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Modelling Gender Dimensions of the Impact of Economic Reforms in Pakistan

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Modelling Gender Dimensions of the Impact of Economic Reforms in Pakistan [1]

by

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Abstract

The objective of the present study is three folds. First, it extends existing gendered social accounting matrix for Pakistan (Siddiqui, 2004) by introducing more sectors, factors and actors of the economy. Second, gendered CGE model is extended to capture intra household allocation of resources. Third, model is simulated to capture the gender differentiated impact of trade liberalisation and fiscal adjustment on time allocation and intra household allocation of resources.

This gendered SAM provides an accounting record for the whole economy, paid and unpaid, during a given period of 1989-90. It is unusual in many respects. First, it incorporates data on female participation from old and new data worksheets, which shows that female participation is over fifty percent instead of 12 percent in market work. Second, labour income is adjusted for own account workers. Third, it differentiates labour not only between male and female workers but also by education level in market as well as non market activities. It has nine categories of households, with nine social reproduction sectors and nine leisure sectors, which reveal labour composition by education level used in social reproductive activities. The distinct feature of the study is that it estimates distributive share parameter to disaggregate households' consumption by gender, which is considered unobservable. The CGE model developed in this study captures not only time allocation between market work, household work, and leisure but also incorporate intra household allocation of resources. Model is simulated under two assumptions. First, it assumes unitary households consumption function. Later, it drops this assumption and incorporates intra household allocation of resources.

Results of the study show that trade liberalization boosts demand for all type of labour in textile and crop sector, which are major employer of female labour. Demand for unskilled labour increase more than demand for the skilled labour for both men and women. Gender wage gap reduces after the policy shock for both categories of labour, low education and high education. Capability indicators, IMR and LR, show an improvement for all households rich as well as poor in rural and urban area in result of trade liberalisation. Under the reduced government expenditure, wage rate increases for all type of labour except unskilled male labour. Decline in wage rate for unskilled male labour is an indication that poor are worse off after the policy shock. Capability indicators, IMR and LR, show an improvement for rich households and show deterioration in poor households in both rural and urban areas. The results suggest that impact of both macro policies: trade liberalisation in presence of compensatory measure and cut in government expenditure is not gender neutral. Results support the contention that trade liberalisation in the presence of compensatory measure over burden women. Despite significant changes in market employment, gender division of labour remains unequal within household economy, which confirms our earlier findings.

The second set of simulation exercises show that household demand for goods and services varies by gender although the direction of change is same. With existing empowerment and discrimination level, female consumption rises over the base year but less than the rise in male consumption with in the same households. In these exercises, the effect on employment, wages, and production is a little different from the results in the previous exercises. Textile production increases more and cop production increases less than in the exercises using unitary household utility function. It can be concluded from this that using unitary demand function over estimate household demand for crop sector goods and under estimate demand from textile. Capability indicators, IMR and LR, for both male and females show an improvement for all households. In the second exercise, capability indicators, IMR and LR, for both male and females show deterioration in poor households and improvement in relatively rich households.

The difference in results of two sets of simulation is small, but it shows that aggregation of households consumption hides not only variation in male and female consumption pattern but also some impact of households demand on market economy. Poverty is strongly correlated with empowerment of women. Increase in women empowerment results in allocation of more resources to females and reduction in human poverty among females. But it affects men negatively; therefore it has to be explored further. The study concludes that 'successes 'or 'failure' of any policy change should be measured not only by change in time use but also through intra household allocation of resources.

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1. Introduction

Structural adjustment and stabilization programs have formed economic policy framework in Pakistan since 1980s. In the past, these economic reforms are presumed to be gender-neutral. However, ostensibly neutral macroeconomic policies may reinforce social biases and inequalities between men and women, especially in a country like Pakistan, where women are less fed, less educated, less mobile, less empowered and over burden by household work. This study addresses to a number of gender related issues that may be responsible for differentiated impact of economic reforms on men and women.

Like in other developing countries, in Pakistan, activities are organised into gender specific spheres of influence, men are responsible for market work and women bear disproportionately larger burden of household work. Even women and men both work in market but they are concentrated in distinct sectors and distinct activities. Majority of women works in export oriented industries, engaged in labour-intensive jobs, and are paid less than men even with same qualification[2]. Contrary to women, majority of men work in domestic sectors, work in better working conditions and receive higher wages. After market work, men spent most of their time in leisure activities and do very little household work, while women remain engaged in household work such as cooking, cleaning, looking after children, elderly and farm animals etc. Consequently, women are time poor. In this scenario, economic reforms such as trade liberalisation are expected to push them more into time poverty.

Trade liberalization exposes previously protected sectors to competition that ultimately produce changes in employment, prices, and income. These changes produce gender differentiated impact due to: asymmetric responsibilities, difference in capabilities and discrimination and constraints they face. However, there is a general observation that women benefit from trade liberalization through increased employment in expanding female-intensive sectors. Increase market work of women is expected to reduce their leisure because households work is predominantly considered their primary responsibility.

Not only work pattern, consumption patterns of women differ from those of men.

[2] Female earn 35 per cent less than men. The ratio of female wage to male wage has fallen from 65.7per cent in 1990-1 to 60.5per cent in 1999-2000(Siddiqui, 2004). Besides structural factors like, gender segregation of job market by occupations and skills, under-representation of females in higher paying occupations and grades, which are result of economy wide disparities in education and training, 20 per cent of wage differential is due to discrimination in labour market (Siddiqui and Siddiqui, 1998).

Household resources, including food, are prioritized for wage earners. Men as a bread winner receive both nutritional and educational priority, while women remain relatively illiterate and malnourished particularly in South Asia (White and Messet (2002)). In this scenario, fiscal policies such as tax increase or reduction in public provision may not be gender neutral. As a care giver, rise in price of food or change in public provision of social services may require women to compensate by reducing expenditure on their food in take or on education or expanding their role as a care giver that result in a number of undesirable effects i.e., malnutrition among women and girls, picking girls' from schools and increase-working hour for households' unpaid work (look after patients at home[3]).

Economic theory suggests that household consumption is dependent on household income (available resources) and prices. But a number of studies also document importance of empowerment and discrimination in intra household allocation of resources. For example, if woman has control over household resources, they spend more resources on basic needs such as Foods, Cloth, Education and Health, which intends to minimise the differences between men and women. On the other hand men's control over resources is expected to increase the gap between men and women by spending more on luxury items[Sathar and Kazi, 1997; and Siddiqui et al, 2003]. Discrimination in presence of men's control over resources makes the situation worse. Thus, household consumption analyses ignoring the role of discrimination and empowerment in intra household allocation of resources may hide the cost born by women in terms of forgone consumption. Addition of these factors in consumption analysis may reveal more complex dynamics of gender differentiated impact.

In brief economic reforms affect women not only as a producer but also as a consumer both positively and negatively by increasing employment opportunities, increasing work load or reducing consumption etc. Existing analysis (Siddiqui, 2004; Fontana and Wood, 2000; Fontana, 200, 2002; Fofana, 2002) is biased towards analysing the gender impact of trade liberalization of resource allocation in the economy and ignores its impact on resource allocation within a household. In order to avoid further percussion a careful analysis of the costs and benefits of these policies is required that accrue to women in Pakistan.

As a response to the need, this study extends its previous work on Pakistan for a comprehensive assessment of the gender-differentiated impacts of both trade liberalization and

[3] Substitution of household's produced goods for market goods.

fiscal adjustment. The analytical framework adopted in the study is based on gendered CGE model developed for Pakistan in Siddiqui (2004). The model not only differentiates between male and female workers but also have social reproduction and leisure sectors, which are important for time use analysis. In this study, model is extended by distinguishing labour not only by gender but also by skill. It drops earlier assumption of homogeneous household and distinguish household by education of the head of the households in the urban areas and by employment status in the rural areas. It also drops the assumption of same consumption pattern of men and women. It emphasizes on the role of empowerment and discrimination in intra household allocation of resources and capabilities development to capture the gender biases.

Therefore, the objective of the present study is three folds. First, it extends the existing gendered social accounting matrix (Siddiqui, 2004) by introducing more sectors, factors and actors of the economy. Second, gendered CGE model developed in Siddiqui(2004) is extended to capture intra household allocation of resources in addition to time allocation. Third, model is simulated with trade and fiscal policies.

We begin in the next section by discussing data and methodological issues in development of gendered SAM. Section III describes salient features of gendered social accounting matrix. Section IV discusses main features of traditional CGE and introduces features which make model gender aware. A brief review of literature is presented in section V. Results are discussed in section VI. Section VII concludes the paper.

2. Data and Methodology in the Development of Gendered SAM

Existing gendered social accounting matrix for Pakistan (Siddiqui, 2004) is very simple with five production sectors and one household sector, which limits the analysis, particularly when poverty and gender dimensions are focused. This paper fills this gap by constructing a detailed gendered social accounting matrix for Pakistan. It differentiates between male and female labour inputs by four education level. The assumption of homogenous household is dropped. In urban areas households are grouped by the education of the head of households and in rural areas by employment status of the head of households.

To fulfil the computational requirements of gendered CGE model gender-disaggregated

data on participation in market, hours of work by sector(paid and unpaid), wages, skill levels, and socio economic indicators is collected from various sources. The real part of the SAM is constructed using Supply and Use Table (Pakistan, 1996), Integrated Economic Accounts(Rizvi,1996), earlier gender SAM by Siddiqui (2004); traditional SAM for Pakistan(Siddiqui and Iqbal, 1999) and other miscellaneous data from Pakistan Federal bureau of statistics; such as household integrated economic survey (HIES) (Pakistan, 1993), labour force survey (LFS) (Pakistan, 1993), agriculture census (Pakistan, 1993). While unpaid economy of SAM is constructed using national LFS data and data from a small survey of three cities-Gender planning network survey (GPN-Survey) (PIDE, 1999). Data from various sources are adjusted for consistency to obtain a consistent economy wide data base.

The SAM constructed here is unusual in many respects. First, wage share in GDP is adjusted for employer and self employed. GDP is also adjusted for data on female participation in market work collected on the basis of new data collection technique. Second, it disaggregates both male and female labour by four education level; no education(No-Edu), low education(less than five years-Low-Edu), medium education (five but less than ten years of education-Med-Edu) and high education (ten and above-High-Edu). Third, it distinguishes persons by work status based on the notion that person is economically active or not. Fourth, SAM is extended by incorporating nine categories of households, with nine social reproduction sectors and nine leisure sectors, which reveal labour composition by education level used in social reproductive activities. Fifth, it calculates households stock of durable goods, which are used in household social reproduction and saves person's working hours involved[4].

2.1 Labour Share in GDP_{fc} Adjusted for Own Account Workers

Earlier SAM reports income of own account worker (self employed and employer) as a part of operating surplus in majority of activities. In this gender social accounting matrix, using labour force survey (LFS) data and HIES data, sectoral employment of each type of labour is calculated. LFS reports persons in the labour force by gender, by employment status, by sectors of activity, hours per day and wage rate of employees. HIES reports data on months worked and number of days worked in a month. Using the information sectoral employment is

[4] In this Paper Gender CGE is developed by aggregating both type of individuals, working or non working. Model does not include capital goods in households production function. Both features can be included in the model for further gender analysis.

calculated in hours.

Labour share of own account worker is calculated using micro data from HIES and LFS. Assuming that wage per hour of employees is also the wage that an own account worker can earn in an hour. Using wage per hour of an employee and working hours per day of own account worker from LFS and days worked in a month and months worked in a year from HIES, wage share of own account workers is calculated. This labour share is subtracted from operating surplus and added to labour income in SAM. Therefore labour income in SAM is the value of total labour used in production activities and this adjusted income is distributed among households. Operating surplus is solely returns to capital.

2.2 Female Labour adjusted for Improved Female Participation in Productive Activities

According to 1981 population census, female labour force participation rate was only 2.1 per cent. But Agriculture census reports that 54 .4 per cent of rural women work as unpaid labour in farming activities. If part time workers are included, the percentage rises to 73%. Since 1990-1, labour force survey started to report female labour force participation in two sections. The data collected on the basis of old data collection technique shows that 3.4 million women are in labour force. This number increases to 15.5 million if we include data collected under revised data collection technique which reports women participation in activities such as harvesting, sowing, picking cotton, drying seeds, maize and rice husking, engaged in live stock and poultry farming activities, construction work, making cloths, sewing and knitting, shopping and marketing and preparation of goods at home which are available in the market (Siddiqui, 2004). Following SNA agreement, all activities are defined as productive which produce goods and services not only for sale, but also those, which produce goods for their own consumption. These activities are grouped into five broad categories of SAM, 'crop', 'live stock', 'construction', 'textile' and 'household and sanitation services'.

Female labour engaged in harvesting, sowing, picking cotton, drying seeds, maize and rice husking are added to crop sector female labour. Female labour engaged in livestock and poultry farming activities are added to live stock labour. Female labour used in textile and construction are added to the existing female labour data collected on the basis of old collection technique for these sectors. If women are engaged in work such as preparing meal,

cleaning, washing clothes, look after children and elder people, collecting wood, fetching water, washing and pressing clothes, caring of children or health care of sick persons, helping children to do homework or other educating activities, cleaning or arranging the house or preparation of other goods for other households and receiving cash income , these activities are included in market activities and added to the 'households services' sector of SAM of market economy. The value of female labour used in these activities is calculated by using minimum wage rate prevailing in that particular sector of the economy. To some extent these estimates shows estimates for black economy or informal economy, which does not appear in the national statistics of GDP (which is calculated on the basis of old female participation rate).

2.3 Non-Market Activities

Time use data in Pakistan is sparse. Labour force surveys reports data for female labour used in social reproduction activities. But it does not report working hours of men spent on these activities. Another survey conducted for Gender Planning Network (Siddiqui *et al*, 2001) reports work hours of men spent on non-market activities. It covers only three urban cities. Using the data from LFS and GPN-survey[PIDE, 1999], a matrix of the allocation of time between market activities, social reproduction and leisure for the eight labour types in each of the nine households is compiled.

Leisure is non economic and non productive, because it cannot be rendered for some one else (see Fontana and Wood, 2000 for detail discussion on the topic). Like Fontana and Wood (2000), minimum time used for personal care (sleeping, eating, personal hygiene etc) is ten hours a day. This time is not included in SAM. After subtracting 10 hours from total of 24 hours we have 14 hours, which are used for market, household and leisure activities. It is assumed that time used in one activity cannot be used in other. Subtracting time for market and household work from 14 hours a day, leisure is calculated for each individual. Leisure is the time that can be used for sleeping and other leisure activities such as playing games or attending a party or watching movies, etc.

The value of these activities is calculated assuming that the cost of production is purely labour cost. Opportunity cost of labour used in non market sectors of the economy is the wage a person can earn by working in the market economy. Under this assumption this approach may be referred as wage (per hour) x time (hours). Weighted average wage rate for male and

female in the market economy is used to evaluate household produce goods (Pyatt, 1990).

2.4 Distinction between working and non working population

Earlier studies suggest that some thing other than human capital is also important in determining who does what. They suggest that social roles or hierarchal considerations are binding in the sense that households with a different mix of gender and family composition by age and by gender act differently. Therefore, this distinction between working and non working population is important for time use analysis. Working population are those who produce goods for sale in the market or for their own consumption and non working population are those who does not produce goods for sale in the market. Former constitute labour force and later comprise of those persons who are not in the labour market and stay at home for some reasons such social norms which keep them away from market work and in households surveys they are reported as house wives. Both types of individuals involve in social reproductive activities.

Earlier studies suggest that increase participation of female in the market may not reduce their leisure time but reduce their household work at the expense of leisure of the females not in the labour market but engaged heavily in social reproduction activities at home. Studies by Alderman and Chishti (1991), Khandker (1987, 1988), Skoufias (1993) have examined the choice between household and market oriented activities. The choices have been shown to depend on the women's age, her education, household demographic composition, family wealth, distance to school and place of living. The last but the most important issue in time allocation which dominates in South Asia is the extent to which social norms, particularly patriarchy and the norms of females seclusion or purdha, dominate economic factors that affects time allocation (Khandker, 1988, Alderman and Chishti 1991; Sultana, Nazli and Malik 1996). The studies have shown that women staying at home perform more households chores compared to women working for pay. In brief, socially defined roles affect division of labour among otherwise identical individuals. Therefore labour use is influenced by the composition of household in the way that are not accounted for by differences in human capital and work experience. It shows that intra household division of labour is solely, motivated by a desire to follow social norms, not by an effort to capture gains from specialisation. This is the world where intra household division of labour is purely based on customs. (Facfchamps and

Quisumbing,1999)[5]. Therefore, a distinction is made between individuals involved in household production: ones who works in market economy and others who does not work in market economy. The presence of non working persons shapes the work-leisure of working persons especially of women. The work of non working persons is also evaluated using wage rate prevailing in the economy.

