

Modelling Gender Dimensions of the Impact Of Economic Reforms in Pakistan

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Abstract

This article develops a gender aware computable general equilibrium model for Pakistan with productive and reproductive sectors of economy and intra household allocation of resources to assess the gender impact of two types of shocks: trade liberalisation and fiscal adjustment. Results indicate that economic reforms increase real wage income of women more than men but relative time poverty among women increases in both exercises. While capability poverty increase in poor households and reduces in rich. This implies that economic reforms are pro rich. Trade liberalization reduces monetary poverty among rich and increase in poor households. Contrary to this cut in government expenditure reduces monetary poverty as reduction in government expenditure dominates the impact of consumption, which increases at the expense of saving. In both exercises of intra household allocation, in poor/rich households, female absorb more adverse/favourable impact than males. The study concludes that prosperity as well as education helps to reduce gender gap in capability development and reduce monetary and relative time poverty

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Introduction

The existence of vast gender disparity in all basic aspects of life is reflected in extremely low status of women, low literacy rate, mal nourished, and low health status etc. Men are primarily responsible for market work, employed in the domestic sectors, receive higher wages and work in better working conditions whereas majority of women work in the export oriented industries, engaged in labour-intensive jobs, and are paid less than men even with same qualification¹. After market work, men spend most of their time in leisure activities, while women remain engaged in household work such as cooking, cleaning, looking after children, elderly and farm animals etc. In this scenario, ostensibly neutral macroeconomic policy framework is expected to reinforce social biases against women.

The low status of women is subject matter of discrimination² and lack of women's bargaining power. Men as bread winners receive both nutritional and educational priority (White and Messet, 2002). However, women control over resources reduces vulnerability of women even in the presence of discrimination as they spend more on basic needs. But men's control over resources makes the situation worse as they spend more on luxury items [Sathar and Kazi, 1997; and Siddiqui *et al*, 2003]. If economic reforms increase prices and/or reduce real income, a number of undesirable effects may emerge such as malnutrition among women and girls, picking girls from schools, reduce expenditure on women's sickness etc. In this scenario with missing

¹ Women earn 35 percent less than men. The ratio of female wage to male wage has fallen from 65.7percent in 1990-1 to 60.5percent 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 percent of wage differential is due to discrimination in labour market (Siddiqui and Siddiqui, 1998).

² If resources are not distributed equally (based on the need) between men and women, then discrimination exist.

linkages and feedbacks between market and households economies (Siddiqui (2004), Fontana (2000), Fofana *et al*(2003), Kabeer (2003), World Bank (2001), Elson(1995)), the analysis of gender dimensions of the impact of economic reforms may not portrait the true picture.

Recently some studies (Fontana for (2000, 2001, 2002) for Bangladesh, and Zambia, Fofana *et al*, 2003, 2005 for Nepal and South Africa and Siddiqui (2004) for Pakistan).have developed gender-aware CGE models focussing on production side of the economy but ignore intra-household allocation-the factor crucial to explore differential impact on capability development of men and women. As a response to the need, the study extends the existing gender SAM and CGE model for Pakistan. First, it extended a detailed social accounting matrix (Siddiqui, 2004) by introducing more sectors, factors and actors of the economy with labour differentiated by gender and by education level and estimate a distribution factor for consumption. It incorporate capability indicators of poverty-infant mortality rate(IMR) and literacy rate(LR)- to analyse gender differentiated impact as they measure the impact of at least four basic need inputs; calorie in take, health facilities, education and availability of safe drinking water. FGT indices for monetary poverty and relative time poverty with reference to the base year leisure are also estimates. The model is simulated with trade and fiscal policies.

The study is organised in six sections. The next section begins by presenting a brief review of the literature. Section III discusses data adjustment and structural features of Pakistan economy. Section IV introduces features which makes the model gender aware. The results are discussed in section V. Section VI concludes the paper.

