

Gender Bias in the Development Process:
The Theory of the Household

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1.0 Introduction

The United Nations Decade for Women (1976-1985) played a prominent role in increasing awareness of the important, but previously invisible, role of women in economic development. The Decade for Women was based on the assumption that women's economic position would automatically improve as the development process expanded and diffused throughout the developing world. Economic development, for the purposes of this paper, is defined according to Binswanger and Rosenzweig (1986) as quoted in Calkins (1989):

Economic development can be defined as the environmentally sustainable improvement over time in the levels and distribution of national income, human nutrition and the satisfaction of basic needs, as identified and prioritized by the population of a given nation or region. (Calkins, 1989: 922).

By the end of the Decade for Women, it was becoming obvious that women's economic position was not improving as expected. Women's asymmetric participation in development was often excluding them from the full benefits. The increasing awareness of the status and role of women, as well as the rise of modern feminism, has led to a dramatic increase in the examination of gender in the development process.

Gender refers to the distinctive qualities of women and men that are culturally created, as opposed to attributes of women and men created by their biological characteristics. Gender is a relational concept, like that of class. The term class implies a relationship between labour and capital and the term gender implies a relationship between women and men. Gender analysis is not concerned only with women but refers to "... the structural relationship between the sexes which is linked to the State, the economy, and to other macro- and micro- processes and institutions" (Moghadam, 1990: 8). This relationship can be found in law, in political processes and in economic structures. It should also be noted that one gender is not a

homogeneous group but is internally differentiated by things such as class, age, region, education and race/ethnicity (Moghadam, 1990: 8).

The term "gender bias" is used to describe a bias that operates in favour of one gender over another, often referring to a bias against women as a gender.¹ Gender bias exists across countries, income levels, and strata of society. It is especially prevalent in the poorest areas of Africa, Asia and Latin America. Gender bias encompasses the exclusion of women from development programs to violence against females, and in its most generic form can be described as an unequal allocation of resources such as food, credit, education, jobs, information or training. Development policies which ignore this bias may end up taking these resources away from women when their intention was to provide more of them (Jacobson, 1992: 9).

A criticism of the theory and implementation of traditional economic development is that the assumptions upon which it is built reinforce gender biases.² The main contested assumptions, as summarized by Jacobson (1992: 9-15), refer to the distribution of the benefits of economic growth within the economy and within the household. One assumption is that economic growth is gender-blind and that both women and men across the economy benefit equally from it. Another is that the traditional economic model of the household in which all family members work toward common goals can be applied to households in all societies. The third assumption is that the costs and benefits of poverty and wealth will be distributed equally among household members, regardless of gender.

¹ The term "male bias" is also used. It refers specifically to a bias that operates in favour of men as a gender and against women as a gender.

² See, for example, Jacobson (1992), Folbre (1986a), Bruce (1989).

Economists have looked more for evidence of gender bias in the allocation of resources in the economy as a whole rather than within the household. Economists have also tended to treat intra-household allocations as the outcome of maximizing a well-behaved household welfare function (Thomas, 1991). In this paper, the challenge that economic models of the household do not accurately reflect the process of allocating household resources will be examined. First, the importance of resource allocation by gender in development economics will be discussed. Then the New Home Economics (neoclassical) model of Gary Becker will be reviewed and criticized from theoretical and empirical points of view. Alternative models of the household, including cooperative Pareto efficient models, cooperative bargaining models, non-cooperative decision making, separate spheres bargaining and a reciprocal claims model will be examined to see if they can incorporate the element of gender relations. Finally, the assumptions of stable preferences and independent utility functions will be questioned in the context of the household and gender relations.

2.0 Gender Inequalities in Development

It was assumed that women would automatically benefit from economic growth in developing countries. It now appears that while basic indicators of well-being, including life expectancy, per capita income and primary school enrolment, have improved since the 1950s, women have never achieved overall parity with men. This evidence suggests that gender cannot be ignored if the goal is to achieve economic development for everyone, and not more for one gender than another. In addition, any gender-specific household expenditures, responsibilities or preferences can affect the allocation of household resources. If these household relations are

not clearly understood, development programs may not attain their desired allocation of household resources.

The United Nations Development Programme's "Human Development Index" (HDI) measures the degree to which people have available to them the resources needed for a long and healthy life and a decent standard of living. The HDI combines national income with the social indicators of adult literacy and life expectancy to give a measure of socio-economic progress encompassing living standards, knowledge, and longevity standards (UNDP, 1991: 15). In the 1993 *Human Development Report*, when HDI is adjusted for gender disparity, no country (out of 33 for which this adjusted HDI can be calculated) had a greater gender disparity adjusted index value than their HDI value, regardless of the country's level of economic development (see Table 1). This gender-disparity-adjusted (GDA) index incorporates the ratio of female income to male income, female versus male life expectancy and female versus male access to education. As the Table 1 shows, a number of countries increase their ranking under the GDA HDI, but the two top-ranked countries by HDI, Japan and Canada, drop substantially. In industrial countries, gender discrimination as measured by the GDA HDI is mainly in employment and wages. In poorer countries, gender bias occurs in employment and wages but also in access to and achievement in education.

Gender gaps may even increase over time during economic growth, especially if access to resources is highly skewed from the outset. Literacy improved from 46 percent worldwide in 1970 to 60 percent in 1985. However, literacy rose faster among men than women, increasing the gender gap. In the fifteen years between 1970 and 1985, the number of women unable to read increased by 54 million compared to an increase of 4 million for men. In 1985,

there were 597 million illiterate women and 352 million illiterate men worldwide (United Nations, 1991: 45). In primary and secondary schools, girls' enrolment has reached the same level as boys' in most developed regions and in Latin America and the Caribbean. However, in secondary schools, girls still lag behind in sub-Saharan Africa with 60 girls enrolled per 100 boys, and in southern Asia with 40 girls enrolled per 100 boys (United Nations, 1991: 46-47). In 1990, 85 million more boys than girls went to primary or secondary school and it is projected that this may reach 179 million by 2005 if efforts are not made to bridge the gap. As an example of gender disparity, 33 million fewer girls than boys attend primary or secondary school in India (Stackhouse, 1994).

