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LABOR POLICY, EMPLOYMENT,  
FEMALE LABOR FORCE PARTICIPATION AND FERTILITY

BY

WARREN C. ROBINSON\*

Prepared under Contract No. AID/OTR-79-99 for PPC/PDPR-PDI  
of the Agency for International Development, May 1980

\* Professor of Economics and Director, Population Issues  
Research Center, The Pennsylvania State University

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LABOR POLICY, EMPLOYMENT,  
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Chapter I

Introduction

This report deals with female labor force participation, other female economic activities, fertility and the effect of various possible government labor policies. The report: (1) reviews systematically the literature on female labor force activity and fertility in relation to policies; (2) develops a new conceptual framework for comparing the findings and approaches of these studies; (3) uses this framework to arrive at some conclusions regarding the causal links among these variables and to make policy and program suggestions.

This material is broken down into four sections, exclusive of this introduction. Section Two discusses and reviews the definitional and conceptual problems involved in the notions of "labor force participation," "fertility" and also "labor policies." The most important point which emerges from this section is that any definition of labor force activity or economic activity by females is arbitrary. Slight changes in the definitions, even in the wording of the key question in a census or a survey, can double or cut in half the apparent female labor force participation rate. This is particularly true for rural women who are housewives but also work in farming for no wages. Fertility, it is shown, is affected by the marital status of the female and her view of appropriate marital relations, including the presence or absence of contraception. Labor policies presumably include any government policy which affects, intentionally or otherwise any aspect of the employment of females. This clearly covers a very wide range of possible policies.

Section three of the report presents what appear to be the four main conceptual approaches to an understanding of the relationships between fertility and female labor force activity. These are:

(a) The more-or-less traditional demographic (beyond family planning) approach which sets fertility as the dependent variable and uses economic activity in conjunction with many other variables to explain changes in or variations in fertility. This could also be called the female-economic-activity-as-a-barrier-to-fertility model. The conclusions which can be drawn from this literature are mixed and uncertain. The frequently repeated notion that higher female activity rates are inversely correlated with fertility is not always supported by the data and frequently, when it is the reasons for the association are not clear.

(b) The "labor supply" of females approach looks at fertility as one of many factors affecting the degree of female involvement in the wage labor market. Thus, female labor supply is the dependent variable and the approach can proceed within the familiar supply-demand-wage rate context. Human capital theory is a special version of this approach which suggests a particular set of reasons for the observed differences between male and female wage rates. Fertility and associated work interruptions are found to be a large part of this explanation. The structure of labor markets is, however, also part of the story since "segmented," non-competitive labor markets are more likely to lead to discrimination by employers against females based on their "tastes" or the prevailing social norms and prejudices.

(c) The household production and consumption model is best seen as another step beyond the more sophisticated of the labor supply approaches. This approach attempts to see female labor force participation and the fertility decision as part of a series of simultaneous household decisions which are part of a conscious utility-maximizing process. Thus, both are mutually determined by each other and a host of other variables and parameters, structural and otherwise. General as this theory is, it seems to ignore several important factors in real Third World situation, including the variety of family (household) structures possible and also the causes of the observable sex-specific occupational and task assignments within the household.

(d) The last of the four approaches centers around the socio-psychological questions of male-female "role" structure within the household, the historical roots of these roles, and how they appear to have changed over time. The roles which both men and women hold as correct for females can be shown to exert a powerful independent effect on both supply and demand for female labor, on the female shadow (household services) wage rate and on the relationship of fertility to female work patterns inside and outside the home.

In Section Four, we draw together the most useful elements of the several theories discussed in the last section. In the main, we continue to use a labor market demand-supply approach, which accepts also that the household production and consumption assumption of utility maximization is correct. However, the elements of non-economic socio-psychological "tastes," market discrimination, male power dominance and labor market imperfections play explicit roles in the hybrid

framework proposed. In particular, the link of many of these factors to the more purely economic models is shown to be through the shadow wage of the female, or the subjective return to her time when used in household production, including child-production and care.

Section Five discusses labor policy and proposes a typology for seeing how policies affect the female labor activity-fertility nexus. It also lists and discusses the specific policies implied by the framework proposed in the last section and shows how they would affect particular policy and program actions.

Finally, there is an extensive bibliography covering the several literatures on which this report has drawn.

It is perhaps worth repeating that this report does not attempt to summarize each and every study which has been done in the last decade touching on the fertility - female labor force activity connection. Several good summaries of this literature already exist and there is little to be gained from repeating them. Rather we have attempted to review the analytical approaches, the underlying paradigms and models, to see what separates them one from another, and to suggest a new hybrid approach which retains the rigor and statistical testability of an economic model, but which also adds the institutional and socio-psychological realism of some of the other approaches so as to make it more useful in the Third World context. Labor policy implementation remains the big question mark and this report has no easy answers to the special problems of policy implementation.

## Chapter II

### Definitional and Conceptual Problems

Human fertility creates problems for the macroeconomy and hence is on the agenda of policy. But, fertility is a micro process and must be analyzed, understood and dealt with at the household/family level. Thus, before turning to policy intervention, we must be sure we know which processes exactly, at the micro level, we are concerned with.

#### (A) Labor Force Participation and Related Concepts<sup>1/</sup>

The conventional approach to measuring the labor force is to define a socially-determined labor force age-span, typically beginning with lower age 15 (but sometimes 10) and ending with age 65 (but sometimes 70 or more). On the basis of a census or survey the current (or just past) economic activity of all persons in these age groups is determined. Thus, in the reference period, the labor force "eligibles" are employed, unemployed or economically inactive. "Economic activity" consists of "gainful employment," or any occupation from which a person receives compensation in money or in kind, or in which they assist in the production of marketable goods and services. Thus, economic activity takes place when income is produced, when production takes place, or both (as is typically the case with an employee of a market-oriented firm).

There is also inevitably a subjective or socially-defined "recognition" component to what is called economic activity, since some pursuits which do indeed generate income or a product which is sold for money are still

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<sup>1/</sup> Standard reference works on the measurement of economic activity and labor force included: Durand, 1948; Long, 1958, Bowen and Finnegan, 1969. Much of the discussion which follows draws upon: Robinson, 1969; Standing, 1973b; Durand, 1975. Other good recent surveys include: Dixon, 1975; Mason, 1975; McGreevy and Birdsall, 1974; Youssef, 1974.

not included - criminal activities, prostitution, gambling, the sale of illegal narcotics, and so on. The approach is, as Standing notes, "behavioral."

The labor force approach was initially adopted in the United States at a time when there was a widespread desire to generate data on the extent and incidence of unemployment in the slump conditions of the 1930's. For that purpose the previously accepted 'gainful worker' approach was found to be seriously deficient, essentially because censuses and sample surveys, which relied on the latter procedure only gave information on an individual's gainful occupation without referring to his or her current activity. As a result it was not possible to estimate the number of workers who were employed, unemployed, ill, retired or not able or willing to work for some other reason; moreover, all first-time job-seekers were effectively excluded from the labor force because by definition they had no gainful occupation. It was as an attempt to remedy these deficiencies that the labor force approach laid stress on current activity and in particular on whether an individual was employed, unemployed and seeking work or economically inactive.

By 1970, and in many countries long before 1970, the superiority of the labor force approach over previous methods had been generally accepted and was given what amounted to an international seal of approval when the ILO and the UN formally recommended its use in all population censuses carried out in or around 1970. (Standing, 1978b, pp.25-26)

There are some well-known problems with the "labor force" approach, particularly when the concept is applied to low-income, subsistence-

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agricultural areas. The distinction between work and leisure is hard to define narrowly. Similarly, the test of "marketable" of output is tricky. In such cultures many workers stay busy supplying family labor, exchange labor to other households for services rendered, or labor for social and religious reasons. The labor force definition frequently attempts to deal with this problem by including at least the economic activity connected with directly producing subsistence output for the household. But the omission from the definition of "economic activity" of precisely those tasks and those activities which are frequently female-oriented - cleaning, cooking, fetching wood, water and also care of other members of the family, is universal (including, of course, the U.S.). The choice of the 'reference period' is also arbitrary. When the period is short - a day or a week - seasonality creates difficulties of interpretation. Yet the longer the period the less useful (and current) are the resulting data on employment and unemployment or type of work. A minimum number of hours worked in the reference period is usually also required to be counted as "economically active" and this tends to militate against workers who make a shifting, intermittent or part-time contribution.

The active vs. inactive dichotomy also frequently precludes persons reporting more than one status. In general, surveys which report labor force participation only on the basis of a main activity tend to report lower female participation rates than do surveys which allow respondents to report a primary and a secondary activity. For example, the 1956 census of the Sudan reported a 10 percent female activity rate if only those reporting a gainful occupation as their primary activity are

counted. But if all females reporting a gainful occupation as either a primary or subsidiary activity are included the participation rate is nearly 40 percent.

In the case of many censuses and surveys it is a common "time-saving" practice to automatically classify females as active or inactive on the basis of such criteria as age, relationship to the household head or age of eldest male child.

The effect of many of these conceptual and also statistical problems has been to systematically under-estimate the real labor force participation rates of female. This tendency plus the exclusion of all non-market household activity is akin to the social definition (or "recognition") of what constitutes "economic activity." In effect, if women perform most of the given job or work in question, then that activity is not taken as seriously and tends to be under valued and under counted. (Boserup, 1970)

As Boulding notes: "Societies have generally been more eager to count fighters than producers;" and: "There is one major distorting device operating on all data collection involving women, above and beyond interpretation differences and collection facilities. This is a set of cultural assumptions about the secondary importance of anything women do; it produces underregistration of women from birth to death, and underenumeration of women in employment, independently of other forces that also create undercounting of women in general." (Boulding, 1977, pp.5-6)

This "behavioral" approach has been much criticized and various "normative" approaches proposed to replace it. These include: (1) labor

utilization indexes suggested by Myrdal, Lipton and others which adjust the labor force participation rate for duration of employment per worker, for relative productivity per worker and perhaps other factors. Such an "adjusted activity rate" is called a full labor utilization rate.

(2) Symptomatic approaches have been suggested by Hauser and others centering around those workers who would work more if it were available, who are working at jobs of lower skill than their training would permit and who productivity earnings are below some definition of "full utilization." Such workers are not fully employed, it is argued. (3) A Classical-Marxist definition of "socially useful" or "productive" labor could also be used. This would not include as economic activity, employment in the service industries or any other jobs which fail to meet the criteria of "usefulness" according to the underlying philosophical scheme.

It is not clear that any of these "normative" approaches to measuring the labor force could solve the problems of the behavioral approach without introducing more new ones in the process. In particular, it is not clear that any would measure female work activity more fully or more fairly than does the common labor force approach. (Standing, 1978b)

In any case, the labor force approach is the dominant statistical convention and what is usually available. While other approaches, based on adjusting conventional labor force data, are possible, most analyses of fertility in relation to labor force activity proceed without this step. (Our own judgment is that the real problem in understanding this relationship is not definitional or statistical but theoretical.) Let us now look at some of the data.

### The Pattern of Female Labor Force Participation

Table 1 shows the range of reported female labor force participation rates around the world. The range is considerable. The wide range shown is, to some extent, an indictment of the usefulness of the "labor force concept" or at least its cross-national application. Indeed column two of the table clearly shows the enormous difference which results from counting farmers wives as economically active or not so counting them. Turkey and Thailand count them whereas most Latin American and North African countries record them as "housewives." On the other hand, the non-agricultural labor force participation rates for females in the Latin American countries are comparable with those of Thailand and Turkey.

These rates, even admitting their underlying uncertain comparability, do group themselves regionally. In general the pattern is:

#### Female Activity Rates

<u>Region</u>	<u>Rural</u>	<u>Urban</u>
Arab Countries	Low	Low
Latin Countries	Low	High
Africa & India	High	Low
Southeast Asia	High	High

There are similar wide variations in the age-specific activity rate pattern of females cross-nationally. (Figure 1a and 1b)

That there is a "life-cycle" to the curve of female participation rates seems intuitively plausible and clear enough in the data. Yet it is very hard to find any "typical" life cycle pattern.

**TABLE 1**  
**Percent Participation by**  
**Women in the Labor Force, 1950 -1960**

	Agricultural labor force		Nonagricultural labor force		Total labor force	
	1950	1960	1950	1960	1950	1960
<b>Africa:</b>						
Algeria	1	1	8	7	3	3
Tunisia	1	1	14	12	8	8
Libya	1	1	13	8	4	5
Egypt	5	5	9	8	7	7
Mauritius	24	19	18	17	19	18
South Africa R.	8	12	27	28	10	23
<b>Asia:</b>						
Turkey	48	48	10	8	43	39
Israel	18	19	22	25	21	28
Iran	4	5	19	19	10	11
Pakistan	12	15	5	8	11	13
Sri Lanka	24	24	18	18	20	21
Thailand	50	51	38	37	48	48
Philippines	35	33	30	34	33	33
Taiwan	22	28	13	22	18	25
Rep. of Korea	35	28	28	23	33	28
Japan	48	51	29	33	38	38
<b>Latin America:</b>						
Guatemala	3	2	34	31	13	12
El Salvador	3	3	40	38	16	17
Honduras	3	4	42	41	18	18
Costa Rica	3	3	30	30	15	16
Panama	6	3	37	40	19	21
Dominican Rep.	2	2	27	28	10	10
Puerto Rico	2	2	38	31	23	24
Jamaica	22	18	51	50	36	37
Colombia	4	4	38	34	18	19
Ecuador	5	5	30	31	18	18
Venezuela	5	4	27	25	17	18
Brazil	8	10	27	28	18	17
Chile	6	4	31	30	23	22
Argentina	5	6	25	25	20	21
<b>North America:</b>	8	10	30	33	27	31
<b>Europe:</b>						
South Europe	25	27	25	24	25	25
West Europe	42	40	31	33	34	34
North Europe	18	15	32	33	30	32
East Europe	50	51	32	35	42	42
U.S.S.R.	59	62	45	44	52	52

Source: ILO, 1971, Tables 1 and 3.

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FIGURE 1 (a)

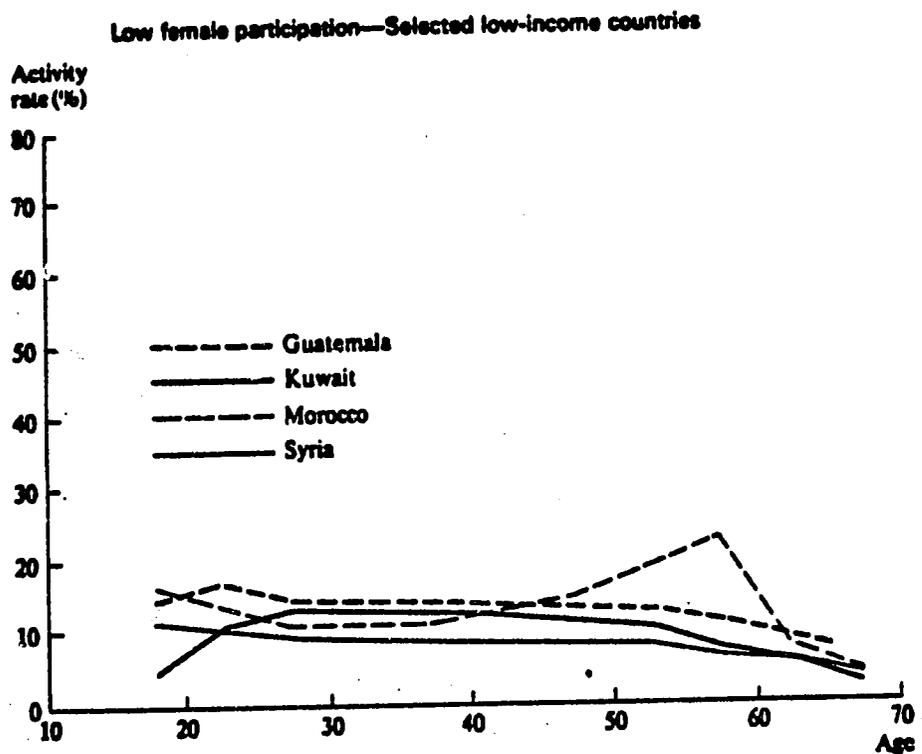
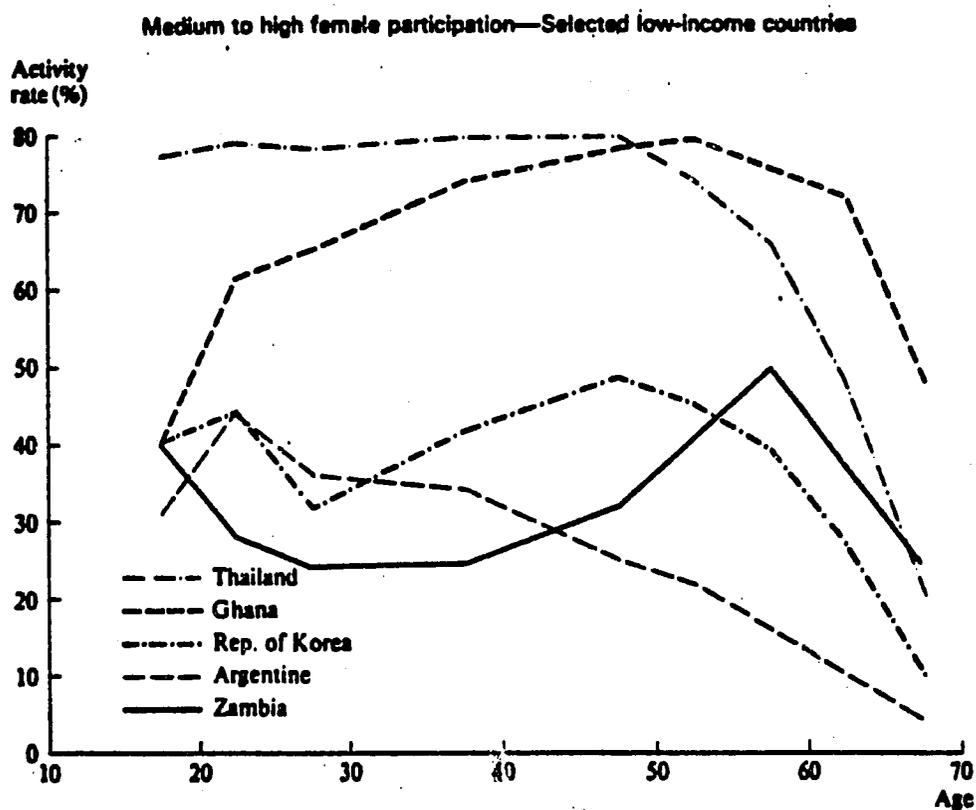


FIGURE 1 (b)



The peak in some countries is in ages 15 to 19, or even younger, while in other countries the highest rates are recorded in ages over 50 years. The age curves of female activity rates in many countries have two peaks separated by a trough of lower rates in the central age groups. The number of women in the labor force at the age of the peak rate may be much less than the number who enter at some time during their lives.

The ages under 20 are primarily labor-force entry ages for females as well as males; but in many countries, girls frequently drop out of the labor force before age 20 as they marry and begin having children while, on the other hand, a majority of female workers in many countries enter at later ages. For both sexes, likewise, the ages over 65 are primarily ages of retirement; but a majority of women workers in many countries retire much younger. In the cross-sectional averages, the activity rate of females in ages 60 to 64 is slightly more than half of the peak level in ages 20 to 24.

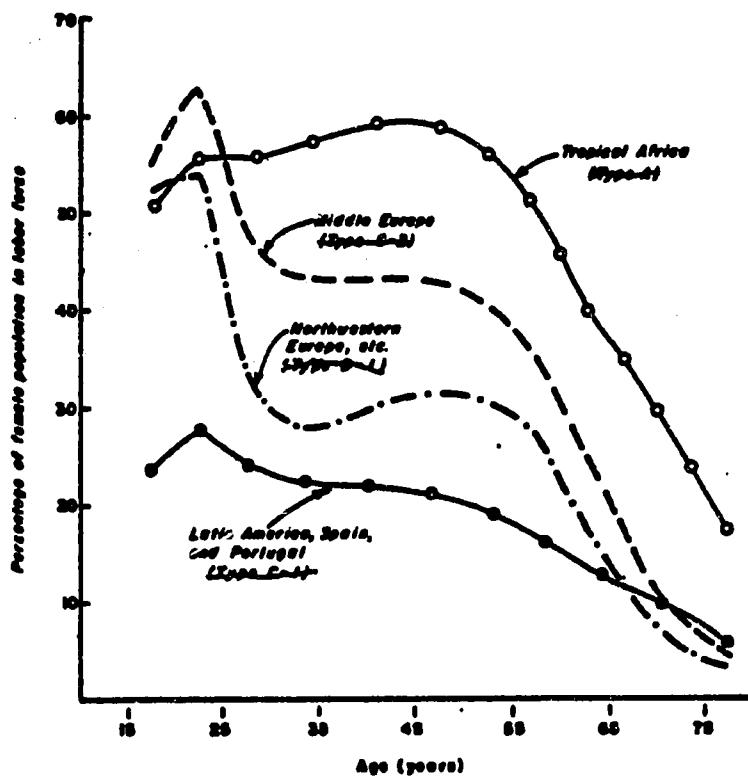
The life cycle of women's participation in the labor force is related, in different ways in different countries, to the life cycle of marriage and the family. In some societies, it is almost exclusively the single and exmarried women who work for income; marriage is the occasion for reentry. In other societies, women frequently continue working after marriage until they have children, and they may return to the labor force when the children are old enough no to need the mother's constant care; while in still other societies, motherhood is frequently combined with work for income. (Durand, 1975, p.37)

Still these age-specific rates also shown some regional patterns. Figure 2 shows the most meaningful of these. What is suggested by these patterns is that the factors discussed by Durand above have different effects on the different societies. This raises at least the possibility of some more general explanatory framework.

Durand has also analyzed this pattern of natural activity rate differentials by "Level of Development," using an index ... "composed

FIGURE 2

Mean age-specific activity rates of females in regional groups of countries



Source: Durand, 1975, p. 58.

of two indicators: energy consumption per head and the percent share of the nonagricultural sector in total employment or labor force.

(See: Durand, 1975, p.78) The result is shown in Table 2.

Sinha (1965) has argued that there is a U-shaped curve which the female activity rates move as a country develops, falling and then rising again. This hypothesis is based largely on data from the 1950 and 1960 census from a number of countries. However, this seems unproven and not likely. As Durand has shown, for the more mature developed countries no clear trend or typical pattern emerges. The long-term trend in female activity rates in the U.S. has been upwards; in Belgium downwards; in Sweden upwards; in Switzerland downwards; and in Great Britain nearly constant for over a hundred years.

On the whole, the picture of women's changing roles in income production is a mixed one. Women have been moving into the labor force in some countries and out in others. The mixture of increasing and decreasing trends in women's participation appears equally in the agricultural and nonagricultural, rural and urban sectors. Women in some countries show a growing disposition to combine motherhood with a career by joining or rejoining the labor force in later years of their married life when the children are older, but this trend was not very widespread around the world during the postwar periods referred to in the census statistics analyzed here. (Durand, 1975, p.42)

Indeed if one looks at the two major groups of nations - developing and industrial - it appears that there has been a more clear upwards shift in the participation rate curve for the latter in the recent past.

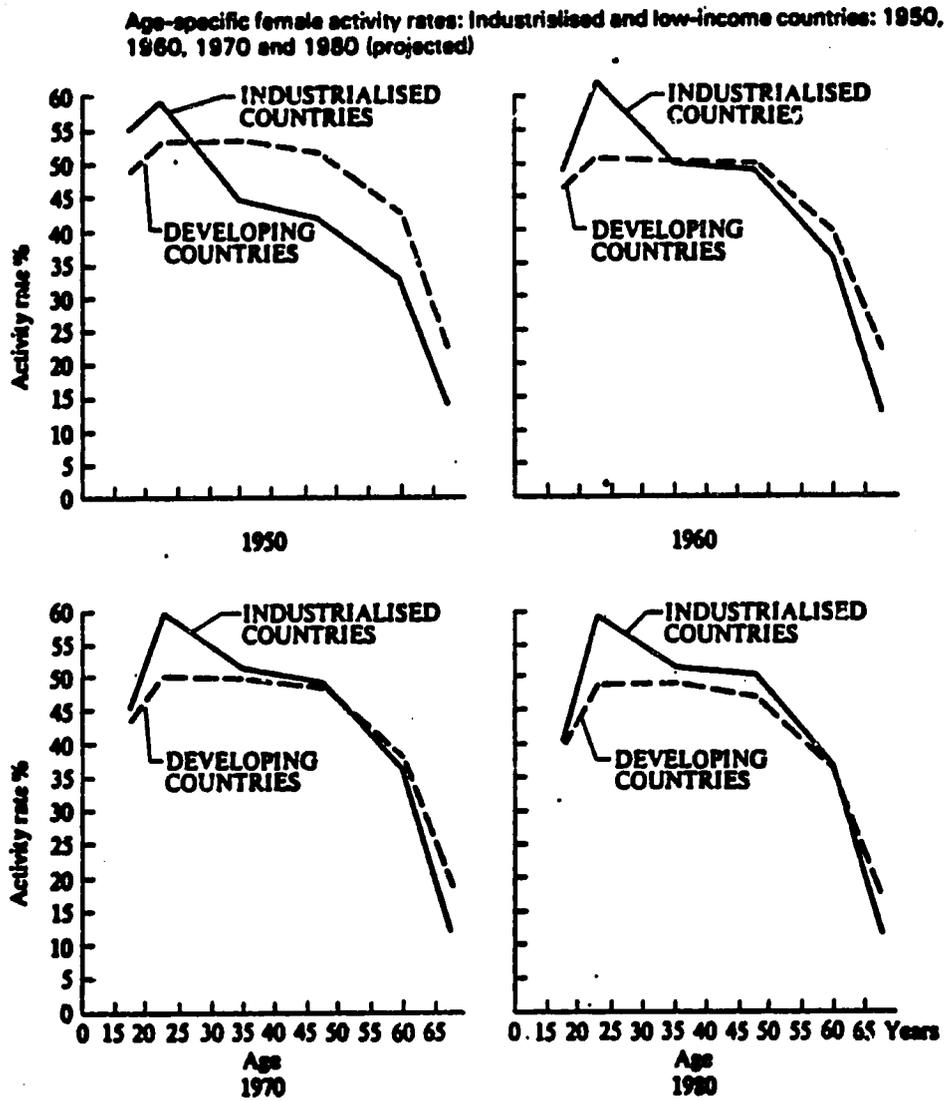
(Figure 3) In other words, the factors affecting the female activity rates in the developed countries have been more dynamic than the ones in the developing world.