Review of Literature

In the literature, studies exploring gender dimensions of the impact of economic reforms can be grouped into three categories. First studies exploring the micro-macro linkages using survey

data are partial in their analysis focussing at the subset of the population or/and subset of sectors of the economy. Second, economy wide CGE models with disaggregated men and women labour are developed (Sinha and Sangita, 2003, Weerahe wa, 2002, and Arndt *et al*, 2000, Evans, 1972 etc). These studies are partial in their analysis in the absence of linkages and feed back between market economy and household economy. Third are the most recent empirical studies which overcome these problems by integrating productive and reproductive sectors of the economy. The first study in this framework is developed by Fontana and Wood (2000). It focuses on technical issues such as distinction between household, market and leisure activities, introduction of rigidities in household social reproduction and market production etc. Latter, Fontana (2001, 2002) developed detailed model for Bangladesh and Zambia. Subsequently, Fofana *et al*, (2003, 2005) and Siddiqui (2004) developed gender aware CGE model for Nepal, South Africa, and Pakistan respectively. The major difference in Fontana (2000, 2001, and 2002) and Fofana (2003, 2005) approach is in modelling leisure time. Fontana and Wood (2000) formulate leisure of men and women assuming that one's leisure can be substituted for the others. This frame work allows us to analyse how increase demand for one type of labour in market affect the leisure of the other. Similarly, if women are not independent in supplying their labour to market sectors this approach may be preferred. Fontana (2000, 2001, 2002) and Siddiqui (2004) calibrate model with fourteen available hours for work and leisure assuming the value of ten hours for minimum leisure. While Fofana *et al* (2003, and 2005) developed model with explicit labour supply function. They calculate maximum time available for work or leisure by using elasticities of labour supply with respect to income. The problem with this approach is that elasticities are not generally available. But in the absence of time use data, this approach can be used. All these studies introduce gender related rigidities in labour market through elasticity of substitution

between men and women labour. The studies reveal that in the absence of leisure and reproduction sectors impact on women employment and wages is not similar to the results in presence of these sectors. The studies suggest that greater flexibility in gender roles in the non market sphere reduce the negative impact on women (Fontana and Wood, 2000). Although this type of counterfactual analyses is very important to build a gender aware policy framework, but it is difficult to translate into policy framework as results suggest changes in traditions and norms not in economic policy framework. For instance Fofana *et al* (2003) shows that greater role of men in households' production reduce adverse impact on women. But the question is what policy will enforce men to do more household work? The studies indicate that disaggregated households and disaggregated labour by education (Fontana, 2001, 2002 and Fofana *et al*, 2003, 2004) are necessary to reveal variation in impact not only by gender but also by rich and poor households, which otherwise remains hidden.

However, all these studies are limited in their analysis focusing on production side of the economy only and ignore intra household allocation. The cost of neglecting individual behaviour is often very high and can result in policy failure (Haddad, 1994). Therefore, it is necessary to include intra household allocation of resources. If preferences are not unitary, then price change can reallocate resources in a household (Haddad *et al*, 1994, Haddad and Kanbur(1990).

In the past intra household allocation is analysed using micro household survey data using Engles and Rothbarth methods and demand systems analysis etc (Deaton, 1997, White and Masset, 2002), Browning, et al (2003) and Lise, J and S. Seitz (2004)). Deaton (1997) estimate outlay equivalent ratio for many countries including Pakistan and did not found evidence of discrimination³. However, White and Masset (2002) estimate Working-Lesser equation with

³ But it seems that he has been using un weighted data of household.

demographic characteristics and calculate outlay expenditure ratios⁴. They found positive indication of discrimination in child treatment among rural and male headed households.

In Pakistan prior to Siddiqui (2004), no study has analysed the gender impact of economic reforms in CGE framework. The present study extend the analysis by incorporating intra-household allocation of resources with twenty market sectors and nine type of households.