2.5 Capital Goods (Durables) used in Household Reproduction Services

Ownership of households' durable goods has important implications for time used in household and leisure activities. Fro example, if a household own washing machine or it has vacuum cleaner it saves time used in washing cloths and cleaning of household, respectively. It reveals the difference in time allocation of rich and poor households to households' social reproduction and leisure activities. Therefore SAM reports household ownership of capital goods used in social reproductive activities.

Data is taken from household integrated economic survey for the year 1999 and adjusted for stock of durable goods for the year 1990. Then taking the capital stock of the whole economy from Siddiqui (2004) for the year 1989-90 and operating surplus from input output table, average returns to capital for the year 1990 is calculated and applied to stock of durable goods for the year 1990 to calculate returns to capital in household social reproduction activities.

2.6 Intra Household Allocation of Resources, Empowerment and Discrimination

Imbalance in intra households allocation of resources is reflected in human development indicators such as literacy rate, infant mortality rate and mal nourishment. However, data on intra household allocation of resources is not readily available. Household surveys collect data for consumption expenditure on household basis. It is difficult to determine from survey data how resources are actually allocated within a household. 'White and Masset (2002), and 'Bourguignon and chiappori's' recognize that, given appropriate

[5] Theory suggest that labour shares in various tasks varies with: a. an individuals human capital relative to other members of households, b. past experience, c. status of the individuals relative to the gender and family composition of the households. The first two effects corresponds to Becker's idea of comparative advantage, the last effect control for what non economic literature has described as social roles, that is determinants of task allocation based purely on gender and family status.

assumptions, it is possible to use household data to identify at least some aspects of the rules whereby resources are allocated to different groups of people within a household. Using HIES data a number of hypotheses are tested to predict intra household allocation of resources. The analysis is parametric and starts with the specification of a standard model linking expenditure to income and demographic characteristics of individuals in the following way.

$$Log_n(C_i) = b_o + b_1 M + b_2 F + b_3 Y + \sum_k b_{4k} \Psi_k$$

Where C = Total Household Consumption for good i

Y = Household Income

M = Number of males-adult equivalent

F = Number of females-adult equivalent

k = Other socio economic characteristics

i = Commodities consumed

ß$_1$ and ß$_2$ represent the percentage change in households' consumption with the increase in one man and one woman respectively. If ß$_1$ is statistically different from ß$_{2i.e.,}$ consumption of a man of good i is different from consumption of a woman of good i. Normalise the coefficients by one of the coefficient say ß$_1$

ß$_1$ / ß$_1$ =1 and ß$_2$ / ß$_1$ = x

We get ratio (1:x) of consumption of a man to consumption of a woman of good i. The following two ratios $\frac{1}{1+X}$ *and* $\frac{X}{1+X}$ determine the share of consumption of a man and a woman in total consumption of good i of a household with one adult man and one adult woman.

Using these ratios and taking into account the number of adult equivalent males and adult equivalent females in a household, household's resources are divided between men and women in a household.

Regression results for food, clothing, education and health shows that there is a difference in consumption of male and female. For all other categories estimated coefficients

are insignificant. These commodities are like public goods, which are consumed by men and women equally. Therefore, housing, sanitation facilities and utilities such as water, electricity, and gas etc are categorised as public goods, which are consumed by men and women equally. They represent fixed cost independent of gender composition. Focussing on basic need goods we assume that discrimination exist in food consumption, in provision of health and education, clothing etc. The results show that men consume better quality of food like meat while women consume more of vegetables. The distributive factor is calculated from the ratio $\frac{1}{1+X} and \frac{X}{1+X}$.

Discrimination and control over resources determine allocation of household resources among members of a household. The studies suggest that if a woman has control over resources she spends more on basic need items, food, clothing, education, and health and less on other goods. Contrary to woman, man spends more on items other than basic needs such as cigarette, drinks, transport and other luxury items. For this analysis we divide total expenditure into two categories: 1. basic need items 2. Other than basic needs.

Let ? be the share of basic need goods in total expenditure and rest (1 - ?) is the share of all other goods and services in total expenditure. ? is calculated from HIES for each group of household. Therefore, total expenditure is

$$(?)_H * (TE)_H + (1 - ?)_H * (TE)_H = TE_H$$

where TE is total expenditure of a household.

Assuming that female education (mothers education) or share of female unearned income in total households income determine female empowerment or bargaining power. Therefore households consumption determined by prices and income but distribution between male and female is determined by empowerment and discrimination at the household level. These are embodied in distribution factor. This variable is exogenous in the model. Incorporating above-mentioned information, a detailed gendered social accounting matrix (GSAM) for Pakistan is constructed.

3. Main Features of Gendered Social Accounting Matrix

Pakistan's gender social accounting matrix (GSAM) departs from the past tradition where social accounting matrices focus exclusively on the real side (Paid) of the economy. This GSAM can be viewed as a combination of the market and non market sectors of the Pakistani economy, which provides comprehensive information on the paid and unpaid (care) sectors of Pakistan for the year 1989-90. Social Accounting Matrix for the year 1989-90 can be divided into two parts (I) Money metric Social Accounting Matrix (traditional SAM), (II) Non Market Economy: Households' reproduction activities and leisure. First part reveals resource allocation, structure of production, and distribution of income etc. Second part portrays household economy with input of female and male labour by education level into household social reproduction and leisure activities.

In this gender SAM factors and sectors are disaggregated in such a way that helps to understand interrelationship among different aspects of economic transactions in production, consumption, and investment, and linkages between paid and unpaid economy. It presents four types of accounts: factors account, institutions account, production and consumption (market and non-market), and capital account.

3.1 Factor Account

Factor account concerns with factors of production: labour and capital. It distinguishes labour by gender and by education level in both market and non market sectors of the Pakistani economy.

3.1.1 Male Labour

a. With no Formal Education (No-Edu)
b. Less than five years of education (Low-Edu)
c. Five but less than ten years of education (Med-Edu)
d. Ten and above (High-Edu)

3.1.2 Female Labour

a. With no Formal Education (No-Edu)

b. Less than five years of education (Low-Edu)

c. Five but less than ten years of education (Med-Edu)

Ten and above (High-Edu) This SAM not only reveals unpaid economy of household but also reveals many hidden features of the paid economy. For example data collected using new data collection technique show that female participation in market activities is more than 50%.

Table 1

Time Allocation by Men and Women in Market Sectors of the Economy (%)

Sectors	Male Labour in hours				Female labour in hours			
	No- Edu	Low-Edu	Med-Edu	High-Edu	No Edu	Low-Edu	Med-Edu	High-Edu
Crop	38.1	26.4	23.9	9.9	64.3	46.7	30.7	0.5
Live Stock	18.4	11.1	9.7	3.7	3.2	22.3	14.3	0.1
Forestry and others	0.0	0.6	0.2	0.2	0.1	0.6	0.8	0.2
Fisheries	0.3	3.3	0.1	0.0	0.3	1.8	2.6	0.8
Mining	0.2	0.2	0.1	0.1	0.0	0.0	0.0	4.7
Food	1.2	1.6	2.0	2.0	0.5	2.3	1.5	0.6
Textile	4.8	5.9	7.2	5.0	8.5	13.7	20.0	6.2
Wood and Paper	1.2	1.4	1.7	0.9	0.3	1.5	0.8	0.0
Chemical	0.2	0.4	0.5	1.4	0.1	0.0	0.3	1.9
Non-Metalic	1.1	0.5	0.4	0.6	0.6	0.0	0.5	0.0
Basic Metal	0.3	0.1	0.3	0.9	0.0	0.0	0.0	0.0
Machinery	0.7	1.7	1.6	1.3	0.1	0.0	0.2	0.6
Handicraft	0.5	0.3	0.5	0.8	0.8	0.0	0.9	0.4
Electric, Gas, Water	0.3	0.9	0.9	3.5	0.0	0.0	0.3	0.8
construction	7.2	6.5	4.9	2.6	1.9	0.9	0.2	0.8
Whole Sale and Retail Trade	18.1	27.2	31.5	28.6	4.5	2.3	8.0	4.8
Financial Institution	0.3	0.3	0.9	5.3	0.1	0.0	0.0	1.7
Public Administration	1.5	2.5	3.6	11.2	1.7	0.0	1.0	5.4
Education and Health	1.1	2.3	4.0	18.8	2.0	1.1	11.7	68.1
Households Services	4.5	7.0	5.9	3.2	10.9	6.8	6.1	2.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Authors' calculations.

The number of female in the labour market increases from 3 million to over 15 million (Siddiqui, 2004). Many of these activities occur in agriculture, livestock, and construction, textile and services sectors. The GSAM is adjusted for these values. Female wage share increases from 5 per cent to about 21per cent of total wage share, while GDP increases by

over 5 percent. It shows that the largest increase is in livestock sectors and minimum in services sector. It increases by 65 times in livestock, 37 times in construction, 10 times in crop, 8 times in textile, and only by 5 per cent in services sector.

Table 1 reveals the share of each type of labour by gender and by education level in production activities. Table shows that agriculture sector is the largest employer of women and men. It employs 38 per cent and 64 per cent of men and women work hours in a year with no education[6], respectively. The share declines with increasing education level. More educated male are concentrated in non-crop sectors. Table reveals that the females with high education level are concentrated in 'textile'[6.2], 'education and health'[68.1] and 'government' [5.4] sectors (Public Administration). Rest are distributed among all other sectors.

Within the manufacturing sector, two major sectors are identified, export oriented sector 'Textile' (66 per cent of exports are from this sector) and import competing sector 'machinery' (38 per cent of total imports). In the manufacturing sector 8.5 per cent of female labour time with no education are used in export oriented sector, 'textile' and less than one per cent in import competing sector 'Machinery'. The share of female in these sectors increases with the increase education. But in import competing sector it remains less than one per cent. Import competing sector employ more men labour time than female labour time, it employs 0.7 per cent (of no education), 1.7per cent (of low Edu), 1.6 per cent (of Med Edu) and 1.3 per cent (of High Edu) of their labour time compared to 0.1, 0.0, 0.2 and 0.6 percent of female labour time in this sector respectively. Table also reveals that in the services sector government sector is the major employer of both men and women, especially, labour with high-education level. Within the non trading sector, public sector is male intensive.

SAM is made gender aware by not only distinguishing male and female labour in labour market and their wage income in household income, but also by adding social reproductive and leisure activities. The distinct feature of this SAM is that it has as many social reproduction and leisure sectors as the number of households. Labour use is measured in hours instead of persons, assuming economically active persons are involved in all activities, while non working population do household work and rest of their time is spent in leisure.

In addition to market work, household work and leisure are the main activities that occupy males and females' time. After market work, men spent most of their time in leisure activities

[6] While without adjustment for male and females as own account worker and unpaid labour this share was 65.7per cent and 45.9per cent of women and men, respectively.

and do very little household work, while women remain engaged in household work. Earlier studies show that women work in the market is constraining by socio norms. The studies also show that among women- wives account for most of the market work and perform 40 per cent of household work, while daughters and daughter in laws spent less time in market activities and more in household work. Within a household, daughter in law work more than daughters. SAM identifies persons by their work status as working and non working.

Table 2 presents time spent in market and non market activities by men and women. The share contributed to these activities by males and females is distinguished by education level. Table 2 shows that more than 50 per cent of available men hours are allocated to market work and about 10 per cent to household work and 40 per cent to leisure activities. On the other hand, women spend about 35 to 40 per cent of their time on market work and by the same percentage on household social reproductive services and 20per cent time on leisure. Table shows that working women spend about 80per cent of their available time in households and market work, while men spend about 60per cent of their time in these activities. A large share of non working women labour used in households social reproduction activities shows that socially defined roles are constraining. It shows that non working women spent almost the same time in household as working women. This is surprising but it depends on the existence of number of non working persons in a household.

A comparison of time allocation of working males with working females and non working males with non working females shows that irrespective of type of households, work status and education level, all females have larger working hours compared to men. Table also shows that gender division of labour is not the only notable characteristics of the data. Human capital partly determines what people do. Time used in market activities decline as the education of men increases within a households except for employees and self-employed households, whose labour time in market activities is higher for high education compared to labour with no education. Time spent in leisure activities by men shows increasing trend with education level in each households.

Table 2

Time Allocation by Gender and by Education Level (%)

URBAN- Working Individuals

Households

No-Edu	No Edu	Low Edu	Med-Edu	High-Edu	No Edu	LowEdu	Med-Edu	High-Edu
MWHour	54.2	53.2	54.4	51.8	37.7	29.9	39.9	37.3
HWHour	4.5	7.1	4.6	5.4	41.3	47.9	35.8	45.8
TWHour	58.7	60.3	59.0	57.2	79.0	77.8	75.7	83.1
Leisure	41.3	39.7	41.0	42.8	21.0	22.2	24.3	16.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Low-Edu								
MWHour	53.6	52.9	54.6	52.2	33.4	38.6	33.8	45.3
HWHour	10.7	2.9	3.3	3.3	44.1	40.1	48.4	48.0
TWHour	64.3	55.7	57.9	55.5	77.5	78.7	82.2	93.3
Leisure	35.7	44.3	42.1	44.5	22.5	21.3	17.8	6.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Med-Edu								
MWHour	52.7	52.8	54.3	50.6	33.9	26.5	43.2	41.9
HWHour	8.7	6.9	6.7	3.7	42.7	48.5	45.7	47.7
TWHour	61.3	59.7	61.0	54.2	76.7	75.0	88.9	89.6
Leisure	38.7	40.3	39.0	45.8	23.3	25.0	11.1	10.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
High-Edu								
MWHour	57.4	52.8	54.1	50.8	45.8	37.6	37.7	40.3
HWHour	8.0	5.6	7.8	6.1	41.8	45.5	40.4	41.6
TWHour	65.3	58.4	61.9	56.8	87.6	83.1	78.2	81.8
Leisure	34.7	41.6	38.1	43.2	12.4	16.9	21.8	18.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
RURAL Households								
Employee	**Male Headed Households**							
MWHour	52.1	52.2	50.6	47.5	37.4	39.4	36.4	36.5
HWHour	4.2	5.8	8.4	5.2	39.9	43.6	47.3	45.6
TWHour	56.2	57.9	59.0	52.8	77.4	83.0	83.7	82.1
Leisure	43.8	42.1	41.0	47.2	22.6	17.0	16.3	17.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
All FEMALE headed households								
MWHour	50.6	50.4	45.9	53.1	39.9	42.7	45.3	43.8
HWHour	6.0	9.5	6.0	5.6	45.4	43.2	44.5	44.1
TWHour	56.6	60.0	51.9	58.7	85.3	85.8	89.8	87.8
Leisure	43.4	40.0	48.1	41.3	14.7	14.2	10.2	12.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Self Employed-Male Headed Households								
MWHour	51.2	50.1	52.3	51.7	35.1	35.8	34.1	34.5
HWHour	16.8	9.9	5.6	5.5	36.7	41.9	43.9	44.5
TWHour	68.0	60.0	57.8	57.2	71.7	77.7	78.0	79.1
Leisure	32.0	40.0	42.2	42.8	28.3	22.3	22.0	20.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Other Male Headed Householdls								
MWHour	53.3	48.3	53.0	48.6	34.5	36.0	34.2	38.4
HWHour	4.8	5.1	4.3	4.6	35.9	46.5	40.7	44.3
TWHour	58.0	53.4	57.3	53.2	70.5	82.6	74.9	82.7
Leisure	42.0	46.6	42.7	46.8	29.5	17.4	25.1	17.3

Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Employer								
MWHour	53.0	51.3	50.2	47.5	39.0	38.9	0.0	38.4
HWHour	1.6	1.8	2.0	2.4	36.4	40.4	0.0	40.2
TWHour	54.6	53.0	52.3	49.9	75.4	79.3	0.0	78.6
Leisure	45.4	47.0	47.7	50.1	24.6	20.7	0.0	21.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	0.0	100.0
Non Working Individuals								
Urban Households								
No-Edu								
HWHour	5.1	14.3	5.6	14.3	35.8	35.7	33.1	37.3
Leisure	94.9	85.7	94.4	85.7	64.2	64.3	66.9	62.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Low-Edu								
HWHour	7.1	9.2	2.6	21.4	34.3	40.9	37.7	31.4
Leisure	92.9	90.8	97.4	78.6	65.7	59.1	62.3	68.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Med-Edu								
HWHour	4.0	0.9	4.9	3.4	34.8	38.2	37.5	39.2
Leisure	96.0	99.1	95.1	96.6	65.2	61.8	62.5	60.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
High-Edu								
HWHour	4.3	0.0	3.8	7.0	36.1	39.3	38.7	39.8
Leisure	95.7	0.0	96.2	93.0	63.9	60.7	61.3	60.2
Total	100.0	0.0	100.0	100.0	100.0	100.0	100.0	100.0
Rural Households								
Employee Male Headed Households								
HWHour	5.4	5.4	1.1	8.7	35.9	35.7	34.2	17.7
Leisure	94.6	94.6	98.9	91.3	64.1	64.3	65.8	82.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
All Female Headed Households								
HWHour	9.2	5.3	0.0	14.4	30.7	25.3	32.7	52.0
Leisure	90.8	94.7	0.0	85.6	69.3	74.6	67.3	48.0
Total	100.0	100.0	0.0	100.0	100.0	100.0	100.0	100.0
Self Employed Male Headed Households								
HWHour	3.6	5.4	10.0	3.2	32.6	31.2	29.5	37.0
Leisure	96.4	94.6	90.0	96.8	67.4	68.8	70.5	63.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Other Male Headed Households								
HWHour	3.6	0.0	6.1	3.0	29.4	36.3	31.7	28.4
Leisure	96.4	100.0	93.9	97.0	70.6	63.7	68.3	71.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Employer								
HWHour	0.0	0.0	0.0	0.0	37.1	25.5	35.0	34.7
Leisure	0.0	0.0	0.0	0.0	62.9	74.5	65.0	65.3
Total	0.0	0.0	0.0	0.0	100.0	100.0	100.0	100.0

Source: Authors' calculations.

