, and clerical occupations
- *Trade/Business/Service*--includes business owners, salespersons, vendors, watchmen, hotel and restaurant workers, maids, receptionists, cleaners, hair stylists, and other service jobs
- *Production*--includes factory workers, textile workers, tailors, jewelers, mechanics, trade persons, food canning operators, chemical products makers, machine operators, and other production jobs
- *Labor/Transportation*--includes bus, taxi, truck, car, and train drivers, army officers, and other unclassified laborers

Age

A continuous ratio variable of the number of years a person had at time of survey

Employer

- *Self/Individual/Family Member*--includes yourself, non-family individual, and family member
- *Enterprise*--includes large and small enterprises
- *Government*--government only

Family Structure

- *Unrelated/Single*--households comprised of a single person or two or more unrelated persons
- *Nuclear*--households comprised of one or two generations of a family, such as a parent and child or two parents and a child
- *Vertically Extended*--households comprised of three generations of one family, such as grandparents, parents, and children
- *Horizontally Extended*--households comprised of a nuclear family and an extended family member from one of the two generations, such as parents, children, and the sister of the wife
- *Vertically and Horizontally Extended*--households that have at least three generations and non-nuclear or bi-nuclear family members, such as grandparents, parents, children, and the sister of the wife

Form of Remuneration

- *Salary*--salary
- *Wage*--wages
- *Self/Sales/Service*--paid by yourself, sales of goods, sales of services, and unpaid family work
- *Individual Job/Piece Work*--paid by individual job (day worker) and by piece work

Note that salary and wage remuneration constitute formal sector employment, and self/sales/service and individual job/piece work constitute informal sector employment.

Household Type

- *Male Headed Household*--includes households where a husband and wife co-habitate or where unrelated men live
- *Female Headed Household*--includes households that are headed by women without spouses or that contain unrelated and single women

Income

Normally a continuous variable, for logit loglinear tests income was recoded into an ordinal variable to represent the quartiles of every workers' income distribution

Location

- *Dwelling*--the dwelling of the respondent
- *Neighborhood*--a neighborhood location outside of the dwelling
- *Bangkok*--any location within the Bangkok metropolis, outside of the neighborhood
- *Other*--any location, either urban or rural, outside of the Bangkok metropolis

Number of Jobs

A ratio variable marking the number of paid jobs a person had at the time of the sample

Sex

- *Male*--all men and boys
- *Female*--all women and girls

Type of Job

- *Permanent*--all permanent employment
- *Day/Seasonal/Temporary*--includes day work, seasonal work, and other temporary work

Appendix B: Logit Loglinear Printouts

* * * * * * * * * * L O G L I N E A R A N A L Y S I S * * * * * * *

Estimates for Parameters (Cont.)

INCOMEC * ACTV1CC * SEX

Parameter	Coeff.	Std. Err.	Z-Value	Lower 95 CI	Upper 95 CI
4	.5652012825	.24385	2.31778	.08725	1.04316
5	-.586076907	.20341	-2.88133	-.98475	-.18740
6	-.017371202	.19288	-.09006	-.39541	.36067
7	.1127177846	.22027	.51172	-.31901	.54445
8	.0530717066	.17539	.30259	-.29070	.39684
9	-.208589037	.17439	-1.19613	-.55039	.13321
10	-.803193592	.27741	-2.89529	-1.34692	-.25946
11	.4844409315	.20810	2.32796	.07657	.89231
12	.3494691701	.20426	1.71089	-.05088	.74982

- -

INCOMEC * EMPLR1C * SEX

Parameter	Coeff.	Std. Err.	Z-Value	Lower 95 CI	Upper 95 CI
4	-.377003248	.17832	-2.11414	-.72652	-.02749
5	.2036971699	.15949	1.27717	-.10890	.51630
6	.4628885126	.15570	2.97303	.15772	.76805
7	-.078017626	.14615	-.53382	-.36447	.20843
8	.2041840727	.18015	1.13343	-.14890	.55727
9	-.153342558	.17073	-.89817	-.48797	.18128

- -

INCOMEC * LOCATCCC * SEX

Parameter	Coeff.	Std. Err.	Z-Value	Lower 95 CI	Upper 95 CI
4	-.616313998	.27993	-2.20167	-1.16498	-.06765
5	.2430204227	.22238	1.09282	-.19284	.67888
6	-.404845639	.17055	-2.37372	-.73913	-.07056
7	.1213543041	.26610	.45605	-.40020	.64290
8	.1889205431	.19939	.94751	-.20188	.57972
9	-.390333991	.15242	-2.56090	-.68908	-.09159
10	.3158028011	.31558	1.00072	-.30273	.93433
11	-.062141454	.23039	-.26972	-.51370	.38942
12	-.054052555	.17497	-.30893	-.39699	.28889