**TABLE 2**  
**Levels of Female Age-Specific Activity**  
**Rates for Countries at Different Development Stages**

	Total	Level I	Level II	Level III	Level IV	Level V
	84	13	19	17	18	17
20-24 years	40.8	32.6	29.4	24.4	43.6	35.6
25-29 years	34.4	32.6	27.2	20.1	39.9	37.2
30-34 years	33.2	33.3	27.3	19.1	37.9	33.3
35-39 years	33.9	34.1	28.1	19.4	36.1	34.8
40-44 years	34.8	34.6	29.4	20.0	39.0	36.1
45-49 years	34.3	33.3	29.3	19.6	38.3	36.3
50-54 years	32.3	30.3	28.6	18.0	33.2	34.6
55-59 years	28.2	43.6	26.6	13.9	28.6	30.1
60-64 years	21.8	33.4	22.8	13.2	21.6	20.6
65-69 years	16.4	26.6	19.3	10.7	13.3	11.9
70-74 years	11.7	19.3	16.2	7.8	10.4	6.2
75 years and over	7.2	12.4	11.6	4.8	5.2	2.9

Source: Durand, 1975, p. 133.

FIGURE 3



Source: Standing, 1978b, p. 23.

Such changes as have occurred are partly real - a shift in female work patterns from non-labor force household subsistence tasks to "gainful employment;" and partly also spurious, arising from the shifting definitions applied to females in rural-agricultural households and also to the shifting weight of rural and urban population components. Given the present degree of uncertainty it is clearly not advisable to place too much reliance on the official labor force activity rates as indicative of real structural differences among nations or changes over time within any given country.

Yet the importance of these trends is such that numerous statistical studies have used such rates in regression analysis against fertility in conjunction with other independent variables. (We review these shortly.) Boserup has argued that the best, most accurate measure of change in real female activity rates can be obtained from the rates in nonagricultural sector since less definitional distortion is likely to arise here.

In closing this discussion of the definitional and conceptual problem of "female labor force activity rates" we must be clear about one important fact. Our measure is not really a measure of "work" but of a very narrowly defined part of "work," that part for which the female receives some money wages for working for some non-family member outside the household. The degree of labor force participation by females is, thus, a measure of the penetration of the money - wage economy into the household; a measure, as it were, of the monetization of female work, of the transformation of female economic activity from

that which was performed within the household to activity for money wages. In this sense, the female labor force participation rate takes on a greater meaning than perhaps one realizes. It is, in fact, a measure of the penetration of the domestic household economy by the force of the market. It is for this reason, that it may still be correct to assign a key role to this link, to the female labor participation rate, in triggering the host of other changes which follow from the penetration of the market economy, or the growth of "modernism," including declining fertility. But, this ultimate effect may be indirect and also lagged.

#### (B) Fertility

Fertility measures are also limited by the quality of the available data. Although it would seem that fertility is very clear-cut, (there was or was not a birth), it too is subject to variability in reporting. The most common aggregate measure of fertility used is the crude birth rate (CBR), that is the number of births occurring during a year's time per thousand persons in the mid-year total population. A more useful measure of fertility is the age-specific birth rate, which considers births to women in particular categories of age. When age specific data are not available, it is possible to compute a child-woman ratio (CWR) which is the ratio of the number of children in a population, usually age 5 and under, to the number of women in the population of childbearing age, usually ages 15 to 45 or 49. Considering the relationship between female labor force participation (FLFP) and fertility, age-specific rates would be preferred; when not available the CWR is a useful aggregate measure. When individual fertility is reported, as

in surveys, the measure usually used is children ever born to the individual mother (CEB), a cumulative measure of the age-specific rates. CEB rates are obviously associated with age of the mother which means some control for mother's age is necessary in interpreting work-fertility relationships using such data.

Fertility is, in the end, a biological process. It is not "caused" by social or economic or legal factors but by the fact of female fecundability, sexual union and the physiological conditions required to bring a conception to full term as a live birth. These elements are the direct causes of fertility. The socioeconomic factors commonly described as "causes" of fertility - education, income, urbanization and female labor force participation - all work through these factors. Table 3 presents the well-known but still useful schemata developed by Blake and Davis for seeing these relationships. More recently still (Bongaarts, 1976) has adopted this framework and produced empirical estimates of these linkages.

The point is that in postulating a female labor force participation - employment-fertility link, one must begin by stating a theory or at least an hypothesis regarding exactly which of the proximate or direct causes of fertility also affected by the work patterns of women and hence affect fertility. Many of the early empirical efforts to link fertility and female work patterns (and vice versa) failed to do this explicitly. Thus, the result was a confused and contradictory set of findings which proved nothing. Newer attempts to study these relationships have done so within the framework of an explicitly economic utility-

**TABLE .3**  
**Davis-Blake Intermediate**  
**Variables in Fertility-Social Structure**

- I. Factors Affecting Exposure to Intercourse ("Intercourse Variables").**
- A. Those governing the formation and dissolution of unions in the reproductive period.**
1. Age of entry into sexual unions.
  2. Permanent celibacy: proportion of women' never entering sexual unions.
  3. Amount of reproductive period spent after or between unions.
    - a. When unions are broken by divorce, separation, or desertion.
    - b. When unions are broken by death of husband.
- B. Those governing the exposure to intercourse within unions.**
4. Voluntary abstinence.
  5. Involuntary abstinence (from impotence, illness, unavoidable but temporary separations).
  6. Coital frequency (excluding periods of abstinence).
- II. Factors Affecting Exposure to Conception ("Conception Variables").**
7. Fecundity or infecundity, as affected by involuntary causes.
  8. Use or non-use of contraception.
    - a. By mechanical and chemical means.
    - b. By other means.
  9. Fecundity or infecundity, as affected by voluntary causes (sterilization, subincision, medical treatment, etc.).
- III. Factors Affecting Gestation and Successful Parturition ("Gestation Variables").**
10. Foetal mortality from involuntary causes.
  11. Foetal mortality from voluntary causes.
- 

Source: Davis and Blake, 1956, p. 212.

maximizing or an explicitly sociological-psychological model. These relationships are more difficult to construct and to test but yield far more consistent scientific results. This, indeed, is the only reason for undertaking such models.

(C) Policy Variables

A policy is a set of actions aimed at achieving a certain goal or target or at providing a routine way of dealing with some recurrent decision. Policies by the public sector involve the use of government incentives, sanctions and laws as well as the direct provision of services, transfer income or goods. These policies can be aimed at simply supporting and hastening outcomes which would be likely to follow in the private sector even without the public policy. Or public policy may attempt deliberately to modify the pre-policy outcome in some deliberate way. For example a family planning policy (or program) can aim at providing all current contraceptors with more effective, convenient means thus eliminating "unwanted" fertility. A family planning program can also undertake to educate couples to the benefit of family planning and bring about a reduction in the "desired" family size. At the extreme it can even impose severe sanctions on couple exceeding a certain target family size.

Government policies have another interesting property which is often troublesome. In addition to their intended or planned effects they are likely to have second-order, unintended effects as well. These effects may partially offset the desirable direct achievements. To return to the family planning example, if fertility falls, labor

shortages may ultimately develop in some industries leading to increases in labor costs and a tendency to mechanize or substitute capital for labor, with unintended effects on employment.

Labor policies are rarely undertaken with an explicit fertility goal in mind. They usually are aimed instead at controlling somehow the terms, rate of pay, and conditions of work for some group of workers. Adding a new policy objective - effecting fertility - to the existing more particularized objectives may create contradictions and a policy dilemma. We will turn to these questions in a later section when we deal with labor policies as such.

(D) Summary

There are conceptual and definitional ambiguities connected with all three of our major variables - female labor force participation, fertility, and policy. It is therefore essential to keep clearly in mind the definitions we decide to use, the precise links specified and the procedures to be used in testing the postulated relationship.

## Chapter III

### Review of the Existing Studies

There are a multitude of studies dealing with the variables in which we are also interested: fertility, female economic activity and labor market policies. It will be useful to break down this vast literature into four categories: First, there are the more traditional demographically-oriented studies which attempt to "explain" fertility differences within a population or among population in terms of differences in patterns of female labor force participation and economic activity. Second, there are labor force studies which look at fertility as one of several independent variables affecting female labor supply. Third, there are more sociological-psychologically-oriented studies couched in terms of male-female family power structure and roles, with fertility and work patterns being outcomes of a dominant sex-role power structure. Fourth, there is the rapidly growing literature on the "new home economics" which sees both the supply of female labor to the market for wages and fertility as simply one part of a rational utility-maximizing micro-economic game plan by households.

These four approaches overlap and many given studies actually attempt a mixed approach. But there is a fairly clear cut difference in emphasis and procedure between the first two - the demographic and traditional labor supply - and the other two, the socio-psychological and the economic. Let us now examine each of these in some detail.

## (1) Fertility as the Dependent Variable: The Demographic Approach

### (A) Background

The traditional demographic perspective treats fertility as the dependent variable, affected by female economic activity and employment. The question then becomes how does labour force involvement and employment of females affect the number and spacing of children. This approach views labour force participation and employment as being somehow (and sometimes) inconsistent with child-bearing and child-rearing. The policy implications here for population control have also been suggested. If one is interested in reducing fertility, it is possible that policies affecting female employment can be formulated and implemented more quickly and effectively than policies directed at influencing the attitudes and values of individuals (Berelson, 1969). This line of thinking undoubtedly explains the great interest in female employment which has been displayed by those interested in fertility reduction.<sup>1</sup> Although one can consider the relationship between FLFP and fertility from this perspective, in reality it is a dynamic interactive relationship which is much more complex than such a simple formulation. This becomes clear when one attempts any explanatory framework for observed associations.

### (B) The Data

There have been several recent surveys of this mainly demographic literature and little will be gained by repeating these results. Table 4, taken from Standing (1978b) summarizes this

<sup>1</sup>The best standard sources are: Dixon, 1978; Davis and Blake, 1956; Fong, 1976; Freedman, 1975; Kasarda, 1971; Ridker and Nordberg, 1976.

**TABLE 4**  
**Studies of Labor Force Participation**  
**As a Determinant of Fertility**

Country, area	Date	Fertility variable	Work variable	Observed relationship <sup>a</sup>	Authors
1. Puerto Rico	1950, 1960	Crude birth rate <sup>b</sup>	Participation rate of women 14+ <sup>b</sup>	Negative	Nerlove/Schultz (1970)
2. Puerto Rico	1950	Number of children ever born.	Not in labour force (a) Home needlework (b) Work outside home in non-agriculture (c)	(a) (b): None (a) (c): Neg. (b) (c): Neg.	Jaffe (1959) Jaffe/Azumi (1960)
3. Latin America	1959-1964	Average number of live births in area.	Non-domestic work, domestic work, economic inactivity	None	Miro/Mertens (1968)
(a) Rural-small urban (b) Large urban			Participation rate	Negative	
4. Peru, rural	1940	Average number of children ever born to women aged 15-49.	Percentage of women aged 15-44 in non-familial paid labour force.	Negative	Heer (1964)
5. Bolivia	1950	Ratio of children under 5 to women aged 15-49.	Female participation rate (10+)	Negative	Heer (1964)
6. Ecuador	1950	- ditto -	Female participation rate (15-44)	None	Heer (1964)
7. Colombia	1970	Number of children ever born.	Activity status	Negative	Angulo/Rodriguez (1975)
8. Mexico	1960-1970	Ratio of children aged 0-4 to women aged 15-49 in area.	Participation rate of women aged 20-24.	None	Seiver (1975)
9. Latin American countries (n = 18)	c.1940-1953	Ratio of children aged 0-4 to women aged 15-49 in country.	Female participation rate (15+)	Negative	Heer/Turner (1965)
10. Brazil	1950	Ratio of children aged 0-4 to women aged 15-19 in country.	Participation rate (15-64)	Negative	Collver (1968)
11. Brazil	1963-1965	Average number of living children per mother.	"Work status scores" determined by type of work experience.	Negative	Rosen/Simmons (1971)

TABLE 4  
(Continued)

Country, area	Date	Fertility variable	Work variable	Observed relationship	Authors
12. Mexico	1960-1970	Number of children born alive among women by age group.	Labour force participation	(Negative)	Uthoff/Gonzalez (1976)
13. Costa Rica				(Negative)	
14. Panama City Río de Janciro San José	1963-1964	Average number of live births.	<i>Relative to "non-working"</i> Worked at home. Worked outside home.	Negative Negative	Miro/Rath (1965)
15. Chile	1965	Number of children less than 6 years old in household.*	Number of hours worked per week by wife in labour force.*	None	Peek (1976)
16. Italy (a) Rural  (b) Urban	1969	Age-standardised fertility rate.  - ditto -	<i>Relative to house-wives</i> Non-agricultural, non-domestic work. Non-agricultural, domestic work. Agricultural work Non-agricultural, non-domestic. Non-agricultural, domestic.	Negative Positive Positive Negative Negative	Stycos/Weller (1967)
17. Turkey	1963	Age-standardised cumulative live births (mean), mean live births per 100 years of marriage.	Employed for pay or goods in past year.	Negative	Pineñi (1971)
18. Algeria, urban	1970	Number of children born.	Activity status	Negative	Vallin (1973)
19. West Malaysia (a) Urban (b) Rural	1966-1967	Number of live births.  - ditto -	Work experience after marriage.  - ditto -	Negative Positive	Concepción (1974)
20. Philippines (a) Rural (b) Urban	1968	Children ever born per 1,000 ever married women.	Activity status	None Negative	Pascual (1971)

TABLE 4  
(Continued)

Table 28. (continued)

Country, area	Date	Fertility variable	Work variable	Observed relationship	Authors
21. Philippines	1968	Number of live births for ever married women by age group. <sup>a</sup>	Labour force participation of ever married women by age group. <sup>a</sup>	Age 20-24 (Neg) 25-29 (Pos) 30-34 None 35-39 None 40-44 None 45+ None	Harman (1970)
22. Philippines	1968	Birth in 1967.	Activity status in 1968.	15-19 None 20-24 None 25-29 (Neg) 30-34 None 35-39 (Neg) 40-44 (Neg) 45-49 None	Hopkins, Rodgers and Wéry (1976)
23. Bangladesh	1961	Ratio of children aged 0-4 to women 15-49 in area.	<i>Relative to housewives:</i> Proportion of women in non-agricultural activities. Proportion as cultivators, etc. Proportion in domestic work.	Positive Negative Positive	Chaudhry (1974)
24. Thailand (a) All (b) Rural (c) Small-urban (d) Bangkok	1960	Children born per ever married woman.	Labour force participation rate	Positive Positive Negative Negative	Goldstein (1972)
25. Thailand	1960	Average number of children born alive per woman in age group. <sup>a</sup>	Non-agricultural labour force participation rate by age group. <sup>a</sup>	Negative	Maurer et al. (1973)
26. Thailand, rural	1969-1970	Number of children ever born for ever married women.	Work experience before or after marriage; for wages, other work.	Negative	Rodgers (1976)
27. Pakistan (a) Rural  (b) Urban	1968-1969	Desire for more children.	<i>Relative to never worked</i> (a) Ever worked (b) Currently working (a) Ever worked (b) Currently working	None	Shah (1975)

TABLE 4  
(Continued)

Country, area	Date	Fertility variable	Work variable	Observed relationship	Authors
28. Japan, urban	1955	Ratio of children aged 0-4 to women aged 15-49.	Female participation rate (15-64).	Negative	Jaffe/Azumi (1960)
29. Japan	1950	Average number of children ever born per married woman.	<i>Relative to not in labour force:</i> (a) Agricultural work (b) Non-agricultural work	Positive Negative	Jaffe/Azumi (1960)
(a) Rural			(a) Agricultural work (b) Non-agricultural work	Positive Negative	
(b) Urban (small cities)			(a) (b)	Positive Negative	
(c) Large cities			Non-agricultural	Negative	
30. Taiwan	1971	Desired number of children, desired number of sons, children born.	Experience of work away from home. <sup>2</sup>	None	Speare et al. (1973)
31. India, urban	1951	Ratio of children aged 0-4 to women aged 16-49.	Participation rate (aged 15-64).	Negative	Collver (1968)
32. (a) India, Poona	1952	Number of births	Activity status	None	cited Gendell (1965)
(b) India, rural	1954	- ditto -	Occupation	None	- ditto -
(c) India, urban	1954	- ditto -	Occupation	None	- ditto -
(d) India, Mysore	1954	- ditto -	Gainful employment	Negative	Driver (1963)
(e) India, Central (Nagpur district)	1962	- ditto -	Wage employment	Positive	
33. Egypt	1960	Child-woman ratio in area (children aged 0-5/women aged 15-45).	Proportion of women economically active.	Positive Negative	Bindary et al. (1973)
(a) Rural				Positive	
(b) Urban				Negative	

Source: *Statistical Abstracts for India, 1970*, pp. 192-198.

literature. In the 33 empirical studies reported, 18 show a clear cut negative relationship, 7 show no particular relationship, while the others are mixed (positive in some age-groups or subdivisions and negative in others) or uncertain.

Several studies have focussed on the cross-national patterns to be found in the relationship between FLFP and fertility. Kasarda (1971) used aggregated census data from 50 countries to pursue this goal, hypothesizing that there would be a cross-national pattern of: (1) an inverse relationship between FLFP outside the home and fertility; and (2) a direct relationship between unpaid family work and fertility. The first hypothesis was supported by Kasarda's analysis, while the latter was not. His model, suggesting that urbanization, industrialization and education are the exogenous variables which must operate through other variables such as FLFP in determining fertility, has influenced many subsequent conceptualizations of the relationship between employment and fertility.

Hartman (1977) applied a multivariate analysis of contingencies to ecological data from 98 countries to establish factors associated with labour force participation. He established 7 groups or clusters of countries classified by two factors, general activity of the country and feminity of labour force participation of the country. Countries having similar fertility rates were found to vary greatly in regard to FLFP.

Anker (1978) did an econometric study of 69 developing countries using data collected in the period 1967-1970 to test a household

decision-making model of fertility. The study did confirm that early in economic development there is a decrease in FLFP (not controlling for percent in non-agricultural occupations) and also concluded that later in development, "fertility becomes fairly sensitive to socio-economic conditions" (p.68). Anker's analysis is useful but his interpretation of the results as a confirmation of the generalizability of his household model of fertility determination is open to criticism on the grounds that he has taken a micro-model, used aggregate data in the model, and concluded that he has verified a model predicting individual behavior.

Heer and Turner (1965) analyzed areal differences in the Child to Woman Ratio (CWR) associated with variations in the proportion of females in the labour force among 18 Latin American countries. They found an inverse relationship between labour force participation and fertility, but were not able to control for marital status, thus reducing the meaningfulness of the results.

Several studies have examined the fertility-education-labour force links (Goldstein, 1972; DaVanzo, 1972; Elizaga, 1974; Carleton, 1965; Davidson, 1977; Speare et al., 1973; Nerlove and Schulz, 1970) and concluded that formal education has a significant contribution to make in lowering fertility. Other research suggests that informal education can have a similar effect. Zarate's (1967) finding that lower fertility existed among wives having pre-marital work experience is consistent, as is Debavalya's (1977) analysis of the dominant influence of past work experience on current fertility.

Most work concerned with analyzing the FLFP-fertility relationship has used an essentially static model. That is, some measure of current fertility is used along with a measure of current or cumulative work experience. Terry (1975) and Fong (1976) have pointed out the importance of considering the family life cycle stage of work and of fertility in studying the relationship. On the other hand, if one conceives of sufficient long-range planning within the household, this does not matter. Nerlove and Schultz (1970) reported the presence of young children inhibited employment, concluding, "Current family composition and participation are largely simultaneously and jointly determined in an earlier planning period." (p. 5).

Terry (1975) found different variables useful in explaining the FLFP fertility relationship at different stages in the family life cycle. The stages she found useful were: (1) establishment or pre-childbearing; (2) childbearing; and (3) post-childbearing.

Rosenzweig (1976), using national survey data from the Philippines, presents a sequential choice framework for looking at the work-fertility relationship. He treats current work status, past work experience, parity and birth expectations in a sequential choice analysis, finding that parity and work experience influence current labour force participation and, to a lesser extent, birth expectations. Regression analysis showed that women working more in the labour force at every stage, but expect fewer children only in the later stages of childbearing.

### (C) The Results

Overall, it is difficult to form a very definite opinion regarding the effect of female labor force activity on fertility in the developing world, when such closely related factors as type of work, education, location of residence and family structure are taken into account. Perhaps there is a mildly bimodal pattern, with high activity rates positively related in rural, agricultural areas where fertility is also high: and low fertility being negatively associated with high activity rates in urban industrial areas and nations. But, the links in terms of which intermediate variables (using the Blake-Davis framework) are not clear. Given the number of possible variables and relationship there is, indeed, no strong theoretical reason for expecting only one causal link.

Interestingly enough, the evidence for developed countries is also mixed. Standing after reviewing the evidence for the industrialized countries concluded that:

In sum, although there remains some doubt about the causal explanation of the research findings, it seems that duration of employment after leaving school and after marriage are associated with lower desired and actual family size, and with greater planning of fertility. As a corollary working women have tended to report a lower ideal family size. Women working in full-time jobs have tended to have lower fertility than part-time workers, and women whose mothers had themselves been usually in employment have tended to adopt work-related values coupled with lower levels of fertility. (Standing, 1978b, p.174)

Some of these works have, in fact, suggested theoretical relationships and frameworks for interpreting their results (Stycos and Weller, 1967; Weller, 1968a). Concepts such as "opportunity cost" and female "roles" have been used. But, by and

large, a single-equation approach which solves for fertility is not adequate to the task of getting at the real relationship between fertility and female economic activity. Indeed, this inadequacy explains why, in fact, the literature has developed in other directions.

## (2) Models of Labor Force Supply and Fertility

### (A) Background

The second approach to the relationship between fertility and female economic activity is one which sets labor force participation as the dependent variable and then attempts to estimate the strength and direction of the effect of fertility or family size on female participation or labor supply. As might be suspected, this approach has been followed for the most part by labor market-oriented economists. The approach has been more clearly "economic" but not always more theoretical than the demographic studies of labor force participation as an independent variable affecting fertility the dependent variable. The main emphasis on much of the best of this literature has been on the developed nations since it has been here where the female labor supply has shown the greatest recent changes.<sup>1</sup> A literature has also grown up, however, focussed on the less developed areas. Table 5, taken from Standing (1978b), summarizes the results of these studies. The relationship here too is relatively ambiguous. Fertility appears to be capable of either encouraging or depressing female labor force activity and supply.

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<sup>1</sup>The standard works here are: Mincer, 1962; Cain, 1966; Oppenheimer, 1970; Kupinsky, 1977; Sweet, 1973; Keeley, 1977.