3.2 Production Sector

Production sector is aggregated into twenty sectors from 82x82 input-output table. These activities can be classified into four broad categories; agriculture, mining, manufacturing, and others. Agriculture sector includes, 'crop', 'live stock', 'fisheries', 'forestry and other agriculture sector'. Mining is aggregated into one sector and manufacturing sector is aggregated into eight sectors; food', 'textile', 'paper and wood products', 'chemicals', 'metallic industry', 'non-metallic industry', 'machinery', and 'other manufacturing'. Rest of the economy is divided into seven sectors, utilities(Electricity, Gas, and Water), construction, 'education and health', 'public administration', 'financial institutions' 'households services and sanitation services',and 'all others'.

Production sector is constructed under the assumption that each sector produces single commodity by employing primary factors of production and intermediate inputs. The expenditure on production includes payments to factors of production, cost of intermediate inputs and taxes to government. All production sectors employ primary factors viz, labour (distinguished by gender and by education level) and capital. Commodity producing sectors buy primary inputs from households and using those in the production process generate value added. In exchange for supplying factor services, households receive income as wages (W), and returns to capital (R).

Table 3

Structure of Cost of Production

Sectors	Male Labour				Female Labour								Labour		Share in Total Gross Value Added		Production at Factor Cost
	No-Edu	Low-Edu	Med-Edu	High-Edu	No Edu	Low-Edu	Med-Edu	High-Edu	Capital	Taxes	Total	Male	Female	Total		Intermediate	
Crop	28.5	1.5	8.6	4.4	11.7	1.6	9.9	0	32.6	1.1	100	24.7	50.8	30.1	16.8	8.7	12.6
Live stock	17.5	1	4.9	2.1	3.7	0.7	2.6	0	67.5	0	100	6.9	7.3	7	7.9	6.3	7.1
Forestry and others	1.7	1.2	5.8	5.1	0	0	0	0	86.2	0	100	0.6	0	0.5	1.2	0.3	0.7
Fisheries	9.3	4.7	2.4	0.3	0	0	0	0	83.2	0.1	100	0.9	0	0.7	1.6	0.8	1.2
mining	7.2	1	4.4	1.5	0.2	0	5.5	2.4	48.4	29.5	100	1.7	3.7	2.1	3.5	0.9	2.1
Food and Beverages	4.6	0.5	3.8	3.2	0.1	0	0	0	43.7	44.1	100	2.3	0.1	1.8	5.5	15	10.5
Textile	12.1	1.2	8.3	5.8	4.5	1.5	10	4.3	51.2	1	100	5.9	16.6	8.1	6.3	17	11.9
Wood and Paper	15.4	1.7	10	3.8	0.1	0.1	0.7	0	59.2	9.1	100	1.2	0.1	1	1.1	1.8	1.5
Chemical and Chemical Products	4.1	0.7	5.7	12.6	0.3	0	1.3	0.7	56.8	17.9	100	1.9	0.7	1.6	2.3	9.7	6.2
Non Metallic Industry	16	0.5	1.8	2.7	0.1	0	0	0	45.2	33.6	100	1.5	0	1.2	2	1.7	1.9
Metallic Industry	12.5	0.4	9.2	27.2	0	0	0	0	43.4	7.3	100	0.8	0	0.6	0.4	1.2	0.9
Machinery	10.8	2.5	11.1	9.3	0.1	0	0	0.2	59.1	6.9	100	2.3	0.1	1.9	2	5.1	3.6
Handicrafts	18.2	4.1	9.4	9.1	0.4	0	0.9	0.8	55.9	1.2	100	0.5	0.1	0.4	0.4	1.7	1.1
Gas, Electricity and Water	0.7	0.2	0.9	2.6	0	0	0	0	88.9	6.7	100	0.6	0	0.4	3.7	2.2	2.9
Whole sale and retail hotel and restaurants	2.8	0.5	2.9	1.9	0	0	0	0.1	87.2	4.5	100	10.7	0.6	8.6	20.2	9.0	14.4
Education and Health	5.9	1	10	44	1.3	0	1.1	9.4	27.3	0	100	5.9	4.4	5.6	2.8	0.5	1.6
Sanitation and similar services	5.1	0.6	3.1	1.3	1.1	0	0.1	0.1	88.6	0	100	0.6	0.3	0.5	1.7	0.5	1.1
Financial Institutions	0.9	0.2	2.3	16.8	0.1	0	0.1	0.2	79.2	0.4	100	7.3	0.4	5.8	9.8	5.0	7.2
Public Administration and Defence	17	2.8	19.5	51.3	2.2	0	0.2	2.3	4.4	0.2	100	17.7	3.5	14.7	5.7	7	6.4
Construction	20.9	2.7	10	3.5	3.9	1.5	8.2	3.9	42.3	3.1	100	6.2	11.2	7.3	4.9	5.6	5.3

Source: Authors' calculations.

Table 3 shows that crop sector production accounts for less than 17 per cent of gross value added. The intensity of labour is more pronounced in this sector, where unskilled labour wages alone account for most of the total value added estimated to over 40%. The remainder of value added is accounted for mainly by profits from capital investment(mainly land) estimated to be about 33%, and taxes on output, whose share as a percentage of aggregate value added is very small, 1.1 per cent. Agriculture non crop sector's share remains very low in comparison to the overall agriculture production: with a contribution of about 40 per cent to agriculture production and 10.7 per cent to the aggregate value added (see Table 3). The relatively large share of labour force engaged in agriculture production contrasts, with the low contribution of this sector to aggregate production, established at less than 30 per cent. The high share of labour costs in value added, and the much lower productivity of the sector reflect the non competitive nature of the Pakistan agriculture sector.

Textile is major employer of females after crop sector. The table shows that labour wage contribution to gross value added in export oriented sector 'Textile' is larger compared to import competing sector 'Machinery' i.e., 48 and 34 per cent, respectively. Table also shows that 'Textile' is female labour intensive, while 'Machinery' is male labour intensive. The larger value added share in import competing sector is mainly accounted for by returns on capital, altogether estimated to around 60 per cent. Although labour is the major contributor to value added in textile sector but its higher sectoral production share (11.9%) is largely attributed to the size of intermediate inputs, which account for over 17 per cent of the total (see Table 3). This implies this sector has strong linkages with other sectors and growth of this sector will also push other sectors to grow, i.e., crop sector(cotton).

Public sector production has one of the lowest values added, about 5.7% of the aggregate value added (see Table 3). This low share of value added may also reflect the level of productivity of a number of public sector. Most of the value added income accruing to the public sector is accounted for by wages of skilled and unskilled labour which together represents over 95% of the total value added at factor cost. Public sector value added from profits and returns on capital is very low, about 4.4% of value added.

3.3 Institutions

The SAM has four types of institutions, households, firms, government and rest of the world. Households are classified in rural and urban areas and grouped by socio economic characteristics in each region. In urban areas households are grouped by the education of head of households, 1. no education, 2. less than five years of education, 3. five but less then ten years of education, and 4. metric or above education level.

In rural areas households are aggregated by male and female headed households. Then male headed households are further classified by the employment status of the head of households, i.e., employees, self-employed, employer, and all others with male head of households. In SAM, each household has income and expenditure account. The income generated in production sector is distributed among agents. All wage income earned by labour accrues to households as remuneration for their services in production activities. Capital income is distributed between households and firms.

Table 4 reveals that major share of labour income in urban households; No-Education, Low-education, Medium Education and High education is coming from the labour with no education, low education, medium education, and high education, respectively i.e., 27.6 per cent, 21.5 per cent, 22 per cent, 30.3 per cent for fours type of households in urban areas (see diagonal values in first four column of Table 4). Overall table shows that income from dividends, transfers from government and remittance income increases with the education of the head of household.

Table 4

Sources Of Households Receipts.(%)

	Male Labour				Female Labour				Total					
Urban Households	No Edu	Low Edu	Med Edu	High Edu	No Edu	Low Edu	Med Edu	High Edu	Labour Income	Capital income	Div	Govt. Trans.	Remitt	Total Receipts
No Edu	27.6	1.0	4.7	3.9	4.8	0.2	4.0	0.5	46.8	45.8	1.3	0.5	5.6	100
Low –Edu	2.3	21.5	8.8	3.5	1.8	2.4	17.5	0.3	58.2	38.1	0.5	0.0	3.2	100
Med-Edu	1.6	0.3	22.0	4.4	0.7	0.6	6.8	1.2	37.6	47.6	6.5	0.6	7.7	100
High-Edu	0.5	0.2	0.9	30.3	0.3	0.1	2.6	3.2	38.0	32.6	20.0	1.0	8.3	100
Rural Households														
Employee	40.3	2.9	15.5	14.3	3.8	0.5	1.2	0.5	79.1	17.2	1.4	0.4	1.9	100
Female Headed Households	2.9	1.3	3.1	1.2	11.0	5.3	11.4	0.9	37.2	15.2	7.6	2.4	37.6	100
Self Employed	12.6	1.1	5.0	3.5	6.4	0.6	3.1	0.4	32.6	60.9	0.9	2.4	3.3	100
Other	9.6	0.9	5.3	8.7	2.3	0.7	2.6	0.9	31.0	28.9	19.1	4.2	16.7	100
Employer	0.4	0.1	1.1	1.5	0.1	0.0	0.0	1.4	4.5	93.8	0.3	0.0	1.3	100

Note: Author's Calculations

In rural areas, households with employee employment status of head of household earn

about 80 per cent of their income from labour, male and female. While female headed households are those who receive 38 per cent of their income from remittances. This indicates the absence of senior male member from household. In the absence of male head female become head of household. Own account worker, self employed and employer receive, 56 per cent and 92.9 per cent, of their income from capital[7].

Households distribute income between consumption and saving. The consumption decisions yield demand in the various product, which ultimately reflect demand for factors of production.

3.4 Structure of Demand

Table 5 provides estimates of the composition of sectoral demand at market prices. The rural share of total households demand is about 52% for about 70% of total population. This share is low, especially given the size of the labour force engaged in rural production and size of population living there. In contrast, demand for goods and services from urban areas accounts for 48 % of the total household demand, where thirty per cent of population live.

Table shows that irrespective of the sector of production, demands are driven more by final consumption, and less by investment motives. Household and intermediate consumption comprise the bulk of the share. Altogether, households and intermediate consumption account for over 80% of total aggregate demand, of which household consumption accounts for about 34%. The distribution of household consumption is not uniform across sectors and geographical regions.

Exports represent absorption by non resident, account for about 6.0% of the total, leaving 8 % for the investment(see Table 5). Though relatively low, this share is consistent with the declining value of gross fixed capital formation recorded in most of the 1980s and early 1990s.

The high rate of consumption puts a number of sectors in a vulnerable position, and particularly the ones facing disinvestments. Aggregate demands are estimated as the sum of intermediate and final consumption by households, government, total deficit or surplus (in investment column) and export. Total gross

[7] Self employed income from operating surplus may be overestimated as surveys report their income as part of capital income. We adjusted for labour share with minimum wage.

Table 5

Composition of Demand by Sector at Market Prices (%)

Sectors	Urban Household	Rural Household	Household	Govt.	Investment	Intermediate	Exports	Aggregate Demand by Sectors
Crop	11.3	17.5	14.5	0.0	0.9	14.5	1.2	11.6
Live stock	14.1	15.7	14.9	0.0	0.0	2.7	0.5	6.3
Forestry and others	0.9	2.3	1.6	0.0	0.0	0.2	0.7	0.7
Fisheries	1.9	1.8	1.9	0.0	0.0	0.8	0.6	1.0
Mining	0.1	0.0	0.1	0.0	1.5	5.4	0.8	2.7
Food and Beverages	23.6	26.5	25.1	0.0	1.2	2.8	6.9	10.3
Textile	6.7	7.5	7.1	0.0	1.2	8.3	66.1	10.6
Wood and Paper	0.9	0.6	0.8	0.0	0.3	2.7	0.1	1.5
Chemical	5.3	5.6	5.4	0.0	0.7	13.4	1.3	8.1
Non Metallic Industry	0.2	0.2	0.2	0.0	0.3	3.5	0.2	1.7
Metallic Industry	0.2	0.2	0.2	0.0	2.0	2.9	0.4	1.6
Machinery	1.1	1.0	1.0	0.0	49.1	8.0	1.7	8.0
Fabricate	2.1	1.6	1.8	0.0	2.6	0.1	2.1	1.0
Utilities(Gas,Water and Electricity)	2.3	0.9	1.6	0.0	0.0	4.4	0.0	2.6
Whole sale and retail and hotel and restaurants	7.1	5.1	6.0	0.0	1.0	21.1	17.4	12.9
Education and Health	1.8	1.0	1.4	15.2	0.0	0.1	0.0	1.4
Households services	2.1	1.9	2.0	0.0	0.0	0.7	0.0	1.0
Financial Institutions	15.0	8.1	11.4	0.0	0.2	6.7	0.0	6.9
Public Administration	1.3	0.6	1.0	84.8	0.0	0.0	0.0	5.6
Construction	2.1	2.1	2.1	0.0	38.8	1.8	0.0	4.6
Total	100	100	100	100.0	100.0	100.0	100.0	100.0
	48/100	52/100	33.6	6.2	8.0	45.6	6.6	100.0

Source: Authors calculations

investment is estimated at about 8% of GDP. The high share of consumption and extremely low level of capital formation is a serious constraint to long-term growth and poverty reduction. The difference between national saving and aggregate investment is the net inflow of foreign capital. The positive value of current account balance (CAB) reflects a net inflow of foreign resources, which reflects the degree of dependence of Pakistan on external financing. The low saving rate, particularly among the rural households, has implications on the distribution of asset ownership and accumulation.

This SAM serves as input into the construction of a gendered CGE model for Pakistan, which is discussed in the next section. First we briefly describe the main blocks of equations,

similar in many respects to the model, which has been developed to analyse the impact of trade liberalisation on welfare and poverty in Pakistan(Siddiqui et al (1999, Siddiqui and Kemal 2002)). The equations are presented in the appendices.

4. Computable General Equilibrium Model for Pakistan

In this study model is developed by aggregating male and female labour into two education level, labour with below primary and labour with primary and above education. Secondly we aggregate working and non working labour in households' production assuming they are homogeneous and non working labour behaves like working individuals. At the moment we also dropped capital goods used in household production from the model and assume labour is only input in household production and leisure sector. Model has four blocks of equations, Income and Saving, Production, Demand, Prices, Trade and Equilibrium.

4.1 Income and Savings

Model has four institutions: households, firms, government and rest of the world. Households are endowed with labour and capital. First institution is *household.* Household income is comprised of earned and unearned income from various resources. The ownership of factors of production and returns on them determine their earned income or factor income. All wage income from all type of labour accrues to households. Household's unearned income consists of transfers from firms -dividends (DIV_H)- remittances ($\overline{TR}_{RH}$) transfers from the rest of the world and transfers from government-social security benefits ($\overline{TR}_{GH}$). Transfers from government and rest of the world are exogenous. Firms pay dividends to households from their capital income. It is defined as fixed share from firm's capital income. Households pay taxes to government. After subtracting income tax from the households' total income, we get the disposable income of household (YD_H). Household savings (S_H) are defined as a fixed share of households' disposable income. Total private saving at the national level is sum of all households' savings. Household total consumption is calculated after subtracting saving from disposable income.