Construction of the SAM with Gender Features

Data

Gender aware Social Accounting matrix for Pakistan (Siddiqui, 2004) is extended by disaggregating sectors, factors and actors of the economy using data from various sources, such as supply and use Table for the year 1990 (Pakistan, 1996), integrated economic accounts (Rizvi, 1996), salient features of SAM for Pakistan (Siddiqui and Iqbal, 1999), agriculture census (Pakistan, 1993a), household integrated economic survey (Pakistan, 1993b), and labour force survey for 1990-1 (Pakistan, 1993c). The data for women social reproduction services is taken from LFS-1990-1 (Pakistan, 1993c), whereas data for men participation in these activities is taken from gender planning network survey (GPN-Survey) conducted by PIDE for the study by Siddiqui *et al* (2001) and a small rural household survey (Hafeez, 2000).

Market Economy

The SAM constructed here has many distinct features. (1) Labour income in SAM is the value of total labour used in production activities (adjusted for own account workers (employer and self employed)⁵). Therefore, operating surplus reported in this SAM is solely returns to

⁴ The ratio indicates the increase in total expenditure necessary to restore total expenditure on adult goods to its level prior to addition of one more individual.

⁵ Earlier SAM-1990 for Pakistan reports income of own account worker (self employed and employer) as a part of operating surplus in majority of activities. Here, labour share of own account worker is calculated using micro data from HIES (Pakistan, 1993) and LFS (Pakistan, 1993). 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. Some times labour value added was as large as the returns to capital become negative. Therefore instead of making arbitrary adjustment, minimum wage in that particular sector has

capital. (2) Female participation is corrected based on improved participation rate⁶, which include all women in employed labour force if a woman is engaged in harvesting, sowing, picking cotton, drying seeds, maize and rice husking, engaged in live stock and poultry farming activities, construction work, collection of fire wood and cotton sticks, fetching water, making cloths, sewing, knitting, shopping, marketing and preparation of other goods and material for sale etc. Consequently, the number of women in labour force increased to 15.5 million from 3.4 million in 1990-1(Siddiqui, 2004). This female labour are categorised into five groups such as crop, livestock and poultry, textile, construction and households services and added to the respective sectors' of SAM. 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 the size of black economy or informal economy. Female wage share increases from 5 percent to about 21percent of total wage bill and GDP by over 5 percent with largest increase in value added of livestock and minimum in services sector.

Household Economy⁷

Using the data from above mentioned resources 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. Following standard system of national accounts (SNA), activities are defined as productive which produce goods and services not only for sale(economic), but also those, which produce goods for their own consumption(non economic). Services provided within

been used to calculate labour share in GDP.

⁶ In 1991, Federal Bureau of Statistics of Pakistan revised data collection technique, under this technique the women who reported doing nothing were probed by asking further questions about the activities such as harvesting, sowing, picking cotton, drying seeds, maize and rice husking, engaged in live stock and poultry farming activities, construction work, collection of fire wood and cotton sticks, fetching water, making cloths, sewing, knitting, shopping, marketing and preparation of other goods and material for sale etc, If they are doing anyone of these activities they were included in the work force. Number of hours worked by individuals in these activities is reported in this part of labour force survey. Participation rate calculated on the basis of this data is called 'Improved Female Participation Rate'.

⁷ The two distinct features made in this part of SAM are that the individuals are distinguished by work status based on the notion that an individual is economically active or not. Because women work in the market is constrained by socio norms and majority of women stay at home and heavily involved in household social reproduction activities only. Their implications for household work for women working in the market economy are very strong. Second, the SAM includes household stock of durable goods used in household social reproduction activities, which saves individuals working hours. Although both features have important implications for time use analysis and reveal difference in time allocation of rich and poor households to social reproduction and leisure activities, but have been dropped from the present analysis to keep simplicity.

households are defined as non-productive such as cooking and cleaning; repairing the house, furniture and clothes; care of children, the sick and the elderly; and community services⁸ and they are included in social reproduction sector. Leisure is non economic and non productive, because it cannot be rendered for some one else, such as sleeping, playing games, and watching movies, etc(For detailed discussion see Fontana, and Wood). It is distinguished from time used for personal care: minimum time needed for sleeping, eating, personal hygiene which is fixed at 10 hours a day (Siddiqui, 2004, Fontana and Wood, 2000). This time is not included in the 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 also 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. 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 average wage that a person can earn by working in the market economy. The SAM has nine categories of households. Therefore, it has nine social reproduction sectors and nine leisure sectors, which reveal labour composition by education level used in social reproductive activities (see Table 1 for household categories). Incorporating above-mentioned information, a detailed gendered social accounting matrix (GSAM) for Pakistan is constructed.