Table 1: Gender-disparity-adjusted (GDA) Human Development Index (HDI) for Selected Countries, 1992

Country	HDI Value	HDI Rank	GDA-HDI Value	GDA-HDI Rank
Sweden	0.977	5	0.921	1
Norway	0.978	3	0.881	2
France	0.971	8	0.864	3
USA	0.976	6	0.824	9
Canada	0.982	2	0.816	11
Japan	0.983	1	0.763	17
Hong Kong	0.913	20	0.618	25
Philippines	0.603	30	0.451	30
Swaziland	0.458	31	0.344	31
Myanmar	0.390	32	0.297	32
Kenya	0.369	33	0.241	33

Source: United Nations Development Program. (1993) *Human Development Report 1993* (New York: Oxford University Press).

household division of labour that reinforces differences between household and market productivity. Efficient multi-person households, therefore, have a noticeable division of labour among members in time allocated between the household and the market and in the accumulation of specialized capital (Becker, 1991: 32).

3.5 Altruism in the Family

One of Becker's key ideas about the distribution of income within a family was his application of altruism in a household setting. Becker believes that selfishness is common in market transactions and altruism is common in families. This occurs because altruism is more "efficient" in the family and less "efficient" in the marketplace (Becker, 1991: 299). Some of the reasons Becker gives for this statement are that: (1) altruism is more efficient in small organizations, such as families, since the average contribution to beneficiaries declines eventually as the number of beneficiaries increase; (2) altruism in market transactions is an inefficient way to produce the psychic income altruists receive in place of money income; and (3) marriage markets tend to assign altruists to their beneficiaries so that the benefactor and the beneficiary are better off together in terms of family income than if they had selfish spouses (Becker, 1991: 301).

On a more micro level, altruism means that an individual, h , has a utility function that depends positively on the well-being of another family member, f , and "effectively" means that h 's behaviour is changed by being altruistic (Becker, 1991: 278). In the following discussion, Becker assumes that a person, h , is effectively altruistic towards a selfish family member, f . Individual h 's utility function is defined by:

$$U_h = U [Z_{1h}, \dots, Z_{mh}, \Psi(U_f)] \quad (3.10)$$

$$\delta U_h / \delta U_f > 0,$$

where U_h and U_f are the utilities of the altruist and the beneficiary respectively, Ψ is a positive function of U_f and Z_{jh} is the j th commodity consumed by h . Individual h 's altruism is effective if the equilibrium levels of Z_{jh} , for some $j=1, \dots, m$, would be different if U_f was not in h 's utility function.

Becker then supposes that individuals h and f consume amounts Z_h and Z_f of a single (aggregate) commodity, and that h is effectively altruistic and spends some personal income on f (Becker, 1991: 278). The altruist's budget constraint then becomes:

$$Z_h + y = I_h, \quad (3.11)$$

where the price of Z is set equal to unity, y is the amount spent on the beneficiary, individual f , and I_h is h 's own income. The consumption of the spouse, f , equals the sum of f 's income, I_f , and the contribution from h :

$$Z_f = I_f + y. \quad (3.12)$$

Using Eq. (2.11) and Eq. (2.12), the equation for h 's family income, S_h , is the following:

$$Z_h + Z_f = I_h + I_f = S_h \quad (3.13)$$

The altruist, h , maximizes U_h subject to the family income constraint. In doing so, h also raises f 's utility through transfers to f . Therefore, an altruist is made better off by actions that raise family income and worse off by actions that lower it (Becker, 1991: 279-282).

If h 's contribution to the selfish beneficiary, f , is beyond f 's control, f will maximize I_f because that will maximize Z_f and U_f . The selfish beneficiary would take all actions that increase I_f and refrain from actions that decrease I_f , no matter what the effects of these actions on I_h . However, the altruist's contribution to the beneficiary is not necessarily beyond the beneficiary's control. For example, if increasing I_f has the effect of decreasing the altruist's income, I_h , the altruist will reduce the contribution to the beneficiary by more than the increase in I_f if h 's contribution had been larger than the increase in I_f . This happens because family income goes down. In this case, the optimal level of the beneficiary's consumption decreases. Both the beneficiary and the altruist would then be worse off. The beneficiary would be discouraged by selfishness from taking actions that harm the altruist (Becker, 1991: 283).

The beneficiary, f , maximizes the equation for f 's family income, S_f :

$$S_f = Z_f = I_f + y \quad (3.14)$$

The beneficiary will not take actions that increase I_f if y is decreased even more, and will take actions that decrease I_f if y is increased even more. The beneficiary would be particularly willing to decrease I_f if I_h were raised higher because h would raise y by more than the decrease in I_f . This occurs because family income and h 's demand for Z_f would be raised. Eq. (3.13) shows us that

$$S_f = Z_f = S_h - Z_h. \quad (3.15)$$

Although S_f and S_h are not equal, they would rise and fall together if Z_f were a superior commodity to h . Then the beneficiary would maximize U_f by maximizing family income. If Z_f were an inferior commodity to h (Z_f would be increased when S_h were lowered), reductions in I_w and, therefore, S_h , would make f better off because h would overcompensate f . In this

case, the beneficiary could raise U_f by reducing I_f to zero. Becker concludes that a positive income for a beneficiary appears to require that the beneficiary's utility be a superior commodity to the benefactor (Becker, 1991: 283-84).

This analysis of altruism can be extended to include many beneficiaries, including spouses, children and parents. The utility function and the budget equation of an altruist contributing to several selfish beneficiaries are, respectively:

$$U_h = U(Z_h, Z_1, \dots, Z_p) \quad (3.16)$$

and

$$Z_h + \sum_{i=1}^p y_i = I_h \quad (3.17)$$

where y_i is the contribution to and Z_i is the consumption and utility of the i th beneficiary for $i = 1, \dots, p$. The family income, S_h , of the altruist is:

$$Z_h + \sum_{i=1}^p Z_i = I_h + \sum_{i=1}^p I_i = S_h. \quad (3.18)$$

The first-order conditions are

$$\frac{\delta U}{\delta Z_i} = \frac{\delta U}{\delta Z_j}, \text{ for } i, j = h, 1, \dots, p. \quad (3.19)$$

In equilibrium, an altruist receives the same utility from a small increase in individual income as from a small increase in the income of any beneficiary, assuming $y_i > 0$ (Becker, 1991: 287).