INCOMEC * PAIDC * SEX

Parameter	Coeff.	Std. Err.	Z-Value	Lower 95 CI	Upper 95 CI
4	-.234156183	.16239	-1.44191	-.55245	.08413
5	-.185876578	.26980	-.68893	-.71469	.34294
6	.5067189331	.25754	1.96752	.00194	1.01150
7	-.457492716	.15212	-3.00739	-.75565	-.15933
8	-.000604135	.24909	-.00243	-.48882	.48762
9	.1380310628	.23380	.59037	-.32022	.59629
10	-.039268404	.17720	-.22160	-.38659	.30805
11	-.002759666	.29105	-.00948	-.57321	.56769
12	-.039091456	.27269	-.14335	-.57356	.49538

Appendix C: Households' Distributions of Income, Hours, and Hourly Income

Table C1
Household Distribution of Income
Percent of Contribution by Family Position

Household	MH (%)	MO (%)	All Males (%)	FH (%)	FS (%)	FO (%)	All Females (%)	Total Family Income ($)
1	41	0	41	0	10	48	58	580
2	36	0	36	0	64	0	64	560
3	83	0	83	0	17	0	17	360
4	0	71	71	29	0	0	29	340
5	100	0	100	0	0	0	0	180
6	44	0	44	0	56	0	56	360
7	52	0	52	0	48	0	48	420
8	100	0	100	0	0	0	0	480
9	67	0	67	0	33	0	33	360
10	59	0	59	0	41	0	41	204
11	35	0	35	0	9	56	65	264
12	0	0	0	19	0	81	100	640
13	100	0	100	0	0	0	0	120
14	28	0	28	0	70	2	72	860
15	100	0	100	0	0	0	0	480
16	100	0	100	0	0	0	0	86
17	0	0	0	33	0	67	100	252
18	30	27	57	0	29	14	43	838
19	100	0	100	0	0	0	0	140
20	69	0	69	0	31	0	31	648
21	100	0	100	0	0	0	0	320
22	18	14	32	0	68	0	68	882
23	59	0	59	0	0	41	41	136
24								Not Available
25	69	23	92	0	8	0	8	520
26	38	49	87	0	13	0	13	316
27	16	76	92	0	8	0	8	252
28	100	0	100	0	0	0	0	200
29	0	0	0	0	67	33	100	120
30	0	0	0	0	100	0	100	60
31	29	37	66	0	33	0	33	408
32	67	0	67	0	33	0	33	360
33	53	47	100	0	0	0	0	380
34	54	0	54	0	0	46	46	431
35	43	43	86	0	14	0	14	280
36	0	0	0	19	0	81	100	148
37	88	0	88	0	13	0	13	320
38	0	0	0	100	0	0	100	120
39	36	32	68	0	32	0	32	266
40	0	0	0	0	0	100	100	300
41	0	0	0	100	0	0	100	60
42	60	20	80	0	20	0	20	400
43	41	33	74	0	26	0	26	368
44	17	0	17	0	83	0	83	720
45	81	19	100	0	0	0	0	248
46	41	18	59	0	25	16	41	732
47	21	0	21	0	21	58	79	576
48	100	0	100	0	0	0	0	100
49	34	20	54	0	18	11	29	650
50	89	0	89	0	11	0	11	360

Table C1, Continued
Household Distribution of Income
Percent of Contribution by Family Position