The *second* institution is the firm. Firms' income originates from return to capital and transfers from government. The 'firms' capital income (Y_{FK}) is defined by subtracting sum of household's capital income from production activities. Transfers from the government to firms $(\overline{TR}_{GF})$ are given exogenously. Firm's expenditure includes tax payments to the government $(t_k * Y_{FK})$, dividends to households, and transfers to the rest of the world $(\overline{TR}_{FR})$. Subtracting all these from the firm's income, we get saving of the firm.

The *third* institution is government (G). It receives tax revenue from international trade- taxes on imports and exports, taxes on production, income tax on households' income and tax on capital income of the firms. Government also receives transfers from the rest of the world $(\overline{TR}_{RG})$, which are fixed exogenously. Subtracting transfer payments to households, to firms and its final consumption expenditure (C_{Gi}) from government revenue we get government savings (S_G).

The *fourth* institution is the rest of the world. Its income includes income from sales of imports and transfers from firms, and outlay includes expenditure on exports, remittance income to households and transfers to government. The equations are defined in the trade block. The difference between the two measure current account balance (CAB) or foreign capital inflow.

4.2 Labour Market

In order to capture gender effects of economic reform, In the model we have four types of labour: female labour less than five years of education, female labour with education of five years and above, male labour less than five years of education, and male labour with education of five years and above. We formulate the rigidity in substitution between male and female labour by keeping low elasticity of substitution between male and female labour.

Demand in market economy determines the level of employment in these sectors, and this demand is always satisfied from the labour used in non market sectors of the economy. Total labour supply in market and non market sector of the economy is fixed. The increase demand for labour is fulfilled by increase supply of their labour from non market sectors of the economy. Labour supply in the market sector consists of workers from this sector in the base year plus or minus a proportion of the excess or shortfall of workers from the non market sectors. This proportion of labour is endogenous and varies with change in ratio of female to male wages.

Total labour supply by education level and by gender is the labour used in market sectors and non market sectors of the economy in the base year.

4.3 Structure of Production

In the model, labour is distinguished by gender- male and female. Each type of labour is then identified by education level - no education, less than five years of education, five but less than ten years of education, ten years and above. Labour is mobile across the sectors, while capital is sector-specific. Production is represented by a leontief function on value added and consumption of the intermediate good. Value added is represented by a CES, with the choice between a composite labour factor and capital at the second level. Assuming that male and female labours are imperfect substitute, they are combined with CES technology. Domestic production has twenty market sectors; eighteen tradable and two non-tradable. In the tradable sector, every sector has imports and exports. However, we can classify them as major import competing sectors and major export sectors based on their shares in imports and exports. Chemical and machinery are import competing sectors and textile is the major export sector[8]. Agriculture crop sector is major provider of raw material for its export sector. Production functions in the model are specified by a technology in which gross output has separable production function for value added (*VA*) and intermediate inputs (IC_i). Leontief technology between intermediate and output and within intermediates is assumed. Intermediate consumption of i^{th} sector from j^{th} sector is defined by Leontief technology. Assuming constant elasticity of substitution (CES), value added is defined by the CES production functions. Assuming perfect competition and market clearing conditions, labour demand function for i^{th} sector is derived from CES production function. Capital is sector specific and it cannot move across the sectors. Returns to capital are determined by zero profit condition.

4.4 Foreign Trade

It is assumed that country is a price taker for exports as well as for imports (small country assumption). Therefore, world prices of exports (P_n^{WE}) and imports (P_n^{WM}) are given. Goods for

[8] For detail see Siddiqui and A. R. Kemal (2002) .

the domestic market and exports with the same sector classification are of different qualities. Domestically produced goods sold in the domestic market are imperfect substitutes for imports (Armington assumption).The Constant Elasticity of Transformation (CET) function describes the possible shift between domestic and external markets**.** For traded goods, import aggregation function presents demand for composite goods *(Q_n)* (imported and domestically produced goods). For non-traded good, total demand is equal to total domestic supply. Profit maximization or cost minimization gives desired exports supply (Ex_n) and imports demand (M_n) equations as function of relative prices (domestic to foreign prices). The equilibrium in the foreign market is determined with inflow and out flow of goods and transfers across the border. Nominal exchange rate (e) and current account balance (CAB) are given exogenously. The real exchange rate is implicit in the model determined endogenously. With CAB fixed, trade liberalization lead to large inflow of imports, i.e., keeping the CAB and nominal exchange rate constant, real exchange rate depreciate leading to cheap exports.

4.5 Demand

In the model, we have four types of demand for goods and services: household consumption, government consumption, intermediate inputs, and demand for goods for investment purposes. Total household consumption (CT_H) is defined as residual after subtracting saving from disposable income of households. Household demand is specified by linear expenditure system (LES). It is derived from maximizing a Stone-Geary utility function subject to household's budget constraint[9]. If super numerarie income $(CT_h - \sum P^c_i \ g_i)$ is equal to zero, then households consume equal to the households' specific minimum requirement. Using the Frisch parameter[10] and income elasticities, which are given in the model exogenously, we derive the minimum consumption of a good by each household group.

Government expenditure includes final consumption expenditure- expenditure on goods and services, transfers to households, and transfers to firms. Government current expenditure (CG_i) on the i^{th} commodity is derived by Cobb- Douglas utility function and is defined as fixed share in total expenditure (CT_G). Total final consumption expenditure consists of private (households) and public consumption (C_i). The sum of input requirements (IC_j) by the

[9] Maximizing $u(X) = \sum fi(Xi) = \sum a_i \log(g_i)$ subject to constraint $\sum P_i X_i = Y$
[10] For detail discussion of Linear Expenditure Systems, see Deaton(1987).

production sector for each commodity produced determines intermediate demand $(INTD_i)$ for i^{th} commodity.

Demand for goods for investment (I_i) purposes is determined as the fixed value share in total investment (IT). Total demand for investment and government consumption in real terms are determined by deflating by their respective price deflators.

4.6 Prices

The model contains different prices associated with each good. We retain the small country assumption. World prices of exports (P_n^{WE}) and imports (P_n^{WM}) are given. Domestic price of exports and imports are defined after including taxes, if any. Imports are restricted through tariff barriers and sales tax is also imposed on imported goods so the domestic price of imports (P_n^M) and exports (P_n^E) are defined. Producer price (P_i) is the weighted average of the domestic price of goods for the domestic market (Pt_i) and the domestic price of goods for the export market (P_i^E). The value added price P_i^{VA} is defined by subtracting value of intermediate consumptions from total value of production equal to value of value added. There is a sales tax on all goods, so domestic price P_i^D is determined after including taxes. Finally, GDP deflator $(Pindex)$ is defined as the weighted price index of all goods. Price deflators for investment goods and government consumption are also determined endogenously in the model.

4.7 Equilibrium

The final block presents the saving-investment equilibrium; goods market equilibrium, and labour market equilibrium. Total investment is equal to total domestic saving and foreign savings. Total consumption expenditure on i^{th} good (Q_i) is the sum of expenditure by different household groups and government (C_i), intermediate ($INTD_i$) use by different production activities and demand for investment (INV_i)purpose. Walras law holds, i.e., if (n-1) markets are in equilibrium n^{th} market will also be in equilibrium. Total labour demand in market sectors is equal to labour supply, which is determined endogenously.

4.8 Gender Features of the Model

The model is made gender aware by developing interaction between paid (monetized) and unpaid (non-monetized) sectors of the economy, introducing discrimination, intra household allocation of resources. The values of the key parameters are selected such that reflects the degree of gender inequalities and rigidities existent in the country and in the households. Primary factors of production in the non market sectors are labour, which is distinguish by gender and by education level.

4.8.1 Time allocation in Market and Non Market Activities

Both theoretical and empirical work on time allocation traces its roots to Becker, who first formulated a utility-maximizing model of Z goods that were produced by both time and market goods inputs. Later Gronau(1977) and Kooreman and Kepteyn (1987) extended the model by including home production and leisure.

Here, it is assumed that non-marketed sectors - social reproduction and leisure- behaves like productive sectors and produce good for their own consumption. Each type of household produce non market goods. Total consumption of non marketed goods is equal to total production.

It is assumed that all females and males in the labour market are mobile across household and market economies. CES technology is assumed in combining various inputs at different levels.

On the consumption side, it is assumed that household produced good is imperfect substitute for market produced good. Household maximize utility function defined over, market goods (C_i), home produce goods (C_H), and leisure (LE_H) and face two constraints, income and time.

Household receive income from paid work of men and women, rent from capital, and receipts from other sources, government, firms and rest of the world.

It is assumed that household consume three types of goods, market goods (C_i), home produce goods (C_H), and leisure (C_{LE}) and face two constraints, income and time. Household maximize utility subject to income and time constraints.

(1) $U = f(C_i, Cz)$

Household receive income from paid work of men and women, rent from capital, and receipts from other sources, government, firms and rest of the world. Total household income (Y_m) from market sector is defined as:

(2) $Y_H = f(Y_{Lm}, Y_{Lw}, Y_K, Y_O)$

Where Y_{Lm} and Y_{Lw} are labour income of men and women, respectively, from market activities. Yk is capital income. Yo is sum of transfers from government, firms and rest of the world (exogenous).

Total available time of 14 hours a day of an individual is allocated to market, household and leisure activities. Time used in different activities; market, home, and leisure is separable. Time constraint for individuals is as follows:

(3) $TL = TLSM + LH + LE$

TL = Total available labour time in hours
TLSM = Time used in the market
LH = Time used in household reproduction activities
LE = Leisure time.

Xz is production in non-market sphere of the economy, which does not use capital or intermediate inputs. Xz is produced with CES technology with men and women time input.

Let

(4) $XZ = CES(LZ_S)$

Where Z = H and LE,

s = men , women

Assuming that reproduction and leisure sectors in the model behaves like market sectors. Labour productivity is same in the market and household activities. Rigidity in gender division of labour in household production than in market sectors is introduced by setting low substitution elasticity between male and female labour in reproduction than in market sectors (-0.3) in household reproduction and (-0.2) for leisure. Demand for labour in this production can be derived as in market production. Household consume all goods produced at home. So

(5) $$XZ = CZ$$

Where XZ and CZ are production and consumption of goods produced in non-market sector of the economy.

The price of these goods (Pz) is determined through the opportunity cost of labour used in its production. Thus total income of a household (Y_T) is defined as sum of receipts from market economy (Ym) and non-market economy (Y_Z) as follows:

(6) $$Y_T = Y_m + Y_Z$$

Where $Y_Z = \sum_{Z=H,LE} P_Z * C_Z$

4.8.2 Consumption of Market and Non-Market Goods

Maximizing Stone-Geary utility function

(7) $$U_H = (C_H - \overline{C_H})^{b^H} (C_{LH} - \overline{C_{LH}})^{b^{LE}} p\,(C_i - \overline{C_i})^{b^i}$$

s.t constrains of total income Y_T in equation 7 and time constraint of 14 hours in equation 3. Demand for goods produced in market and non-market sectors are derived.

Price of households produce good (Ph) is determined by average wage of the labour used in non market sectors. Ph is weighted average wage prevailing in the market.

$$Ph(z,h) = (SW_{she} * L_{she}) / SL_{she}$$

z= social reproduction and leisure, h = households

W= wage, s= male and female, e=education

Equilibrium condition for labour: Total labour demand in the market production is equal to the total supply of labour from households to the market.

$$(8) \qquad TLSM_S = \sum LM_{S,i}$$

Where $LM_{S,i}$ is demand for men and women labour in the market sectors and $TSLM_S$ is total labour supply to market sectors

Female wage and male wage are determined through demand and supply of their labour, respectively.

4.8.3 Intra Households Allocation of Resources

Unitary model assumes that households maximise household utility function subject to income constraint. It assumes that individual consumption is invariant to the distribution of income. This type of model cannot be used for individual welfare analysis. Intra household allocation of resources determines female and male socio economic status in a household.

In this study we assume that female consumption is different from male consumption with in a household. Households survey collect consumption data on household basis. In this study we overcome this obstacle using methodology given in section 2.6. It is assumed that all female have same preferences and all male have same preferences. Given this assumption, household total consumption is divided into male and female. Sharing rule is determined by the

ratio $\frac{1}{1+X} and \frac{X}{1+X}$, which is estimated for each commodity and for each household group. The male and female utility is maximised st. to given income and distribution factor. Earlier study document that male preference differs from female preferences and propose many models for intra households' allocation of resources through distributive factor. But they also say that it is unobservable. This study overcomes this problem by estimating a distributive parameter.

4.9 Closure

We use the external sector closure rule in the model. We assume price-taking behaviour for exports as well as for imports in international market[11] i.e., world export price and world import price are exogenous to the model. Current Account Balance (CAB) is exogenous to the model. The nominal exchange rate acts as the numeraire. The list of equations and endogenous and exogenous variables is given in Appendix A.

4.10 Poverty

Approximately one-third of population are living without enough resources to fulfil their basic needs, of whom more than half are women. This is evident from socio economic indicators, which shows that women are less fed less educated and less empowered than men.

Relatively small size, urban households(30per cent population) enjoyed over 48% of total household consumption and a large population of about seventy per cent of the total consume 52 per cent. In rural areas a larger share of foods consumption may be based on own produced and consumed. Therefore, income per capita or expenditure per capita may not reveal the actual poverty situation. Because even after taking into account home consumption of own production, which may not have been fully accounted for in the estimate of household consumption in rural areas, this bias remains important.

Gender inequality is strongly associated with human poverty(Kabeer, 2003). Therefore, education and health indicators- literacy rate and infant mortality- are the best for gender impact analysis as they can be defined on the basis of gender capabilities and measure composite effects of inputs and outputs indicators (Kabeer, 2003).Therefore this study uses these indicators to

[11] Small open economy assumption.

measure change in poverty after the shock. IMR is used to measure satisfaction of four out five basic needs. IMR estimates are taken from Siddiqui, 2003. Choosing a representative district for each group of household in SAM, the relationship between IMR and LR with income is defined in the model.

4.11 Calibration

The model described above has been calibrated to the data of the Pakistan economy for the year 1989-90. Policy parameters, tax rates and savings rates are calculated from the base year data. Shift and share parameters in the demand and supply equations, are also generated from base year data. For the consumption function, household specific income elasticities for each commodity are estimated from micro data from the Household Integrated Economic Survey. Elasticities for import aggregation and export transformation functions are taken from different studies[12]. Elasticities for production function are taken from Kemal (1981) and Malik et al (1989). The elasticities, which were not available are arbitrarily fixed. The GAMS software package is used to solve and simulate the model.

5. Review of Literature

In the literature, studies exploring the impact of economic reforms can be grouped in to three categories. First, studies exploring the micro-macro linkages using survey data are partial in their analysis since they look at subset of the population or/and subset of sectors of the economy. These studies focus on household economy only and analyse the impact by comparing household status in pre and post adjustment period. These studies ignore changes in the market economy. Although, these studies document good and bad effects of economic reforms particularly on women such as contribution of export growth to the expansion of female employment, and increase households work etc. However, it is difficult to make inferences from these studies about the impact on wellbeing in the absence of linkages and feed back between market economy and household economy and within the market economy.

[12] For detail see Kemal et al (2002)

Second, a large number of studies use economy wide models such as CGE to analyse a wide range of issues[13]. For example, 'Maquette' a financial CGE-model incorporating loan able funds market (Bourguignon et al, 1989), CGE models with endogenous poverty line and density functions (Decaluwe *et al*, 1999), micro-simulation models incorporating household level data (Cockburn, 2001; Cogneau *et al*, 2000) etc. In spite of a vast literature on CGE, in Pakistan a few studies have used CGE models for policy analysis[14]. These models assume that men and women are perfect substitute. They did not capture how policy change affects unpaid care economy, which hide the cost in terms of increase household work and reduction in leisure time and/or reduction in their consumption [Cagatay (1995), Elson (1995), Fontana and Wood (2000), Kabeer (2003), Siddiqui *et al* (2003)]. The use of gender-neutral or gender blind models give policies, which may enhance the vulnerability of women and increase poverty (Elson, 1995, WB,2001). The reason for the lack of research in this area is difficulties involved in collecting gender-based data especially on time allocation among different activities.

A few studies using economy wide CGE models disaggregate labour by men and women in production and their labour income (Sinha and Sangita, 2003). But ignore household unpaid services. The results of these studies may under estimate the impact on individuals especially on women.