**TABLE 5**  
**Studies of Fertility as a**  
**Determinant of Female Labor Force Activity**

Country, area	Date	Fertility variable	Work variable	Observed relationship <sup>1</sup>	Authors
1. Puerto Rico	1950-1960	Children under 5 per woman 15-49*	Female participation rate (14+)*	Negative	Nerlove/Schultz (1970)
2. Thailand	1960	Average number of children born alive per woman in age group*	Non-agricultural labour force participation rate by age group*	Age 15-19 (Neg) 20-24 (Neg) 25-29 (Neg) 30-34 (Neg) 35-39 (Neg) 40-49 (Neg) 15-49 (Neg)	Maurer et al. (1973)
3. Philippines	1968	Inverse of the number of years (plus one) since last birth for married women.	Activity status	Negative: 20-24, 25-29 30-34, 35-39. None: 35-39, 45-49 Positive: 55+	Hopkins, Rodgers, Wéry (1976)
(a) Rural					
(b) Urban	1968	- ditto -	Activity status	Negative: 20-24, 25-29, 35-39, 45-49; None: 30-34, 40-44, 50-54; Positive: 55+	
4. Philippines	1968	Number of surviving children*	Activity status*	Age 20-24 None 25-29 None 30-34 Pos 35-39 None 40-44 None 45+ None	Harman (1970)
5. Argentina	1960	Number of children born alive by age group (all women)	Female labour force participation rate	Negative	Elizaga (1974)
6. Brazil	1960	Number of children born alive by age group (all women)	Female labour force participation rate	Negative	Elizaga (1974)
7. Chile	1960	Number of children born alive by age group (all women)	Female labour force participation rate	Negative	Elizaga (1974)
8. Chile	1960	Number of children born alive by age group (married women)	Female labour force Participation rate	Negative	Elizaga (1974)

TABLE 5  
(Continued)

Country, area	Year	Fertility variable	Work variable	(Observed relationship)	Authors
9. Chile, Santiago	1970	Number of children born alive by age group (married women)	Female labour force participation rate	Negative	Elizaga (1974)
10. Chile	1965	Presence of young child (a) Age of youngest child (b) (a) (b) Presence of young child under age of 5. Age of youngest child	Activity status of married women Hours worked by married women "Modern" labour force participation (i.e. probability of participation, given household head is in modern labour force).	None None None None Negative Negative	Peck (1975)
11. Chile	1965	Number of children less than 6 years old. <sup>a</sup>	Number of hours worked per week by wife. <sup>a</sup>	None	Peck (1976)
12. Chile, urban	1970	Number of children	Participation rate	Negative	Pecht (1976)
13. Costa Rica, urban	1970	Number of children	Participation rate	Negative	Pecht (1976)
14. Venezuela, urban	1970	Number of children	Participation rate	Negative	Pecht (1976)
15. Colombia	1970	Number of children under age of 5.	Hours worked by woman per week.	None	Angulo/Rodriguez (1975)
16. Sudan, Khartoum	1974	Number of children in household <sup>2</sup>	Activity status of married women.	Negative	Sheehan, Standing (1976)
17. Yugoslavia	1971	Number of children born alive.	Participation rate by age group.	Negative	Rasević (1975)
18. Sri Lanka (a) Rural (b) Urban	1973	Household size	Activity status	Negative Positive	Sheehan, Standing (1976)
19. Papua New Guinea	1971	Age and number of children.	Activity status	Negative	Sheehan (1975)
20. Singapore	1973	Number of children, and number below 5 years old.	Activity status	Negative	Pang (1974)

TABLE 5  
(Continued)

Country, area	Date	Fertility variable	Work variable	Observed relationship	Authors
21. Ghana	1970	Ratio of children aged 0-4 to women aged 15-44.	Activity rate	None	de Graft - Johnson (1974)
22. Egypt (a) Rural (b) Urban	1960	Child-woman ratio in area (children 0-5 years/women aged 15-45).	Proportion of women economically active.	Positive Negative	Bindary et al. (1973)
23. Thailand, rural	1969-1970	Presence of child under the age of 5.	Working for pay, or working for pay or engaged in domestic industry in household.	Positive	Standing (1976)
24. Chile	1960	Number of children ever born per 1 000 women of specified age group.*	Per cent of women economically active by age group.*	15-19 Neg. 20-24 Neg. 25-29 Neg. 30-34 Neg. 35-39 Neg. 40-44 Neg. 45-49 Neg. 12+ Neg.	DaVanzo (1972)
25. Kenya (a) Rural  (b) Urban	1974	Number of live births  Presence of child under 2	Proportion of married life in labour force Participation in past year	None  None	Anker/ Knowles (1977)
26. Jamaica, Kingston	1974	Presence of child under 2, number of children	Activity status and measures of labour supply	Negative <sup>1</sup>	Standing (1977)

Source: Standing, 1978b, pp. 200 - 205.

(B) The Data

Peek (1974), in analyzing survey data from 4,000 families in central Chile, found support for his hypotheses that in the traditional sector of the economy FLFP would not be adversely affected by young children while in the non-traditional sector FLFP would be depressed by the presence of young children unless adults other than the mother were available for child care. Nerlove and Schultz (1970), using Puerto Rican census data, concluded that the presence of young children was a deterrent to employment.

Gendell et al. (1970) found that part of the inverse relationship between FLFP and fertility demonstrated by women in Guatemala City was explained by the inclusion of never married and childless women in the work force. In fact, for one type of employment, the live-in domestic, the preference among employers was for childless women.

Collver and Langlois (1962), looking at aggregated metropolitan areas in 38 countries, concluded that: "Women's participation in the labor force is patterned by both the organization of the economy and the prevailing family system." (p. 371). One pattern of FLFP which they described is typified by some of the Caribbean countries; because of an unstable family system, large proportions of mothers seek employment at some time. Standing (1978a) points out that in Jamaica, women, as opposed to men, are often preferred by employers because of their greater reliability, presumably emanating from their family responsibilities.

The compatibility of many types of "work" with maternity has been abundantly established. Still viewing fertility as the independent variable (affecting FLFP), the key in the compatibility

(or lack of it) with work may reduce to whether child care can occur simultaneously with work. The presence of children affects FLFP differentially depending on the type, location and content of the "work". The need for the female to perform child care at all can be altered through availability of other adults or older children who can perform this child care function, further increasing the range of possible outcomes.

Standing (1978b) draws attention to a further possible effect of high fertility on FLFP at an aggregate level. In the less-developed context, a large supply of child labour can depress the demand for adult female labour. The relationship between the extent of economic dependency--that is, the proportion of the population too young or old to be considered as part of the work force--and FLFP was the subject of research by Bilsborrow (1977). Using ILO and UN data, Bilsborrow found that FLFP was inversely associated with dependency ratios across countries. He suggests that the youth labour force may be substituting for the female labour force in countries with high dependency ratios. Thus, fertility decline could enhance economic development by reducing a second category of dependents composed of women not currently in the work force because of maternal responsibilities.

### (C) The Results

In summary, the available literature suggests a relatively complex relationship between fertility and labour force participation by females. When "work" occurs within the home, fertility probably

exerts no negative effect. When work outside the home is still familial in orientation--subsistence agricultural, family-owned retail enterprises, petty services, or group-based menial labour--fertility again is not inconsistent with female labour force activity. Similarly, when alternative sources of child care are readily available within the household, from other adults or older siblings, even non-familial based activities outside the household are not interfered with by fertility. In the case of all the above types of employment, high fertility may well lead to higher labour force participation due to greater economic pressures on the family. This will be accentuated where many households lack a primary male wage-earner due to weak family obligation-ties, high male mortality, or other factors. Finally, if females and children compete in the same labour market, high fertility does produce a tighter labour market for females and discourages their employment. On balance then, fertility has no a priori effect on female labour force participation and may be either positive or negative.

#### (D) Theory of Labor Supply

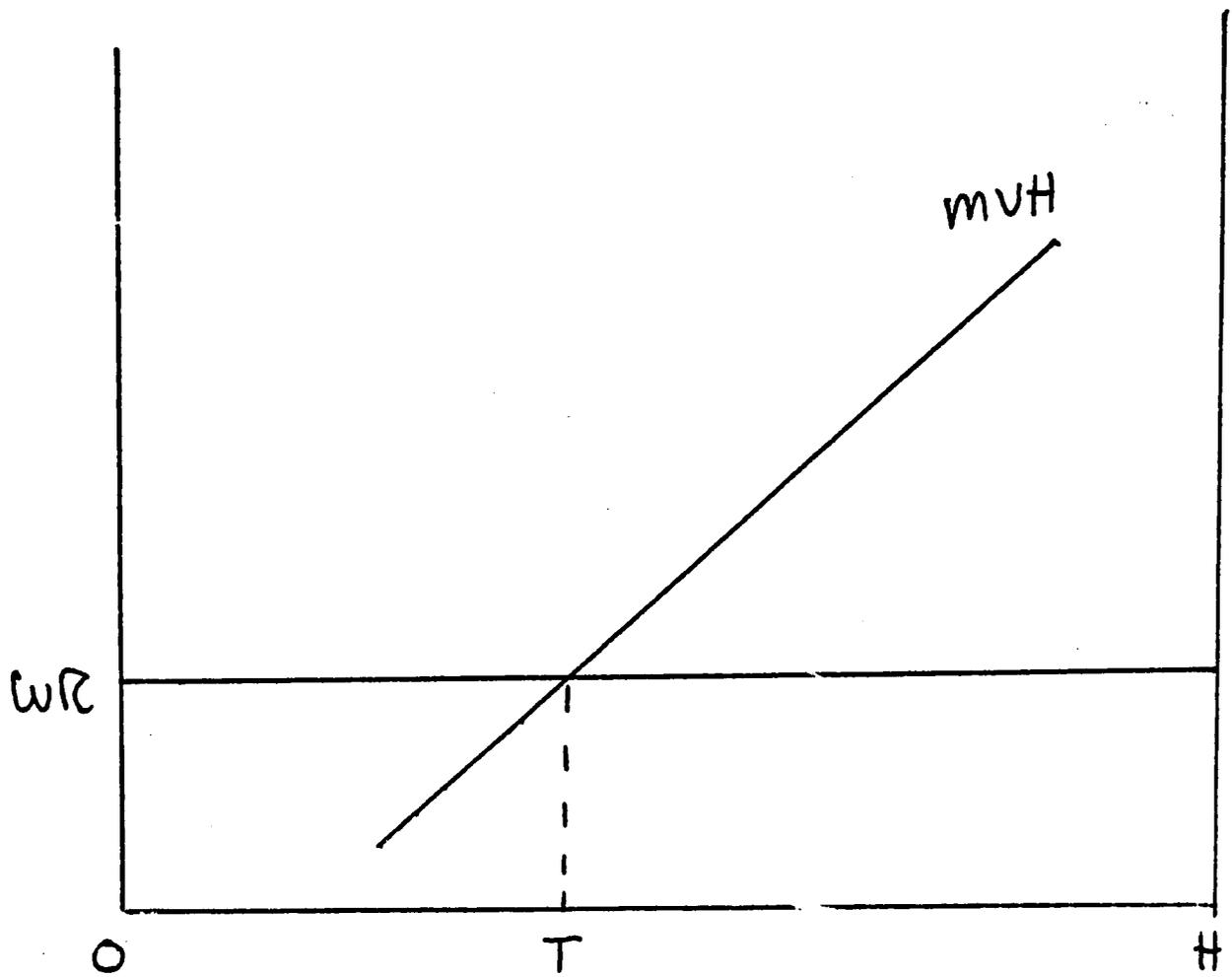
Thus far this approach also appears totally atheoretical, much as we described the demographic fertility-oriented framework (approach one) above. Yet, in fact, there is a substantial body of theory underlying the labor supply literature, and some does have bearing on our question.

What may be called neoclassical labour market theory is based on the marginal productivity theory of demand for labour, under

which profit maximizing firms hire labour up to a point such that the wage rate equals the marginal (or incremental) revenue received from the sale of the output from the marginal labour unit. If marginal revenue per worker exceeds the wage rate, then more labour will be hired since profits can still be increased. Demand for labour then is determined by the factors governing the marginal productivity of labour.

The supply of labour from any given household, on the other hand, is governed by the wage rate in comparison to the potential "return", however measured, from using one's labor in some other way. The income from work is more attractive than leisure for someone with much leisure and little income. But the same person, at a later stage with much income and little leisure will need a much higher wage rate to supply any more labor to the market. This, in essence, explains why the supply curve of labor (for an individual or a group) rises with respect to the wage rate but probably bends "backwards" after a certain point. The same notion can be shown in a more general way in Figure 4. The available market wage rate is shown on the left hand axis, the value wage rate is shown on the left hand axis, the value of leisure (or other non-labor market uses of time) is shown on the right hand axis. The horizontal distance  $OH$  equals total time available for discretionary use. The solution is that  $MVH$  (or marginal value of household uses) must equal the market wage  $WR$ .  $OT$  time is sold in the market, and  $HT$  allocated to home uses. Raising the wage rate would move us up  $MVH$  reducing  $HT$  and increasing  $OT$ .

FIGURE 4  
The Allocation of Time Between  
Household Use and the Labor Market



Even though the wage rate is assumed to be market-determined, it is clear that a person can affect their own prospective earnings from the sale of their labor services by adding to their human capital. That is, one's current mix of skill, training and experience determines in which labor market one is to compete and which wage rate is relevant. Perhaps all laborers receive the same wage and so do all plumbers. But, one can deliberately attempt to learn plumbing in order to enter that higher wage rate market. (This would be called "investing" in one's own human capital.)

There is some skepticism about the validity of this neoclassical approach to labor markets. Yet the approach does provide a useful guide to both research and policy. But it is important to remember that female wage rates (and labor supply) are closely linked to male labor supply and wage rates in the household. A change in female wage rates must work its effect on female labor supply or fertility in this larger decision-context if at all.

#### (E) Fertility's Effect on Female Labor Supply

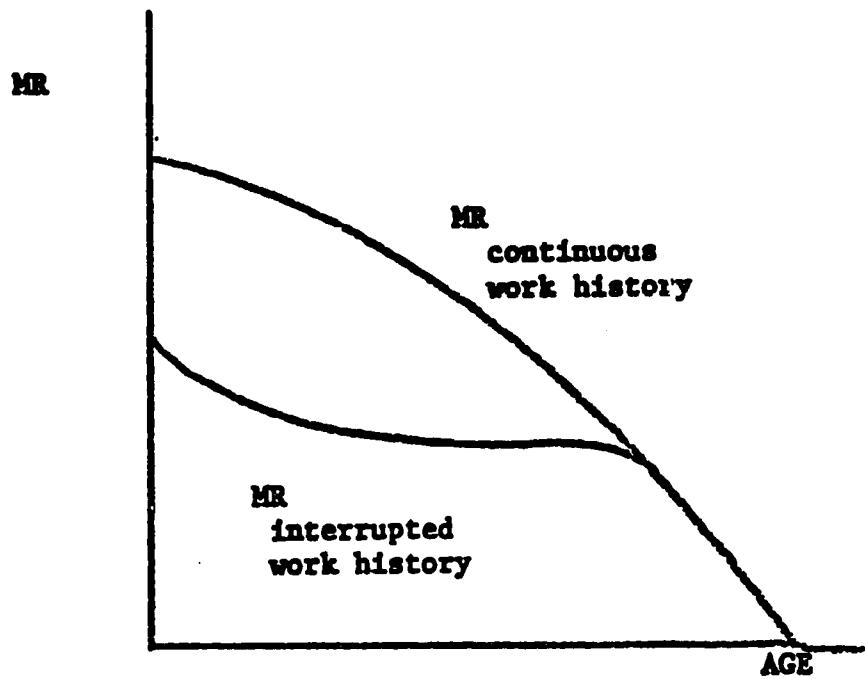
The above model may be used to examine why female labor market wage rates are typical below those of males. U.S. data suggests that a female spends roughly ten years out of the labour force to bear and raise children. An additional four years are spent in intermittent participation. If the main post-school human capital investment is on-the-job training, then no investment may occur when out of the work force while bearing children. The point is made clearer by comparing the age-MR relationship of the gains

from human capital investments for one person, like that indicated in Figure 5 whose post-school work history is not interrupted, and a second person who works only periodically. The latter will have a flatter age-earnings profile than the continuously employed person. For example, a young woman who expects to have children and not work in the market for a time, has more reason not to invest in human capital than someone who plans to work continuously. Fertility, being associated with a discontinuous work history, lowers her permanent investment in human capital and her long-run earnings potential. In the U.S., Shapiro and Mott (1979) suggest that the effect of such discontinuities in work history are lessening. This approach to examining the fertility, work experience, wage relationship has been followed by Mincer and Polachek (1974), Polachek (1975), Sandell and Shapiro (1978), and Cogan and Berger (1978).

Total experience is divided into segments of post school work before and after the birth of the first child and current job tenure by the first two studies. For example, Polachek finds that women with more than a high school education who are out of the labour force following the birth of a first child suffer an earnings loss of 4.3 percent per year. In addition, another effect of less work experience is to lower annual earnings by 2.1 percent which implies a total effect of 6.4 percent per year.

There are problems with the Mincer and Polachek study. First, virtually no measure is made of home time value. Second, as Sandell

FIGURE 5  
Effects of Work History  
on Earnings



Source: Adapted from Polachek, 1975.

and Shapiro (1978) and Cain (1976) noted, the treatment of the mutual causality problem between work experience and wages is poorly handled. Cain (1976, p. 1236) observed that the failure of Mincer and Polachek to find evidence of experience endogeneity may be due to the choice of instruments in the predicted experience equation: Wife's schooling, husband's schooling, and the number of children. Because the wife's schooling coefficient was not significant, the only experience instrument was the number of children, which also could be considered endogenous. Sandell and Shapiro noted that work experience after the first child and tenure on the current job, two Mincer and Polachek terms, could measure the same time period. Also, work experience time is treated as endogenous, but home work time is treated as exogenous. After making these corrections, Sandell and Shapiro find that the effect of "depreciation" of human capital on women's earnings to be one-third of the original estimates.

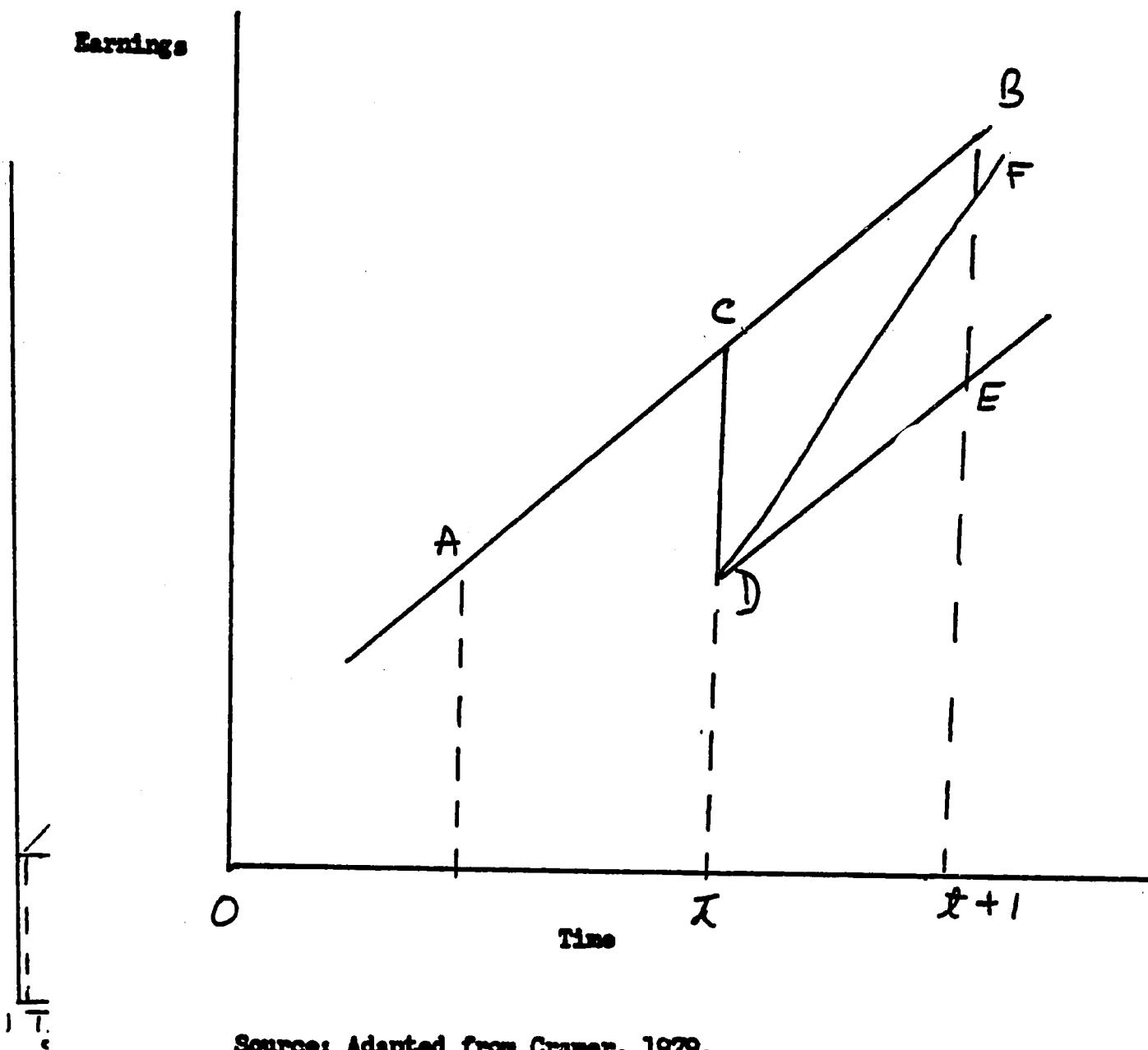
Using the Michigan Panel Study data, Cramer (1979) finds that women, with a previous employment history who had a child worked about ten hours a week less when they did return to work than they could have been expected to work based on their previous work history. (This compares to the roughly 7 hours per week difference between women of the same skills with and without a child under age 6 found by Bowen and Finnigan (1969).) This reduction in the Cramer sample, amounting to some 444 hours per year per female is an average. About 26 percent of the females

employed before giving birth did not return to work at all and these accounted for about 60 percent of the average reduction in average hours worked. But, some 40 percent of the decline in average hours worked did come from a reduction in hours of those who did return to work. This comes to about 4 hours a week per female in reduced time worked outside the home after the birth of a child.

This may be illustrated with the use of Figure 6. Function AB measures the expected earnings curve of the female with no children. The lateral axis measures total earnings which are hours worked times the wage rate and rise because of the normal growth in earnings (wage rates) over time. If at time  $t$  the female gives birth, the experience is that she suffers a drop on hours worked (even if we ignore the possibility of a fall from AB to zero for some period) and remains for some time on a lower curve, function DE. This is due to a reduction in the average hours she will work and also in the wage rate she will command due to the break in her labor market service. Distance CD (equal to BE) measures the loss in earnings per time period. It is also possible that the earnings curve gradually rises once again to AB, as shown by DF, but the loss remains. The total loss in earnings due to the child would be the area CBED, if the period  $t$  to  $t + 1$  covered the entire labor force years.

The unambiguous conclusion from these studies is that child bearing reduces work experience, human capital accumulation and that this results in a wage loss. Furthermore, the extent of these

FIGURE 6  
Effect of Fertility on  
Female Wage Rate and Earnings



Source: Adapted from Cramer, 1979.

effects depend on the number of children and the education of the mother. Figure 7A and 7B, taken from Cogan, illustrate this parity-specific relationship. This reduction in wage rate and earnings proceeds from a presumed lower productivity per female worker arising from the lower level of human investment, even if all other factors are equal.

(F) Discriminatory and Imperfect Labor Markets

Thus, orthodox theory presents the view that differences in the male-female wage rates for jobs which appear to be comparable must, in fact, be based on differences in skill and productivity having their root in differences in the human capital investment per worker among males and females. The fact of fertility goes a long way towards explaining this. This view, then, would argue that if non-homogeneity of labour does begin to "segment" the labour market, it is a valid segmentation based on differences in the productivity of the two groups being segmented.

The fact that some socio-psychological elements may affect the demand for one group of workers compared to another, Blacks versus Whites, was recognized and dealt with by Becker in his theory of discrimination (Becker, 1957). When employers prefer to hire White rather than Blacks, even when productivity is the same for the two groups, this is added as proof of the existence of a "taste" for discrimination by the employers (Becker, 1957).