Household	MH (%)	MO (%)	All Males (%)	FH (%)	FS (%)	FO (%)	All Females (%)	Total Family Income ($)
51	59	0	59	0	0	41	41	340
52	60	0	60	0	40	0	40	600
53	75	0	75	0	25	0	25	480
54	85	15	100	0	0	0	0	260
55	50	0	50	0	50	0	50	240
56	0	50	50	0	0	50	50	400
57	40	24	64	0	19	17	36	556
58	30	38	68	0	19	13	32	316
59	62	22	84	0	17	0	17	717
60	0	0	0	0	100	0	100	120
61	0	0	0	100	0	0	100	156
62								Not Available
63	100	0	100	0	0	0	0	120
64	0	62	62	12	0	26	38	1300
65	44	56	100	0	0	0	0	720
66	32	20	64	0	21	27	48	564
67	36	0	32	0	0	64	64	660
68	53	0	36	0	47	0	47	228
69	74	0	53	0	26	0	26	162
70	65	0	74	0	0	35	35	344
71	44	0	65	0	56	0	56	320
72	67	0	44	0	33	0	33	600
73	100	0	67	0	0	0	0	200
74	37	9	109	0	0	54	54	964
75	100	0	100	0	0	0	0	80
76	0	47	47	0	0	21	21	376
77	100	0	100	0	0	0	0	80
78	0	0	0	0	0	100	100	96
79	77	0	77	0	0	23	23	156
80	100	0	100	0	0	0	0	192
81								Not Available
82	0	0	0	100	0	0	100	108
83	100	0	100	0	0	0	0	292
84	60	0	60	0	40	0	40	200
85	100	0	100	0	0	0	0	602
86	100	0	100	0	0	0	0	80
87	82	0	82	0	0	18	18	440
88	89	0	89	0	11	0	11	672
89	0	55	55	0	45	0	45	264
90	20	0	20	0	80	0	80	1004
91	100	0	100	0	0	0	0	280
92	0	74	74	0	0	26	26	188
93	100	0	100	0	0	0	0	240
94	100	0	100	0	0	0	0	420
95	0	15	15	31	0	54	85	320
96	63	19	82	0	0	19	19	320
97	54	25	79	0	21	0	21	336
98	47	0	47	0	53	0	53	202
99	0	27	27	54	0	19	73	444
100	55	27	82	0	18	0	18	440

Table C2
Household Distribution of Hours in Paid Labor
Percent of Contribution by Family Position

Household	MH (%)	MO (%)	All Males (%)	FH (%)	FS (%)	FO (%)	All Females (%)	Total Family Hours (#)
1								Not Available
2	30	0	30	0	70	0	70	132
3	58	0	58	0	42	0	42	84
4	0	51	51	49	0	0	49	95
5	100	0	100	0	0	0	0	56
6	81	0	81	0	19	0	19	59
7	50	0	50	0	50	0	50	96
8	100	0	100	0	0	0	0	63
9	50	0	50	0	50	0	50	84
10	67	0	67	0	33	0	33	84
11	22	0	22	0	31	47	78	180
12	0	0	0	41	0	59	100	117
13	100	0	100	0	0	0	0	54
14								Not Available
15	100	0	100	0	0	0	0	40
16	100	0	100	0	0	0	0	50
17								Not Available
18	19	37	56	0	26	19	45	216
19	100	0	100	0	0	0	0	40
20	50	0	50	0	50	0	50	80
21	100	0	100	0	0	0	0	40
22	33	33	66	0	34	0	34	122
23	62	0	62	0	0	38	38	117
24	23	0	23	0	77	0	77	93
25	43	30	73	0	27	0	27	208
26	21	66	87	0	13	0	13	201
27	21	55	76	0	24	0	24	202
28	100	0	100	0	0	0	0	48
29								Not Available
30								Not Available
31	35	35	70	0	30	0	30	160
32	48	0	48	0	52	0	52	63
33	31	69	100	0	0	0	0	156
34	55	0	55	0	0	45	45	66
35	21	59	80	0	21	0	21	145
36	0	0	0	24	0	76	100	59
37	87	0	87	0	13	0	13	46
38	0	0	0	100	0	0	100	48
39	27	38	65	0	35	0	35	158
40								Not Available
41	0	0	0	100	0	0	100	72
42	36	38	74	0	26	0	26	156
43	29	41	70	0	29	0	29	136
44								Not Available
45								Not Available
46	27	19	46	0	27	27	54	208
47								Not Available
48	33	33	66	0	33	0	33	84
49	16	39	55	0	25	20	45	244
50	74	0	74	0	26	0	26	54

Table C2, Continued
Household Distribution of Hours in Paid Labor
Percent of Contribution by Family Position