These models of altruism are the basis of Becker's **Rotten Kid Theorem**:

Each beneficiary, no matter how selfish, maximizes the family income of his benefactor and thereby internalizes all effects of his actions on other beneficiaries (Becker, 1991: 288).

and,

Each beneficiary, no matter how envious of other beneficiaries or of his benefactor, maximizes the family income of the benefactor, and hence helps those envied (Becker, 1991: 288).

Bergstrom (1989: 1139-40) offers a simple explanation of the Rotten Kid Theorem. In the household, the household head is benevolent toward other family members and voluntarily chooses to give some money to each family member. All family members except the household head are selfish and only concerned with their own consumption. The household head's utility function depends positively on the consumption of a single good, X , by each household member, including the head's. X_i denotes amount of consumption by family member i . The total income of family members before any intrafamily transfers must equal total expenditures on consumption for family members.

If the household head transfers income to all other household members, the distribution of consumption in the family after the transfers are made will be the one that maximizes the household head's utility function subject to the constraint that total family income equals total family consumption. Whether transfers are distributed equally or not among family members will depend on the utility function of the household head. Assuming that goods consumed are "normal goods" for the household head, each X_i will be a monotonic increasing function of total family income. This leads any of the selfish family members who are able to increase total family income to do so, even if it is at the cost of decreasing his or her own pre-transfer income. They act this way because the only way for a selfish individual to increase consumption after the household head makes income transfers is to increase family income.

So even selfish and envious children or other beneficiaries will act as if they are altruistic towards other family members if these persons are altruistic towards them. This theorem does

not mean that families with altruistic members experience no conflicts over the distribution of family income. However, such families have a harmonious production of income since even selfish and envious spouses and children behave altruistically in all decisions that affect production, that is, the altruist and the beneficiaries all work to maximize family income. The harmony in production is stronger and the conflict over distribution smaller when more family members are altruistic than selfish or envious.

Becker also extends this analysis to cover many commodities whenever altruists or envious persons care about the utility of the beneficiaries or victims. He concludes that all beneficiaries voluntarily maximize family income and the utility of the altruist because their own utility rises and falls along with that of the altruist. This occurs even when the altruist does not have dictatorial power over the beneficiaries' decisions. An altruistic family can then be said to have a family utility function that is voluntarily maximized by all family members regardless of the distribution of family income. Becker's "optimal reallocation" of family income therefore results from altruism and from voluntary contributions. The preference function of the group is identical to that of the altruistic head of the family (Becker, 1991: 296-7).

4.0 Criticism of the Neoclassical Model of the Household

Becker's model builds upon the existence of a single household utility function which describes the household's tastes and preferences. His work explains how a multiperson household can be treated as a single utility maximizer. This situation occurs if all household members have the same preferences or if one individual imposes personal preferences upon the group. Becker considers this individual to be an altruist who considers the welfare of other

family members when making household production and consumption decisions (Senaur, 1990: 151). Many critiques have been made about this model. They include both criticisms of the assumptions of the model and empirical evidence showing households do not act as predicted.

4.1 Theoretical Criticisms

Amartya Sen (1984) has examined price theory and market equilibrium as it can be applied to the family. He concludes that traditional "lessons" from conventional market theory can be preserved only by making special assumptions about how the family functions. He hypothesizes that there are three possible family structures: the glued-together family, the supertrader family and the despotic family (Sen, 1984: 371).

The glued-together family ignores individuals and considers the family as acting as one unit in terms of making economic decisions. There are no individual member's decisions, utility or preferences, but instead only family decisions and family welfare. The traditional theory can simply insert "family" in place of "individual" and the implications of the model will not change. The obvious problem with the model is that families do not think and prefer, the members of the family do. The agreement of family members on every aspect is an extremely severe assumption. With respect to welfare economics and public policy, the lack of a notion of personal well-being raises some disturbing questions. States such as health and sickness, living and dying, happen to individuals and welfare economics cannot ignore such personal conditions (Sen, 1984: 371-72).

The supertrader family is the opposite of the glued-together family. In this case, family members pursue individual utilities by entering into trades at implicit prices resulting in marriage

dependent not only on the market price of this good and other goods, but also on the value of time of household members and the household's full income, a combination of the budget and time constraint (Senaur, 1989: 151-52). Becker's notion of household production allowed many more less tangible goods to be included in analysis. In his model, things consumed that satisfy wants and needs are produced in the household in a production process that combines goods bought in the marketplace with household capital and household members' time. The final consumption goods can be anything from meals to good health (Senaur, 1989: 152). However, the theoretical criticisms and empirical evidence describing household behaviour have led economists to seek new models that better explain how households function.

5.0 Alternative Models of the Household

The criticisms of the neoclassical model and the evidence suggesting that the model does accurately reflect household behaviour led to the development of alternative models of the household. These alternative models view the household as a collection of individuals interacting with each other, not behaving as one unit. The models use different mechanisms, such as cooperative or non-cooperative bargaining, to explain how resources are distributed among household members.

Chiappori (1992: 39) divides economic models of the household into two categories: collective and traditional. These categories are distinguished in two ways. First, are the decision makers in the household allowed to have different preferences? In the collective approach they are; in the traditional approach, they are not. Second, approaches are not distinguished by whether they maximize a unique welfare index, but whether they are interpreted

as a utility function, that is, whether they are independent of prices and incomes. In the traditional single utility models, prices affect behaviour only through income and substitution effects. In the collective models, more complex influences can be accounted for.