FIGURE 7. (a)  
Numbers of Children and Life-Cycle Wages

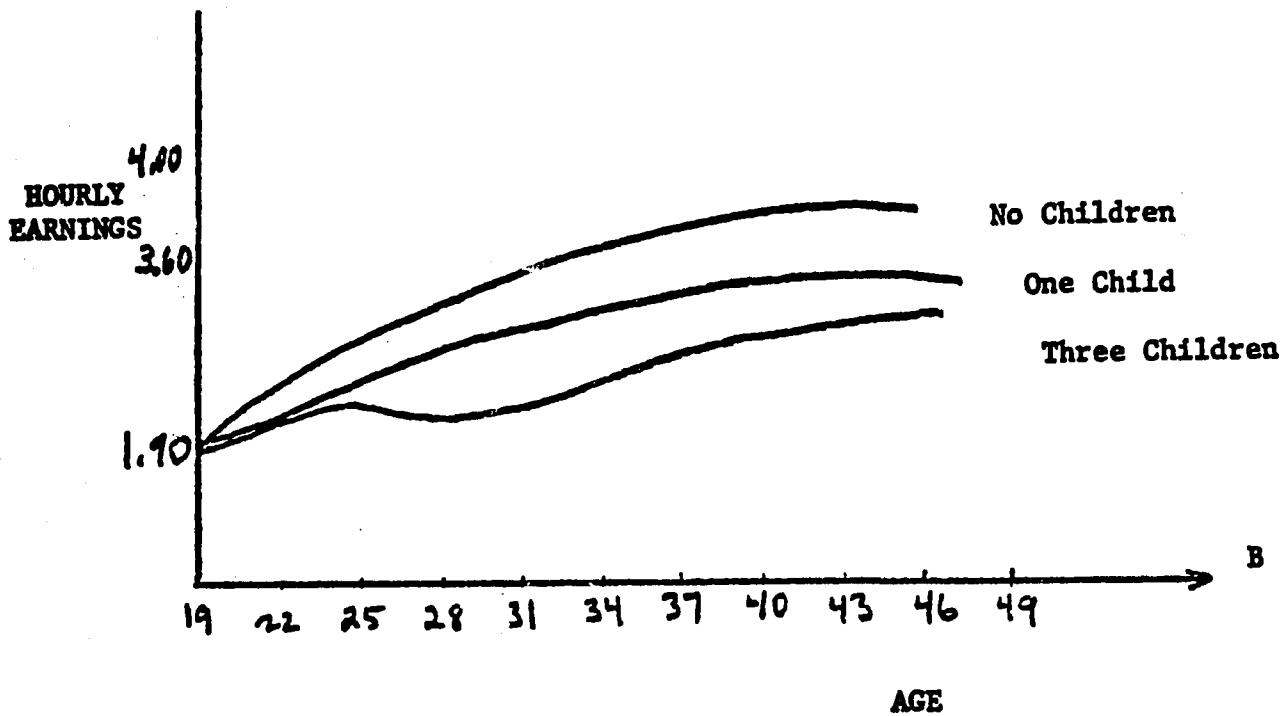
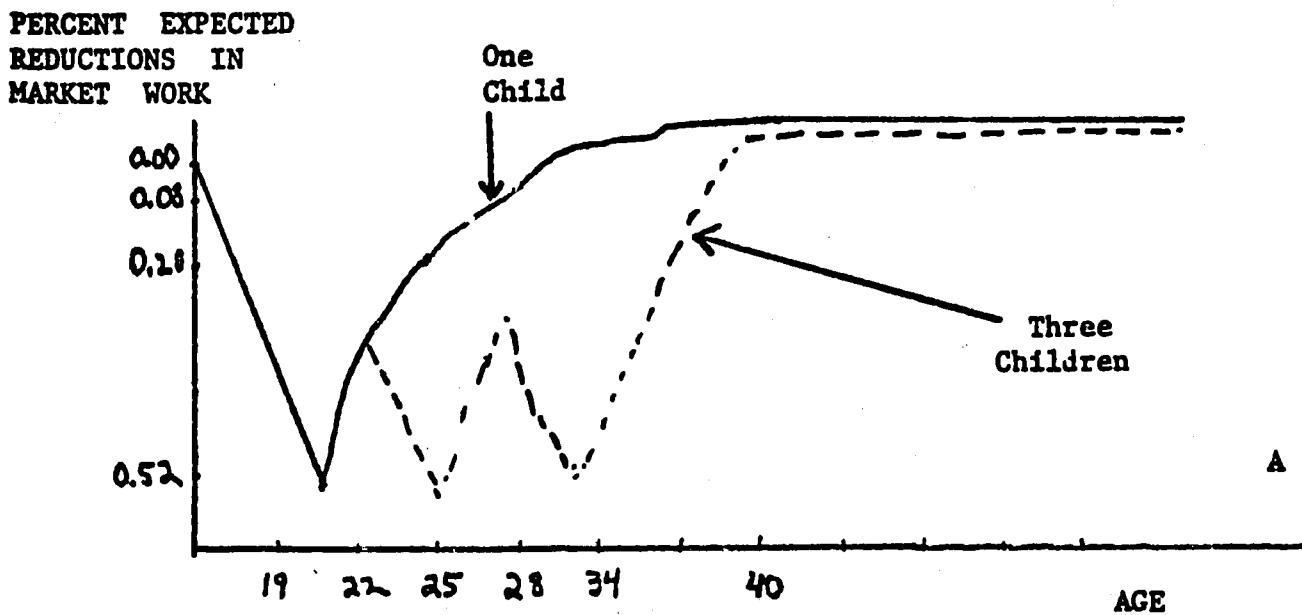


FIGURE 7. (b)  
Expected Returns to Market Work



Empirically, the non-productivity elements enter through the residual. "Tastes" are invoked to handle the clear presence of a segmentation along racial lines in the labour market. This, however, is another way of describing the reality, not a very useful way of explaining it. For the questions remain: Why and how do employers develop such a "taste"? Under what market conditions can they be induced or forced to change? The neoclassical theory is relatively silent on these points.

The segmented labour market idea, as reviewed by Cain (1976), and which has taken shape in the last ten years, has emerged as an important alternative explanatory framework for analyzing labour market behaviour. As such, it has bearing on the question of female employment (demand, supply and wage rates) and its possible effect on fertility. Some writers have already suggested such an application of such a link (Anker, 1978; McCabe and Rosenzweig, 1976; Vickery, 1976). Let us begin by reviewing the theory of segmented labour markets as such before turning to its usefulness for our purposes.

In his survey of the "segmented labour market" theories proposed to replace the neoclassical orthodoxy, Cain notes three main subgroups of writers and ideas. First, the "job competition" model which argues that the number of jobs of various skill and productivity levels is largely determined by the underlying technological mix of the economy at a moment in time. For high skill, high productivity, high wage jobs are absolutely limited, and there will almost always be more persons seeking these jobs than there are jobs available.

The surplus of potential workers, all with the requisite level of potential skill due to their previous investments in their human capital, will not cause the wage rate to fall since the institutional, contractual and customary elements all conspire to prevent this. There is, then, a "queuing" or a "vestibule effect" for the relatively desirable jobs. To repeat, the technology required prevents any substitution of cheaper labour; and the relatively fixed number of jobs changes only with the overall level of output of the industry of the economy. The single worker is not able to guarantee himself (or herself) employment at this skill with the usual human capital labour market strategy.

This situation also opens the possibility, indeed, requires, that the employer use some other screening device for deciding which workers will be hired and which will not, since it is a situation of chronic excess supply. The "taste" for discrimination thus becomes a purely arbitrary choice. If the mores of the society are that women's place is in the home, then even well-qualified women professionals may be the group selected against. Minorities, who are viewed as any kind of threat by the prevailing majority in the labour market, will clearly be the first candidates for such screening-out (Blau and Jusenius, 1976; Arrow, 1973).

The second line of development of the segmented labour markets theory is called by Cain, the "dual labor market" theory. This argues that there are, in essence, two main labour markets in most countries. First, there is the mainstream of jobs in large, relatively efficient, unionized firms and industries which pay good wages, and

offer relatively stable employment. This can be called the primary labour market. (In the case of the less developed nations, it obviously corresponds to the so-called "modern sector".) The secondary labour market, on the other hand, is the market for jobs with much lower skill levels, less clear tracs for advancement, less security and also less union protection. (This would be called the "informal sector" in the developing word context.) This sector is featured by low levels of productivity and wages and will tend to be the sector in which minority groups discriminated against, or "screened out" of the primary sector, find employment. Persons queuing up for regular employment in the other sector may be found here, but the hard core of the two markets is made up of different workers and different groups.

This secondary labour market is, according to some more conservative writers, the market in which workers with a strong "taste" for leisure, with an aversion to rigid labour market discipline, or with a weak commitment to work at all, will deliberately seek work. Thus, a woman, with or without skills, who does not want a 40 hour a week job which requires punctuality, and high levels of energy input, may deliberately seek a less demanding secondary market job. Differences in "life styles" among workers and the "culture of poverty" arguments come into this picture also. The same observed facts can be interpreted in many ways.

The third segmented labour market theory is a more or less purely socio-political one, termed by Cain, the "radical approach". The ruling Capitalist elite and their allies in the powerful union

groups find it in their best interest to prevent the minority groups from competing effectively for jobs. The prejudices and biases of the culture find expression in labour market arrangements designed to keep large groups poor economically and, hence, powerless politically. Proponents of this point of view can cite for authority writers going back to Adam Smith and John Stuart Mill, both of whom puzzled over the fact that the more dangerous and undesirable the job in modern societies, the less the wage paid for the work, when a pure demand-supply market apparatus should lead to the opposite result. In this tradition, Standing (1978a) argues that low wages encourage low productivity, high turnover and low aspirations. Low wages are thus inefficient economically but socially useful to the elite.

This "dual labour market" paradigm has had wide application to the developing nations. Indeed, the "traditional" versus "modern" dichotomy is often thought of as a classic example of labour market segmentation. Tribalism, ethnicity, religion and other factors all help stratify or compartmentalize labour markets in the developing world and militate against a smooth approach to an equilibrium wage rate structure. So does the early emergence in a developing nation of a large public sector or of powerful trade unions. The conclusion seems inescapable that women are among the minority groups who are (1) frequently denied access to the needed human capital investments (education, early work experience), (2) "screened-out" even when their skills are comparable to those of males, (3) unable to obtain political and social equality and, hence,

have no means of redressing economic inequality. It seems equally clear that this labour market segmentation is a consequence (not a cause) of deeper technological economic and social factors at work in the society.

Wolfe and Fligstein (1978) obtained significant results empirically, using U. S. data, with a model which specified that male-female differences in "authority" and "power" in their jobs are a function of human capital (education, work experience, seniority with current employer), family situation (Marital status, fertility status) and the previous sex-composition of the occupation or job in question. Thus:

$$\text{Authority} = f(\text{HC}, \text{F}, \text{J})$$

They conclude:

"The amount of the sex gap (in authority) that is due to women's qualifications is nontrivial but is, in all cases, less important than the attitudes and behaviors of employers and women ... the attitudes and behavior of employers are much more important in the restriction of females from positions of authority." (Wolfe and Fligstein, 1978, p. 33)

In summary, the labor market approach to the female labor force activity-fertility link focusses on the factors governing supply and demand and the wage rate in the market. Fertility tends to lower the wage rate by causing interruptions to female work histories and capital formation. Lowering the wage rate may reduce subsequent supply.. On the other hand, institutional factors and imperfections in the labor market "segment" job opportunities and "tastes" by employers also affect the demand for female labor.

(G.) Summary

This section has reviewed the extensive and growing literature on female labor supply, particularly the effect of fertility. The empirical studies drawn from the developing world yield a mixed, uncertain result. However, the theoretically-based "new labor economics" literature concludes unambiguously that fertility does have a depressing effect upon female earnings and hence on female labor supply. The bulk of this literature is from the U.S. and its applicability to the developing world can perhaps be questioned. Our reasons for including such a detailed review is that the demand-supply-wage rate framework and the human capital concepts are useful when put into a broader socio-psychological as well as economic context.

### (3) The New Household Economics

#### (A) Background

In the last ten to fifteen years a substantially new economic approach has developed to analyzing the determinants of both fertility and female labor supply. This approach proceeds within a conventional neoclassical income-relative price tastes-constant framework, but adds some special new conceptual complications. It builds on the theoretical work of Becker (1965), Lancaster (1966) and others. An essential aspect of this approach is the recognition of the fact that time is required both in consumption and in production of commodities for consumption. It is the production of these basic "commodities" that gives rise to family utility. Time has value in terms of foregone production alternatives and this value must be added to market prices of goods to derive the full cost of any item or service. If producing children is time-intensive and the value of time is affected by labour market alternatives, this approach is particularly well-suited to an analysis of the joint determinants of fertility and labor force participation. Within this framework children are not themselves a commodity but instead a special intermediate good which, together with family labor and purchased inputs "produce" child-services which are a "commodity" creating utility for the household. Female labor force participation and fertility decisions are assumed to be influenced by the potential market wage of the wife, the nature of the household production function, consumption technology, family income, and the "taste" for children. The main advances in this

analysis can be traced to Becker (1965), Mincer (1962, 1974), and those who extended their model, such as Willis (1973), Mincer and Polachek (1974), DaVanzo (1972), McCabe and Rosenzweig (1976), and Gronau (1977).

The main results of this considerable body of literature has been to confirm what theory would predict: (1) fertility is negatively related to the wage rate of the wife; (2) fertility is positively related to overall family income; (3) female labor force participation is positively related to the wife's wage rate; (4) in general, therefore, fertility and female labor force participation are negatively related.

#### (B) Gronau's Model as an Example

It may be helpful to an understanding of this approach to work through one example. Essentially, the model we will follow is that of Gronau (1977) who extended the original Becker (1965) time allocation model by distinguishing consumption time and production time. This key distinction, which was an original concern of Mincer (1962) in his examination of the work at home vs. work in the market vs. leisure of the housewife.

Assume a household which maximizes the production of utility,  $Z$ , by combinations of goods ( $X$ ) and consumption time ( $L$ ):

$$Z = Z(X,L)$$

Goods, valued in expenditure terms, may be produced at home,  $X_H$ , or purchased in the market,  $X_M$ , and the former are produced by work at home (H).

Thus,

$$X = X_M + X_H$$

and

$$X_H + f(H) \quad \text{where we assume } f' > 0; f'' < 0$$

Two constraints limit the output of Z, a budget constraint

$$X_M = WN + V \quad \text{where: } \begin{array}{l} V \text{ is nonmarket income} \\ N \text{ is market work time} \\ W \text{ is market wage} \end{array}$$

and a time constraint

$$L + H + N = T \quad \text{where: } \begin{array}{l} T \text{ is total time} \\ L \text{ is leisure time} \end{array}$$

First-order maximum conditions require that the marginal product value of home work,  $f'$ , equal the marginal rate of substitution between goods and consumption time,  $(\partial Z/\partial L)/(\partial Z/\partial X)$ , where the latter equals the shadow price of time,  $W_r$ . If the person works in the market,  $N > 0$ , then  $W = W_r = f'$ .

Figure 8 describes the Gronau model. The concave curve  $TG_0$  is the home production function; T indicates no time spent on home work; point O suggests home goods valued as  $OG_0$  can be produced by full-time home work. The individual's preferred consumption technology, goods intensive or time intensive commodities is given by indifference curve set  $C_0$  or  $C_0'$ . If no market opportunities are available,  $TG_0$  defines a maximum attainable commodity space and the choice of which point on  $TG_0$  to select depends on the preferred consumption technology. For example, if  $C_0'$ , a time-intensive consumption technology, is preferred, then the person will work at home  $L_0T$  time units for  $OG_2$  goods and have  $OL_0$  units

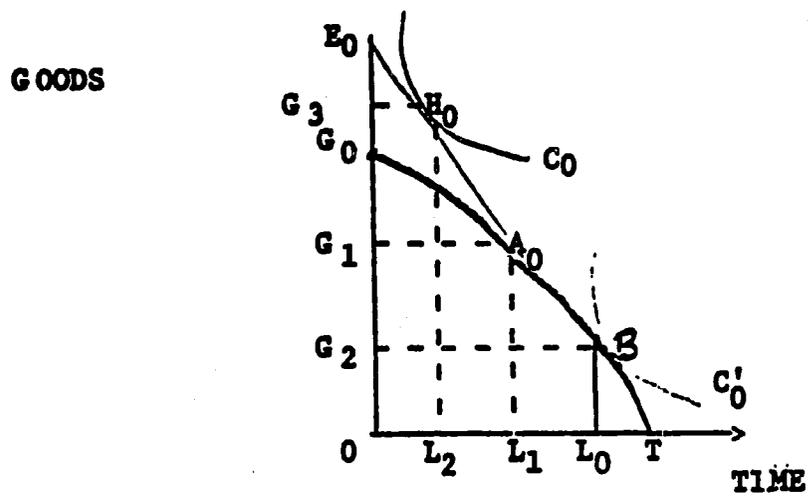
of leisure time. In contrast, if a market opportunity is available such that  $W > W_r$ , then market work is undertaken. For example, if the market wage is shown as the slope of  $A_0E_0$  and where  $C_0$  is preferred consumption technology, utility is maximized at  $H_0$ , where  $L_2H_0$  goods are consumed, home work is  $L_1T$  time units, market work is  $L_2L_1$  time units (for  $G_1G_3$  goods), and  $OL_2$  time units are for leisure.

Two key points emerge from this model. First, if the market wage is below the shadow wage, or  $W$  is less than  $W_r$ , the value of extra home goods produced, then all time will be spent in nonmarket work or leisure. In an LDC context,  $W_r$  may be greater due to many factors, such as the time required in meal preparation and the fact that women's role stresses meal preparation duties. Thus, labour policies which increase  $W$ , but leave  $W_r > W$ , will be quite futile due to an ex ante zero elasticity of female labour supply with respect to the market wage rate in the wage range when  $W_r > W$ . A second point from the Gronau model, as shown in Figure 8 at  $H_0$ , is that it is possible to have a goods intensive consumption technology and a home time intensive goods technology in the sense that most goods consumed are home produced. The latter point, which means that production technology and consumption technology are separate and distinct concepts, can be shown to have important implications regarding the interaction between female labour supply, fertility, and labour policy.

The comparative static properties of the model depend on the individual's consumption and production technologies, whether or not any market work was done initially, and which exogenous variable

FIGURE 8

The Allocation of Time Among Household  
Work, Market Work and Leisure



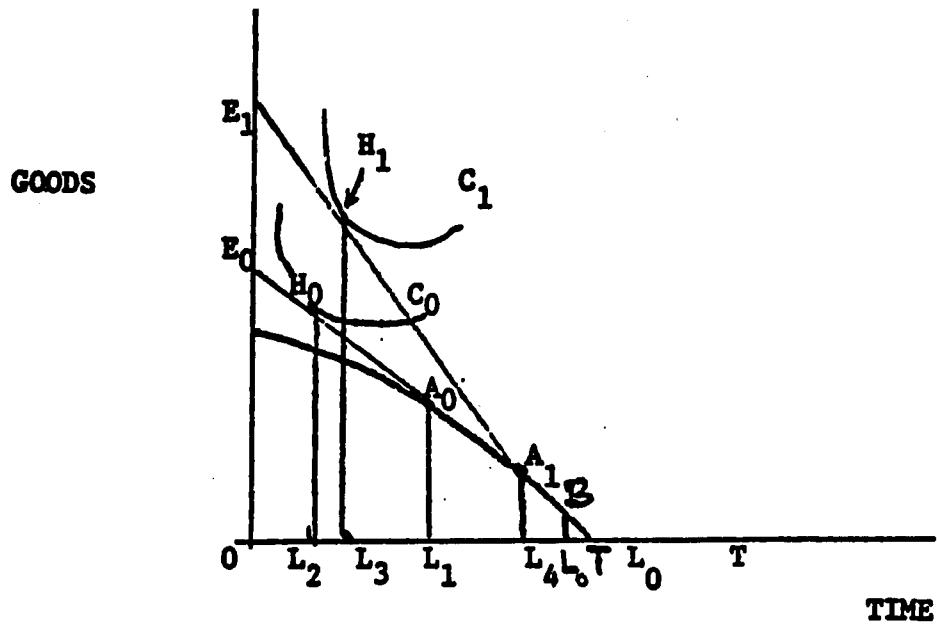
Source: Adapted from Gronau, 1977.

changes, market wage, nonwage income, or home productivity. Consider the effect of an increase in the market wage which is shown in Figure 9 as an increase in slope of line  $A_0E_0$  to line  $A_1E_1$ . If the initial equilibrium was at point B, the person's allocation of time between leisure and nonmarket work either does not change, or the new wage has no effect. Alternatively, if the person was at  $H_0$ , then the new wage leads to a new equilibrium at  $H_1$  because of changes in the return from home production and associated changes in consumption time and goods. In the traditional model, the effect of a market wage change on market work is indeterminate and depends on the relative strengths of the assumed nonnegative income effect and the negative substitution effect of demand for leisure. The same problem exists in this model, although with an added dimension. The effect on the wage increase is to raise the price of consumption time relative to goods and, thus, leads to less home production and more market purchase of the new-cheaper goods, viz. home production is reduced from  $L_1T$  to  $L_4T$ . More time is hence available for both more leisure and market work. As in the traditional model, the income vs. substitution effects determine the outcome. In Figure 9, leisure time is increased from  $OL_2$  to  $OL_3$  and market work is increased from  $L_2L_1$  to  $L_3L_4$ . The main point is that the increase in market work is greater if the income effect on leisure is smaller, the substitution rate between goods and consumption time is greater, and the shadow price of time is less sensitive to the amount of home production.

Up to this point, we have introduced the Gronau model and considered one example of its comparative static properties in

FIGURE 9

The Effects of a Market Wage  
Increase on Time Allocation



Source: Adapted from Gronau, 1977.

predicting the impact of a wage change on time allocation. The model can be made more explicitly relevant to the current topic by using the model to consider the labour supply of the mother and to fertility and child care services.

### (C) The Supply of Female Labour

In the short run, the supply of labour is influenced mainly by changes in family income and own wage rate changes. Income changes in this model mainly affect the demand for leisure. If leisure is a normal good, labour policies leading to income increases will lead to less female work. The wage effects are more complicated. If labour policy leads to an increased female wage, but  $W < W_p$ , then home work, not market work, will still prevail. In contrast, if the new market wage exceeds the value of marginal units of home production,  $W = W_p$ , labour force participation begins and market hours adjustments are made. Specifically, an income-compensated wage effect will lead to the following: An increased wage leads to more market work and less home work, but the leisure time implications are not clear. Gronau finds that the leisure time reduction of a wage increase for the employed women is four times greater than that on work at home. The wage effects on market work, thus, depend on the income vs. substitution effects of work for leisure, as in the traditional models; but in this model, the latter is divided into the substitution effect between goods and consumption time, and the substitution between goods and time in home production. In the Gronau model, therefore, while increase in the number of children will reduce the leisure of the mother,

the effect on market work vs. home production depends on the market wage vs. the profitability of home time. If the woman was working in the market, albeit at a low wage, and if the woman is relatively more productive in home production, then an increase in the number of children may reduce leisure and market work and increase work at home. Non-participants who have more children also work more at home and are, therefore, less apt to enter the market due to a wage rise.

(D) The Demand for Children: Fertility and the Cost of Children.

The model presented can be extended to cost of child bearing and the demand for children by considering the commodity Z as child services. The overall effect on time allocation, presumably time allocation of the potential mother, depends on the leisure intensity of child-related activities and the relative returns from the home production of child-care activities. This model specifies (indeed requires) that children are more time-intensive than other production. This is an important and somewhat unique aspect of the model (Robinson, 1980).

The time intensity of the mother is thus one main issue in the cost of children. If children are considered time-intensive, having children reduces market work and the loss in mother's market earnings is a large part of the cost of child-bearing to the family. The cost of children is thus increased by a wage increase to the female. Gronau and Ben-Porath (1973) note that children may be home-time-intensive when first introduced to the home; but as the activity (child care) continues, the profitability of home production relative

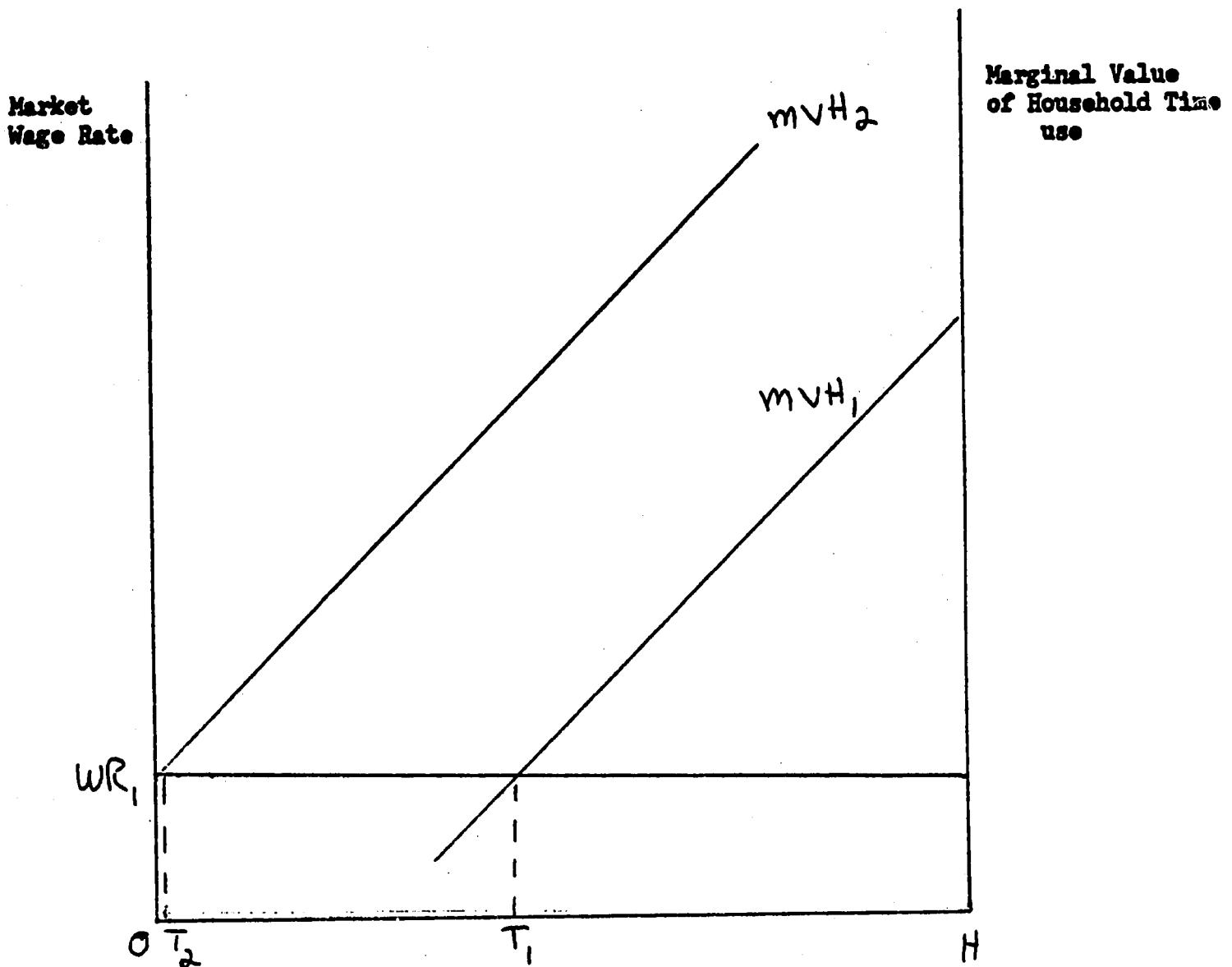
to the purchase of market goods is reduced. In this context, a market wage increase will raise the price of children where children's goods are home-produced, but when the goods are market produced, a wage increase will lower the price of children. Similarly, as Ben-Porath observes, there is a greater tendency for high-wage women to buy market goods than low-wage women. Therefore, the price of children is increased for wage increases for a low-wage woman for whom children are time-intensive, whereas, for a high-wage woman, such as women with more education, a wage increase lowers the price of children because for these women, children are relatively goods-intensive.