Most recent empirical studies analyzing gender dimensions of the impact of economic reforms have integrated gender dimensions in CGE models. The authors use a framework that explores the effects of trade liberalization in Pakistan(Siddiqui, 2004), Bangladesh(Fontana and Wood, 2000, Fontana, (2001)), Zambia(Fontana, 2002), and Nepal(Fofana et al, 2002). Trade liberalization affects prices and employment opportunities for men and women differently. In laying out a framework to model the differential impact of economic reforms on women, the authors develop forward and back ward linkages that describes how a change in a policy may affect relative prices– which, in turn, could affect labor demand in the traded and non trade sectors that brings a change in real wages, and affect consumption. Fontana and Wood (2000) were the first[15] who called our attention to incorporate women's household work and leisure

[13] For example, trade, poverty and distribution of income by Adelman and Robinson, 1988; Bourguinon *et al*, 1989, 1991; Decaluwe et al,1999; De Melo, 1988; De Melo and Robinson, 1982; Lofgren *et al*, 2001; Thorbecke, 1991 etc, fiscal adjustment and poverty[Bourguinon *et al*, 1991; Harrison, 1991; Meller, 1991] and financial sector reforms by Bourguignon et al, (1989) and Vos (1998)etc.

[14] McCathy and Tylor (1980), Dhanani(1988), Labus (1988), Naqvi(1998), and [Vos(1998)] Siddiqui and Iqbal (2001), Siddiqui et al (1999), Kemal *et al* (2003), Siddiqui and Kemal (2002a), (2002b).

[15] Prior to Fontana (2000), only one study (Evans,1972) for Australia distinguish between male and female labour in all sectors.

activities in the economic analysis of trade liberalization in CGE models. They developed the model for Bangladesh. The main focus of the paper is on technical sophistication to incorporate gender dimensions, such as treating men and women as separate factor of production and treating domestic activities and leisure as two separate sectors in addition to market sectors[16]. First gendered Social Accounting Matrix is constructed incorporating households work and leisure in addition to market sector with inputs and outputs using gender disaggregated data. Time use module in SAM record how much time (in hours) people spend on various tasks market work and non market work spent either on household activities or on leisure. Prior to and after Fontana and Wood (2000), most of the available SAMs with gender features limit the extensions to disaggregation of labour by gender and households by the gender of the head of households. The model (Fontana and Wood, 2000) developed using gender SAM provides useful insights into the gendered economic outcomes of trade policies. They introduced gender related rigidities in labour market by keeping low elasticity of substitution between male and female labour especially in households production sector. Fontana(2001 for Bangladesh and 2002 for Zambia) extend the accounting framework to include a greater number of market activities differentiated by factor intensity, labour categories differentiated by both gender and level of education and households types. The main modification to the traditional SAM here is that members of each type of household produce a particular kind of social reproduction and leisure reflecting each household education and gender composition. The simulation results reveal that the effects are not same of various policies changes and neither for all countries with same policy change[17].

The results for Bangladesh using simplified version of data show that a rise in world price of food raises the relative wages of women but reduce their cash income and their leisure time (Fontana and Wood, 2000). While capital inflow leaves women better off in every respect, higher wages, more cash and more leisure. On the other hand, Fontana (2001) shows that women belonging to poor segment of population with low and medium education were more adversely affected than women of other skill levels. The results of these studies suggest that greater flexibility in gender roles in the non market sphere (introduced by larger elasticities) reduce the negative impact of a decline in the garment industry on women. The results clearly show that rise in world prices of food imports has a less positive impact on women' employment and wages

[16] In the present state, it does not allow to include the activities if they are under taken simultaneously by the same individual.
[17] Fontana and Wood (2000), Fontana, 2001, 2002, 2003.

than in the previous study by Fontana and Wood (2000) based on aggregate data. The simulations with disaggregated households show that land owners gains at the expense of all other households in rural areas. This impact remains hidden when all households are assumed to be homogenous in Fontana (2000). This level of details permits a better understanding of how policy change have a differentiated impact on female workers, depending on their educational level and location, rural or urban. It also depends on if women are or not head of the household (Fontana, 2001). The results also show that magnitude of the impact of policy change varies with variation in key parameters for gender impact analysis, i.e., elasticities of substitution. Contrary to the results for Bangladesh, the abolition of tariff on manufactured imports causes smaller employment and wage gains for women than men in Zambia, while promotion of non traditional agriculture exports benefits more to women. Results also reveal that reallocation of assets towards female intensive crops makes women more productive but reduces their leisure time. The rise in world prices of copper benefit more to women with higher education in terms of better wages and more leisure time. The differences in impacts are more pronounced for women and men with low education as wage differential by gender disappear at the high education level in both countries. Fontana (2003) highlights how the differences in resource endowments, labour market characteristics and socio cultural norm shape the way in which trade expansion affects gender inequalities in Bangladesh and Zambia. This research suggests that trade liberalization has more favourable effects on women in Bangladesh than in Zambia. Because trade liberalization raises female employment and wages in labour abundant country like Bangladesh but is not beneficial for women in natural resource abundant country like Zambia. The results reveal that absence of leisure and reproduction sectors impact on women employment and wages is not the same as in presence of the sectors accounting for household production and leisure (Fontana and Wood, 2000). For example, exclusion of reproduction sector intensive in female labour hides the cost in terms of women work load, while exclusion of leisure from the model reduces flexibility of the supply of male labour more compared to female labour supply, which is already constrained by less leisure. Welfare gain from tariff removal is higher in work leisure models than in standard exogenous work model.

Fofana *et al* (2003) also developed gender CGE for Nepal incorporating Households work and leisure, which differs from F-W model in formulation of leisure time. Fontana and Wood formulate leisure of male and female are joint product and one's leisure can be substituted

for the other. The analysis in this study shows that the complete elimination of tariffs on imported goods in Nepal benefits women more than men in terms of earnings. But leisure time of women declines and of men rises with trade liberalization. The study shows that impact of trade liberalization on men and women depends on the male participation in households work. When male participation in domestic work is low, women generally devote less time to market work, but women are more responsive to the market incentives when men increase their participation in household economies.

Recently Arndt et al (2000) for Mozambique and Anushree and Sangita (2003) for India incorporate gender in CGE by disaggregating labour by sex in agriculture sector and in all production activities respectively. Later study distinguishes economy by male intensive formal sectors from female intensive informal sectors of the economy. In this set up, tariff reduction raises wages in formal sector where men are concentrated. In contrast, women are worse off as wages decline in informal sector of the economy. Impact of economic reforms on women not only depends on education level, household type they belong to but also on closure the studies choose.

In most of the studies investment and government consumption have been fixed at the base level in real term for welfare analysis. CAB is determined exogenously. Therefore, outcomes are driven exclusively by the differences in the initial socio economic structure of the countries rather than by difference in behavioural parameters. These studies show that despite significant increase in female market participation, the gender division of labour within the households remains fairly unequal. Women's level of education and availability of market substitutes for household goods and services (such as utilities and child care) seems to be important determinants of the gender allocation of time. The results also show that the reduction in market work of men translates primarily into increased leisure, because of their limited role in home production. On the other hand, expansion of women's market work met by reduction in their leisure time not households work. The results reveals that women's participation in market activities rises, when men are more involved in domestic work. The higher substitution elasticity causes a marginally higher rise in total market participation for women with no education and women with secondary education compared to highly educated women.

CGE model for Pakistan is developed by Siddiqui (1999) on the basis of latest available SAM based on aggregate data for the year 1989-90. Later model is extended by disaggregating

production activities within agriculture, manufacturing and services sectors and households by socioeconomic groups (see Siddiqui *et al* (1999), Siddiqui and Kemal, 2002a and b, Kemal *et al*, 2002, Kemal *et al* (2003a, 2003b). The focus of these studies was on income distribution, poverty, inequality, and welfare. The fact that no study focusing on this issue has been done in Pakistan suggests its importance to carry out this study.

6. Results

(A) Unitary Approach to Household Demand-(*Individual demand is invariant to distribution of income)*

(a1) Tariff Reduction on Imports in Presence of Compensatory Measure (adjustment in sales taxes)

In this section impact of trade liberalisation on time allocation by men and women is assessed. Trade liberalisation is introduced through tariff reduction on all imports. Magnitude of the imposed shocks is approximated on the bases of historical evidence. Tariff reduction is accompanied by introducing general sales tax (GST) on both imports and domestic production to compensate for loss in government revenue[18]. The purpose of this paper is to reveal gender dimensions of the impact of economic reforms. Thus the focus of the results is how economic reforms affect production activities leading to change in time allocation of men and women among market, household and leisure activities, which in turn affects wages, welfare and poverty. Results are presented in Appendix-I Table 1.

A direct, first effect of tariff reduction on all imports is increase in taxes to compensate for loss in government revenue. However, net impact is reduction in domestic prices. A change in policy 'trade liberalization in presence of compensatory measure' bring such change in relative prices that ultimately affect labour demand in export oriented and import competing sectors in opposite direction. It boost production in export oriented sector 'textile' by [2.5] per cent and in the 'crop' sector which is major supplier of intermediate input to export sector [1.1] per cent. (see Table 1 in Appendix 1). It boosts demand for all type of labour in these sectors. However, demand for unskilled labour increase more than demand for the skilled labour. In textile, demand for unskilled labour(low education) rises by [5.8] and [6.2] per cent for female and male labour, respectively. While for skilled labour(high education), demand rises by [4.5] and [5] percent for female and male respectively. Same pattern of change in labour demand is

[18] The tax rate has been standardised at 15 percent. On a few products it is as high as 20 percent(Siddiqui, 2004). But a large number of commodities and services are still exempted reducing average tax on imports to 5.6 percent and on domestic production to 5 percent.

found in crop sector which is positively affected by economic reforms. Contrary to textile and crop sectors, production in utilities and public sector also increases as well as employment. In public sector demand for skilled labour rises more than unskilled labour for both men and women. Production as well as employment falls in all other sectors.

The results show that household production drops in poor household who are major supplier of unskilled labour. In urban area, households with no education and in rural area employee, self employed and other group of household, shows a decline in household production as well as in leisure. Leisure declines in households with no education of head of households. In rural areas, leisure decline for employee, self employed and other group of household. Results also reveal that leisure of females decline more than leisure of male in these categories of households, while demand for male labour declines more in household production. This confirms the view that increase employment in market sector affects more female leisure time. The results suggest that impact trade liberalisation in presence of compensatory measure is not gender neutral.

Economy wide wage rate declines for all types of labour. However female wage rate for both skilled and unskilled decline less than the decline in male wage rate for both skilled and unskilled labour. In result gender wage gap reduces after the policy shock.

Capability indicators, IMR and LR, show an improvement for all households rich as well as poor in rural and urban area of Pakistan.

(a2) Change in Fiscal Policies

Under the rubric of SAP, Pakistan is recommended to reduce fiscal deficit. Government tries to achieve the objective through additional resource mobilization and expenditure restraint through austerity measure. In this experiment chosen policy variables is government final consumption expenditure, which is reduced by 8per cent to bring fiscal deficit to 4per cent of GDP from 5.4per cent of GDP in the base year. Price deflator for public consumption is kept fixed. Real government consumption adjusts. First impact is that fiscal deficit reduces. Reduction in fiscal deficit releases resources for investment and/or for private consumption, as household saving rate is determined endogenously. It reduces expenditure in three government sectors, 'education and health', 'public administration', and 'financial sector' by 7, 7.9 and 8 per cent, respectively. Demand for all type of labour decline in these sectors. Larger decline is in both type of female labour compared to decline in demand for male labour. Released labour move toward

agriculture crop sector, which is the largest employer of male and female labour (see Table 2,Appendix-I).

The results show that household production as well as leisure decline in the households which can be classified as poor households and major supplier of labour.

Fiscal deficit reduce and release resources for investment, private consumption, or result in increase private saving as saving rate adjust endogenously. The results show that in spite of increase in domestic prices consumption of all households increase for all except for poor households group, households with no education in urban area and employee, self employed, and other group of households in rural area, whose negative savings are fixed at the base level. From this it can be concluded that although rich households get better off but at the expense of their savings.

The results also show that wage rate for unskilled labour of men and women moves in opposite direction, i.e, [-0.12] and [0.12]per cent, respectively. Resultantly, the gap between male and female wage reduce among unskilled labour after the shock. On the other hand wage rate for skilled labour of men and women rises by [0.9] and [2.9] percent, respectively. This reduces wage gap between male and female skilled labour.

Capability indicators, IMR and LR, show an improvement for rich households and show deterioration in poor households. Because total consumption in real terms decline for poor households; households with no education in urban area, employee, self employed and other groups of households in rural area.

B. Intra Household Allocation of Resources by Gender

The purpose of this study is to reveal gender dimensions of the impact of economic reforms. Thus the focus of the results in exercises [b1] and [b2] is to analyse variation in consumption of men and women with change in households resources due to change in production employment and wages.

(b1) Tariff Reduction on Imports in Presence of Compensatory Measure (adjustment in sales tax)

A change in policy 'trade liberalization in presence of compensatory measure' bring such change in relative prices that ultimately affect labour demand in export oriented and import

competing sectors in opposite direction. The change in price and income also affect household demand by gender. The results show that household demand varies by gender and the direction of change is same as in exercise a1. In this exercise we assume same distribution factor between male and female consumption across the households. Keeping empowerment and discrimination constant, female consumption rises over the base year but less than the rise in male consumption in the same households. The results suggest that impact of trade liberalisation on consumption is not gender neutral.

As in previous exercise, trade shock boost production in export oriented sector 'textile' by [2.6] per cent and in major supplier of intermediate input to export sector 'crop' by [1.07] per cent. (see Table 3 in Appendix I). Results show a little variation over the results in previous exercise. Here crop production increases less and textile production increases more than in the exercise [a1]. It can be concluded from this that using unitary demand function over estimate demand for goods from crop sector and under estimate demand for good from textile. Here higher demand for textile result in higher consumer prices for textile product which make this sector more profitable and production in this sector rises more than in the exercise [a1]. It boosts demand for all type of labour in these sectors. Although the difference is very small, demand for all type of labour in textile sector rises more than in the previous exercise by point one percentage point. However, the direction of change is same. Demand for unskilled labour increase more than demand for skilled labour. As in previous exercise, demand for unskilled labour rises by [5.9] and [6.3] per cent for female and male labour respectively. While demand for skilled labour rises by [4.6] and [5.1] percent for female and male respectively. Same pattern of change in labour demand is found in crop sector which is positively affected by economic reforms. The results show that direction of change in household production and leisure is same as in exercise [a1].

Economy wide wage rate declines by less than in the previous exercise, i.e., 2.45 per cent instead of 2.46. Similarly, female wage rate and male wage rate declines but less than in the decline in previous exercise.

Capability indicators, IMR and LR, for both male and females show an improvement for all households. But improvement varies across the group of households. This result is based on some hypothetical data. Investigation with real data will unveil the difference between male and female capability development. Here, it is assumed that empowerment and discrimination level

remains same after policy shock, therefore there is no difference between male and female capability indicators improvements.

(b2) Change in Fiscal Policies

Cut in government expenditure keeping government revenue constant reduce fiscal deficit. As in the previous exercise it reduces expenditure in three government sectors, 'education and health', 'public administration', and 'financial sector' by 7, 7.9 and 8 per cent, respectively. Demand for all type of labour decline in these sectors. Larger decline is in both type of female labour compared to male labour. Labour moves largely towards agriculture sectors. Demand for labour increase significantly in crop sector, which is the largest employer of male and female labour (see Table 4 Appendix 1). In other two agriculture sectors 'Live stock' and 'Fisheries' and in one services sector 'Household services' production rises as well as labour demand. But the change is very small. In all other sectors production as well as demand for labour falls.

The change in relative prices and income affect household demand by gender. The results show that change in female demand for goods and services is different from the change in demand by males although the direction of change is same as the change in aggregate household consumption (see table 2 and table 4 in Appendix I). In this exercise we assume distribution factor remains same since there is no change in empowerment and discrimination. With same empowerment and discrimination level, female consumption rises over the base year but less than the rise in male consumption with in the same households. The results suggest that impact fiscal adjustment on consumption is not gender neutral.

The direction of change in household production and leisure is same as in exercise [a2]. But results show a little variation over the results in previous exercise (see Table 4, Appendix I). Similar change occurs in wage rates. Economy wide wage rate rises by 0.71 per cent compared to the rise of 0.70 in [a2]. Gender wage gap reduces for both men and women. Although, wage rate for men and women for unskilled labour moves in opposite direction, [-0.08] and [0.18] per cent respectively. But the gap between two wage rates decline. On the other hand wage rate for skilled labour rises for both men and women, but the rise in women wage rate is larger than men wage rate.