Chiappori further divides the collective models into two categories. The first assumes cooperation among household members, making the outcomes of decision-making processes Pareto-efficient. A Pareto-efficient decision means that any other reallocation can make one person better off but only at the expense of someone else. The second type of model assumes non-cooperative decision making processes among household members that typically lead to decisions that are not Pareto-efficient. Work on cooperative models has followed two main ideas in an attempt to impose assumptions that will lead to testable hypotheses. In the first case, it is assumed that households will never adopt a decision that is not Pareto-efficient. In the second, a priori restrictions are imposed on the decision-making process to explore the empirical implications of the restrictions. The restrictions could include something such as a particular form of bargaining (Chiappori, 1992: 39-40).

5.1 Cooperative Pareto Efficient Models

An example of a cooperative "Pareto efficient" model is that of Chiappori (1988). Chiappori generalized collective household models by making the weak and general assumption that the household always reaches Pareto-efficient agreements, instead of imposing a bargaining concept, such as a Nash bargaining game. He also assumed that intra-household distribution of consumption is not observable. The household's total consumption is revealed but each

member's is not known. This assumption is made because available empirical data generally describes only aggregate consumption with individual member's shares unknown.

Very simply, Chiappori's rational collective decision model takes a two-member household in a three-good economy (each member's labour plus consumption) in which both members supply labour. l^i , L^i and T respectively represent member i 's labour supply, leisure and total time so that $l^i = T - L^i$. A purely private consumption good C represents total household consumption and is divided between both members. Z^i represents individual i 's private consumption but Z^1 and Z^2 are not observable. The two household members make decisions conditionally on given values of wages, w_1 and w_2 , and nonlabour income y , so that the budget constraint is:

$$Z^1 + Z^2 \leq C = y + w_1 l^1 + w_2 l^2. \quad (5.1)$$

Chiappori (1988) then assumes that the household is characterized by two utility functions, instead of one unique household utility function assumed in the neoclassical model. In general, household member's i 's utility depends on both i 's and j 's ($i \neq j$) leisure and consumption in the form:

$$U^i = U^i(L^1, L^2, Z^1, Z^2). \quad (5.2)$$

Members can be egoistic if their utility depends only on their own leisure and consumption.

The restrictions upon labour supplies depend upon the assumptions made about the household decision making process (Chiappori, 1988: 65). In this model, the restriction is the Pareto efficiency of outcomes. More formally, any pair of labour supply functions (l^1, l^2) are considered compatible with the collective model if there exist two consumption functions, Z^1 and Z^2 , which sum to total consumption C , such that (L^1, L^2, Z^1, Z^2) is Pareto efficient (for U^1 and

U^2) within the household, among all possible choices of leisure and private consumption which satisfy the budget constraint.

Using Chiappori's 1988 model, it is difficult to assess whether the economic progress of women translates into greater well-being in the household. The assumption that individual consumption cannot be observed means it is not obvious how women benefit from the economic gains they bring into the household. However, we can view each individual's utility function, which is more than is possible using the neoclassical model. We do know that household resource allocation settles at a distribution that does not make it possible for one person to be better off without detriment to other family members. Members cannot gain at the expense of others.

5.2 Co-operative Household Bargaining Models

Manser and Brown (1980) put the household decision problem into a bargaining framework and applied two-person cooperative game theory. They were troubled that the neoclassical model did not allow for the existence of differing utility functions among household members. Bargaining theory explicitly allows for different utility functions among household members and provides a means by which differences are settled. Additionally, bargaining theory allows the allocative and distributional problems of shared goods, such as children's services and housing, to be solved. The decision to form a household can be explained by comparing the utility of each individual from the bargaining solution when the household is formed to the utility when the individual is not a member of a household.

Manser and Brown (1980) use a model of a two-person world. Each individual has a neoclassical utility function U^i defined over a vector of consumption goods, x^i , and leisure, l^i . The utility function is independent of household membership, meaning that it is assumed that individual tastes do not change as a result of, or in anticipation of, the formation of a new household. The individual faces both a time constraint and a budget constraint. In the single state, an individual chooses x^i and l^i to maximize U^i subject to the time and budget constraints. This yields demand functions which can be inserted into U^i to give the indirect utility function, V_o^i , a function of prices (p) of x , wage rate (w) and full income (I).

The formation of a household (through marriage or other means) is governed by the possible gains from marriage. Gains from marriage can exist if there are one or more "shared" or "household" goods which can be shared by the household individuals but not by single individuals. Marriage can also provide less tangible goods for consumption, such as love and companionship, denoted by α . Gains to marriage exist if V_o^i (the maximum possible utility for each individual if single) lies inside the utility possibility frontier (UPF). The UPF is the locus of alternative Pareto optimal utility levels for the two individuals corresponding to given p , w , and I . There is an incentive to form a household in order to move closer to the UPF than is possible in the single state. However, forming a household requires an agreement between the two individuals on the choice of goods and leisure and the distribution of gains from marriage.

To determine how resources will be allocated within the household, Manser and Brown (1980) assume that both incomes are pooled, but instead of assuming that a single household utility function exists, they specify that the individuals agree to a bargaining rule. This deals with the problem of household allocation and distribution of gains from household formation and

takes account of differences in individual's utility functions. V_o^i is i 's threat point in the bargaining process since neither individual will accept an outcome with a utility level less than the single state utility.

Manser and Brown (1980) use bargaining models that yield Pareto optimal outcomes: the Nash and Kalai-Smorodinsky models. The Nash solution to the bargaining problem of the household is obtained by solving the following optimization problem:

$$\begin{aligned} \max_x N = & \max [U^i(x_1, x_2^i, l^i, \alpha^j) - V_o^i(p^i, w^i, I^i)] \\ & \cdot [U^j(x_1, x_2^j, l^j, \alpha^i) - V_o^j(p^j, w^j, I^j)] \end{aligned} \quad (5.3)$$

subject to time and budget constraints. The Nash objective function can be written in the following logarithmic form:

$$\max N = \max [\ln(U^i - V_o^i) + \ln(U^j - V_o^j)]. \quad (5.4)$$

These clearly shows that differing individual utility functions can be included in the model.