Household	MH (%)	MO (%)	All Males (%)	FH (%)	FS (%)	FO (%)	All Females (%)	Total Family Hours (#)
51	43	0	43	0	0	57	57	92
52	65	0	65	0	35	0	35	138
53	50	0	50	0	50	0	50	96
54	57	0	57	0	43	0	43	70
55								Not Available
56	0	50	50	0	0	50	50	80
57	32	24	56	0	22	22	44	185
58	34	28	62	0	34	3	37	143
59	36	36	72	0	27	0	27	110
60	0	0	0	0	100	0	100	36
61	0	0	0	100	0	0	100	42
62								Not Available
63	100	0	100	0	0	0	0	54
64	0	43	43	14		43	57	348
65	53	47	100	0	0	0	0	90
66	18	25	43	0	32	25	57	218
67	19	0	19	0	0	81	81	243
68	56	0	56	0	44	0	44	85
69	77	0	77	0	23	0	23	91
70	25	0	25	0	0	75	75	160
71	50	0	50	0	50	0	50	80
72	50	0	50	0	50	0	50	80
73	100	0	100	0	0	0	0	24
74	25	25	50	0	0	50	50	160
75	100	0	100	0	0	0	0	56
76	0	68	68	0	0	32	32	176
77	100	0	100	0	0	0	0	77
78	0	0	0	0	0	100	100	56
79	50	0	50	0	0	50	50	168
80								Not Available
81								Not Available
82	0	0	0	100	0	0	100	48
83	100	0	100	0	0	0	0	40
84	47	0	47	0	53	0	53	85
85	100	0	100	0	0	0	0	42
86	100	0	100	0	0	0	0	80
87								Not Available
88	47	0	47	0	53	0	53	85
89	0	58	58	0	42	0	42	83
90	47	0	47	0	53	0	53	102
91	100	0	100	0	0	0	0	64
92	0	50	50	0	0	50	50	112
93	100	0	100	0	0	0	0	56
94								Not Available
95	0	19	19	27	0	55	82	300
96	33	33	66	0	0	33	33	168
97	28	37	65	0	36	0	36	228
98	46	0	46	0	54	0	54	104
99	0	27	27	27	0	47	74	120
100	34	43	77	0	23	0	23	130

Table C3
Household Distribution of Hourly Income
Percent of Contribution by Family Position

Household	MH ($ per hour)	MO ($ per hour)	FH ($ per hour)	FS ($ per hour)	FO ($ per hour)
1	.	.	.	.	0.73
2	1.25	.	.	0.98	.
3	1.53	.	.	0.43	.
4	.	1.25	0.53	.	.
5	0.80	.	.	.	.
6	0.83	.	.	4.55	.
7	1.15	.	.	1.04	.
8	1.90	.	.	.	.
9	1.43	.	.	0.71	.
10	0.54	.	.	0.75	.
11	0.57	.	.	0.11	0.44
12	.	.	0.63	.	1.88
13	0.56	.	.	.	.
14	.	.	.	4.29	.
15	3.00	.	.	.	.
16	0.43	.	.	.	.
17	.	.	.	.	.
18	1.56	0.71	.	1.07	0.75
19	0.88	.	.	.	.
20	2.80	.	.	1.25	.
21	2.00	.	.	.	.
22	1.00	0.76	.	3.57	.
23	0.28	.	.	.	0.31
24	.	.	.	.	.
25	1.01	0.48	.	0.18	.
26	0.71	0.30	.	0.37	.
27	0.24	0.43	.	0.10	.
28	1.04	.	.	.	.
29	.	.	.	2.86	.
30	.	.	.	.	.
31	0.54	0.68	.	0.71	.
32	2.00	.	.	0.91	.
33	1.04	0.42	.	.	.
34	1.60	.	.	.	1.67
35	1.00	0.35	.	0.33	.
36	.	.	0.50	.	0.67
37	1.75	.	.	1.67	.
38	.	.	0.63	.	.
39	0.57	0.36	.	0.38	.
40	.	.	.	.	.
41	.	.	0.21	.	.
42	1.07	0.33	.	0.50	.
43	0.95	0.54	.	0.60	.
44	0.63	.	.	.	.
45	.	0.33	.	.	.
46	1.34	0.83	.	0.80	0.54
47	.	.	.	0.63	0.62
48	0.89	.	.	.	.
49	1.40	0.35	.	0.50	0.38
50	2.00	.	.	0.71	.