Capability indicators, IMR and LR, for both male and females show deterioration in poor households and improvement in relatively rich households.

The difference, though small, between the results of exercises '[b1] and [a1]' and exercises '[b2] and [a2]' shows that aggregation of households consumption hides not only variation in male and female consumption pattern but also some impact of households demand on market economy.

C. Bargaining Power

This is counterfactual analysis just to see the impact on female capability indicators. It is assumed that sharing rule, which is exogenous to the model depend on the level of discrimination and empowerment, which depends on female human capital and unearned income (such as dowry). These factors have been fixed in earlier exercises. If it improves, with given households resources, resources moves towards female member of households. The exercise show that IMR and LR for females improve more than the deterioration in indicators for males(see Table 5 in Appendix I). Next, it will be assumed that keeping the existing level of men share in the budget, how it affect female capability indicators if more of additional resources are moved towards females.

7. Concluding Remarks

Like in other countries, women in Pakistan bear a disproportionate responsibility for unpaid household labour such as providing food, water, fuel and care for family members. On the other hand, men are largely engaged in paid labour assuming much of the responsibility to meet the family's cash needs. This division of labour shapes women's ability to participate in paid employment, their access to education and training. On the other hand, due to discrimination and lack of power, household resources, including food, are prioritized for primary wage earners.

The study investigates gender differentiated impact of trade liberalization and fiscal adjustment policies adopted during the adjustment and stabilization period in Pakistan using CGE framework. The objective of the present study is three folds. First, it extends the existing

gendered social accounting matrix (Siddiqui, 2004) by introducing more sectors, factors and actors of the economy. Second, gendered CGE model developed in Siddiqui(2004) is extended to capture intra household allocation of resources in addition to time allocation. Third, model is simulated with tariff reduction and cut in government expenditure in different scenario: (i) assuming homogeneous consumption of all members of a household and (ii) assuming females consumption pattern differs from male consumption pattern.

Existing gendered social accounting matrix for Pakistan (Siddiqui, 2004) is very simple with five production sectors and one household sector, which limits the analysis, particularly when poverty and gender dimensions are focused. This paper fills this gap by constructing a detailed gendered social accounting matrix for Pakistan. The SAM constructed here is unusual in many respects. First, wage share in GDP is adjusted for own account workers. Second, GDP is adjusted for data on female participation in market work collected on the basis of new data collection technique. The number of female in labour force based on new data increases from 3.1 million to about 15 million. Third, it disaggregates both male and female labour by four education level; no education, low education(less than five years), medium education (five but less than ten years of education) and high education (ten and above). Fourth, it distinguishes persons by work status based on the notion that person is economically active or not, because earlier studies show that women work in the market is constraining by socio norms. Fifth, SAM is extended by incorporating nine categories of households. Urban households are classified by education of the head of the households. Rural households are classified by employment status of head of the households, employees, self employed; employer, and other. Here all female headed households are aggregated together. The distinct feature of this SAM is that it has as many social reproduction and leisure sectors as the number of households. Sixth, it calculates households stock of durable goods, which are used in household social reproduction and saves person's working hours involved. Last, the most important feature is distribution factor is estimated using micro household data, which is used to disaggregate resource allocation to men and women.

This GSAM can be viewed as a combination of the market and non market sectors of the Pakistani economy, which provides comprehensive information on the paid and unpaid (care) sectors of Pakistan for the year 1989-90. It shows that agriculture sector is the largest employer of women and men. Within the manufacturing sector, two major sectors are identified, export oriented sector 'Textile' (66 per cent of exports are from this sector) and import competing sector

'machinery' (38 per cent of total imports). Within the manufacturing 8.5 per cent of female labour time with no education are used in export oriented sector, 'textile' and less than one per cent in import competing sector 'Machinery'. Import competing sector employ more male labour time than female labour time.

In the non marketed sectors, social reproduction and leisure, value of production is determined by the opportunity cost of labour used in household production. Labour use is measured in hours instead of persons, assuming economically active persons are involved in all activities, while non working population do household work and rest of their time is spent in leisure. After market work, men spent most of their time in leisure activities and do very little household work, while women remain engaged in household work. The study shows that about 50 per cent of available men hours are allocated to market work and about 10 per cent to household work and 40 per cent to leisure activities. On the other hand, women spend about 35 to 40 per cent of their time on market work and by the same percentage on household social reproductive services and 20per cent time on leisure. Existence of a large share of non working women labour used in households social reproduction activities shows that socially defined roles are constraining. It shows that non working women spent almost the same time in household activities as working women. This is surprising but it depends on the existence of number of non working persons in a household. A comparison of time allocation of working males with working females and non working males with non working females shows that irrespective of type of households, work status and education level, all female has larger working hours compared to men. The study shows that gender division of labour is not the only notable characteristics of the data. Human capital partly determines what people do. It shows that labour time used in market activities by education level decline as education of male labour within a household increases except for employees and self-employed.

Production sector is classified into four broad categories; agriculture, mining, manufacturing, and others. Agriculture sector includes, 'crop', 'live stock', 'fisheries', 'forestry and other agriculture sector'. Mining is aggregated into one sector and manufacturing sector is aggregated into eight sectors; 'food', 'textile', 'paper and wood products', 'chemicals', 'metallic industry', 'non-metallic industry', 'machinery', and 'other manufacturing'. Rest of the economy is divided into seven sectors, utilities(Electricity, Gas, and Water), construction, 'education and health', 'public administration', 'financial institutions' 'households services', and 'all others'. The high share of labour costs in value added of crop sector and the much lower productivity of

the sector reflect the non competitive nature of the Pakistan agriculture sector. Textile is major employer of women labour time.

The results show that major share of labour income is coming from the income of the head of the household. The study also provides estimates of the composition of sectoral demand at market prices. The rural share of total households demand is about 52% for about 70% of total population. This share is low, especially given the size of the labour force engaged in rural production and size of population living there. In contrast, demand for goods and services from urban areas accounts for 48 % of the total household demand, where thirty per cent of population live. Irrespective of the sector of production, demands are driven more by final consumption, and less by investment motives.

Gendered computable general equilibrium model for Pakistan is extended using extended gendered SAM developed here. Here, labour is aggregated into two groups for male and female, with education less than five years and five and above. The new features of gendered CGE developed here is that it introduces intra household allocation of resources through distributive factor. Distinguishing consumption by gender, it maximise utility of male and female groups within a households subject to households resources available to them. Then discrimination and role of empowerment (control over resources) is introduced in intra household allocation of resources through distributive factor. But this will be explored further. In the study, poverty is referred to as a denial of opportunities, in education, health, and material well being. Therefore, education and health indicators -literacy rate and infant mortality- are used for gender impact analysis as they can be defined on the basis of gender capabilities.

The study analyses the impact of two shocks in different scenario, trade liberalisation through tariff reduction and fiscal adjustment through cut in government expenditure. First, it analyses the impact on time allocation and income of households incorporating unitary house holds consumption, which assumes same preferences of men and women.

Major findings of the study are as follows:

1. Trade liberalization boosts demand for all type of labour in textile and crop sector which are major employer of female labour.
2. Demand for unskilled labour increase more than demand for the skilled labour for both men and women.

3. Household production drops in poor household who are major supplier of unskilled labour. In urban area, they are households with no education and in rural area employee, self employed and other group of household.
4. Results also reveal that leisure of females decline more than leisure of male in these categories of households, while demand for male labour declines more in household production. This confirms the view that increase employment in market sector affects more female leisure time.
5. Gender wage gap reduces after the policy shock for both categories of labour, low education and high education.
6. Capability indicators, IMR and LR, show an improvement for all households rich as well as poor in rural and urban area.
7. Cut in government expenditure reduce employment in three government sectors, public administration, education and health, and financial sector.
8. Labour moves to agriculture crop sector, which is the largest employer of male and female labour.
9. Household production as well as leisure decline in the households which can be classified as poor households and major supplier of labour.
10. Reduction in fiscal deficit release resources for investment and private consumption. The results show that in spite of increase in domestic prices consumption of all households increase for all households except for poor households group, households with no education in urban area and employee, self employed, and other group of households in rural area.
11. In this exercise wage rate increases for all type of labour except, unskilled male labour. Gender wage gap reduces, but decline in wages rate of men unkilled labour is an indication that poor are worse off after a policy shock.
12. Capability indicators, IMR and LR, show an improvement for rich households and show deterioration in poor households in both rural and urban areas.
13. It can be concluded from results that work pattern does not change much after policy shocks. The results suggest that impact of both macro policies: trade liberalisation in presence of compensatory measure and cut in government expenditure is not gender neutral.

In second set of experiment, consumption is estimated by gender. Thus the focus of the results in exercises [b1] and [b2] is to analyse variation in consumption of men and women in addition to other factors.

14. The results show that the impact of trade liberalisation or cut in government expenditure on consumption is not gender neutral.
15. Household demand for goods and services varies by gender although the direction of change is same in presence of existing empowerment and discrimination level.
16. In these exercises, the effect on employment, wages, and production is a little different than in the previous exercises. In this exercise textile production increase more and cop production increases less than in exercise using unitary household utility function. It can be concluded from this that using unitary demand function over estimate household demand for crop sector goods and under estimate demand from textile.
17. It boosts demand for all type of labour in textile sectors but more than in the previous exercise by point one percentage point. However, the direction of change is same.
18. Capability indicators, IMR and LR, for both male and females show an improvement for all households.
19. In the second exercise, capability indicators, IMR and LR, for both male and females show deterioration in poor households and improvement in relatively rich households.
20. Although the difference in results of exercise[b1] from [a1] and [b2] from [a2] is small, but it shows that aggregation of households consumption hides not only variation in male and female consumption pattern but also some impact of households demand on market economy.
21. Poverty is strongly correlated with empowerment of women. Increase in women empowerment results in allocation of more resources to females and reduction in human poverty among females. But this has to be explored further.

Therefore 'successes or 'failure' of any policy change should be measured not only by change in time use but also through intra household allocation of resources.

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Appendix*

Computable General Equilibrium Model for Pakistan

1. Income and Saving		
1.1	$Y_H = l_{lH}\sum L_i^D + l_K \sum R_i K_i + DIV_H + \bar{e} * \overline{TR}_{RH} + \overline{TR}_{GH}$	Households' Income
1.2	$DIV_H = dvr_H * Y_{FK}$	*Dividends*
1.3	$YD(H) = (1 - t_{yh}) * Y_H$	Households Disposable Income
1.4	$S_H = aps_H * sav * YD_H$	Households' Saving
1.5	$TS_H = \sum S_H$	Total Households' Saving
1.6	$Y_{FK} = (1 - \sum l_k)\sum (R_i K_i)$	Firms' Capital Income
1.7	$Y_F = Y_{FK} + \overline{TR}_{GF}$	Firms' Total Income
1.8	$S_F = Y_F - \overline{TR}_{FR} - \sum DIV_H - t_k * Y_{FK}$	Firms' Saving
1.9	$TXS_i = tx_i * P_i * X_i^S$	Taxes on Production
1.10	$TXM_n = tm_n * \bar{e} * P_n^{WM} M_n$	Taxes on Imports
1.11	$TXE_n = te_n * \bar{e} * P_n^{WM} X_n$	Taxes on Exports
1.12	$Y_G = \sum (ty_H * Y_H) + tk * Y_{FK} + \sum TXS_i + \bar{e} * \overline{TR}_{RG} + \sum TXM_n +$	Government Revenue
1.13	$S_G = Y_G - \overline{TR}_{GF} - \sum \overline{TR}_{GH} - \sum C_{Gi}$	Government Saving
2. Structure of Production		
	$X_i^S = , IC_i / v_i$	Output
·	$IC_i = io(i) * (X_i)$	Intermediate Consumption from ith sector
	$IC_{ij} = a_{ij} * X_i$	Intermediate Demand of ith sector from jth
·	$VA_i = B_i[d_i K_i^{s}{}_i + (1 - d_i)(L^D{}_i)^{-s}]^{-1/si}$	Production Function (CES)
·	$L_i^D = \left[\{d_i/(1-d_i)\}\{R_i/w\}^{1/r+1}\right] * K_i$	Labour Demand
·	$R_i = (P_i^{VA} * VA_i - w * L_i^D)/K_i$	Return to Capital
·	$LD_i = B_l[d_l LF_i^{s}{}_{li} + (1 - d_i) LM_i^{-s}{}_l]^{-1/si}$	Composite male and female labour with same education level - 4
	$LF_i^D = \left[\{d_i/(1-d_i)\}\{wm_i/wm_i\}^{1/r+1}\right] * LM_i$	Labour Demand for Female labour - 5
3. **Foreign Trade Statistics**		
·	$X_n^s = B^T{}_n\left[d_n^T EX^{r_n^T}{}_n^T + (1 - d_n^T) D_n^{r_n^T}{}_n^T\right]^{1/r_n^T}$	Export Supply

· $Q_n = B_n^{s}[d_n^{s} M^{-r_n^{s}} + (1-d_n^{s}) D_n^{r_n^{s}}]^{1/r_n^{s}}$	Import Demand
· $Q_{NT} = X_{NT}$	Domestic Demand for non traded goods
· $Ex_n = (P_n^{E} / P_n^{D})^{s_n^{T}} \left[(1-d_n^{T})/d_n^{T}\right]^{s_n^{t}} * D_n$	Export Transformation (CET)
· $M_n = (P_n^{D} / P_n^{M})^{s_n^{S}} \left[(d_n/(1-d_n]^{s_n^{S}} * D_n\right]$	Constant Elasticity of Substitution between imports and domestic goods
· $\sum P_n^{WM} * M_n + (1/e)\,\overline{TR_{FR}} - \sum \overline{P}_n^{WE} * EX_n - \overline{TR_{RH}} - \overline{TR_{RG}}$	Equilibrium in Foreign Market
D. Demand	
· $CT_H = YD_H - S_H$	Total Households Consumption
· $C_i(h) == \{P_{ci}\ ?_i + ß^{c}{}_{hi}(CT_h - \sum P_c^{i}?_i)\}/P_c^{i}$	Households demand function (LES)
· $CG_i = b^{\Gamma}{}_i CT_G / P_i^{c}$	Government Consumption
· $C_i = \sum CT_{Hi} + CG_i$	Total Private and Public Consumption
· $INTD_i = \Sigma\, a_{ij} IC_j$	Intermediate demand
· $I_i = b_i^{I} * IT / P_i^{c}$	Investment Demand
· $Cgr_i = CT_G / P_g$	Government Total consumption in Real term
5. Prices	
· $P_n^{M} = (1+tm_n) * (1+tx) * \overline{e} * P_n^{WM}$	Domestic Price of Imports
· $P_n^{E} = (1+te_n) * \overline{e} * P_n^{WE}$	Domestic Price of Exports
· $P_i X_i^{S} = (Pt_i * D_i^{s} + EX_i * P_i^{E})$	Producer Price
· $P_i^{VA} * VA_i = (P_i * X_i^{s}) - \sum (P_i^{c} IC_{ji})$	Value Added Price
· $PD_i = Pt_i * (1 + tx_i)$	Domestic Price after paying taxes
· $P_n^{C} = (D_n/Q_n) * P_n^{D} + (M_n/Q_n) P_n^{M}$	Composite Price of traded goods (consumer prices)
· $P_{nt}^{C} = PD_{nt}$	Composite Price of non-traded goods
· $Pindex = \sum (ß_i^{X} * P_i)$	GDP Deflator
· $Pg = \Pi\ (P_i^{c} / b_I^{g})^{b_i^{g}}$	Deflator for Government Consumption
6. Equilibrium	
· $IT = TS_H + S_G + S_F + \overline{e} * \overline{CAB}$	*Saving-Investment Equilibrium*
· $Q_i = C_i + INTD_i + I_i$	Commodity Market Equilibrium
· $L_S = \sum (L_i^{D})$	Labour Market Equilibrium