In another bargaining model, McElroy and Horney (1981) focus on a Nash household model. They work with a two-person household (individuals m and f) and their joint allocation of time and money income. Similar to Manser and Brown (1980), they define the gains from marriage to be the difference between the maximum utility attainable when not in the household and the maximum utility attainable when a member of the household. Household utility depends on the individual's own goods, leisure and the household good (a pure public good within the household), all included under the vector x , and upon the nonmarket time and consumption of the other household member.

They assume that bargaining over the allocation of goods, x , reaches the Nash solution to a two-person, nonzero-sum game. The couple chooses x to maximize, subject to a budget and time constraint, a special case of the Nash product function, the "utility-gain product function":

$$N = [U^m(x) - V_o^m(p_m', I_m; \alpha_m)] \cdot [U^f(x) - V_o^f(p_f', I_f; \alpha_f)], \quad (5.5)$$

where p is the vector of market prices of x , I is non-wage income and α is opportunities outside the marriage. Both terms in the square brackets is the gain from marriage/household formation over the next best alternative. V_o^k is the threat point of the k th individual and represents the best the individual could expect to do if he withdraws from the household. The threat points may change if opportunities outside of the household change. Changes in prices and nonwage incomes may, therefore, change not only the budget constraint but also change the objective function.

The Nash objective function depends upon individual utilities and depends upon the maximum value of (indirect) utility each household member can obtain outside the household. This makes the function also dependent upon prices and nonwage incomes and the non-wage income of each member is an independent variable in the demand equation.

Economic gains to women can be clearly seen in these bargaining models. The models predict that women's gains in economic independence change their threat points, that is, their best possible utility outcomes outside the household increase. This translates into increases in their well-being within the household as their bargaining power is enhanced (McElroy, 1992).

5.3 Separate Spheres Bargaining

Lundberg and Pollak (1993) propose a household model they call "Separate Spheres Bargaining". They use assumptions similar to those of Manser and Brown (1980) and McElroy and Horney (1981), but differ from these models in two ways. First, they assume a different threat point than divorce, that is, the attainable utility level if a member leaves the household. Their threat point is a non-cooperative standoff defined in terms of traditional gender roles and gender role expectations.¹⁰ Second, the non-cooperative standoff may not be optimal, but it may be the final equilibrium because of transaction costs. Marriage occurs because joint consumption economies of scale are a source of gains to marriage and even noncooperative individuals can enjoy the benefits of household public goods such as children.

The Separate Spheres model hypothesizes that since specialization by gender of labour and responsibilities is a pervasive aspect of family life, there is a "separate spheres" equilibrium in the family. In a non-cooperative marriage, a division of labour and responsibilities based on socially recognized gender roles emerges without explicit bargaining and with minimal coordination of individual contributions. Each spouse makes decisions within his or her own sphere of activities, optimizing subject to the constraint of *individual* resources. This non-cooperative standoff in terms of gender roles and expectations is the threat point of the model.

Cooperative bargaining can occur within the marriage and spouses may make binding agreements with each other. However, the negotiation, monitoring and enforcement of these agreements have transaction costs. Couples with high transaction costs or low expected gains

¹⁰ Divorce is assumed to be impossible or prohibitively expensive. The relevant threat point is the non-cooperative, voluntary contribution equilibrium within marriage.

from cooperation will find it optimal to remain at the non-cooperative solution since this default solution avoids transaction costs.

Lundberg and Pollak (1993) analyze the effects of a child allowance scheme. In one case, a cash transfer is paid to the mother, in the other case, the cash transfer is paid to the father. If the parents divorce, the mother becomes custodial parent under both cases and receives the child allowance. Under Becker's altruist neoclassical model, it will not matter which parent receives the allowance since distribution of household resources is determined by maximizing the altruist's utility function subject to the family's resource constraint. The models of Manser and Brown (1980) and McElroy and Horney (1981), determine equilibrium by the feasible consumption set and a threat point that is the utility of getting divorced or remaining single. Again, it does not matter which parent receives the allowance because the feasible consumption set and the well-being of single and divorced individuals are identical under both schemes. However, in the separate spheres model, the threat point is a noncooperative equilibrium within marriage defined by traditional gender roles and gender role expectations. In this case, the two different child allowance schemes can imply different non-cooperative equilibria because resources available to the mother or to the father change. A change in the non-cooperative equilibrium could lead to different distributions in two-parent families.

5.4 Non-Cooperative Decision Making

Non-cooperative game theory has been used to describe the resource allocation problem within the household. These models assume, like the other collective household models, that household members have distinct preferences. Unlike the bargaining models previously

described, non-cooperative models assume that household members have not entered into binding and enforceable contracts with each other and that they do not behave cooperatively. Spouses take their partner's behaviour as given and then maximize their individual utility subject to this additional constraint. The resulting household allocations may not be Pareto efficient (Phipps and Burton, 1993).

For example, Phipps and Burton (1993) describe an application of the model in which spouses are assumed to engage in a non-cooperative Nash bargaining game. Each spouse maximizes their individual utilities and takes the other's expenditures as given. If at least two goods are purchased and if spouses disagree over the ordering of a subset of goods, as market income share of one spouse increases, the portion of the total household budget spent on goods preferred by that spouse will increase.

Like the cooperative models, the noncooperative household model allows individuals in the household to have separate preferences. It can also incorporate different power relations within the household, for example, the effect of income earned by individuals on the goods purchased with the household budget. If a woman's income increased, more of the household budget may be spent on goods she prefers. This can help explain why particular goods are purchased with transfers of income to households under development programs

5.5 Reciprocal Claims Model

Katz (1992) develops an alternative household model to neoclassical and bargaining models. Her concern is that these current models utilize an aggregated household income constraint. This assumes that the income of all household members is pooled and then

distributed among individuals. By pooling income, the models ignore the possible importance of individual income. The accrual of individual income can help household members attain their own consumption and allocation preferences.