In a less developed country, several factors may influence the relative time intensity of the wife's time and, hence, the cost of children. McCabe and Rosenzweig (1976a) suggest: (a) The ability to substitute market inputs for the wife's time in child-rearing activities in comparison with other activities; (b) The extent to which the care of younger children can be taken over by older children or adult relatives or both; (c) The compatibility of a particular female occupation with child rearing. In an LDC, these characteristics influencing the time-intensity of child rearing may differ among societies and, to a certain extent, reflect the values and norms endemic to them. Moreover, the relative time-intensity of child rearing and the compatibility of certain occupations with the household production of child services are crucial determinants of the relationship between female labour-force participation and fertility.

A final note concerns the role of the shadow price or the reservation wage rate. The cost of children in all the discussion so far has been assumed to be the direct cost of child bearing plus the product of the time intensity of child bearing and child-rearing activities times the market wage. This is the full cost of child bearing and is consistent to the original Becker (1965) model of time allocation. In the Gronau model, market wage change effects on the time allocation of the woman did not occur if the new market wage fell below  $W_r$  or the value of home production. If the woman had been working and  $W > W_r$  and was forced to work less due to child bearing, then  $W$  is the correct price to use in the cost of children measurement. If however,  $W_r$  exceeded  $W$  prior to child bearing, then the cost of child bearing is underestimated by the full price of children in this approach. In this case, the home production value foregone is the true cost of child bearing and child rearing. This point has yet to be examined in the literature, but in some LDC contexts, where market wages for women are valued less than home production, it may be a more appropriate cost of children.

Figure 10 can illustrate this. Let  $OH$  equal the total time available to each of two household females. One has a marginal value of household time use shown on  $MVH_1$  which in conjunction with market wage rate  $WR_1$  a division of time of  $OT$ , to market labor supply and  $HT_1$  to household production. The other household has a higher value of household time use shown as  $MVH_2$  which yields a corner solution, or  $HT_2 (=OH)$  allocated to household production and zero to market labor supply. Our point is that taking  $WR_1$  as the

FIGURE 10  
The Allocation of Time Between  
Household Use and the Market:  
Alternate Supply Schedules



value per unit of OH will be a substantial under-evaluation of the real value of OH to the household.

(E) Human Capital Life-Cycle Extension of the Model

The Gronau model sketched out above is essentially static, illustrating how a one-period equilibrium among fertility and female labor force participation are jointly determined within a household utility-maximizing framework. In contrast to this short run model, in real households labour supply and production, market wage rates and household productivity considerations are not fixed in the long-run. Initial skill differentials and physical and financial capital of household members can be changed. Specifically, individual endowments which may be genetically determined initially may be increased via human capital investments and reduced by depreciation. In fact, a major function of households is to augment the human capital of children; and such investments, in turn, may interact with informal, human capital investments of adult household members, especially the mother.

A more complete model of the female market wage-work experience relationship is best represented by the recent work of Fleisher and Rhodes (1979). Their approach serves as a fitting summary to the discussion of this section. Specifically, a family is assumed to maximize a family utility function

$$U = U(N, Q, S)$$

where N, Q, and S are the number of children, the quality of a child, and nonchild sources of satisfaction. Q and S are produced at home according to the linear homogeneous production functions

$$Q = f(t_c/N, X_c/N)$$

$$S = g(t_s, X_s)$$

where  $t_i$  and  $C_i$ ,  $i = c, s$ , are goods and time devoted to  $Q$  and  $S$  output. Total child services equals  $NQ$  and  $I$ , the full income budget constraint is

$$I = \Pi_c NQ + \Pi_s S$$

where  $\Pi_c$  and  $\Pi_s$  are shadow prices of child services and other commodities, respectively. An empirical model which results from maximizing subject to the constraints specified is a multi-equation model with four dependent variables: the wife's wage, family size, the quality of the children, and the woman's work experience. The scope of the model, thus, brings together several parts that have not before been well integrated into one framework.

The main empirical results of interest include the fertility equation and labour supply equation. Family size is reduced by a greater expected wage of the wife, which is consistent with the price of children results of Mincer (1962), Becker (1957), Willis (1973), and others. The husband's wage is pronatal, but appears to affect the timing of births more than the ultimate number. Finally, the labour supply results in this multi-equation model stands in contrast to the widely accepted view that the presence of children lowers current market work. Furthermore, this result supports the Cain-Dooly study, which also used a multi-equation approach. Part of the answer to this apparent contradiction with the work of Bowen and Finegan (1969) and others who find direct

effects of children on market work is that the child impacts are mainly indirect: child bearing reduces work experience, which alters the potential market wage, which then alters the current market work. Neither Fleisher-Rhodes nor any other study, has convincingly measured these separate effects. Their study, however, marks a very promising way for future empirical analyses examining the family size, female labour supply, and labour policy relationships to proceed.

(F) Summary

The "household production function" approach looks at the use of female labour as part of the larger process of utility maximization by the household. The household produces labour services to be sold in the market and also home production which may include child care. It gains in exchange the utility connected with material goods purchased and the flow of services produced at home. The decision regarding how much of the household's labour, female and also male, to be used in home production compared to market production involves a comparison of the relative productivities of labour in its several uses, compared also to the relative utilities obtainable. This opens the possibility that the subjective utility from child services might be high enough to warrant continued use of female labour time in home production of child ~~care~~, even when the measured market productivity of her time is also high. In these models, however, the cost of children is not monotonically related to the market wage of the woman, which means that labour policy implications, such as the impact of day care subsidies on fertility and

female work may depend on technical considerations in the household production function. A second problem is that the key role of the reservation price, wage rate of female labour in household production, is not always made clear in the literature. This wage rate is, perhaps, in large measure subjectively determined and in the LDC context may be only loosely connected with the market wage rate. For example, if social and cultural conditions limit the role of the woman to household production and do not allow her to select her market hours worked, the usefulness of any of the above models for modeling accurately the child services production vs. market labour supply process is limited.

The particular division of labor within the household assumed by the economic models take for granted that the husband will devote full time to the supply of labor for wages in the market and that the wife will normally perform the household tasks, including child-care, with supply of labor to the market occurring only when the market wage reaches or surpasses a certain level. In other words, the model assumes the existing status quo, a particular status quo, with regard to the assignment of sex-specialized occupational roles within the household. It also begs totally the question of what does happen if the husband and wife disagree on how the household's joint resources are to be allocated. If the husband prefers that the wife stay home and provide excellent home-cooked meals and a clean house, while the wife prefers that the husband do these tasks while she works for wages, how is the disagreement adjudicated? Such cases are so familiar as to need

no justification for their realism, yet the household economic model is silent on them and in fact suggests they do not exist.

For discussions of the role of the family power structure and the social and individual roles assigned the sexes, one must turn to socio-psychological approaches to these questions.

#### (4) Family Structure and Sex-Differentiated Roles

##### (A) The Question of Power Within the Family

The economic model sketched out above assumes the existence of a reasonably stable household which is the planning unit at a point in time and also dynamically over time. Becker seems to see that this is a large assumption and in several other papers (1976) has attempted to construct a theory of marriage and household formation to provide a background, as it were, for his theory of household production and consumption. This theory rests on the assumption that the joint utility of a male and female "producing" and "consuming" together is higher than the total of their two separate utilities; in other words there are economies of scale internal to the household which lead people to marry. It can also be argued that certain "commodity services," notably child-services, are really available only within such a union (and as a result of such a union) and that this provides another powerful reason for marriage. This approach also clearly assumes that the bulk of the costs and also returns from the household's activities, inside and outside, are internalized within the household.

This model immediately runs into difficulties if some type of family-household structure besides the essentially two-generation nuclear family is, in fact, the rule. The family may be only loosely "bounded" and members may enter, leave and then reenter quite casually; the cost - time and other - of children may not fall directly on the parents and the return from the child-services may not accrue uniquely to them either. Finally, and perhaps more fundamentally, the idea of a joint, conflict-free marital utility function is dubious. In his own theory

of marriage Becker proposes that each individual's separate utility function contains an argument called "caring" for the mate. Thus, the husband will always be concerned enough about the wife's welfare (and utility maximization) to make the decision which is in her best interest as well as his own.

The Becker solution can be made formally correct but it is not intuitively satisfactory. The problem is akin to the macroeconomic problem of the social or community welfare function. (Samuelson, 1958). If there are no utility-interactions among the members of the community, then each member can pursue their own maximization independent of all the others. However, in practice, what I do in my best interest almost certainly does affect what you can do in yours, and vice versa. Hence, there is no way that we can "add up" the separate utility functions to obtain a social utility function without imposing some weighing scheme or some priorities ordering. The social solution is to choose, somehow, a leader and allow the leader to exercise discretion in the pursuit of the total welfare of the community. This leader can be a dictator (or benevolent despot) or may be a periodically elected official. The principle is the same: a committee (perhaps of one) is "reading" the social utility function on behalf of the community.

The same type of logic provides the justification for family-household decision-making. The "head" makes the decisions for the other members and is presumed to act in a responsible ("caring") manner for the best interest of all members. The exercise of this "power" within the family is sometimes quite tightly controlled by the eldest male, or the person with the largest individual income, but it is also something

more democratically administered with family discussions and "councils" the common procedure. There is, in fact, a considerable literature in the family and family relations field on family "power" structure (Cromwell and Olsen, 1975).

The problem which inevitably remains in this exercise of the "headship" is also directly analogous to the macroeconomic (and political) problem of insuring that the person given the delegated joint decision-making power does in fact worry about the welfare of others. The decision-maker may easily fall into the habit of assuming their "tastes" and preferences are "typical" to the entire group and act accordingly. Or, the head may decide certain activities are "good" for the group and mandate them without discussion. In fact, this goes on at both the micro (household) and the macro (community) level all the time. City councils may support a symphony orchestra which no one goes to hear; fathers may buy spinach for children who do not like it, and so on.

At the heart of the family power structure issue is the relative status of females within the household.

The role and status of women, thus, can be expected to affect fertility from two directions. First, it can affect fertility by affecting the over-all level of the household's well-being (which is stressed in the literature of socioeconomic determinants of fertility) and second it can affect fertility through the degree to which the interests of husbands and wives diverge and their relative abilities to determine the number of children they should have. (Anker, 1973, p.14)

Considerable evidence has been accumulated (Cochrane and Bean, 1976) that the more male dominated and traditional the household the higher is fertility. Thus, role and status of females within their households is intimately linked to occupational differentiation but also to fertility.

(B) Sex-Specialized "Roles" and Division of Household Tasks

Another related approach to the study of the interaction of female economic activity, and fertility takes an essentially socio-psychological viewpoint. All persons living in social groups play "roles"; they see themselves and others as playing certain parts, performing certain functions, and of interacting in certain approved ways, using certain established models of behaviour. (Biddle and Thomas, 1966; Goslin, 1969).

In case of women and men, certain "roles" are assigned to each by nearly all societies and cultures (Hochschild, 1973). At the core of the sex-specialized roles which have emerged are perhaps biological differences. Men tend to be larger, faster and stronger and thus it can be argued they are better at fighting and hunting (at least under most pre-modern conditions, women would be at a disadvantage in fighting men). Women are inescapably the bearers and nurturers of children. Beyond these functional roles, most other roles are not so clearly and necessarily sex-specific (MacCoby, 1966). The question then is how and why do occupational roles emerge? For the assigning of the "role" of outside work to the men, and of housework to the women goes a long way towards explaining the low labor force participation rate of females. (Boulding, 1977) The stereotypic women as the "weaker sex" role is put very graphically by Myrdal and Klein:

• In the old days, women knew where they stood and their lives were spent in the care of their families. Their world was bounded by the walls of their homes. From there, a resolute minority thrust out into the world of business and public affairs and succeeded in being admitted largely to the extent that they were willing to turn their backs on home and family. (Myrdal and Klein, 1956, pp.xvi)

This point of view received the support of so weighty a figure in the development of modern psychology as Freud himself. Many female-specific neuroses and psychoses were traced, in his view, to "penis envy," the deep subconscious desire of females to be males. Women who denied their "maternalism" and competed with men for independent power and status were more likely to suffer neuroses. Women were better off accepting their innate "female" role and society was correct to establish norms and institutional supports encouraging sex-differentiated roles, occupations and status.

Most modern psychologists reject this innate or biological differentiation yet the fact of sex-differentiated occupational roles is not debatable:

"The only universal fact is that everywhere there is specialization on the basis of sex, and that this specialization tends to be compatible with child-bearing and child-tending on the part of women." (Davis, 1956)

The differentiation which emerges usually gives the highest-status highest-paying jobs to the males. One Feminist writer observes:

The universality of female subordination, the fact that it exists within every type of social and economic arrangement, and in societies of every degree of complexity, indicates to me that we are up against something very profound, very stubborn, something which cannot be remedied by merely rearranging a few tasks in the social system, nor even by rearranging the whole economic structure. (Ortner, 1975, quoted in Hartman, 1977)

The important question which this power structure - sex role approach must confront is: How does such a male dominated power structure arise and how did the work roles originally get assigned in the household?

Ester Boserup provides one hypothesis. She distinguishes between "male" and "female" farming systems which she then relates to population density, technology and the type of cultivation. "In very sparsely populated regions where shifting cultivation is used, men do little farm work, the women doing most. In somewhat more densely settled regions where the agricultural system is that of extensive plough cultivation, women do little farm work and men do much more. Finally, in the regions of intensive cultivation or irrigated land, both men and women must put hard work into agriculture in order to earn enough to support a family on a small piece of land." (Boserup, 1970)

Goody used data for some 800 societies coded in the Ethnographic Atlas to test the Boserup ideas cross-culturally and found support for most of them. The association of female dominance in cultivation and relatively simple agricultural technology was clear. Also, the smaller the size of the community (as a proxy for density) the greater the female dominance of cultivation. ~~Boserup also argues that the contrast between~~ shifting cultivation with female farming and plough cultivation with male farming, where women are either secluded in the home or occupied almost wholly in the domestic tasks, is related to the difference in the pattern of social hierarchy between regions of tribal organization and regions of settled farmers with individual ownership of land. The role of women in agriculture is also seen as connected with the type of marriage patterns likely to emerge. In regions of female farming, women are valued as both workers and child-bearers. In such communities, we find a high incidence of polygamy, and a bride-price is paid by the husband or his family. On the other hand, where women do little farming

work, then their role as providers of children becomes crucial. The bride must also bring a dowry. These relationships are summarized in Table 6, drawn from Goody's book.

Elsie Boulding constructs a somewhat different evolutionary sketch of the interaction between sex roles and the economic structure of society. She argues that the earliest stage of human culture probably saw the existence of "bilateral," sex-specialized but roughly power-equal bands of hunter-gather peoples. As permanent settlements based on agriculture developed ("agrovilles"), women commonly assumed the key role as cultivators and the "rule of women" became not uncommon. If and when trade among the settlements developed this became a male function, because women were tied to agriculture and also because of their child-bearing duties. The trade led eventually to the growth of a surplus which then was controlled by the trader or middlemen who were men. This surplus gave the impetus to the growth of complex social and political organizations, a further division of labor and the growth of centralized social authority. This process was controlled by the men since they controlled the creation of the surplus. Thus, all important priestly and governmental leaders became men and the inferior status of females was firmly launched. (Boulding, 1977)

Boulding also stresses that control over assets, wealth and land is the sine qua non of "power" on all societies. The inferior roles assigned females usually flows from their lack of control over land. Thus, when settled agriculture first emerged, women may have farmed the land, but they rarely owned it in the sense that they could bequeath it to their daughters. One could go a step further and argue that it is creation of

**TABLE 6**  
**Sex Participation in Agriculture**  
**by Continents**

Sex participation	Africa	Circum-Mediterranean	East Eurasia	Insular Pacific	North America	South America	Total
Female farming	125 (53.9%)	4 (4.7%)	7 (7.6%)	36 (29.8%)	29 (13.6%)	32 (37.6%)	233
Male farming	39 (16.8%)	56 (65.1%)	32 (34.8%)	28 (23.1%)	28 (13.1%)	21 (24.7%)	204
Equal participation	60 (25.9%)	22 (25.6%)	41 (44.6%)	48 (39.7%)	12 (5.6%)	22 (25.9%)	205
No agriculture	8 (3.4%)	4 (4.7%)	12 (13.0%)	9 (7.4%)	145 (67.8%)	10 (11.8%)	188
<b>Total</b>	<u>232</u>	<u>86</u>	<u>92</u>	<u>121</u>	<u>214</u>	<u>85</u>	<u>830</u>
$\chi^2 = 504.55 (df = 15)$ $p < 0.001$		Total of table		830			
		N.I. on agriculture		<u>33</u>			
		Total		<u>863</u>			

Source: Goody, 1968, p. 151.

scarcity which leads to the need for ownership (when land is plentiful, cultivation is likely to be shifting and relatively free); that the need to establish who owns and controls the scarce assets creates a need for a clear "head" of the household and also for clear lines of descent from one generation to another; and that since males are by their physiology typically the larger and the stronger of the two sexes, they are also more likely to be the warriors, the protectors and the enforcers of ownership claims against outsiders (Hull, 1977; Sanday, 1973).

This is also essentially the view argued by Frederick Engels in his essay which linked the birth of the family, to the creation of private property and one step removed to the emergence of the state. In other words, whatever the situation regarding sex roles and the distribution of power within the family, once private property emerges, then some central authority emerges within the household and also within the society. (Hartman, 1976)

Some, if not all, anthropologists accept this view that the "suppression" of the female occurred at the very moment of the formation of the family as a stable unit and the creation of society (Sanday, 1973; Hartman, 1976). A considerable amount of the recent scholarship on the history of the family and the household in Western European development also suggests results which are consistent with this view of the interaction between family power, the divisions of labor with the household and growth of wealth and accumulation. Stone (1977) has argued that in the case of England, 1500 to 1800, there was a clear transition from (1) the open, lineage family with only limited bounding on who was a member, with very little sex-specialization in roles and with weak, flexible ties intergenerationally;

(2) to a more restricted patriarchal family with the father ruling a smaller, more narrowly defined household, with greater emphasis on accumulation and on the duties of the females and the young to the head; (3) to a closed domestic nuclear family which values children for themselves and which treats more liberally women and the young. Stone explains these changes with respect to the growth of a more liberal, enlightened, humanistic ethic which accepted the intrinsic value of each person, female as well as male. It was the familial counterpart of the growth of a democratic spirit in the governance of the state during the same period. (Galenson, 1973; Fogarty, 1971).

There is also considerable evidence that the Western European family structure has always differed from Asian or African patterns and that lowered fertility emerged there partly for this reason. (Davis, 1956) Thus, the anthropological, ethnographic and also historical literature seems to present some agreement on at least the beginning of the sex-specialization of task within the household and of the reasons for the dominance of the male head.

There is yet another perspective which can also be brought to bear on this issue, and this is the concept of the household as a production unit and the requirements of that unit for labor inputs in order to function effectively. In most primitive, premodern societies, wood must be gathered, water must be fetched, fires must be tended, food must be prepared and cooked, and the very young, the very old and the infirmed must be cared for. Call these the internal household work. The production of food may also be part of this work if the main crops are grown near the home and on an easy, regular basis.

The other main task is external and this involves hunting, fighting, journeying away from the home on a regular basis for trade, for wage labor or any other purpose. It may include agriculture if the technology requires a specialized skill or substantial amounts of physical labor (as does, for example, plough agriculture compared to swidden or digging stick cultivation).

The other element which most households attempt to produce is "immortality" for themselves. That is, they aim at providing continuity between their ancestors, themselves and the future. To this end, children are a prerequisite and are valued for this reason. The value of children as a potential source of labor, as a source of future old-age support for the parents, and for pure reasons of self-pride are not inconsistent with this argument. One's own immortality is connected with that of the household and family to which one belongs. Admittedly, the property consideration enters in to this too. For the goal of continuity becomes very real when one has an accumulation of land or other assets of which to dispose. In any event, the production of children is an important kind of "output" to which the household will devote resources. The female, by inescapable reasons of biology, plays the critical role in this process. She is inevitably affected for a large part of her mature life by this requirement which is placed on her. Given high foetal wastage and high infant and child mortality, insuring the continuity of the family may mean that she must produce a large number of births, spending half of her life, between menarche and menopause, pregnant. This obviously also affects the possible use of the female for other external tasks, such as hunting, fighting or wage labor.

On the other hand, if there would appear to be some natural complementarities between most of the household work tasks and the production of children, then the "technology" argues strongly that the female in addition to her role of breeder be assigned the complementary household tasks. From this perspective the imperative is that procreation will occur and that certain household tasks be accomplished. The female must do the one and natural complementarities lead her to do the second also. The question of why such household tasks are considered inferior or secondary leads us to other matters. It is not clear that this should be true or that it always is. Certainly, many cultures esteem the mothering function and the role of the female in making men immortal it is clearly understood and valued.

Seen from this perspective, the search for causal relationship between labor force activity and fertility is pointless. Fertility is a given, so is economic activity. The type of labor force activity is dictated given by the first fact. The other task specialization follows ~~from~~ this.

(Note also that nothing in this logic precludes believing in a male "conspiracy" aimed at domination, or at a link between females and property. It simply explains why such plots by the males worked so well so often.)

Very interesting data exist on the time use of females, working for wages and not, with children and without.

Myrdal and Klein (1956), writing about the industrial societies of Europe and the U.S., find that a female (housewife) with children at home and no employment outside the home works about 80 hours a week on

"housework" including child-care. A married female with children and a fulltime job outside the house works about 40 hours a week at household tasks including childcare. There is a clear tendency for this minimum number of hours involved in housework to fall over time but it also appears to have been levelling off in the last decade or so. There is considerable comparability among nations and societies which are at about the same stage of economic development. Interestingly enough, the presence of small children in the home adds some 20 hours a week to the average time spent on household chores. This is true for the first child but additional children add less and less, so that three children only add up to 30 hours a week to the housework total.

The picture which emerges then is that the amount of "required housework" is increased by the presence of children in the home, by about one fourth to one third; higher parity children have decreasing marginal time costs; working women, with or without children, tend to work a considerable number of hours at housework as well as at the outside job and consequently their total number of hours worked is likely to be higher than the total number of hours worked by women with no outside job. This total for working-housewife-mother adds up to 90 hours a week, or 13 hours a day (including transportation time). Myrdal and Klein suggest that in the case of the non-working no-mother housewives who still work up to 60 hours a week on housework, that some question must exist whether this is all "necessary" labor or if some of the tasks undertaken are not also pleasurable and thus a kind of consumption in kind (elaborate sewing or cooking ventures or keeping large number of houseplants of exotic sorts come to mind).

Another recent author notes:

When a wife is employed outside the home, the family loses little in actual housework services because the wife increases her total hours of work in order to continue doing the bulk of the housework. A major loss in the wife's leisure time. Why is the wife willing to shoulder such a heavy load when she becomes employed? For one thing, a paycheck increases her own economic independence; this independence has become increasingly important as our economy has become more and more monetized. A working wife may view her paid work as an insurance policy against the loss of income if she is widowed, or her husband becomes disabled, or her marriage breaks down. Although most marriages will last until one spouse dies, the threat of financial insecurity that accompanies the one-third possibility of a broken marriage may make the economic independence symbolized by the wife's earnings important to her. In addition, bringing home a paycheck usually increases a wife's bargaining power within the household. Perhaps these reasons, coupled with the conflicts a working wife feels about possible neglect of household responsibilities, explain her willingness to bear such a heavy work load. (Vickery, Chapter 6, in Smith, 1979, p.164)

Moore and Hofferth summarize several recent studies of the U.S. reaching substantially the same conclusions (Table 7)

The pattern in the developing nations is even more lop-sided. Thus, Zambian women during planting season work 16 hours out of 24, about evenly divided between household work and field work. Males work about 8 hours a day. (Boulding, 1977, p.115) Similar patterns are found in Bangladesh, the Philippines and Java. (Cain et al., 1979; Ho, 1979; Hull, 1977). Women with a household (husband and/or children) essentially have a full-time job there. If they do work at other work, agricultural or otherwise, this tends to get added onto their household duties and hours (Szalai, 1975; Vanek, 1974; Ware, 1977; DaVanzo, 1978).