Table C3, Continued
Household Distribution of Hourly Income
Percent of Contribution by Family Position

Household	MH ($ per hour)	MO ($ per hour)	FH ($ per hour)	FS ($ per hour)	FO ($ per hour)
51	1.25	.	.	.	0.67
52	1.00	.	.	1.25	.
53	1.88	.	.	0.63	.
54	1.38	.	.	.	.
55	0.75	.	.	0.83	.
56	.	1.25	.	.	1.25
57	0.93	0.73	.	0.65	0.60
58	0.49	0.75	.	0.31	2.00
59	2.76	0.98	.	1.00	.
60	.	.	.	0.83	.
61	.	.	0.93	.	.
62	.	.	.	.	.
63	0.56	.	.	.	.
64	.	1.33	0.80	.	0.57
65	1.67	2.38	.	.	.
66	1.13	0.52	.	0.43	0.70
67	1.33	.	.	.	0.53
68	0.63	.	.	0.73	.
69	0.43	.	.	0.50	.
70	1.40	.	.	.	0.25
71	0.88	.	.	1.13	.
72	2.50	.	.	1.25	.
73	2.08	.	.	.	.
74	2.25	0.53	.	.	1.63
75	0.36	.	.	.	.
76	.	0.37	.	.	0.36
77	0.26	.	.	.	.
78	.	.	.	.	0.43
79	0.36	.	.	.	0.11
80	.	.	.	.	.
81	.	.	.	.	.
82	.	.	0.56	.	.
83	1.83	.	.	.	.
84	0.75	.	.	0.44	.
85	3.58	.	.	.	.
86	0.25	.	.	.	.
87	.	.	.	.	0.33
88	3.75	.	.	0.40	.
89	.	0.75	.	0.86	.
90	1.04	.	.	3.72	.
91	1.09	.	.	.	.
92	.	0.63	.	.	0.21
93	1.07	.	.	.	.
94	.	.	.	.	.
95	.	0.21	0.31	.	0.26
96	0.89	0.27	.	.	0.27
97	0.71	0.25	.	0.22	.
98	0.49	.	.	0.48	.
99	.	0.94	1.88	.	0.38
100	1.36	0.54	.	0.67	.

Vita Christine R. Martell

Education:

Virginia Polytechnic Institute and State University, Blacksburg VA
Master of Urban and Regional Planning (May 1995)--Concentration in International Development Planning

University of Massachusetts, Amherst MA
Bachelor of Science, Mathematics (May 1990)--Concentration in Applied Mathematics

Work Experience:

Institute for Public Management, Virginia Polytechnic Institute and State University
Graduate Assistant (August 1993 - May 1995)

Production of a budgeting workbook to be used in graduate budgeting classes.
Responsible for editing Public Budgeting & Finance journal and ensuring smooth functioning of journal publishing process.
Quantitative and qualitative data entry.

U. S. Peace Corps, Lobatse, Botswana
Senior School Teacher (September 1990 - December 1992)

Taught math and statistics courses at secondary school. A student advisee's project won first place in the Regional Math and Statistics Fair. Coordinated the Modern Dance Club. Organized walk-a-thon fundraiser.

University of Massachusetts, Department of Mathematics
Teaching Assistant (September 1987 - May 1990)

Instructed students in basic math and statistical skills.
Organized and conducted discussion sessions.

National Science Foundation, Worcester Polytechnic Institute
Research Assistant (Summer 1989)

Researched mathematics of Game Theory. Presented bimonthly oral and written reports.

Publications:

"The Budgeting Workbook" (forthcoming), Virginia Tech.
"Modelling Voluntary Clean-up of Hazardous Waste Sites" (1990), Undergraduate Honor's Thesis.
"Monotonicity of Values for Cooperative Games" (1989), Research Experience for Undergraduates, Worcester Polytechnic Institute.

Graduate Urban Affairs and Planning Association (August 1993 - May 1995):
Co-chair and student representative to faculty.
Coordinated a planners' "Practitioner's Panel" conference at Virginia Tech.
Compiled a Thesis Guide for Masters students in the Virginia Tech Urban Affairs and Planning program.

Quantitative Skills:
Advanced Quantitative Methods, Budgeting

Software:
Word Perfect, MS Word, Quatro Pro, SPSS, Atlas Geographic Information System, OrgPlus

Foreign Languages:
Spanish--intermediate speaking, reading, and writing ability
French--beginner speaking and writing ability, intermediate reading ability
Setswana--beginner speaking, reading, and writing ability

Honors:
AABPA Marykathryn Kubat Award; C. David Loeks Award; Virginia Planner's Association Award; Phi Beta Kappa; Mortar Board, Senior Honor Society; Massachusetts State Academic Scholarship; Magna Cum Laude, University of Massachusetts

Travel:
Extensive travel throughout Southern Africa, Central and Southeast Asia, Europe, and Cuba