Katz (1992) lists some implications for household resource allocation if income is not completely pooled. In terms of labour allocation decisions, a premium might be placed on activities that give the individual an independent income. These activities may not be the most highly remunerated from the perspective of the household as a whole. For expenditure decisions, if individuals do not have access to full household income (income is not pooled), the full income budget constraint is not appropriate. More relevant to the individual's choice of purchased goods is their own earnings net transfers to and from other household members.

Katz (1992) specifies her alternative model of household resource allocation to incorporate the critique of the income pooling assumption. First, household members face individual and not joint budget constraints. Second, transfers of income between household members are explicit and determined within the household model. Third, to determine optimal levels of resource allocation, the solution is a noncooperative Nash equilibrium, but to determine optimal levels of income transfers, the solution is a cooperative Nash equilibrium. The noncooperative equilibrium occurs within the cooperative equilibrium.

In the reciprocal claims model, Katz (1992) describes the noncooperative equilibrium as being largely influenced by technical and consumption-related relationships (complementarity or substitutability) among gender-specific purchased and home-produced goods (Z goods). For example, a woman will respond to a decrease in male labour supply to home-goods production caused by an increase in male wages either by cutting back her time on the production of Z

goods (complementarity) or by increasing the time she spends on Z goods production (Z goods substitutability). Individuals have more autonomy regarding their choices and responses to changes in household variables and depend more on the nature of the household economic process and less on any household member's preferences. For example, a woman can respond to changes in her husband's allocation of his labour between household and market according to her own needs.

Katz (1992) expands income sources for household members to include agricultural production and unearned income such as rent and remittances. Intra-household transfers also include, in this model, land, labour and goods as well as income. Negotiation for resources is centred on the intra-household transfers themselves and not around the allocation of labour time and income to competing uses. These competing activities occur within the largely separate spheres of female and male activity. Katz (1992) summarizes her model as, "The reciprocal claims model depicts the household as a site of largely separate gender-specific economies linked by reciprocal claims on members' income, land, goods and labour." (Katz 1992: 42).

6.0 Stable Preferences and the Model of the Household

Discussions about economic models of the household are still comparatively young and much effort has been put into developing models that reflect the fact that a household consists of a number of individuals who often have different tastes and preferences. In this section, I will continue questioning the usefulness of rational behaviour theory in describing the behaviour of the household that began in Section 4.1 by briefly reviewing the assumption that individuals' preferences, and therefore, their utility functions, do not change rapidly over time. This

assumption is explicitly made in neoclassical and bargaining household models and implied in the remaining models surveyed since the models are based on utility maximization. The implications if preferences do indeed shift will also be discussed.

In the theory of consumer behaviour, a continuous utility function can be derived that represents a consumer's preferences if a consumer's strict preferences are asymmetric, negatively transitive and continuous (Kreps, 1990: 31). Here we will focus on the assumption that preferences are asymmetric. This means that for a set of consumption bundles, X , there is no pair of alternatives, x and y , from this set such that x is strictly preferred to y **and** y is strictly preferred to x . Although this may seem obvious, it is not so clear if the consumer is asked to make these choices at different points in time. It may not be reasonable to assume that if consumers prefer x to y today that they will still prefer x to y after a month has passed (Kreps, 1990: 21-22).

Economic choices often must be made through time, a situation called dynamic choice. A consumer takes some action today, but knows that subsequent choices will need to be made tomorrow and the next day and so on. The choice made today will influence how the consumer views later choices or what choices will be available in the future. Future plans may influence the choice made today and subsequent choices will be influenced by choices made on earlier dates (Kreps, 1990: 133).

The standard approach to dynamic choice is to reduce dynamic choice to a problem of static choice of an optimal strategy. This is possible by following these four presumptions, as outlined by Kreps (1990: 143-44):

- (1) the consumer at each point in time has coherent preferences over overall outcomes;

- (2) she believes at each point in time that these preferences will not shift with time or circumstances;
- (3) she is smart enough to work out the consequences of her choices, so she can find an optimal strategy according to the preferences assumed in (1);
- (4) the second presumption is correct in the sense that the consumer subsequently carries out the optimal strategy she is assumed to find.

We are concerned with the possibility that consumers' tastes shift as time passes, or that presumption (4) is likely to be false. If we assume that the consumer has coherent preferences at each point in time and that she can work out the consequences of her actions, we can question whether or not she makes choices based on the "false" presumption (2). If she acts assuming that her preferences will not change, her static behaviour at each point in time will look logical according to the standard approach to dynamic choice. However, her dynamic actions will be inconsistent because her preferences change over time or circumstances. On the other hand, if the consumer is sophisticated enough to realize her preferences may shift, and if her current tastes dictate her actions, her static choice will not look sensible according to the standard model of dynamic choice (Kreps, 1990: 144). For example, a dieter may prefer to go to a restaurant that offers only vegetable stir fry to a restaurant that offers both the vegetables and cheesecake, and be indifferent between a restaurant that offers both vegetables and cheesecake and a restaurant that offers cheesecake only. This happens because the dieter knows that although she should eat the vegetables, if cheesecake is available at the restaurant tomorrow, her resolve will weaken and she will order the cheesecake. The dieter prefers to make a choice today that eliminates the opportunity to choose cheesecake tomorrow (Kreps, 1990: 141-42).

The presumption that preferences are asymmetric, or that they do not shift over time or circumstances, is problematic in the context of the household. Forming a household by marriage

or under less formal means is a major change in circumstances for individuals. Preferences could shift rapidly either in anticipation or actual formation of a household. Preferences may also change after, or in anticipation of, births or deaths in the household. Children leaving home could result in changes in parents' preferences.

If the standard approach to dynamic choice is used, predictions about how household members will behave in the present and in the future will be difficult to make. For example, a static choice may appear to be consistent with the standard model. However, in the future, choices will be inconsistent because the individual assumed that their preferences would not shift, but in fact they did shift. Behaviour today may not be a good indicator of behaviour tomorrow.