VARIABLES

Endogenous Variables			Exogenous Variables		
1	C_i	Total Consumption of i^{th} Good	1	CAB	Current Account Balance
2	CG_i	Government final Consumption of Good i	2	CT_{GR}	Government final consumption in real terms
3	CT_G	Total Government Consumption	3	e	Nominal Exchange Rate
4	CH_i	Household Consumption of Good i		K_i	i^{th} Branch Capital Stock
5	CT_H	Total Consumption of household	5	L^S	Total Labour Supply
6	D_i	Domestic Demand for domestically produced good	6	P_n^{WE}	World Price of Exports
7	DIV_H	Dividends distributed to Households from firms	7	P_n^{WM}	World Price of Imports
8	EX_n	Exports of nth good (FOB)	8	TR_{FR}	Firms transfers to the rest of world
9	IC_i	Total Intermediate Consumption of Good by ith sector	9	TR_{GF}	Government transfers to Firms
10	IC_{ij}	Intermediate Consumption of Good J by ith sector	10	TR_{GH}	Government Transfers to Households
11	$INTD_I$	Intermediate Demand of Good I	11	TR_{RG}	Foreign transfer payments to the Government
12	I_i	Consumption of Good for investment in sector i^{th} sector	12	TR_{RH}	Foreign transfers to Households
13	IT	Total Investment	**b. SYMBOLS.**		
14	L_i^D	Labour Demand in sector i			
15	M_n	Imports of nth good (CAF)			
16	Pg	Price deflator for government consumption			
17	P_i	Producer Price	1	Symbols	Variable names
18	Pt_i	Domestic price without taxes	2	a_{ij}	Input Output Coefficients
19	P_i^C	Price of Composite good	3	B_i	CES scale parameter of value added
20	P_n^D	Price of domestically produced and consumed good including taxes	4	B_e^T	CES scale parameter of export transformation function
21	P_n^E	Domestic price of Exports including all taxes	5	B_c^s	CES scale parameter of Import aggregation function
22	P_n^M	Domestic Price of Imports including all taxes	6	β_{hi}^c	Per centage share of good i in h^{th} household consumption
23	P_n^{VA}	Value Added Price	7	β_i^τ	Per centage share of good i in Public consumption
24	P_{INDEX}	Producer price Index	8	β_i^I	**Per centage share of good i consumed for investment purposes**
25	Q_i	Domestic Demand for Composite Good i	9	β_i^x	Per centage share of good i in total Production
26	R_i	Rate of Return on capital in branch n	10	γ_i	Subsistence expenditure by h^{th} household
27	sav	Adjustment in saving rate	11	λ_l	Household Share of Labour Income
28	S_G	Government Saving (Fiscal Deficit)	12	λ_k	Household Share of Capital Income
29	S_H	Saving of Household h	13	io_I	Leontief technical coefficients (Intermediate Consumption of good i

30	S_F	Firms Savings			
31	TS_H	Total Households Savings	14	mps_h	Households h marginal propensity to save
32	TXE_n	Taxes on Exports of nth sector	15	tk	Capital Income tax rate of firms
33	TXM_n	Taxes on Imports of nth sector	16	v_I	Leontief technical coefficients (value added)
34	TXS_i	Indirect taxes on ith sector production	17	σ_i	CES elasticity of substitution of value added
35	VA_i	Value Added of sector i	18	ρi	CES Substitution parameter of value added
36	W	Wage rate	19	δi	CES Distributive share of value added
37	X_i^s	Production of ith sector	20	σ_e^T	CES elasticity of transformation of export
38	Y_H	Total Income Household h	21	ρ^T_e	CES Substitution parameter of expor transformation
39	YD_H	Disposable income of h Household h	22	δ^T_e	CES Distributive share of exports and domestic production
40	Y_F	Firms total income	23	σ^T_c	CES elasticity of substitution of imports
41	Y_G	Government Revenue	24	ρ^T_c	CES Substitution parameter of impor
42	Y_{FK}	Firms Capital Income	25	δ^T_c	CES Distributive share of imports and domestically produced goods

Appendix 1

Table 1: Simulation 1. Tariff Reduction with Compensatory measure (Percentage Variation over base year)

	Crop	Live Stock	Forestry and others	Fisheries	Mining	Food	Textile	Wood and Paper	Chemicals	Non Metallic	Metallic	Machine	Handicraft	Utilities	Whole Sale and Retail	Social Sector	Other	House Services
Value Added	1.11	-0.35	-0.64	-0.22	-0.91	-0.84	2.54	-0.54	-2.68	-2.09	-6.41	-1.99	-0.45	0.08	-0.03	-0.68	-0.14	-0.08
Total Labor Demand	1.66	-1.07	-4.56	-1.29	-2.86	-3.76	5.29	-1.53	-8.38	-6.37	-11.63	-5.34	-1.03	1.73	-0.17	-0.94	-0.65	-0.71
Female-Low Skill-Labor	1.82	-1.02	0	-1.47	-2.47	-3.44	5.79	-1.35	-7.81	-6.48	0	-4.99	-0.83	2.36	0.15	-0.17	0.13	-0.53
Male-Low Skill Labor	2.21	-0.64	-3.62	-1.09	-2.1	-3.07	6.2	-0.97	-7.45	-6.12	-10.83	-4.63	-0.45	2.75	0.53	0.21	0.52	-0.15
Female High Skill Labor	0.57	-2.26	0	0	-3.5	-4.7	4.53	-2.62	-8.99	0	0	-6.17	-2.04	1.09	-1.1	-1.41	-1.12	-1.81
Male High Skill Labor	1.05	-1.8	-4.8	-2.3	-3.04	-4.25	5.02	-2.16	-8.56	-7.27	-11.92	-5.79	-1.64	1.5	-0.69	-1.01	-0.72	-1.41
Households Consumption																		
No-Edu	-1.36	-1.02	0.53	-0.82	-0.33	-0.97	-0.87	-1.31	1	0.15	2.9	2.34	-1.02	0	-1.07	-2.23	-2.08	-1.55
Low-Edu	1.09	0.04	1.12	1.71	0.43	1.01	2.09	1.5	5.16	3.45	7.15	4.88	3.15	0	2.59	1.68	1.39	1.87
Med-Edu	-0.38	-0.19	1.09	0.2	0.06	-0.24	0.24	-0.3	2.45	1.46	4.8	4.54	0.58	0	0.03	-0.14	-0.4	0.04
High-Edu	0.57	0.53	2.63	0.99	0.9	0.82	1.44	0.96	4.74	2.53	5.49	7.75	3.17	0	1.88	1.64	0.88	1.26
Employee																		
Male	-1.45	-0.6	0.98	-0.86	-0.56	-1.24	-1.02	-1.57	0.99	0.24	3.67	3.37	-0.57	0	-1.26	-1.54	-1.67	-1.23
Female Headed	0.86	0.72	2.88	1.42	1.04	0.99	1.63	1.13	3.21	2.78	5.9	8.01	4.82	0	1.49	1.16	1.04	1.44
Self Employed	-1.25	-1.33	0.71	-0.78	-0.5	-1.59	-0.8	-1.17	1.03	0.06	2.4	2.33	-0.84	0	-1.52	-1.54	-1.24	-0.94
Other	-0.8	-0.92	1.21	-0.31	-0.26	-0.87	-0.35	-0.76	1.41	0.62	3.24	3.61	-0.13	0	-0.66	-0.78	-0.84	-0.5
Employer	-0.23	-0.26	1.87	0.21	0.14	-0.18	0.3	-0.19	2.14	1.43	4.5	4.15	1	0	0.13	-0.04	-0.28	0.12

	Social Reproduction									Leisure								
	No-Edu	Low-Edu	Med-Edu	High-Edu	Male-Head Employee	Female-Head	Male Self-Employed	Male Other	Male Employer	No-Edu	Low-Edu	Med-Edu	High-Edu	Male-Head Employee	Female-Head	Male Self-Employed	Male Other	Male Employer
Female-Low Skill	-0.79	2.22	0.3	1.89	-0.65	2.45	-0.86	-0.26	0.67	-0.73	3.66	0.51	2.77	-0.9	3.86	-1.17	-0.28	1.79
Male-Low Skill	-0.63	2.39	0.46	2.05	-0.49	2.61	-0.7	-0.09	0.83	-0.56	3.83	0.67	2.93	-0.73	4.03	-1.01	-0.12	1.96
Female High Skill	-1.37	1.63	-0.34	1.25	-1.32	1.81	-1.47	-0.88	0.19	-1.29	3.11	-0.15	2.11	-1.54	3.22	-1.82	-0.93	1.21
Male High Skill	-1.17	1.83	-0.14	1.45	-1.12	2.01	-1.27	-0.68	0.39	-1.09	3.32	0.05	2.32	-1.35	3.43	-1.62	-0.73	1.41
Total Low skill Labor	-0.73	2.26	0.33	1.96	-0.57	2.46	-0.82	-0.22	0.82	-0.58	3.8	0.63	2.92	-0.75	3.94	-1.07	-0.16	1.96
Total High Skill Labor	-1.34	1.63	-0.29	1.33	-1.18	1.83	-1.42	-0.83	0.2	-1.19	3.17	0.02	2.29	-1.35	3.3	-1.67	-0.77	1.33
Total Labor	-0.95	1.76	-0.19	1.37	-0.81	2.22	-1.02	-0.56	0.52	-0.7	3.5	0.13	2.35	-1	3.82	-1.3	-0.52	1.91
Public	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.89	-1.29	0

Consumption									
Infant Mortality Rate	-1.18	-0.14	-0.91	-1.44	-0.98	-0.18	-1.67	-0.45	-0.19
Literacy	2.36	0.28	1.82	2.88	1.96	0.36	3.34	0.91	0.37
	Aggregate	Female Low Skill	Female High Skill	Male – Low Skill	Male High Skill				
Wage Rates	-2.46	-3.13	-1.02	-3.66	-1.69				

Table 2: Simulation 2. Cut in government expenditure by 8 per cent

	VARIATION IN PERCENTAGES																			
	Crop	Live Stock	Forestry and others	Fisheries	Mining	Food	Textile	Wood and Paper	Chemicals	Non Metallic	Metallic	Machine	Handicraft	Utilities	Whole Sale and Retail	Social Sector	Other	House Services	PAD	CONS
Value Added	1.75	0.06	-0.06	0.02	-0.2	-0.04	-0.51	-0.26	0.1	-0.34	-0.53	-1.1	0.62	-0.22	-0.11	-4	-0.2	0.04	-7.51	-0.46
Intermediate Consumptio	0.18	0.01	-0.01	0	-0	0	-0.05	-0.03	0.01	-0.03	-0.05	-0.11	0.06	-0.02	-0.01	-0.4	-0.02	0	-0.75	-0.05
Total Labor Demand	2.62	0.18	-0.45	0.11	-0.6	-0.16	-1.05	-0.75	0.32	-1.07	-0.99	-2.98	1.43	-4.49	-0.66	-5.45	-0.9	0.35	-7.84	-0.81
Female-Low Skill-Labor	2.8	0.29			-0.2	0.16	-0.66	-0.53	0.85			-2.64	1.67	-3.99	-0.35	-4.86	-0.26	0.56	-7.37	-0.55
Male-Low Skill Labor	2.98	0.47			-0	0.34	-0.49	-0.35	1.02			-2.47	1.84	-3.82	-0.17	-4.7	-0.09	0.73	-7.21	-0.37
Female High Skill Labor	1.26	-1.41			-1.5	-1.86	-2.06	-2.49	-1.08			-4.42	-0.11	-5.75	-2.17	-6.47	-2.1	-1.28	-9.06	-1.87
Male High Skill Labor	2.66	-0.05			-0.1	-0.5	-0.7	-1.14	0.29			-3.29	1.07	-4.63	-1.01	-5.36	-0.94	-0.11	-7.98	-0.7
Public Consumptio	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-7.04	-7.87	0	-8.03	0
	Household Consumption																			
No-Edu	-0.56	-0.34	-0.09	-0.36	-0.1	-0.26	-0.41	-0.1	-0.25	0.06	-0.13	-0.05	-0.49	0	-0.19	0.75	-0.08	-0.73	-0.21	-0.23
Low-Edu	2.98	0.11	0.87	3.22	0.89	2.65	3.89	4.3	5	4.53	4.27	3.38	5.22	0	5.84	5.06	4.37	3.78	4.25	4.23
Med-Edu	0.42	0.25	0.32	0.64	0.34	0.65	0.72	1.09	1.07	1.29	1.06	1.3	0.91	0	1.09	1.47	1.15	0.62	1.04	1.03
High-Edu	1.4	1.43	1.59	1.56	1.63	1.95	2.25	2.58	3.65	2.75	2.55	4.23	4.38	0	3.73	4.68	2.63	2.16	2.53	2.52
Employee Male	-1.05	-0.38	-0.42	-0.83	-0.4	-0.76	-1.03	-0.65	-0.73	-0.45	-0.68	-0.68	-0.72	0	-0.76	-0.04	-0.59	-1.13	-0.7	-0.71
Female Headed	0.93	0.89	0.97	1.14	1.01	1.17	1.27	1.61	1.38	1.79	1.58	2.58	3.51	0	1.58	1.99	1.66	1.18	1.57	1.55
Self Employed	-0.51	-0.44	-0.13	-0.33	-0.1	-0.43	-0.37	-0.11	-0.32	0.03	-0.13	-0.08	-0.39	0	-0.29	0.45	-0.07	-0.44	-0.14	-0.15
Other	-0.68	-0.66	-0.27	-0.5	-0.2	-0.61	-0.58	-0.3	-0.44	-0.14	-0.32	-0.33	-0.62	0	-0.48	0.21	-0.25	-0.66	-0.33	-0.34
Employer	1.18	1.32	1.33	1.35	1.37	1.91	1.9	2.25	2.15	2.44	2.22	2.52	3.47	0	2.68	1.79	2.31	1.81	2.21	2.19

	Social Reproduction									Leisure								
Non market sectors	No-Edu	Low-Edu	Med-Edu	High-Edu	Male-Head Employee	Female-Head	Male Self-Employed	Male Other	Male Employer	No-Edu	Low-Edu	Med-Edu	High-Edu	Male-Head Employee	Female-Head	Male Self-Employed	Male Other	Male Employer

Female-Low Skill	-0.73	3.27	0.16	2.36	-1.1	1.4	-0.69	-1.2	2.01	-0.51	5.57	1	4.11	-1.33	2.52	-0.73	-1.2	3.96
Male-Low Skill	-0.66	3.35	0.23	2.43	-1	1.47	-0.62	-1.12	2.09	-0.44	5.65	1.08	4.19	-1.26	2.6	-0.66	-1.13	4.04
Female High Skill	-1.2	2.83	-0.41	1.71	-1.8	0.89	-1.22	-1.75	1.6	-1.17	5.01	0.14	3.2	-2.24	1.88	-1.52	-2.04	3.23
Male High Skill	-0.62	3.43	0.18	2.31	-1.3	1.49	-0.64	-1.17	2.2	-0.58	5.64	0.73	3.81	-1.66	2.48	-0.94	-1.46	3.84
Total Low skill Labor	-0.7	3.29	0.17	2.39	-1	1.4	-0.67	-1.18	2.08	-0.45	5.64	1.06	4.18	-1.27	2.56	-0.68	-1.15	4.04
Total High Skill Labor	-1.13	2.85	-0.26	1.95	-1.4	0.97	-1.1	-1.6	1.64	-0.88	5.19	0.63	3.74	-1.69	2.12	-1.11	-1.57	3.59
Total Labor	-0.86	2.94	-0.18	1.98	-1.2	1.23	-0.81	-1.42	1.87	-0.53	5.42	0.71	3.78	-1.45	2.48	-0.84	-1.39	4.01
Infant Mortality Rate	0.12	-3.18	-0.84	-2.33	0.49	-1.45	0.09	0.31	-2									
Literacy Rate	-0.12	3.28	0.85	2.39	-0.48	1.47	-0.09	-0.3	2.04									

	Aggregate	Female Low Skill	Female High Skill	Male – Low Skill	Male High Skill
Wage Rate	0.7	0.12	2.94	-0.12	0.94

Table 3. Trade Liberalisation with intra household Allocation of Resources

VARIATION IN PERCENTAGES

Tariff Reduction in presence of compensatory measure tax adjustment.