**TABLE 7**  
**Average Total Weekly Work Time**  
**For Husbands and Wives, Various U.S. Studies**

	<i>Hours per Week</i>		
	Labor Market <sup>1</sup>	Housework	Total Time
<b>I. Walker Study, 1967-68<sup>2</sup></b>			
Homemaker families			
Wife	3	57	60
Husband	55	11	66
Part-time employed wife			
Wife	18	47	65
Husband	51	11	62
Full-time employed wife			
Wife	37	34	71
Husband	44	11	55
<b>II. Survey Research Center (SRC) Study, 1965<sup>3</sup></b>			
Married women, employed	36	34	69
Married men, employed	48	13	61
Married women, not employed	1	54	55
SRC Study, 1976			
Married women, employed	32	27	59
Married men, employed	44	14	58
<b>III. Current Population Survey (CPS), 1965</b>			
Married women, employed	35	—	—
Married men, employed	45	—	—
CPS, 1976			
Married women, employed	34	—	—
Married men, employed	43	—	—

1. Labor market time in the Walker study includes the time spent at the job and in volunteer activities, including travel time. Labor market time in the SRC studies includes the time spent at a job but not volunteer or commuting time. Labor market time in the CPS refers to the actual number of hours worked during the survey week.

2. In these homemaker families, which constituted 66 percent of the Walker sample, the wife did not engage in any paid labor; her 3 hours of labor market time represented volunteer work.

Source: Moore and Hofferth, 1979.

Thus, one could perhaps say that when role-status considerations do allow females to work it is likely to be partly because it has become possible for them to manage the outside job at a zero opportunity cost (in services lost) to the other members of the household.

There is also an effort in some of the recent literature to find the roots of this "sexism" in capitalism or the market economy. This as might be expected is mostly from the Marxist point of view and it does not appear to have any basis in fact. That is, there are some clear cases in which the capitalist economic ethic is totally missing, sex roles are changed, yet male domination remains (Sacks, 1976). In the Soviet Union, for 60 years the formal equality of the sexes has been guaranteed by law and the capitalist profit motive totally absent. In a recent study, Lapidus has examined the question of "occupational segregation" there at length.

The Soviet experience seems to suggest that, contrary to earlier expectations shaped by Marxian theory, economic participation does not, in and of itself, guarantee equality of status and authority for women. In no less than an avowedly socialist society, the structure of authority remains hierarchical and stratified, and the proportion of women at successively higher levels of that hierarchy, even in the occupations they dominate, declines. Arrangements to sustain high rates of female employment, and to enable women to penetrate previously male occupations, may diminish to some degree the scope of occupational segregation. But a more comprehensive attack on the cultural values and institutional arrangements which sustain occupational segregation requires not merely the partial assimilation of women to male roles but the reciprocal redefinition of both. (Lapidus, 1976)

A more pointed comment yet is by Susan Jacoby in a recent review:

Soviet society does not offer its women what any Western feminist would consider a serious choice about work. In the Soviet Union, a woman can stay home with her children and experience the major economic hardship of living on one low Soviet income as well as the strong social disapproval directed at anyone who does not have a paying job. Or she can go to work in a factory, or office, and have, in effect, two full-time jobs. In her unpaid job at home, she can expect little help from her husband or from Soviet society. (Jacoby, 1978)

This provides a new explanation, in pure economic terms for the low level of fertility in the Soviet Union: the "opportunity cost" of children is not reduced income to the household but instead the enormous physical burden and time cost involved for the wife alone. This has not figured in most previous explanations of Soviet fertility patterns (Berent, 1970) but it is consistent with our theory.

(C) Female Linkage to the Wage-Labor Market

If it is accepted that there is an inevitable conflict between males and females in the household for control of the "power," then the household is viewed as inescapably an authoritarian structure. In this case male self-interest will always dictate that females are "naturally" not fitted for independent work outside the household except under certain conditions and in certain tasks (Leibowitz, 1971; Dixon, 1978).

Parsons shows that the authority and the control which the head of the modern, wage-economy-based household exercises is ultimately based on his linkage to the money economy. That is, to the extent that an increasing share of the things which members of the household need or

want are items which must be purchased in the market (rather than produced within the household), then the source of the money income to the household becomes crucial. The male head must then either be source of that income, by being the main link to the labor market; or he must control the flow of the labor of other members to the wage market and also their wage returns. Parsons also suggested, for the first time in the modern literature, that "dual linkages" (female and male) to the wage economy by a household are likely to produce instability and conflict within the household. (Safilios-Rothschild, 1976)

Thus, the specialization of the male in producing the money income and the female in producing the household services including child care reinforces the male control over the household. Women, of course, do work for money wages but this is seen as exceptional arising out of situations:

(1) Where there is no adult male in the household to work and the woman must fend for herself. In fact, elaborate social arrangements including perhaps the Islamic injunction that a man must assume the responsibility for the widow and children of a dead brother have developed to protect females from such dire straits. In the traditional view, such unattached females were helpless, pitiable and even doomed to such last resorts as prostitution. Indeed, the realization that some provision had to be made for the "widows, orphans and other deserving poor" provided the point of departure for Victorian and early modern social welfare legislation (Laslett, 1965; Lasch, 1975).

(2) Females also work when there is any length of time between puberty and leaving their parents household to marry and begin their own families. The key role of the young females in providing the labor for 19th Century textile industry in the U.S., Japan and elsewhere is well known. These young women typically worked for a few years and then become housewives. Their incomes were totally controlled by their parental household and it was clear that their work status was only temporary. Because of age as well as sex, their independent linkage to the wage economy posed no real threat to the control of their father.

Yet it is interesting to see this temporary work period of the young unmarried females as a kind of transition in the evolution of sex roles. Where such a period of post-puberty availability for work before marriage exists, the age at marriage must already be relatively high. In this case some of the social pressure on the female individual and on the family units to reproduce at the maximum possible tempo (by marrying early) has been removed. In other words, the biological imperative has started to ease. The women's work experience does bring her into the world and give her an independent access to information and ideas. The likelihood that she will (and can) return to the wage economy later in life is enhanced and numerous studies indicate that working before marriage and childbearing increase substantially the probability of a women working in later life. She also establishes a family "tradition" of female work which she certainly bequeaths to her daughters, increasing the likelihood that they will work.

(3) Females also work when the male for some temporary reason cannot find work. This may be connected with some disability, or with a

seasonal or cyclical downturn in the industry in which the male works. The notion of the female in the household as a kind of "labor reserve" gains acceptance and brings the female into the wage market perhaps to begin with on an intermittent basis but increasingly on a regular basis. The fact that the female is likely to have a lower level of skill and training, a lower reservation wage rate, and consequently to be willing to work at more casual, lower-wage jobs fits well with the needs of many modern industries. But, control over the money income may still lie with the male.

This theory argues that from control over the stock of land and other assets through male-dominated inheritance patterns, the household has moved to male control over the flow of money income to the household. This has tended to inhibit the seeking of jobs in the money wage economy by females except under special conditions and even then the males have controlled the income.

Yet change has occurred in the U.S. and elsewhere. The slow growth of the attachment of females to the money wage economy has in fact been responsible for the profound changes to be observed in the family power structure and also the stability of the family unit. Beginning somewhere in the last century in the U.S. at least females did begin to enter the wage economy (Cain, 1966; Leser, 1958). For several generations this was in accord with the traditional view, that such linkages were "secondary" to that of the male or because of unusual conditions. But, this rationale was gradually eroded away until it became clear that female were capable of their own independent links to the money economy, no longer needed

to accept male dominance with the household or the traditional occupational role.

From the female perspective, marriage can be thought of as a "job" as Sawhill notes: "The ultimate form of occupational segregation would be a situation in which culture dictated that all women be 'housewives' with no access to any other occupation. Under these circumstances, women would have to marry, and remain married, for economic reasons. Social protections in the form of life insurance, alimony, child support, social security and AFDC might be created to help those who become temporarily or permanently 'unemployed'. But, most women would be reluctant to leave the security of married living especially if their age made it unlikely that they would be able to find a new husband-employer." (Sawhill, 1976, pp.202-203)

Opening up any other occupational outlet then increases female bargaining strength within the household vis-a-vis the present husband-employer. Thus, increasing direct female link to the money wage-market (dual linkages) does accompany if not cause greater marital instability because it makes the domestic "wage-bargain" less than a life-time proposition. Papanek has argued that the "two-person career" idea, under which women played a vital yet supporting role, to their husband, has broken down. (Papanek, 1979)

Some of the real welfare of the household comes in the form of status rather than just income in money terms. This has always been clearly understood since in many cultures money-making was definitely low in prestige and status. A household could be prestigious and

powerful but not necessarily rich. Similarly, having a large money income did not always equate to real social influence or power.

Hanna Papanek (1979) argues that the contribution of the female to the household has often been in the form of "status related" services rather than income-producing activities. Status is defined as "a collectively shared assessment or evaluation of a unit on the basis of certain objective characteristics." The female in the household helps produce status through several channels:

(1) Male-status-supportive activity such as seeing that the male (the link to the other world) is well-dressed, entertaining his friends, and making it possible for him to devote himself totally to his labor market activities.

(2) Child-education and socialization by spending her own time with the children and seeing that the children develop the "right" attitudes and socially approved character traits and manners.

(3) Status-maintenance activities such as participation in religious, civic, charitable, political and social groups as a volunteer. These activities do not generate money income but they support the favorable social opinion of the household and give it status. (From this perspective one can say that the entire "volunteer work rip-off" (as it sometimes unkindly called) was the pursuit of work in return for psychic income or status. It becomes a "rip-off" at the moment that status and psychic income no longer are accepted as a valid return by the household or the female involved.)

The status-production concept is based on the assumption that there is a status factor in the salary scales and working conditions of many societies. Persons in occupations of high status in the society earn more than those whose work is regarded as less prestigious. All three categories of status-production work emphasize the identity of the status producer—who trains the children, for example, is an important as what is taught. Although some parts of the work can be delegated to others, often persons attached to the family, such as a governess or domestic servant, others must be carried out by the "woman of the house." This means that calculations of the worth of women's status-production work cannot be based on the wages earned by cooks or maids, to whom some housework can be delegated. Nor can the calculations be based on the average wages women might earn if they chose jobs outside the home, although this may be more accurate, especially in societies where women's access to employment is relatively unrestricted. Since women's status-production work may result in enhanced earnings by other family members, its worth should be calculated on the basis of the family's status rather than the class or status of those workers to whom some parts of the work may be delegated.

A final characteristic of status-production work is the close link between family status and appropriate behavior by women, especially in sex-segregated societies. "A man is known from the qualities of his wife," states a Pathan proverb in Pakistan. More prosaically, men in many societies boast that "my wife doesn't have to work" when they want to demonstrate middle-class status. Thorstein Veblen has, of course, discussed "vicarious leisure," but what I argue here stresses the work content of those activities he dismissed so cavalierly.  
(Papanek, 1979, pp.778-779)

Several other highly useful points emerge in thinking about the status-money income tradeoff within the household. Status is likely to be more important as an objective for a household the higher its achieved money income. Very poor families cannot afford for the female to waste

her time not working for money or for directly productive household tasks. Money income does presumably have a tendency to display diminishing marginal utility and the rising marginal value of status is one reason. A second point also follows. Even if a household can afford to hire outside wage labor to see to the care of the children, to caring for clothing and so on, this hired labor does not fully substitute for the direct time and activity of the female herself. It is the fact of the wife-mother's participation in the activity - reading to the children, attending the committee meeting - which produces the status, otherwise money would always trade off and produce status alone and this is not true.

Also the more complex the household, the more wage labor is used for other chores, the more the wife is likely to be tied down as the "general manager" of the complex. Here too her success in this will produce a well-run, status-supportive and status-producing household. Finally, over time with the growing pressure of the money economy there has probably been a tendency for the value of status to lessen relative to pure money income. Older class and status oriented societies still exist in many parts of the world. It is common complaint that the market mentality quickly erodes the old values and the old honorific practices. In the end, in a pure market society, money income is the ultimate of relative power and status. The literature of Europe in the 18th and 19th Century is full of the poignant transitions when the status families of the declining landed gentry lost out to the new commercial money-making families of the middle class. This process goes on today in many parts of the Third World. This growing monetization and further

penetration of the money economy into all social and psychological relationships is the dominant fact of the modern world and of the entire development process.

(D) Changes in Female Labor Market Roles

The next important question in this line of development is what has caused the changes over time in the roles considered "appropriate" for females? Or putting the matter a bit differently, what has lead women to increasingly attempt to play both the role of mother-homemaker and also to enter the labor market? Several hypotheses have been put forth.

(1) Changes in household technology have made it unnecessary for females to labor "from dawn to dusk" to accomplish the required household tasks of cleaning, cooking, child-care and so on. These changes have stemmed from two sources (Ogbrn and Nimkoff, 1955; Baker, 1965):

(a) The growth of non-human energy sources, particularly cheap electricity have removed much of the sheer physical drudgery from the home. The availability of such cheap energy in turn lead to a continuing series of new household appliances, beginning with the electric iron and carpet-sweeper and extending up through the microwave oven and the home freezer. The thrust of these changes in home technology has also changed direction. The early wave of such developments was mainly human-energy saving or replacing. Washing with an electric washing machine was simply a lot less work than using a hand washboard and ringer. More recently, innovations have been towards saving time rather than human effort per se. The microwave oven is

really no less effort to use than an ordinary electric stove but it is much quicker and requires less planning time also.

(b) Specialization of labor has continued to grow throughout the entire economy and the household now finds that many types of food preparation, production of intermediate inputs and small investment-capital goods which used to be a routine part of the household's own production are instead purchased in the market from firms specializing in these items. Relatively few households grow and store, through canning and preserving, any significant fraction of their own consumption of vegetables or fruits. A century ago this was necessary simply because the canned foods and frozen foods industries did not exist. Laundry and dry cleaning provide another example of required services which now are purchased by the household but were previously done within the household totally. (To be sure, the trends in such matters are not linear. The wage level in general has gone up and this has tended to make some of these still relatively labor intensive services more expensive to purchase in the market than to perform in the household using the new energy-intensive equipment to help the housewife. Laundry and cleaning provide a good example here too. It used to be that everyone did their own laundry. The rise of the commercial laundry industry changed this for a generation. Now the higher wages paid such workers have driven many households back into production of laundry services using a newer technology.)

(2) Changes in the technological basis of industry itself have affected the market demand for labor. Thus, many jobs are now not so physically demanding and women can perform them as well as men. This clearly results from the same cheap non-human energy inputs which we noted in the home. One could generalize and say that cheap energy and the technology it has created tend to make all workers more nearly equal than they used to be (Ridker and Nordberg, 1976).

Such energy intensive and capital intensive jobs also tend to require lower levels of skill and to make more demand for unskilled or semi-skilled workers using a relatively complex technology, much capital and much energy, to support a high division of labor and specialization.

(Thus, women were attractive to early industrial enterprises because they were as good as men and possessing less accumulated human capital tended to have lower reservation wages rates.)

(3) The rise of the industrial society has been accompanied by a never-ending consumerism. Advertising and mass media are new within the last century and TV and radio as means of reaching the public within the last generation. More than ever before the consumer is exposed to pressure of new products; product innovation has become the only meaningful form of competition in many industries. This has had the effect of postponing continually if not eliminating totally the dangers of any possible consumer saturation (such as once worried the Stagnation Theorists). The propensity of consume remains more or less constant over time. This consumerism has also lead to a continuing drive for more money incomes to support the rising level of consumer expenditures.

The decline in household production and the substitution of market based purchases has required also rising levels of money income in the household and the sale of the housewives time in the labor market has supported much of this (Andrews, 1935; Myrdal and Klein, 1956).

In sum, the breakdown of the home as both the workplace and the consumer unit began to occur with the industrial revolution and the concentration of work in new locations. The maternal function, mothering and child-care, on the other hand remains home centered and so do the complimentary tasks of food-preparation, cleaning, and sewing. The core of "women's work" remains pre-industrial revolution. The decline of the need for the maternal function has been the real cause in the changes of the last hundred years. Without this need, women do indeed find themselves underemployed.

(E) "Role Incompatibility" and Fertility

In reviewing the possible causal social interactions affecting female labour market activity, Fong (1976) has suggested that voluntary and involuntary restrictions exist for female employment. Voluntary Restrictions include: (1) social-psychological incompatibility "role conflict" such that by choosing fertility, the woman rejects employment (for at least a time); (2) basic self-role definition by the female which rejects work outside the home under all but highly unusual circumstances; (3) a rational preference for home "production" due to very low market wage or highly undesirable jobs available in employment.

Involuntary Restrictions on female employment include: (1) unavailability of employment due to labour market discrimination; (2) restriction

to certain unattractive jobs; (3) strong familial and social pressures to bear children, coupled with the spatial and/or role incompatibility of child rearing and employment; (4) social role definition which confines women to household tasks.

These categories overlap and interact. But the point they make is clear enough. Fertility may be "chosen" or imposed on women by social-familial pressures; fertility may or may not be incompatible with employment, depending upon spatial, structural and also social-psychological factors; employment may still be closed to women, even with no incompatibility (or indeed in the absence of fertility) due to prevailing social role definition and labour market discrimination; even with no incompatibility, under some conditions home production by females will be preferred to labour market activity.

Numerous researchers have suggested that there is no role conflict between satisfying the need for many children and the need for mother to work at home or in the field. In fact, the nature of the agricultural economy demands both. The kin structure is generally one that provides ample mother surrogates, satisfying the only limitation on combining mothering with working in this context (Goode, 1960; Gross *et al.*, 1966; Hass, 1972; Mason, 1975).

In the urban setting, children are apt to be of less immediate or even long-term value in regard to supplementing the family income, but an inherent "satisfying" quality remains. On the other hand, the mother ~~is more likely to have education which stimulates her to work away from~~ home. An opportunity cost to the family, that is the income the family loses if she does not work, appears relevant. If there are other family members available to serve as mother surrogates, work away from home may

still be compatible with maternity. However, as urbanization occurs, there tends to be movement toward what Caldwell calls the "Westernized" or nuclear family, resulting in a growing incompatibility between the roles of mother and worker. (1967)

Thus, from the economist's perspective, the conflicting demands of mothering and working, or role incompatibility, will stimulate the family decision-making unit to evaluate the "opportunity costs" of another child relative to the anticipated satisfaction obtained from that child versus other goods. The sociological concept of "role incompatibility" and the economic concept of "opportunity cost" are intricately connected. Much of the research reported here can be interpreted in a framework similar to that already described in the earlier sections.

The seeming duality of the work-fertility relationship for rural and urban residence categories, or for traditional and non-traditional work categories, reported by Jaffe and Azumi (1960), Weller (1968a), and Kobayashi (1977), can also be explained in these terms. Women in agriculture or other traditional occupations, such as trade in the case of African countries, may experience little conflict between the roles of worker and mother. The traditional society provides a kinship structure which helps with child care and prescribes a norm for women that defines mothering and working in many occupations as acceptable and, indeed, expected.

This framework also allows explanation of an inconsistency seen in the data reported from Latin America, the variation in the fertility of women in domestic service (Stycos, 1965; Collver and Langlois, 1962; Gendell, et al., 1970).

(F) Types of Role Incompatibility

Role compatibility can be conceived of as having at least two dimensions. Spatial compatibility can be used to explain FLFP fertility relationships for women in traditional vs. non-traditional occupations. (But this would not serve to explain the differences found among women employed in varying types of non-traditional occupations.) There also appears to be a dimension of role incompatibility which can be termed social-psychological. Thus Hass (1972), using CELADE data, found blue collar workers had higher fertility than white collar workers. Weller (1968b) found support for his hypothesis that women in white collar occupations would have the lowest fertility.

To explain why the type or class of job should be related to fertility in terms of social-psychological role incompatibility demands consideration of education and other variables as antecedent to the FLFP fertility relationship (Cochrane, 1978). If role incompatibility exists, there must be some definitions of roles that are in conflict with one another. A definition of mothering which requires mostly the mother in spatial proximity to the child can be satisfied by the mother working at a job which allows her to have the child with her. Here the spatial incompatibility can be dealt with and the other is not important.

A definition of the role of "mothering" which defines mother surrogates as inferior (or non-status) and implies maternal neglect on the part of those women using them lead to the social-psychological incompatibility which is harder to deal with and may lead a mother not to work during the period of her life that her children need care. If the same woman has received an education that has provided work skills, the opportunity

cost of not working is high. Thus, given the perception of a social-psychological role incompatibility and a high return from working, the woman is likely to reduce fertility so as to reduce the "mothering" time lost to work. The higher the education (and wage per woman, the lower the fertility given this defined incompatibility.

Using data from the Puerto Rican Public Use Sample, McCabe and Rosenzweig (1976a) tested a model of household choice which considered the effects on fertility of an increase in the wife's wage. The analysis supported the contention that an increase in wife's wage would increase labour force participation and also fertility. Further analysis indicated that this effect would be conditioned by controlling for non-agricultural employment.

Stycos and Weller (1968), in discussing the absence of fertility differentials for Turkish women when analyzed in terms of rural-urban residence, suggest that in some context domestic service employment has elements of other traditional occupations. In situations in which the employee is permitted to have her children with her, the role of mother is not in conflict with the role of worker. This may be applicable to the situation of domestic service workers in many Latin American cities. In the case of Guatemala City, Gendell, et al. (1970) concluded that the preference of domestic service employers for single or childless women contributed to the finding of lower fertility among domestic workers. Thus, for some of these workers, role incompatibility is not an issue, unless it is assumed that their state of non-marriage or childlessness results from a choice made between maternity and working.

In fact there is evidence that the role incompatibility of labor force participation and being a mother has decreased for many U.S. females. Smith notes:

. . . increasing acceptance of nontraditional, and especially nonfamilial, roles for women has been credited with contributing to the rapid rise in the female participation rate in recent years. In 1964, for example, 54 percent of women surveyed agreed that a mother who worked could still establish a close relationship with her children. Within only six years, the percentage of women with this view increased to 73. (Smith, 1979, p.6)

Education affects perceived female rate and aspirations too. Education stimulates individual mobility aspirations, sensitizes the individual to the range of options available, and at both an individual and societal level, redefines woman's role. Presumably occupations that education qualifies women for are more likely to provide satisfaction and recognition of a type which competes with those received from the mothering role.

In looking at the education-employment-fertility relationship, Standing (1976a) emphasizes the importance of considering the demand factor. If suitable job opportunities do not exist, educated women may experience status frustration and drop out of the labour force. Standing emphasizes education as a facilitator of labour force participation, but not as a percipator. Hull (1977) also discusses the problem of supply of status-consistent jobs for women as an acute problem in the Third World.

(G) Summary: Sociopsychological Role and Economic Choice

Perhaps another criticism of many of the economic household labour supply models reviewed already is that they presuppose marriage for all females, thus obscuring the decision about whether (and when) to marry, one of the important social processes which affects directly both fertility and female labour force activity. Indeed, what is going on for married females may already be crucially affected by the very decision to marry. Put bluntly, suppose the decision to marry implies that a female will have children and that having children implies a secondary status so far as labour force participation is concerned, due to role-incompatibility.

One can see three basic social processes as being at work and involving all females: marriage, work, and child bearing. A woman marries or she does not; she works for wages outside the home or she does not; she bears children or she does not. (Figure 11 illustrates the logical idea.) Any possible outcome or combination of these states is possible. A woman may not marry, have no children and work for wages. Or she may marry, bear children and work at home. These two are perhaps the clearest-cut extreme outcomes. But, a woman may also never marry, work at home and have children; or marry, bear children and work for wages. There is the further complication that these states are not permanent or irreversible. Fertility, in some sense, of course, is, but not the implication for the female. She may hand over the major child care to another, inside or outside the family. Marriage may end and begin again. Work inside the home and work for wages may begin, end and replace one another. And the experience, the history of work,

**FIGURE 11**  
**The Work-Marriage-Fertility**  
**Framework**

	Work at Home	Labour Market Work
<b>Marriage</b>	-----	-----
<b>Fertility</b>	(1)	(3)
<b>Non-Fertility</b>	(2)	(4)
<b>Non-Marriage</b>	-----	-----
<b>Fertility</b>	(5)	(7)
<b>Non-Fertility</b>	(6)	(8)

marriage and fertility influence the subsequent interactions and states to which the female arrives. Having worked for wages before marrying or having a child increases the probability that a woman will again work for wages, even with a child. And this reduces her likely completed subsequent fertility. The trick then is to relate these structural factors to the more purely economic models, centering around prices, income and tastes, which were reviewed above. This is attempted in the next section.

## Chapter IV

### A Proposed Synthesis and Framework

#### (A) Introduction

We have reviewed in some detail four main approaches to the link between female labor force activity and fertility. These are: (1) economic activity as a cause of fertility; (2) fertility as a factor explaining the female labor force participation patterns; (3) the economic (human capital and other) models of household economic and demographic behavior; (4) socio-psychological models of the household centering around family power structure and male-female sex roles. The first two approaches, while comprising the bulk of the traditional demographic and economic literature are inadequate because they present too partial and incomplete a picture of the complex real-world-relaities.

The household production and consumption models treat the labor force participation-fertility "decisions" as simultaneous and mutually determined by a relatively small number of other essentially economic variables - income, relative prices and tastes.

The last approach has historical perspective but also lacks the rigour and possible econometric applications of the economic approach. We feel that a correct view of the fertility-labor force relationship (and one which can provide a useful guide to policy) requires essentially an extension of the economic model to include more "non-economic" variables. "Roles"; male-female intra-household divisions of labor; and family structure are to be brought into the still-mainly economic framework. This framework cannot be thought of in a static, cross-

sectional way. There are "stages" or different causal orderings to these relationships and these must be reflected in the frameworks specified. We propose that the hybrid economci-sociopsychological approach can be tested empirically, even if the data requirements are challenging.