Perhaps one way to circumvent this problem is to view household behaviour as occurring in distinct time periods based on events that are most likely to shift preferences. These events would be nonmembership in a household, household formation, arrival of children into the household and departure of children from the household and exit of the individual from a household. Definitions of important time periods could vary in order to incorporate cultural differences. This could include events such as the arrival of second wives in polygamous households, or even an acknowledgement of when children become active participants in decision making. If a household breaks up prematurely, the members could be "reclassified" into time frames based on who retains primary responsibility for the children (if any). This would make static and dynamic choices consistent within the particular time frame, but still allow for major preference shifts that happen in a short period of time.

This particular breakdown of points in time when preferences are likely to change could also be useful to examine whether preferences are more likely to change, or change more strongly, by gender. It may be possible that only men's or women's preferences respond quickly or strongly to different changes in household organization. If this is so, household behaviour can be more clearly understood. As an example, assume that a husband and wife have similar preferences or that they have worked out a way of satisfying both partners' preferences to their satisfaction. Now, in anticipation of imminent childbirth the wife's preferences change dramatically, but the husband's preferences do not. This increases the potential for conflict over how household resources should be allocated. This sudden conflict could affect future behaviour. The wife could decide to keep working in the labour market after the child is born in order to have income independent from her husband's income. Instead of pooling all household income, she may keep some for herself in order to increase the utility she receives under her new set of preferences. Or, she may decide to stay in the labour force in order to sustain or increase her bargaining power within the household and, therefore, increase the possibility that her preferences will carry more weight in deciding how resources will be allocated.

Another important point to consider when preferences shift abruptly over time is the introduction of that bane of neoclassical theory, interdependent utility functions. Just as we can say that preferences are likely to change in anticipation of, or after, important changes in household organization, we could also say that the existence of and degree of interdependent utility functions changes. As discussed in Section 4.1, individual tastes and preferences cannot

be satisfactorily aggregated so utility functions with interdependent utilities are very difficult to specify or derive predictions from such a function.

As household structure changes over time, interdependent utilities may be introduced or discarded. A man may act selfishly (he has an independent utility function) when he is not a member of a household, but once he forms a household his utility may be dependent on the utility of his partner and of his children. Generally we would assume that this interdependence would be a positive. For example, a increase in children's utility increases the utility of the parent. It could also be a negative function, but it is unlikely that the well being of other household members would have absolutely no bearing on behaviour whether through love and affection or even through anticipation of receiving monetary support from children in the future.

The introduction or deletion of interdependent utility functions will have similar implications to that of preference shifts. Behaviour in different time periods may not necessarily be a good indicator of future behaviour. Again, we could examine gender differences in the extent of change in utility interdependence following changes in household structure. Perhaps men and women have different degrees of interdependence with their partners' or children's utility. Such differences could cause conflict in the household.

Any gender differences noted are not necessarily the result of physical differences between the sexes, but more likely the result of societal gender norms and roles. We cannot assume, for instance, that women will always be more altruistic than men with respect to their children. Women's behaviour will be influenced by the expectation of their gender role in a particular culture, as will men's behaviour. We cannot isolate relationships within the household from gender relations in society.

Gender roles and gender role expectations will play a strong role in determining preferences and the degree of utility interdependence which in turn influences decisions and conflict within the household. Gender biases present in society will also be reflected in household behaviour. For example, bargaining models use opportunities available to individuals outside the household as threat points. If women have less access than men to jobs in the labour market, to credit, to land ownership, to government economic development programs and so on, their threat points will always be weaker than men's and their bargaining power will be weaker. Models that rely on specification of gender roles and responsibilities are also influenced by gender biases in society. Traditional gender roles and responsibilities are a product of the opportunities available to men and women outside the household. This is important to remember when we apply theory across societies that have different degrees of gender bias. Women in different countries may react differently to development incentives depending on how much influence societal gender biases have on their behaviour. Hopefully, as gender becomes an important factor in understanding and modelling household behaviour in economics, programs and policies will attempt to change gender biases that have prevented women from fully sharing the gains of development.

7.0 Policy Implications

Naila Kabeer (1992) successfully summarizes many of the policy implications of intrahousehold relations. Kabeer examines why the use of the household as a unit of analysis has persisted in research and policy. She looks at why treating the household as a unit may be inadequate for policy purposes. She also discusses the assumption of income pooling and the

intrahousehold division of labour. Finally, some of the policy implications that arise if the household is regarded as a site of unequal power relations are addressed.

The household continues to be used as a unit of analysis for pragmatic and conceptual reasons. Pragmatically, research about intrahousehold relations may be considered costly relative to the additional information retrieved. Conceptually, the assumption that the household can aggregate the preferences of its members thereby maximizing the welfare of the family as a whole has allowed policy makers and researchers to concentrate on the context in which household decisions are made. The efficiency or equity effects of those decisions on different individuals in the household have been largely ignored.

There are two main arguments as to why using the household as a unit of analysis may be inadequate or misleading for policy purposes. First, actual project experience does not always bear out the predictions of the neoclassical model. The intrahousehold effects of specific interventions may be different than expected. More generally, observed inequalities in the household have been explained by unequal bargaining power in household decisionmaking. This result may have different implications than that of the aggregated preferences model for the content, sequence, and timing of interventions.

Kabeer points out that anthropologists have long observed gender differentiation in household expenditures, with women tending to display greater altruism, especially with children. These findings suggest that the gender of the household member who benefits from policy interventions may be relevant to intrahousehold distribution. It should be noted that gender-differentiated expenditure patterns may still be compatible with aggregated preferences and unified household decisionmaking. These patterns could reflect gender differences in

responsibility (for example, men pay for housing, women pay for food and clothing) and earnings patterns (regular earnings versus lump-sum cash payments). More work needs to be done to establish which decisionmaking principles hold and in what circumstances.

Another important area of intrahousehold research for policy makers is the intrahousehold division of labour. The division of labour takes different forms across cultures so it is important to be familiar with the intended location of policy intervention. For example, work in South Asia has highlighted women's unremunerated labour. Labour performed by women as "unpaid family helpers" has often been ignored when setting up policy interventions, making the true costs and benefits of policy unknown. Hidden costs for the household may include such things as intensified work burdens for women or reduced schooling for children.