	Crop	Live Stock	Forestry and others	Fisheries	Mining	Food	Textile	Wood and Paper	Chemicals	Non Metallic	Metallic	Machine	Handicraft	Utilities	Whole Sale and Retail	Social Sector	Other	House Services	PAD	CONS
Value Added	1	-0.36	-0.63	-0.22	-0.91	-0.85	2.59	-0.54	-2.67	-2.09	-6.41	-1.99	-0.45	0.08	-0.03	-0.69	-0.15	-0.08	0.17	-1.65
Intermediate Consumption	1	-0.36	-0.63	-0.22	-0.91	-0.85	2.59	-0.54	-2.67	-2.09	-6.41	-1.99	-0.45	0.08	-0.03	-0.69	-0.15	-0.08	0.17	-1.65
Total Labor Demand	2	-1.09	-4.51	-1.3	-2.85	-3.8	5.39	-1.53	-8.35	-6.38	-11.63	-5.34	-1.02	1.81	-0.18	-0.95	-0.67	-0.72	0.18	-2.91
Female-Low Skill-Labor	2	-1.04	0	-1.49	-2.47	-3.48	5.88	-1.35	-7.78	-6.49	0	-4.99	-0.82	2.44	0.14	-0.18	0.11	-0.54	0.78	-2.66
Male-Low Skill Labor	2	-0.66	-3.57	-1.11	-2.1	-3.1	6.29	-0.97	-7.43	-6.13	-10.82	-4.62	-0.44	2.84	0.53	0.21	0.5	-0.16	1.17	-2.28
Female High Skill Labor	1	-2.29	0	0	-3.5	-4.74	4.62	-2.63	-8.97	0	0	-6.17	-2.03	1.17	-1.11	-1.42	-1.15	-1.82	-0.5	-3.75
Male High Skill Labor	1	-1.82	-4.76	-2.32	-3.04	-4.29	5.11	-2.17	-8.54	-7.28	-11.92	-5.79	-1.63	1.58	-0.7	-1.02	-0.74	-1.42	-0.09	-3.36
Public consumption	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.89	-1.28	0	0.16	0
Female Consumption																				
No-Edu	-1	-1.02	0.52	-0.83	-0.33	-0.98	-0.89	-1.32	0.99	0.13	2.89	2.33	-1.04	0	-1.07	-2.25	-2.09	-1.55	-1.01	-0.57
Low-Edu	1	0.04	1.11	1.71	0.42	1	2.06	1.49	5.14	3.43	7.14	4.87	3.13	0	2.58	1.67	1.39	1.86	2.35	2.74
Med-Edu	-0	-0.19	1.08	0.2	0.05	-0.24	0.21	-0.3	2.45	1.45	4.8	4.54	0.57	0	0.03	-0.14	-0.39	0.04	0.48	0.83
High-Edu	1	0.53	2.61	0.98	0.9	0.82	1.42	0.96	4.73	2.52	5.49	7.74	3.16	0	1.87	1.63	0.88	1.26	1.65	1.96
Employee																				
Male	-1	-0.6	0.96	-0.86	-0.57	-1.25	-1.05	-1.58	0.98	0.22	3.66	3.36	-0.58	0	-1.27	-1.56	-1.68	-1.24	-0.78	-0.42
Female Headed	1	0.72	2.86	1.42	1.03	0.99	1.6	1.12	3.2	2.76	5.89	8	4.78	0	1.48	1.14	1.03	1.43	1.85	2.18
Self	-1	-1.33	0.7	-0.78	-0.5	-1.59	-0.82	-1.18	1.02	0.05	2.39	2.32	-0.85	0	-1.53	-1.55	-1.24	-0.94	-0.63	-0.39

Employed																			
Other	-1	-0.92	1.2	-0.31	-0.26	-0.87	-0.36	-0.77	1.41	0.61	3.23	3.61	-0.14	0	-0.66	-0.79	-0.84	-0.5	-0.16	0.12
Employer	-0	-0.26	1.86	0.21	0.14	-0.18	0.28	-0.2	2.13	1.42	4.5	4.15	0.99	0	0.13	-0.04	-0.28	0.11	0.52	0.84
	Male Consumptiom																			
No-Edu	-2	-1.08	0.56	-0.87	-0.34	-1.03	0	-1.39	1.07	0.16	3.1	2.5	-1.09	0	-1.13	-2.37	-2.2	-1.63	-1.05	-0.59
Low-Edu	1	0.04	1.2	1.85	0.46	1.09	0	1.62	5.55	3.71	7.7	5.26	3.39	0	2.8	1.82	1.51	2.02	2.55	2.97
Med-Edu	-0	-0.2	1.17	0.23	0.06	-0.24	0	-0.31	2.67	1.59	5.21	4.93	0.64	0	0.05	-0.14	-0.41	0.06	0.53	0.91
High-Edu	1	0.56	2.74	1.04	0.95	0.87	0	1.02	4.96	2.65	5.75	8.11	3.33	0	1.98	1.73	0.94	1.33	1.74	2.07
Employee																				
Male	-2	-0.64	1.05	-0.89	-0.59	-1.31	0	-1.67	1.08	0.27	3.96	3.65	-0.6	0	-1.32	-1.63	-1.76	-1.29	-0.8	-0.42
Female Headed	1	0.75	2.88	1.46	1.06	1.03	0	1.16	3.24	2.8	5.93	8.06	4.9	0	1.53	1.19	1.08	1.48	1.89	2.22
Self Employed	-2	-1.34	0.73	-0.78	-0.5	-1.6	0	-1.18	1.08	0.08	2.48	2.41	-0.84	0	-1.53	-1.56	-1.25	-0.94	-0.62	-0.37
Other	-1	-0.95	1.27	-0.31	-0.26	-0.9	0	-0.79	1.5	0.66	3.42	3.82	-0.12	0	-0.67	-0.8	-0.86	-0.51	-0.15	0.14
Employer	-0	-0.25	1.97	0.24	0.17	-0.16	0	-0.18	2.27	1.52	4.75	4.39	1.09	0	0.17	-0.03	-0.27	0.15	0.58	0.91

Non Market Production and Consumption

	No-Edu	Low-Edu	Med-Edu	High-Edu	Male-Head Employee	Female-Head	Male Self-Employed	Male Other	Male Employer	No-Edu	Low-Edu	Med-Edu	High-Edu	Male-Head Employee	Female-Head	Male Self-Employed	Male Other	Male Employer
Female-Low Skill	-1	2.21	0.3	1.89	-0.65	2.46	-0.85	-0.25	0.68	-0.73	3.65	0.51	2.77	-0.89	3.89	-1.16	-0.28	1.8
Male-Low Skill	-1	2.38	0.46	2.06	-0.48	2.63	-0.69	-0.09	0.84	-0.56	3.82	0.67	2.94	-0.73	4.06	-1	-0.11	1.97
Female High Skill	-1	1.62	-0.34	1.25	-1.31	1.82	-1.46	-0.88	0.2	-1.3	3.1	-0.15	2.11	-1.54	3.24	-1.8	-0.93	1.22
Male High Skill	-1	1.82	-0.14	1.45	-1.11	2.03	-1.26	-0.68	0.4	-1.1	3.31	0.05	2.32	-1.34	3.45	-1.61	-0.73	1.43
Total Low skill Labor	-1	2.25	0.33	1.96	-0.57	2.48	-0.81	-0.22	0.83	-0.59	3.8	0.64	2.93	-0.74	3.97	-1.06	-0.15	1.97
Total High Skill Labor	-1	1.63	-0.29	1.33	-1.18	1.85	-1.42	-0.83	0.21	-1.2	3.16	0.02	2.29	-1.35	3.33	-1.66	-0.77	1.35
Total Labor	-1	1.76	-0.19	1.37	-0.8	2.24	-1.01	-0.56	0.53	-0.7	3.49	0.13	2.35	-1	3.85	-1.28	-0.51	1.93
Female Infant Mortality Rate	-0.2	-2.7	-1.3	-2.48	-0.22	-2.46	-0.1	-0.6	-1.28									
Female Literacy Rate	0.2	2.77	1.29	2.54	0.22	2.53	0.1	0.6	1.3									
Male Infant Mortality Rate	-0.2	-2.7	-1.3	-2.48	-0.22	-2.46	-0.1	-0.6	-1.28									
Male Literacy Rate	0.2	2.77	1.29	2.54	0.22	2.53	0.1	0.6	1.3									

	Aggregate	Female Low Skill	Female High Skill	Male – Low Skill	Male High Skill
Wages Rate	-2	-3.12	-1.01	-3.65	-1.68

Table 4 Cut in Government Expenditure by 8 per cent (With Intra Household Allocation of Resources)

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VARIATION IN PERCENTAGES	Cut in Government Expenditure																			
Variables defined over m	Crop	Live Stock	Forestry and others	Fisheries	Mining	Food	Textile	Wood and Paper	Chemicals	Non Metallic	Metallic	Machine	Handicraft	Utilities	Whole Sale and Retail	Social Sector	Other	House Services	PAD	CONS
Value Added	2	0.07	-0.06	0.03	-0.18	-0.01	-0.52	-0.25	0.11	-0.34	-0.51	-1.09	0.64	-0.22	-0.1	-3.98	-0.19	0.04	-7.49	-0.45
Intermediate Consumption	2	0.07	-0.06	0.03	-0.18	-0.01	-0.52	-0.25	0.11	-0.34	-0.51	-1.09	0.64	-0.22	-0.1	-3.98	-0.19	0.04	-7.49	-0.45
Total Labor Demand	3	0.21	-0.42	0.15	-0.56	-0.07	-1.08	-0.71	0.36	-1.05	-0.96	-2.95	1.48	-4.5	-0.63	-5.42	-0.85	0.38	-7.82	-0.79
Female-Low Skill-Labor	3	0.3	0	0.1	-0.23	0.22	-0.72	-0.52	0.84	-1.05	0	-2.64	1.69	-4.03	-0.35	-4.88	-0.27	0.56	-7.39	-0.56
Male-Low Skill Labor	3	0.48	0.22	0.28	-0.05	0.4	-0.54	-0.34	1.02	-0.87	-0.37	-2.47	1.88	-3.86	-0.17	-4.71	-0.09	0.74	-7.22	-0.38
Female High Skill Labor	1	-1.34	0	0	-1.44	-1.74	-2.06	-2.42	-1.04	0	0	-4.37	-0.02	-5.74	-2.11	-6.43	-2.04	-1.21	-9.02	-1.83
Male High Skill Labor	3	0.01	-0.59	-0.53	-0.08	-0.39	-0.72	-1.08	0.33	-1.67	-1.17	-3.24	1.15	-4.63	-0.96	-5.33	-0.89	-0.05	-7.95	-0.67
Public consumption	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-7.04	-7.88	0	-8.01	0
	Female Consumption																			
No-Edu	-1	-0.31	-0.08	-0.33	-0.05	-0.23	-0.35	-0.06	-0.19	0.1	-0.09	-0.01	-0.42	0	-0.16	0.81	-0.04	-0.69	-0.15	-0.17
Low-Edu	3	0.11	0.85	3.14	0.87	2.6	3.84	4.23	4.91	4.45	4.19	3.33	5.13	0	5.72	4.98	4.27	3.68	4.18	4.16
Med-Edu	0	0.25	0.32	0.62	0.34	0.65	0.74	1.08	1.07	1.28	1.06	1.3	0.91	0	1.07	1.46	1.13	0.61	1.04	1.03
High-Edu	1	1.39	1.55	1.51	1.6	1.9	2.22	2.52	3.58	2.7	2.5	4.15	4.29	0	3.64	4.59	2.56	2.09	2.48	2.47
Employee Male	-1	-0.37	-0.4	-0.81	-0.36	-0.72	-0.96	-0.61	-0.69	-0.41	-0.64	-0.63	-0.68	0	-0.73	0.01	-0.57	-1.1	-0.65	-0.67
Female Headed	1	0.88	0.95	1.12	1	1.16	1.28	1.6	1.37	1.78	1.57	2.56	3.49	0	1.56	1.97	1.64	1.15	1.56	1.54
Self Employed	-0	-0.41	-0.12	-0.31	-0.09	-0.39	-0.32	-0.08	-0.26	0.06	-0.1	-0.03	-0.34	0	-0.25	0.5	-0.05	-0.41	-0.11	-0.12
Other	-1	-0.63	-0.26	-0.48	-0.22	-0.57	-0.53	-0.26	-0.4	-0.11	-0.28	-0.28	-0.57	0	-0.45	0.24	-0.23	-0.63	-0.3	-0.31
Employer	1	1.31	1.31	1.33	1.36	1.9	1.91	2.23	2.13	2.42	2.21	2.51	3.44	0	2.65	1.78	2.27	1.78	2.19	2.18
	Male Consumption																			
No-Edu	-1	-0.33	-0.08	-0.36	-0.06	-0.25	0	-0.07	-0.21	0.1	-0.1	-0.01	-0.45	0	-0.18	0.86	-0.05	-0.75	-0.17	-0.19
Low-Edu	3	0.12	0.92	3.37	0.94	2.79	0	4.54	5.27	4.78	4.5	3.57	5.5	0	6.14	5.35	4.59	3.95	4.48	4.47
Med-Edu	0	0.27	0.34	0.67	0.37	0.69	0	1.17	1.15	1.38	1.14	1.39	0.98	0	1.15	1.58	1.21	0.65	1.12	1.11
High-Edu	2	1.45	1.62	1.58	1.67	1.99	0	2.63	3.73	2.82	2.61	4.33	4.47	0	3.79	4.79	2.67	2.18	2.59	2.58
Employee Male	-1	-0.39	-0.43	-0.86	-0.39	-0.77	0	-0.65	-0.74	-0.43	-0.68	-0.67	-0.73	0	-0.78	0.01	-0.6	-1.18	-0.7	-0.71
Female Headed	1	0.89	0.96	1.13	1.01	1.17	0	1.61	1.39	1.79	1.58	2.58	3.52	0	1.57	1.98	1.65	1.17	1.57	1.56
Self Employed	-1	-0.41	-0.12	-0.31	-0.09	-0.39	0	-0.07	-0.25	0.07	-0.09	-0.03	-0.33	0	-0.24	0.52	-0.04	-0.42	-0.1	-0.11
Other	-1	-0.66	-0.27	-0.5	-0.23	-0.59	0	-0.27	-0.42	-0.11	-0.3	-0.3	-0.6	0	-0.47	0.26	-0.24	-0.66	-0.31	-0.32

Employer	2	1.38	1.38	1.4	1.43	2	0	2.35	2.24	2.54	2.32	2.64	3.62	0	2.78	1.87	2.39	1.88	2.31	2.29

	Non Market Sectors																		
	No-Edu	Low-Edu	Med-Edu	High-Edu	Male-Head Employee	Female-Head	Male Self-Employed	Male Other	Male Employer	No-Edu	Low-Edu	Med-Edu	High-Edu	Male-Head Employee	Female-Head	Male Self-Employed	Male Other	Male Employer	
Female-Low Skill	-1	3.17	0.13	2.27	-1.04	1.36	-0.67	-1.17	1.96	-0.5	5.41	0.97	3.99	-1.31	2.46	-0.69	-1.16	3.87	
Male-Low Skill	-1	3.25	0.21	2.35	-0.96	1.43	-0.59	-1.1	2.04	-0.42	5.49	1.04	4.07	-1.23	2.54	-0.62	-1.09	3.95	
Female High Skill	-1	2.75	-0.41	1.65	-1.79	0.88	-1.17	-1.7	1.58	-1.13	4.88	0.14	3.11	-2.19	1.84	-1.45	-1.97	3.17	
Male High Skill	-1	3.35	0.18	2.25	-1.21	1.47	-0.59	-1.12	2.18	-0.55	5.5	0.72	3.72	-1.61	2.44	-0.87	-1.4	3.78	
Total Low skill Labor	-1	3.19	0.15	2.31	-1	1.36	-0.65	-1.16	2.04	-0.43	5.48	1.03	4.07	-1.24	2.49	-0.64	-1.11	3.95	
Total High Skill Labor	-1	2.77	-0.26	1.89	-1.4	0.96	-1.05	-1.55	1.63	-0.83	5.05	0.62	3.65	-1.64	2.08	-1.04	-1.51	3.53	
Total Labor	-1	2.86	-0.19	1.92	-1.15	1.21	-0.78	-1.38	1.84	-0.51	5.27	0.69	3.69	-1.41	2.42	-0.79	-1.34	3.92	
Female Infant Mortality Rate	0.1	-3.1	-0.8	-2.3	0.5	-1.4	0.1	0.3	-2.0										
Female Literacy Rate	-0.1	3.2	0.8	2.3	-0.5	1.4	-0.1	-0.3	2.0										
Male Infant Mortality Rate	0.1	-3.1	-0.8	-2.3	0.5	-1.4	0.1	0.3	-2.0										
Male Literacy Rate	-0.1	3.2	0.8	2.3	-0.5	1.4	-0.1	-0.3	2.0										

	Aggregate	Female Low Skill	Female High Skill	Male – Low Skill	Male High Skill
Wages Rates	1	0.18	2.9	-0.08	0.91

Table 5. Simulation: Increasing Female Empowerment through distributive factor.

	No-Edu	Low-Edu	Med-Edu	High-Edu	Male-Head Employee	Female-Head	Male Self-Employed	Male Other	Male Employer
Female Infant Mortality Rate	-2.02	-2.06	-2.04	-2.05	-2	-2.02	-2	-2.01	-2.05
Female Literacy Rate	2.06	2.1	2.09	2.1	2.04	2.06	2.07	2.05	2.1
Male Infant Mortality Rate	1.99	1.94	1.96	1.95	2	1.98	1.98	1.99	1.95
Male Literacy Rate	-1.95	-1.9	-1.92	-1.91	-1.96	-1.95	-1.9	-1.95	-1.91