(B) The Labor Market Factors

A good way to look at the "cause of individual occupational placement" (to use Karen Oppenheim Mason's phase) is in terms of:

- (1) Human capital formation prior to entering the labor force.
- (2) Ability/willingness to forego short-run for long-run labor market benefits (basically, investment in one's self by acquiring on the job training or conducting good market searches for jobs).
- (3) Ability/willingness to move geographically for jobs or to change their work vs. nonwork habits (hours available, hours worked, etc.) to accommodate the needs of the job.
- (4) Ability/willingness to accumulate seniority and specific capital in a particular firm, bureaucracy or union.
- (5) "Tastes" on the part of employers, clients, other workers (and women themselves) regarding appropriate jobs for women.

Barriers (2), (3) and (4) all arise from the dual role of females as both workers and mothers-housewives, the latter of which as we have seen often does imply some discontinuities in the labor market experience and also household demands on time of some irreducible minimum. But

some of these "inabilities/unwillingnesses" arise also from the secondary role in which the women's labor market role is viewed within the household, by her husband and herself. She must move when he moves; her work hours must not conflict with his or with the needs of the children; her income is a supplement to that of the husband and represents almost "windfall" income which is not part of the permanent income stream of the household.

Perhaps the most intractable barrier is the one centering around social "norm" regarding female roles and employer "tastes." These are demand side factors over which the female have little or no control and which presumably are hard to change even with legislation. (But, the interaction between self-image and self-expectations and the attitude of other should not be overlooked. When women workers are clearly professionals and think of themselves as such, perhaps they are more likely to be treated that way.)

In the end with regard to female employment, the question breaks down to:

- (1) demand labor market factors (what can women do?)
- (2) supply labor market factors (what do women want to do, or feel they must do?)
- (3) normative non-market factors (what should women do, or not do?)

What our previous review of the various approaches has shown is that there is a correspondence between the social role definition for women and the structure of the labour market.

The voluntary vs. involuntary social barriers notion, for example, presents a great similarity to the segmented labour market concept. If the social role for women is that of "breeder," then their role and economic activity is child-services production. In extreme cases the self image or role of female taught by the system will reinforce this to the extent that even unmarried infertile women will also not want to work. This supply effect will be doubly reinforced by demand effects and discrimination against hiring women under almost any conditions. This implies also that the shadow wage of the female in household production, including child-services, must be high, at least from the viewpoint of the household's (male) head-decision-maker. The biological imperative to procreation leads to the social role of "breeder" and the compatible role of household producer follows from this. Women may or may work outside the home for wages but the "breeder-wife" role (and economic function) comes first.

Where there is a legitimate need for female labor in agriculture, services and trade, centering around the family economic unit, but involving tasks other than child care, role compatibility becomes important. The balancing of one role against the other becomes the counterpart to balancing the female's market wage against her home production "shadow wage." One can argue that a strong preference for home work, or a severe self-definition of a role incompatibility is prima facia evidence of a higher shadow wage than market wage. But familial and other pressures help shape the female's "reservation price" for her time. And the fact that it is high relative to the market wage may or may not reflect a high real marginal value product of her home production.

(C) The Family Structure Factor

Irene Taeuber some years ago reminded us of the role of family structure in modernization:

If there is a theory of the demographic transition, there is also a theory of the family transition and the two are interrelated.. The theory of family transition is .. seldom stated in the terminology of the demographers. Premodern families tended to be horizontally diffuse and vertically extended. Ideal families were multigenerational kin groups. Actual distributions of families by size had concentrations in the middle ranges of size; economic pressures in densely settled agricultural populations barred the amintenance of large families and high mortality precluded their generation. Marriage occurred at early age and fertility was limited only marginally by traditional taboos and prectices; growth potential was high when and if mortality declined. The premodern family was thus incompatible with modernization. With industrialization and urbanization, there was a transition to a nuclear or conjugal family. (Taeuber, 1969, p.37)

According to Reuben Hill, (1969), there have occurred six major changes in the structure of marriage and the family in most of the developed nations and these have accompanied the major changes in the society's reproductive patterns:

- (1) A change from closed to open mate selection has probably lead to decline the proportion of females who ever marry and also a rise in the average age at first marriage.
- (2) The elimination of dowry and bride price and other fixed inter-generational transfers at the time of marriage has tended to lead to a lower beginning level of income for

couples and to a consequent postponement of child-bearing. The inter-generational transfer now tends to be in the form of investment in the education of the children by the parents and this does have a favorable effect on life time earnings but only after some time in the labor force.

- (3) Family structure has shifted from the centralized three-generational extended family controlled by the oldest male to a decentralized nuclear unit operating within a voluntary, loose network of kin-ties based upon reciprocal exchange and a core or social norms regarding duties to one another.
- (4) Sexual relationships are no longer tied to procreation and sexual contacts may or have not imply marriage or the creation of a "family unit."
- (5) Divorce is no longer the male prerogative exclusively and rarely can be justified because of reproductive failure. It is instead an adjudication of conjugal incompatibility at law.
- (6) Family forms, duties and divisions of labor are no longer strictly sex-differentiated and income and economic power within the family are more equally based and divided.

Thus, the changed family structure has reinforced and interacted with the changed fertility pattern and the changes in male-female sex-roles which have occurred. Yet the Western European historical experience suggests that family type and structure does exert an independent effect upon fertility and through fertility (the biological imperative) upon female economic activity. At the other extreme the

modern Western (but also increasingly Southeast Asian) one generation nuclear family is impelled largely by an economic imperative which has lead to the sharply increased "monetization" of female economic activity.

Economically, family structure and type may be functioning as the surrogate for changing "tastes" (the objective changing from immortality for the family unit to one-generation life-time utility maximization) and a changing time-horizon (or discount rate) of present versus future payoffs.

These conclusions are consistent with a growing body of literature on fertility which shows that all the major existing approaches economic, sociological and psychological - have yielded disappointing results because of their narrow discipline-orientation (Robinson and Harbison, 1980). Thornton's recent empirical work, for example, concludes:

The results are indicative of the importance of further broadening the framework of fertility. Consideration of life style orientation, time use preferences, and sex role attitudes must be considered together with income, child quality and opportunity costs. (Thornton, 1979, p.174)

Perhaps the greatest value of thinking about these essentially social structural elements is that they help us add realism to the theory of household behavior. The utility function begin maximized by most households is more complex than the economic models admit, and the cultural and structural values cannot all be dealt with as "tastes." Differences in "shadow" wage and market wage are not automatically eliminated and may persist. Family type and the nature of the decision-making then do exert independent influences. Effort to examine these fertility-labour force participation relationships in the real world of the LDCs and to design policy must take these elements into account.

The foregoing is an essentially structuralist view of these processes. Yet, they can be shown as effecting actual economic behaviors through the familiar demand and supply apparatus. Indeed, they are another way of describing the same reality. The reality we can end up describing within this framework is complex. How can we go about modelling it?

(D) A Typology of the Relationship

The key question: What is the proper ordering of relationship of fertility to female economic activity and the level of overall economic and social development? Let us begin with a series of types or stages.

(1) Where the underlying social imperative is for high fertility, the principle function of the individual female will be procreation. Labor force participation and economic activity may in any specific case be consistent or inconsistent with this function but this link is essentially besides the point. Marriage will occur at early ages, the female will not acquire any human capital for the labor market, and such participation as does occur will be out of dire necessity (male present or male missing), or late in life when the fertility function has been fulfilled. The role image of the female, to which she is socialized, will also be strongly in this direction. Only in marriage and motherhood can she expect to find status and fulfillment.

We can put the policy conclusion very clearly. In Bangladesh, any effort to provide jobs outside the home for young women and thereby reduce fertility would, in essence, miss the whole point. The entire social and family structure is oriented towards fertility and the jobs,

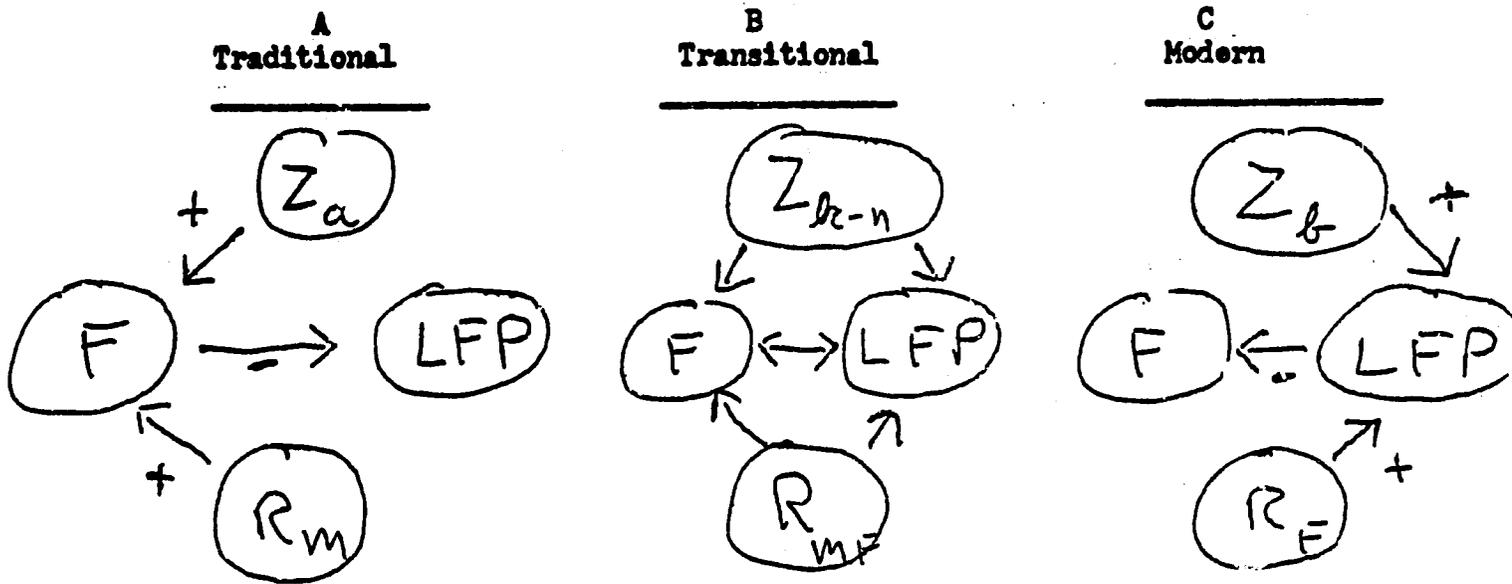
even if taken up, would not be allowed to interfere with fertility. This is pessimistic. But, the inescapable fact is that only when a felt need for fertility reduction has percolated down to the household level in the villages of Bangladesh will policy of any kind have much hope of success. This will eventually occur. When land is hopelessly over-worked, when there are no jobs for anyone in the cities and when the males as well as the females can see that they are worse off than their fathers (or worse off than those with smaller families), the present micro-level supports for higher fertility will begin to crumble. A rising age at first marriage will herald this change and when this begins to occur, then the hope of the young women entering the labor market for at least a while prior to marriage will emerge. Then and only then can one think in terms of a labor policy to encourage female labor force activity.

(2) In other societies in which previous high level of fertility have begun to fall and in which social change is beginning, the prospects maybe somewhat brighter. If females are typically working for at least a while before having children, labor policy can be used very nicely to provide information and access to family planning services. This is a form of human capital accumulation which remains with the female forever. The labor policies can also insure that females have access to training and to the full heirarchy of jobs, increasing the liklihood that they will continue to maintain a connection with labor force after marriage and fertility and thus increase the opportunity cost of subsequent births.

(3) In the case of societies which lack stable, authoritarian family structures, the problem is much more tricky. These societies are, as we have seen, more likely to be ones with very loose property arrangements, with no real pressure of economic scarcity and with a less clearly male-dominated tradition. The African or Caribbean areas come to mind. Women in these cultures do work for wages and do frequently even control their own income but they also have high fertility. Here too it would seem that the prospects for labor policy are dim. Education for females to increase their skill level and their own aspirations are important, as is straight-forward family planning. But institutional support patterns, such as welfare or public assistance, will be counter-productive since it will tend to keep females out of the labor market and also to shield them from the full realization of the costs of their own fertility. It might well be that under such conditions, quite novel labor policies, such as offering attractive employment only to females who have no children, or a deliberately high minimum wage could be resorted to.

Figure 12, drawn from Stycos and Weller (1967) and Terry (1974) illustrates three stages or types. In the Type A, the "Traditional" Type, the biological imperative is strong; child-bearing and child-care are the paramount female role and this is expressed by the positive relationship with "familism." The "sex role" variable, which is an index of male dominance or in equality of power and household decision-making, is positive with respect to fertility also. As the causal paths are drawn here, fertility alone exerts the negative effect on labor force participation but it would also be plausible to hypothesize

FIGURE 12  
Alternative Causal Path Models



F - Fertility

LFP - Female labor force participation

$Z_a$  - Familism

$Z_b$  - Career-orientation

$Z_{k-n}$  - All other characteristics

$R_m$  - Male Dominant Sex Roles

$R_f$  - Female equal Sex Roles

$R_{mf}$  - Mixed Sex Roles

weaker, direct and also negative paths from "familism" and "sex role" to labor force participation. Also, the signs indicated in no way suggest a total elimination of all labor force participation by females in this type, only that the dominant familism, sex role patterns and underlying biological imperative militate against it in the normal case.

In the other extreme, Type C, the "Modern" case, "career-orientation" has replaced "familism" and the "sex role" variable has attained a "female-equal" value. Thus, both these variables exert a positive effect on labor force participation which then exerts a negative effect on fertility. Here, too, a weaker negative path between "female-equal" sex role and fertility is plausible. Nor does this case rule out any fertility. It simply says that the setting strongly encourages labor force participation and this discourages fertility as the typical case.

The third type, or "transitional" case, argues that characteristics including "familism," "career-orientation," "sex-role equality" and others as well affect both fertility and labor force participation in ways which are difficult to predict a priori. Also, the two dependent variables interact with one another. This case could cover a situation in which the "familism" variable is still strongly positive with respect to fertility but in which the "sex-role" variable might be negative (male-female equals) or neutral. In short, the outcome is less predictable.

(E) Approaches to Econometric Modelling

As we saw in the earlier sections, numerous researchers have undertaken econometric studies of the female labor force participation-fertility connection. McCabe and Rosenzweig (1976a) have employed a fairly typical version of the more sophisticated "labor supply" model. They suggest that a "general system" would be:

$$\begin{bmatrix} N \\ L_f \\ CI \\ H \\ S \\ R \end{bmatrix} = \begin{bmatrix} a_{10}, a_{11}, \dots, a_{16} \\ a_{20}, a_{21}, \dots, a_{26} \\ \dots \\ a_{60}, a_{61}, \dots, a_{66} \end{bmatrix} \cdot \begin{bmatrix} 1 \\ W_f \\ W_m \\ E_f \\ E_m \\ I_f \\ I_m \end{bmatrix} + \begin{bmatrix} U_1 \\ - \\ U_6 \end{bmatrix}$$

In which:

- $W_f$  = wage rate of the wife
- $W_m$  = wage rate of the husband
- $I_m$  = other income of the husband
- $I_f$  = other income of the wife
- $E_m$  = education of husband
- $E_f$  = education of the wife
- $N$  = completed fertility
- $L_f$  = labor force participation of wife
- $CI$  = compatibility (of occupation and fertility) index
- $H$  = dichotomous job-location variable
- $S$  = domestic servants employed
- $R$  = relatives in the household
- $U$  = error terms

In its simplest form this system comes down to:

$$N = a_{10} + a_{11} W_f + a_{12} W_m + a_{13} E_f + a_{14} E_m + a_{15} I_f + a_{16} I_m$$

$$L_f = a_{20} + a_{21} W_f + a_{22} W_m + a_{23} E_f + a_{24} E_m + a_{25} I_f + a_{26} I_m$$

These two equations can be interpreted as: a demand for children function taking into account the opportunity cost of children, household income and tastes; a supply of female labor function allowing for the wives market wage rate, husbands wage rate, household income, and human capital investment. The framework assumes: "The wife's labor force participation and her fertility are jointly determined by a common set of exogeneous variables, including the wife's and husband's wage rate" (p.327).

This formulation is, in effect, a reduced form of the "household production and consumption" approach sketched out above. The underlying assumption is that household utility maximization will be achieved by an optimal combination of child-services and market goods-services by the household. Hence, the key "decision" for the household is the "right" amounts of  $N$  and  $L_f$ , given the structural parameters,  $W_f$ , etc. The addition of the other simultaneous independent variables -  $R$ ,  $S$ ,  $H$ ,  $CI$  - is seen by McCabe and Rosenzweig as an effort to modify the basic model the direction of Third World realism. Variables  $R$  and  $S$  pertain to household structure, whereas  $H$  and  $CI$  pertain to the kind and type of jobs open to females. It represents an effort to deal with what we have called spatial incompatibility of child-care and market work and to allow for the effect of family structure on the supply of female labor and fertility.

This formulation also implicitly assumes that: (a) the household is an internally homogeneous unit with a single set of tastes, single utility function and a consistent process of decision-making; (b) that both child-services (fertility) and market goods (female labor force supply and the income it yields) do have a net positive value to the household and thus the demand and supply observed represents freely undertaken actions; (c) that the household is a stable unit which aims at maximizing the utility of the present members over their life-cycle.

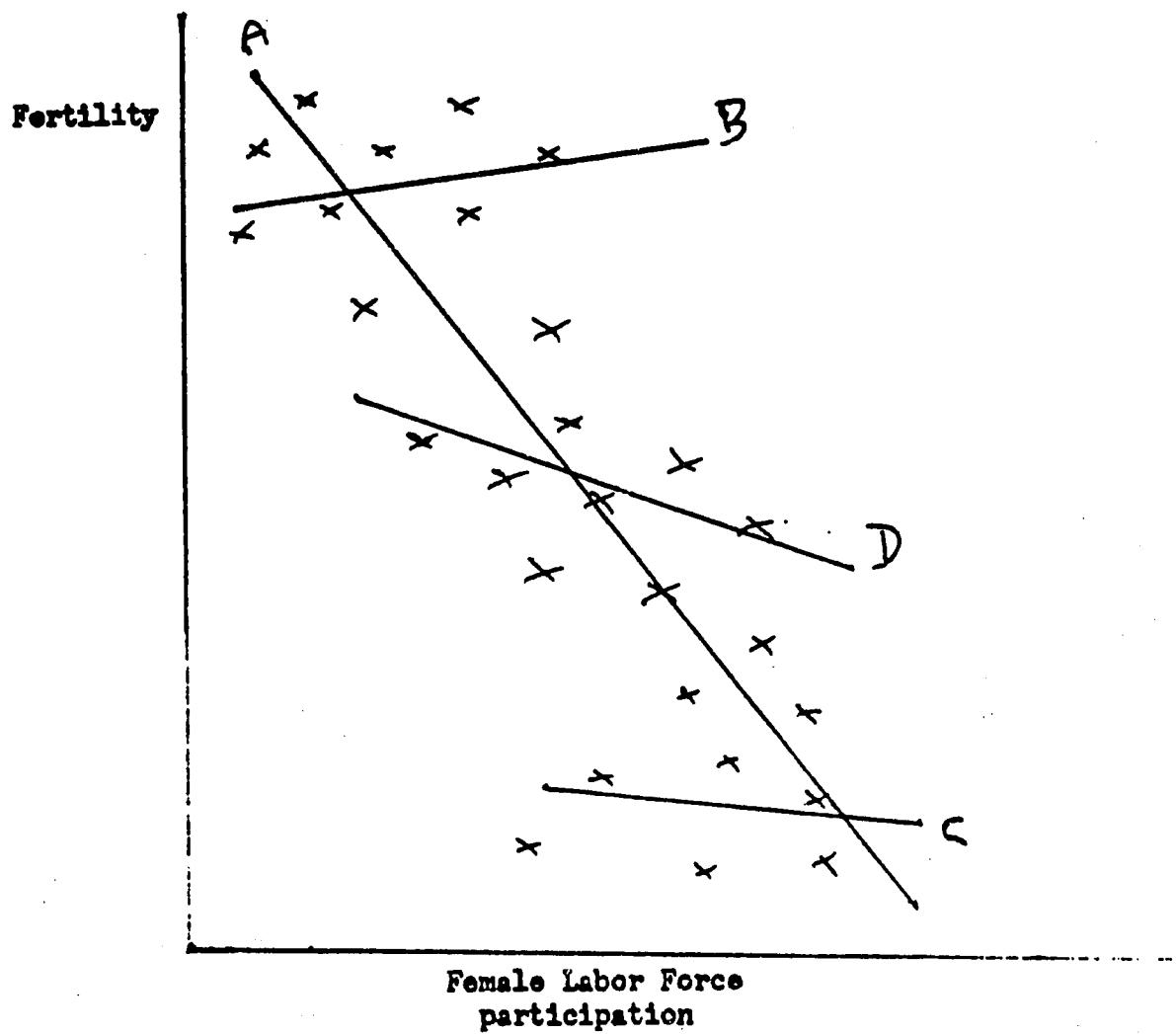
The McCabe - Rosenzweig formulation is, to repeat, fairly sophisticated but rather typical (Standing and Sheehan, 1978) of this approach. By and large the results obtained have been disappointing. How can we modify this approach in the light of some of the considerations raised in our last section? The proper econometric specification would be:

(1) To reject the simultaneous equations structure and instead assume that the biological or economic imperatives are the key causal elements; for most LDC's it is the first, for most MDC's the second; some transitional cases fall inbetween, in which a limited simultaneity may exist. The structure is in any event more likely to be recursive and interactive. Regression analysis may still be appropriate but a structure such as shown in Figure 12 is more likely to call for path-analytic techniques rather than regression analysis as such (Li, 1975).

(2) Operationally, the first step in analysis of any data set (cross-national or internal to one country) must be to "probe for the structure" using the Michigan-AID (Automatic Interaction Detector) Program or some similar approach (Sonquist et al., 1971). In essence, this approach identifies empirically, the subgroups into which the households fall "naturally." Our theoretical discussion suggests that the family type and female role - household wage rate would be the two most important such groupings.

The nature of the problem which arises when these distinct subgroups are treated as homogeneous for regression analysis can be understood with reference to Figure 13. The scatter of points represent observed values of female labor force participation rates and fertility for a number of households. Regression analysis would fit a linear function to these points such as line A and pronounce that the two variables were negatively related. Yet if we knew that family type differed systematically and we probed for this we would find that, in fact, the population is three subgroups. In one subgroup (Traditional Family), the true relationships was best shown as function B, with fertility uniformly high and only a moderate relationship to labor force participation. In the second subgroup (Modern Family Type) there is a strong, clear negative relationship between labor force activity and fertility (Function C). For a third, more mixed family type perhaps the relationship is not clear (Function D). The point is simply this: Using Function A we would assume that moving any single household up the female economic activity axis (points a to b say) would lead to a decline in fertility. Yet this would be wrong. If that

FIGURE 13  
Correct and Incorrect Ways of  
Conceptualizing Fertility-Labor Force Relationship



unit began at point a and female labor force activity rose, then it would move to point c, not point b, and fertility would change very little. In other words, leaving out key variables, is the equivalent of assuming a homogeneity of the population which does not exist and which leads to wrong results.

(3) Empirically, data sets to be useful must include measures (variables or vectors of variables) of the female role dimension of behavior. As noted this is, closely related to if not identical with, the shadow (or reservation wage) of the female received for household labor services (as she and the other family members see this return). It is not adequate to assume that the wage of employed women "equals" this shadow wage (Heckman, 1974b; Gronau, 1973) but it must be investigated directly.

(4) The family type and structure variable (including some measure of male-dominance and generational perspective) must also be explicitly included.

Steps (3) and (4) are, in effect, a call for more explicit consideration of the socio-psychological variables discussed above. Procedures have been proposed for estimating the wife's "shadow wage" independent of her market wage and these must be employed. (Cochrane and Logan, 1975; Heckman, 1976b). Indexes of family power structure do exist and can be incorporated in economic fertility research. What is proposed here, then, is a deliberate search for structure and use "explanatory" analysis; and acceptance of a use of more recursive, categorial approach to explanation (Blalock, 1971).

For example, in place of the model reviewed above, we might want to estimate the following:

(1) Type A (Traditional)

$$L_p = f(N, W - W^*, FY, R, F)$$

(2) Type B (Modern)

$$N = g(L_f, W - W^*, FY, R, F)$$

(3) Type C (Traditional)

$$L_f = f(N, W - W^*, BY, R, F)$$

$$N = g(L_f, W - W^*, FY, R, F)$$

In which:

$L_f$  = female labor force participation

$N$  = fertility

$W$  = female market wage rate

$W^*$  = female reservation (shadow) wage rate

$FY$  = total family income

$R$  = index of male role dominance

$F$  = family structure type index

Obviously variables such as  $R$  and  $F$  can be conceptualized as vectors of a set of independent measures. Some "searching" must occur empirically here too.