In Sub-Saharan Africa, research has spent more time challenging the idea of unified household decisionmaking. Household decisionmaking in this part of Africa appears to be segmented instead of unified. Women and men tend to manage separate economic resources and may form separate accounting units. Attempts were made to target male heads of households to implement policy initiatives. The assumption was that male heads would be able to mobilize labour from other family members. These initiatives foundered because they did not understand that household decisionmaking was not unified and that women and men from the same household did not necessarily share the same goals.

Kabeer proposes that both equity and efficiency goals may be better served by giving women resources commensurate with their responsibilities. Women's ability to maximize their own welfare and the welfare of their dependents is constrained by household power relations. There are complex policy implications if the household is viewed as a site of unequal power

relations. Men's power within the household is dependent on their ability to mobilize resources from cultural, political and material domains. For women to gain more power in household decisionmaking in this context, they need to gain power on many different fronts: education, reproductive rights, employment, legal and political enfranchisement and organization. To achieve equitable relations and resource distributions within the household, policy makers must now look at the environment outside the household.

8.0 Summary and Concluding Remarks

This paper surveyed economic models of the household to determine if any of the models can explain gender inequality in resource allocation observed in the developing world. It was determined that some models cannot while others offer possible explanations. Evidence of unequal resource allocation by gender in the areas of education, health and income was described. The first model of the household that was examined was the neoclassical model (using Gary Becker's model as an example). After setting out the main points of Becker's 1991 model, criticisms of this model were reviewed. This included critiques of the theory itself as well as a number of empirical studies that contradict the predictions of the neoclassical model. Alternative models of household behaviour were next examined, among them a cooperative Pareto efficient model, cooperative bargaining models, non-cooperative decision making, separate spheres bargaining and the reciprocal claims. The assumptions of stable preferences and independent utility functions were discussed and finally, policy implications of incorrectly specified household models were considered.

In Becker's (1991) neoclassical model, he uses a rational behaviour approach and assumes that household members voluntarily adopt the household head's preference function as the group function. This occurs because the household head is assumed to be altruistic. All beneficiaries will maximize family income and the utility of the altruist because their utility will rise and fall along with altruist's utility. The behaviour of the household as a unit can be represented by maximizing the utility function of the household head subject to total household income. The household effectively operates as a single unit and members do not have tastes and preferences that differ from the head of the household. The distribution of consumption in the family is the one that maximizes the household head's utility subject to the budget constraint. We cannot observe if the "optimal" distribution ensures equal allocation of resources among family members.

The main problem with the neoclassical model is its assumption that one utility function can represent the preferences and tastes of each member of the household. The utility function is assumed to be exogenously given, independent and randomly distributed. In addition to the problem of one individual's tastes and preferences being imposed on all household members, the neoclassical model cannot take into account interdependent utility functions because individual tastes and preferences cannot be satisfactorily aggregated. Becker avoids this problem by assuming an altruistic family head, but the viability of this assumption is questionable. To declare that household members' utility is not sometimes affected by the utility of other household members, or that only an altruistic household cares about other family members are severe assumptions.

The cooperative Pareto efficient model examined assumes that a two person household is characterized by two utility functions which can be interdependent. The outcome of decision making processes are Pareto efficient. However, this model assumes it is not possible to observe individual consumption levels. This makes it difficult to assess how resources are allocated in the household and if certain members systematically receive more or less.

Other models of the household that attempt to model decision-making that takes place within the household are more conducive to modelling gender relations. Bargaining models view marriage as a cooperative game and use threat points to determine the bargaining strength of individuals. These models were an important step forward in formalizing relationships inside the household. They hypothesize that bargaining strength, based on opportunities available to individuals if they do not belong to a household, is instrumental in determining intra-household resource allocations. This can be used to understand why, for example, goods preferred by a household member with weaker bargaining power receive less priority than other goods. The bargaining models also highlight the importance of the gains from marriage since no individual in the model will accept a lower utility than what is attainable outside of a household.

Non-cooperative decision making assumes that household members have distinct tastes and preferences, and that members have not entered into binding and enforceable contracts with each other. Individuals do not behave cooperatively and household allocations may not be Pareto efficient. The individual takes the other household member's behaviour as given and then maximizes individual utility subject to this additional constraint. This model can explain dynamics in household decision making such as the effect of income earned by different individuals on goods purchased with the household budget.

Two household models, separate spheres bargaining and reciprocal claims, explicitly include gender expenditures and responsibilities in their formulation. These are promising models that could lead to development programs more attuned to the needs of women. Both models assume that household members have individual preferences and individual resource constraints according to gender. These models still require empirical testing to see how well they can predict household behaviour. Even if they do not perform well, they are at the very least indicators that the economics community is beginning to accept the idea that gender relations are important in understanding household behaviour.

Next, the assumptions of stable preferences and independent utility functions were examined. This assumption is problematic given the substantial changes in circumstances in an individual's life when households are created. It was suggested that consistent household behaviour occurs within specific time frames in the evolution of household structure. Gender differences in preference shifts and the existence of interdependent utility functions may help to explain household behaviour. The importance of realizing that gender biases in society are reflected in the household was noted. Households should not be viewed as acting independently of the society or culture in which they exist.

Finally, the policy implications if household models are incorrectly specified were considered. An important point for policy makers to understand is that women's ability to maximize their own welfare and the welfare of their dependents is constrained by household power relations. If policy makers do not understand, or take account of, these relationships, policy interventions will likely yield unexpected or unwanted results.

Critics of the neoclassical approach to the household should take heart. Alternative models are attempting to establish decision making processes between individuals within the household. These developments, especially those that explicitly include gender roles and responsibilities, will eventually help to establish how we can begin to overcome gender inequality in resource allocation and let everyone gain from economic development.

United Nations Development Programme (UNDP). (1991 & 1993). Human Development Report (New York, Oxford: Oxford University Press)

World Bank. (1991) World Development Report 1991 (New York: Oxford University Press)