Figure 14 illustrates how such a system (Types A and B) might be seen in a causal, sequential fashion. Variables  $R$  and  $F$  are closely related in both models (and might end empirically by being the same variable). In Model A, the biological imperative, or demand for children, works through  $F$  and  $R$  to determine  $W^*$  which in conjunction with  $FY$  and  $W$  determines  $L_f$ . In Model C, the economic imperative

Alternative Paths for the Fertility  
Female Labor Force Participation Relationship

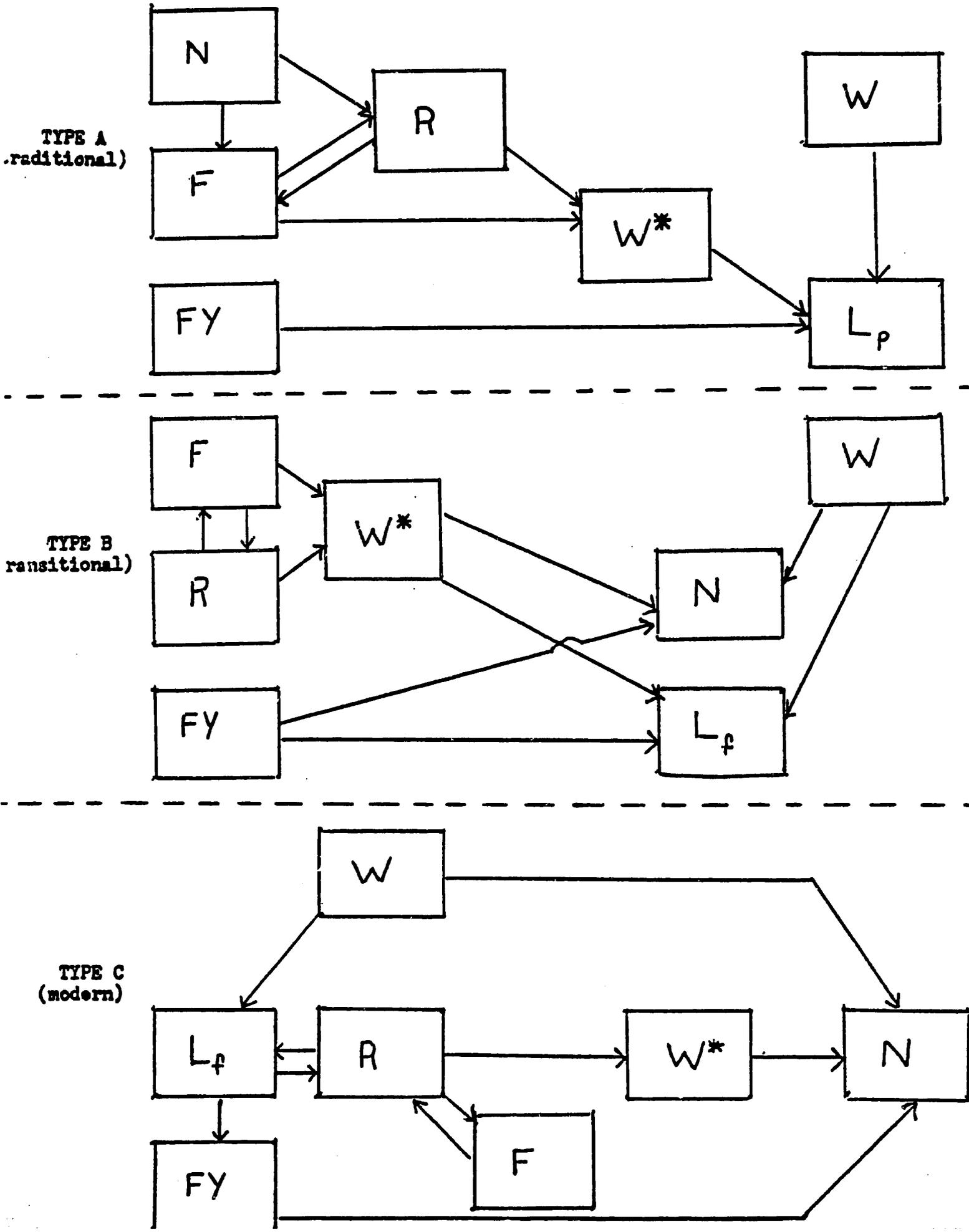


FIGURE 14  
(Continued)

**N - demand for children**

**R- index of male-female role dominance**

**F - family type**

**FY - total family income**

**$W^*$  - reservation wage ( shadow wage ) of female**

**W - market wage of female**

**$L_f$  - female labor force participation**

of  $L_f$  works through R and F to determine  $W^*$ .  $L_f$  also effects FY. Demand for children (or N) is determined then by FY,  $W^*$  and W. The paths for Model B, the transitional one, would be more complex and less intuitive. Figure 14 presents one possible set of paths.

#### (F) Conclusions

In summary, the received economic models of female labour force supply are helpful in interpreting and sorting out the rather varied empirical results on the labour force participation-female employment and fertility relationship. But the conceptualization must be broadened to allow for possible structural imbalances in the market vs. home wage rate of females and for very high subjective utility of producing child services. The key concept of "reservation (shadow) wage" of the wife, usually measured as equal to the market wages of the wife, also becomes "cost of children" because of the time demands of child-care activities. But this needs to be applied carefully in the context of most LDCs. Where the two "roles" or functions, work and mothering, are not spatially incompatible, or where ready mothering services are otherwise available, this cost element may not be important. On the other hand, a social-psychological role incompatibility may be present if a woman is socialized to feel she must personally look after her children or that work and mothering jointly have a bad effect on the children. In such cases, the inconsistency in the roles, as perceived by the mother, restores an opportunity cost to the picture. The role inconsistency will tend to force a choice between mothering and working, or to at least increase the cost of mothering and to presumably decrease the time allocated to

it out of the entire life cycle. Quite frankly, this role-inconsistency model seems more relevant for developed than for many less developed areas. Roles perceived for most women in LDCs traditionally include both mothering and working, and the working is arranged so as not to interfere with the former. Only when some new type of work opens up to women, due to increased female education or sharply changed labour market condition, is the mothering role accepted as of lesser importance. This "incompatibility" can be seen as taking the form of a continued imbalance between the wife's market wage rate and her "reservation price," or implied wage for child care and other home production. The reservation price is partly structured by the perceived role idea, as well as other factors. A change in the woman's own subjective evaluation of status and rewards may enter into a change in work habits as well as the woman's importance in how the family makes its decisions.

We conclude that a set of relatively simple econometric models can be constructed and tested empirically which would allow for including such socio-psychological and structural variables as family type, role of women and reservation wage rate. The disappointing results of the frequently highly sophisticated economic studies undertaken thus far have been partly due to leaving out these variables; and partly also to insisting on using the conventional (in microeconomics) simultaneous equations explanatory approach. But neither flaw is inherent or necessary in the logic of the economic framework relating fertility and female economic activity.

## Chapter V

### Government Labour Policy, Female Employment and Fertility

Demand for and supply of female labour, in the aggregate and for special groups, can be affected by actions and policies which we shall broadly call "labour policies." In fact, there is considerable variation in labour policy and administration among the developed and developing countries of the world, so we will begin by discussing the status of policies assumed to have an effect on the employment of women.

#### (A) Defining and Locating Labor Policies

Two labour-related policies that can be used to illustrate variation in administration or placement within government are social security and child care services policies. Programs falling under the rubric of social security are administered by the Ministry of Labour and Social Welfare in Honduras, by the Ministry of Labor and the Ministry of Health in Singapore, and by the Ministry of Labor and Manpower in Malaysia. (U.S. Social Security Administration, 1978). In the case of social security policy and administration, the responsibility for design and administration rests largely with the national government. The situation is quite different in the case of child care services, which although not a narrowly defined labour policy, represent a policy or action which has implications for the employment of women. The responsibility and/or authority for the design, development, administration, and financing of child care facilities may be shared among levels of government and the private sector, or may be delegated to only one level--i.e., the local level, or a regional level, or a national level. This diversity can be

illustrated by citing the procedures followed in a few countries. In Mexico, the Social Insurance Institute establishes day nurseries in those zones where social insurance is in effect, but the financing of the facilities is borne entirely by the employers. In Malaysia, the law provides for employer-created and maintained creches in facilities in which large numbers of women are employed. And, in the Syrian Arab Republic, creches may be provided by the government, employers, or other private bodies. (ILO, 1978)

In other cases, the relationships between/among "social," "economic," and "labour" policies and objectives may be more similar than different. A classical example of this relationship is education, which itself may be considered to be a separate component of government policy, but at the same time, it may serve social, economic, and labour policy objectives.

The point is a broad range of policy options might be implemented to encourage active participation in the labour force. These policies may, or may not, fall within the domain of labour policy and administration.

In reviewing the development of labour administration during the preceding 20 years, the 1976 International Labour Conference noted that there had been a "considerable evolution of national systems of labour administration" characterized by the following:

1. development of responsibilities, activities and structures with regard to employment problems;
2. better understanding and definition of their role as an instrument for dialogue between employers and workers;

3. a trend towards devising more suitable forms of participative administration for representative organizations of employers and workers;
4. new approaches and new agencies sought ways and means of obtaining more humane conditions of work; and
5. a proliferation in social security measures and funds.

The Committee also observed that,

"Because of the increase in and variety of the tasks now performed by the State in the field of social and economic policy the corresponding institutional framework and public administration machinery have developed and have become so complex that nowadays the solution of certain major problems or labour policy can no longer be achieved by the 'labour ministry' alone." (ILO, 1975b, p.5)

Labour administration is seen as consisting of three major groups of functions: labour protection functions, labour relations functions, and employment functions.

#### (B) The Several Labour Functions

Traditionally, labour policies emphasized the labour protection function. And, this function still is a primary concern in many developing countries. Components of the Labour protection function include the formulation, review, revision, and enforcement of labour standards governing the terms of contracts (such as minimum wages) and the regulation of conditions of work and life (including occupational health and safety, social security, etc.).

Labour relations functions may include activities to establish and protect the rights of workers to organize and bargain collectively. In some developing countries, labour administrations have helped trade

unions to organize so as to become more effective agents in labour relations. This represents a step beyond traditional functions which may have stopped with the establishment of laws which permitted trade unions to organize. Other labour relations functions include assistance in the settlement of disputes, and a shared role in dealing with matters of wage and incomes policies of governments. This latter function is shared with social and economic development ministries.

Employment functions, too are shared with social and economic development ministries in many cases, the objective being full, productive, and freely chosen employment. Overall employment policy, it has been noted, may require "concerted action in many fields that lie outside the exclusive competence of any particular labour administration organ . . . parallel action has to be taken in fields such as agrarian reform; education, fiscal, monetary and customs policy, foreign trade, etc." (ILO, 1975b, p.62)

There are significant differences between the employment functions of developed and developing countries. Since this report is concerned with labour policies and administration in developing countries, their experiences and status will be given emphasis in the discussion.

Traditionally, in developing countries, labour administration's role in employment policy was marginal, consisting primarily of training and market organization activities. However, Anker and Farooq (1978) have noted recently that given increasing labour supplies and/or potential labour supplies, development strategies need to include employment policy objectives and strategies that are broader than they have been in the past.

### (C) Labour Policy and Development

In some countries, labour matters are integrated with development strategies. Algeria is one example, where the labour authority plays an important role in the formulation of the development plan as it affects and is affected by the human resources element. In Senegal and the United Republic of Cameroon, the labour ministry is represented in the national and/or regional planning commissions. Egypt, Ethiopia, Iraq, Kenya, the Libyan Arab Republic, Malaysia, Mexico, Peru, and the Philippines also have arrangements, which in varying degrees, give the labour ministry some authority and responsibility in defining the national development plan. (ILO, 1975b)

Both the development plans and the employment policies or Functions of the labour administration in these countries may include measures designed to lessen the impact of seasonal employment fluctuations, worker migration, and measures to assist special categories of workers such as youth, older workers, women, the handicapped, etc. Specific activities may include counselling, labour market information, job placement and promotion, etc. Manpower planning and training, including the provision of vocational guidance and vocational training (and the regulation of training programs) also are employment-related functions of labour administrations which frequently are addressed in development policies and plans. Many employment services now have special programs for groups similar to those targetted in manpower programs.

Of special relevance are those employment and other policies that are assumed to have an effect on the labour force participation of women. Numerous reports have been published that either analyze the

effects specific labour policies have had on female labour force participation and/or employment, or analyze the constraints women must deal with when contemplating entering, or in fact entering, the labour market.

A review of the literature concerning the impact (or lack of impact) specific labour policies have had on fertility and female employment was undertaken by Ridker and Nordberg (1976). The specific labour policies that were "investigated" include maternity benefits, day care for children of working mothers, child allowances, tax systems, programs to reduce risk associated with families, provision of family planning services, incentives, and child labour laws and compulsory education laws.

Unfortunately, this body of literature is filled with apparent contradiction. Consequently, it would be risky to suggest that reported findings might have application in other localities and in other, similar circumstances.

Comparisons among studies and policies is limited by variation in the data which were used, the controls which were employed, the variables that were investigated, the size of the sample, the length of time over which data were collected and the assumptions that are implied or explicated.

Ridker and Nordberg note that, "Very few of the studies (of labour force participation and fertility developing countries are of sufficient quality or contain sufficiently useful conclusions to make them worth referencing . . ." (Ridker and Nordberg, 1976, p.9) In some cases the problems with the studies can be attributed to the state of knowledge

and the availability of data with which to trace the impact of labour policies. In other cases, it must be concluded that the investigators failed to follow approved procedures. Or, as Ridker and Nordberg note: "These poor results arise for three reasons: inadequate data, inadequate analysis, and the inherent nature of the situation to be studied." (Ridker and Nordberg, 1976, p.18)

Given these limitations, Ridker and Nordberg suggest a set of procedures that might be employed in subsequent studies that aim to measure the impact of, and linkages between labour policy, labour force participation and fertility. These recommendations follow mainly sociological perspectives and, as such, differ from the economic perspectives and theories being explicated in this report.

#### (D) A Typology of Labour Policies

Since, as we have noted, the data base in existing studies of labour policy is very thin, our own effort to categorize or organize them with respect to their possible effect upon fertility must be largely a priori or intuitive. We will use the three-fold typology suggested by Darling (1975) as a starting point.

1. General Social Policy. These policies include social security, health and welfare programs, unemployment insurance, disability benefits, taxation and many other facets of public sector revenue and expenditure programs. These all impinge upon the households' economic and social positions and level of well-being, in both relative and absolute terms. (Indeed, many public sector programs explicitly aim at some redistributive impact.) Thus, such policies do exert some effect on the fertility decision. Examination of the possible impact of specific broad-

scale policies has been undertaken in the recent literature. For example, if children are wanted partly as a source of economic security for parents in their old age, then a comprehensive social security scheme should go far towards eliminating this "demand" for children (Hohm, 1975).

The effect of such general social policies on the female employment-fertility linkage is less clear. At the most macro level, one could argue that policies which promoted full employment of the labour force, by "tightening-up" the market, might promote more female employment. Yet, as we have seen, if the basic role definition of women rules out all of certain jobs, even a tight labor market may not benefit them much. On the other hand, one can also argue that changes in socially defined roles for women are more likely to occur when the labor market "needs" women in new jobs - the U.S.A. during both World Wars I and II; the Soviet Union during most of its history: the impact of these changes on fertility is still not clear, however.

Another important aspect of general social policies is that they nearly always contain implicitly a view of the role of women in the micro society. If public programs proceed through the principal male wage-earner head-of-household, then these programs create or at least reinforce a role-image and definition of women likely to lead to less labor force employment, or certain types only; or the sharp social-psychological role incompatibility discussed above. This question rises a fundamental issue: what is the appropriate micro unit to which public should relate? Perhaps there is no single answer but it is clear that the wrong answer from a fertility reduction viewpoint is the traditional

male-dominated household. The self and social role definitions created thereby will certainly militate against lower fertility.

Thus, general social policies should aim at improving overall economic opportunity and security but doing it in an even-handed manner which does not create or reinforce pro-natalist role images for females.

2. Particular Social Policies. These policies are aimed at affecting outcomes for some given segment of the population--a single class, age-group, or area. Many of these can also be shown to affect the female participation-employment link. The provision of free public education for children functions as a surrogate source of child-care services for many females and permits labour force participation. On the other hand, the provision of aid to dependent children, coupled with an earnings limitation strongly discourages female employment for the group covered.

It is difficult to generalize about such particularized measures, except to note that policies will favor fertility reduction to the extent that they increase the potential labour market skills of females, provide alternate sources of income and status to marriage and child bearing, provide child-care services to deal with existing children, discourage establishments and employments which are compatible with child care by the employed female.

3. Policies Aimed at Female Employment. Policies with this target include the range of "labour protection" legislation designed to mandate hours, working conditions, wages and other specific aspects of female employment. These policies also reveal an interesting contradiction which lies at the heart of this issue. Most of the specific policies

in the past aimed at forcing employers to treat females in a special differential manner, thereby encouraging the social and self-role image of females as "different" from men and less fully qualified for labour force participation. More recently, in many countries, legislation has aimed at eliminating labour market discrimination, such as male-female wage differentials, or "males only" employment policies by firms.

Thus, public policies aim at clearly inconsistent objectives: Women should receive nondiscriminatory treatment from employers, but cannot be asked to work over a certain number of hours, or to perform certain tasks. The answer, it seems clear, should be the final elimination of "protection" laws which single women out from men and a broader application of public policy to encourage changes in social and self-role definition for females. (Preston, 1972)

One of the most important implicitly pro-natalist female-specific policies in the favored role assigned being a mother and housewife. Thus, if one views performing household services as a "job," then the whole thrust of present tax and welfare programs is that this job produces nothing of value. It pays no taxes and full welfare and unemployment benefits get added to it. Clearly, this amounts to a subsidy for this job as contrasted to other jobs. If a family has two wage-earners and a hired domestic they are likely to be worse off than having one wage-earner and one homemaker.

Finally, to the extent that children are a useful asset because they work then allowing child-labor is pro-natalist. Similarly, if children compete with females in the labour market, allowing child-labour depresses female employment prospects and leads to higher fertility

perhaps. Thus, on both counts, child-labour should be discouraged and children should be kept in schools until as late as feasible. Special emphasis on schooling for males must be opposed since greater, and more complex labour participation by females later on.

Thus, in sum, specific policies aimed "protecting" females should be reduced in favor of general non-discrimination policies. The "job" of housewife should not be tax-free or otherwise subsidized. Child labour should be eliminated and mass compulsory education mandated.

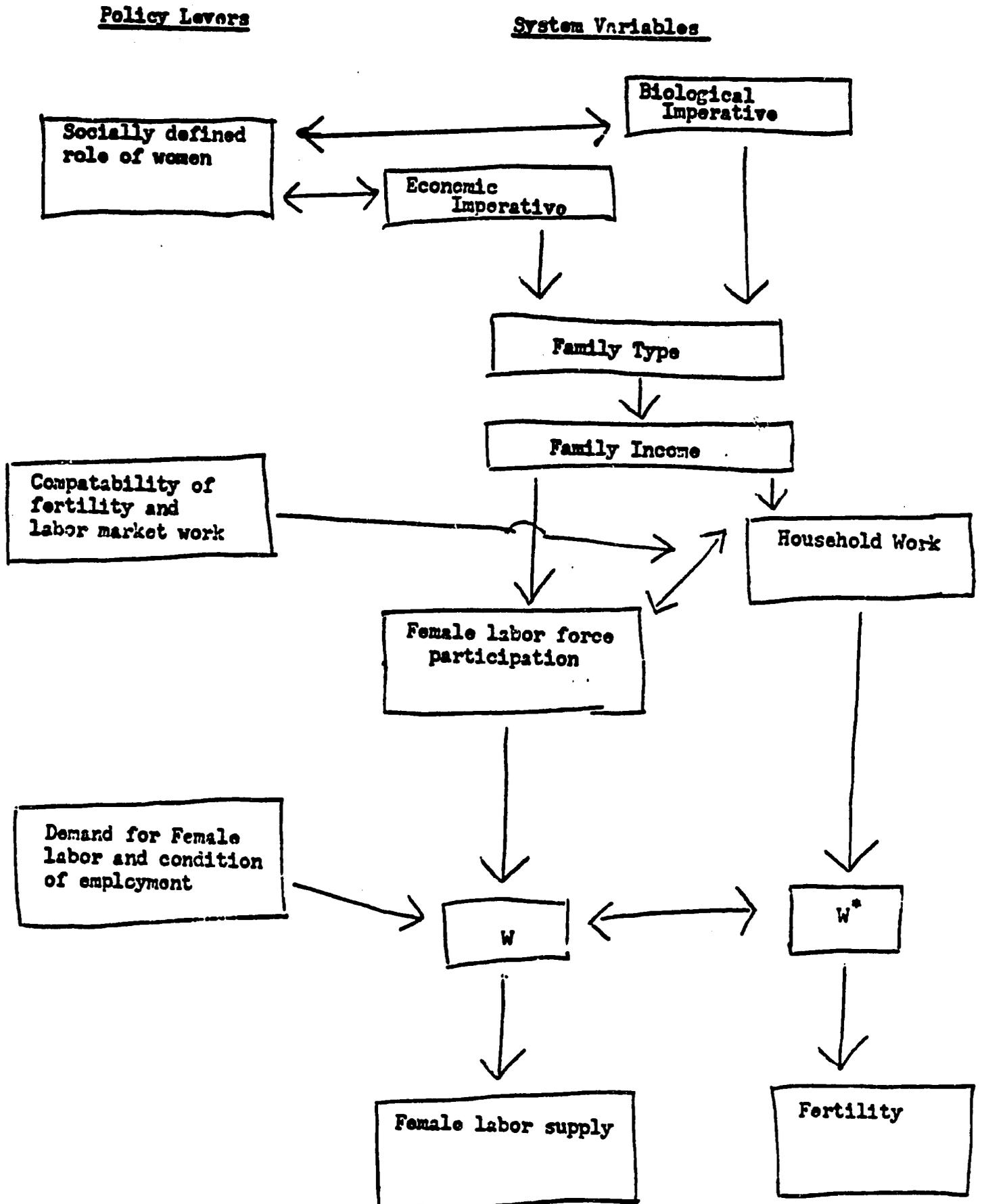
#### (E) Policy Variables and Female Employment

As we have seen economic and also non-economic factors affect female labour force participation, all centering around the female labour supply and demand functions and the wage rate.

These elements can be fitted into a framework in which the fertility-female labour force-employment decisions are simultaneously or sequentially determined by social and individual variables. Thus, individual characteristics such as education, income, and social class work mainly through self-role definition and type and wage rate of jobs open to the woman. Overall societal values affect the social role definition of females, and labour market discriminatory practices. Objective labour market conditions--supply of competing child or adult male labour, and the structure of the jobs available in the economy, also affect the outcome.

This then becomes a conceptual-theoretical framework for analyzing the actual empirical situation shown in Figure 15. In terms of our model

FIGURE 15  
Policy Variables related to the  
System Outlined



(Figure 14) policy focusses on Role of Women (R), the reservation wage ( $W^*$ ) and the market wage (W). Through these compatability is affected. But policy cannot affect the basic economic vs. demographic imperative.

The scheme proposed in Figure 15 can be put more simply yet. Labor policies (or any policies) can work to change fertility in three ways: (1) by changing the motivation and goals of women; (2) by changing the socioeconomic market structures in which women operate and seek their rewards; (3) by changing the family structures in which women live and interact as wives, mothers and consumers. (Kanter, in: Blaxall and Reagan, 1976).

It seems clear that no single labor policy, no single law or subsidy, is likely to have much effect. We have concluded that most LDC's in the early stages of development fertility is the given (the biological imperative) and until this changes any jobs created for women may merely promote fertility, through reductions in infant losses and a positive income effect. The "cost" of child-care will be fully dealt with by the household or the female herself by increasing her hours of work; no incompatibility may exist.

At a later stage, when the economic imperative becomes mixed in with the biological one, then a rising market wage and new employment opportunities may impose "costs" of higher fertility on the household. When the social role values and family type have begun to change, then incompatibilities between employment and fertility begin to develop. Perhaps the best single policy to speed this up is increased penetration of the wage-market economy into all households. Rampant consumerism and a hunger for money and goods are probably inconsistent with large families.

The final of our three states represents the triumph of the economic imperative. At this point, with women in the labor force in a large way, policy can heighten and increase incompatibilities and the "cost" of children.

One thing seems clear. Virtually all of the customary "women-oriented" labor policies have exactly the wrong effect from what is needed for fertility reduction. Sheltering and protecting females encourages the "weaker sex" role-image and reduces female labor market competition. Offering free day-care service to working mothers decreases fertility-employment incompatibilities rather than increasing it. These policies may well be justified on other grounds but for an LDC, with high fertility, they are pernicious to long-run development (ILO, 1974).

Policy must aim at encouraging women to work for wages; at making it attractive and easy to do so; and at making child-bearing and caring for such women as inconvenient and costly as possible.

For policy purposes, our scheme of analysis focuses on the key links in the interactive and also sequential relationship under study. Implementation of fertility reduction through female labour force activities, thus, reduce to a series of specific suggestions:

- 1) Encouraged women to marry later, so as to work for wages, and acquire more labour market experience and skill, before exposure to fertility.
- 2) Encourage women to work for wages, at all stages, before and after marriage.

- 3) Give women legal control over their own income from wages increasing thereby their autonomy within the household.
- 4) Promote incompatibility of fertility and work for wages in every possible way.
- 5) Encourage non-marriage and non-fertility for married (and unmarried) females by employment patterns favoring single and/or low-parity females.

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