Structural Features of Gendered Social Accounting Matrix for Pakistan

The gender aware SAM constructed here provides comprehensive information on the paid and unpaid (care) Pakistani economies for the year 1989-90. It presents factors account, institutions account, production and consumption, and capital account.

⁸ Like Fontana and Wood (2000), fetching water and wood collection for fuels are also included the reproduction sector; although in the SNA classify them as productive activity.

Market Economy

The SAM has twenty market sectors with eight type of labour and sector specific capital [see Table 1]. Table 2 depicts the employment structure of the economy. It shows that agriculture sector is the major employer of women and men. It employs 40 percent and 66 percent work hour of illiterate labour of men and women, respectively. The share declines with increasing education level. More educated men are concentrated in non-crop sectors. Women with high education level are concentrated in 'textile' and 'education and health' sectors; 27 and 26.7 percent respectively [Table 2].

In the manufacturing sector 9.5 percent of female labour time with no education are used in export oriented sector, 'textile' and less than one percent in import competing sector 'Machinery'. The share of female labour in textile sector increases with the increase in education level. But in import competing sector it remains negligible. Import competing sector employ more of men labour time; 1.8 percent (of NEDU), 4.3percent (of LEDU), 3.4 percent (of MEDU) and 2 percent (of HEDU). Services sector is the major employer of high skilled labour of both, men and women, 75 percent and 62 percent of the total, respectively.

Agriculture contribution to total values added is less than 30 percent. In gross value added crop sector accounts for less than 17 percent and non crop sector 10.7 percent (see Table 3). In crop sector, unskilled labour wages account for most of the total value added i.e., over 40percent. The remainder of the value added is accounted for profits from capital investment (land) 33percent. The high share of labour costs and lower productivity of the sector reflect the non competitive nature of the Pakistan agriculture sector.

Labour contribution to export oriented sector 'Textile' is larger than to the import competing sector 'Machinery'; 48 and 34 percent, respectively. Although labour is the major contributor to

value added in textile sector but its higher sectoral production share (11.9percent) is largely attributed to the size of intermediate inputs, which account for over 17 percent of the total (Table 3). The larger value added share in import competing sector is accounted for capital, 60 percent.

Services sector is made up of seven sub sectors and can be divided into tradeable and non tradeable. Tradable services sectors are effectively unprotected. These sectors provide the majority of factor income, both labor and capital, i.e., 43 and 56 per cent, even after adjusting for own account workers wages.

These sectors are affected differently by trade liberalization and could have important consequences for the relative returns to labour and capital. Among them, tradable sectors are relatively more capital intensive except social sector, which is skill labour intensive. Most of public sector value added income is also accounted for wages of skilled and unskilled labour; over 95percent of the total value added at factor cost. Across four skill level majority of male and female skilled labour is employed in services sector, 75.2 and 62.3 percent, with 16.8 and 13.3 in public administration, respectively [Table 2].

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The SAM has four institutions; households, firms, government and rest of the world. It has nine categories of households (Table 1). Each household has income and expenditure account.

The major share of labour income in the urban households is coming from head of the households (Diagonal values in table 4). This indicates that earning is important in determining the status of an individual in a household. However, the shares of dividends, transfers from government and remittance income in total income increases with the education of the head of household. In the rural areas, employee households earn about 80 percent of their income from labour, men and women. While female headed households receive 38 percent of their income from remittances. This indicates that in the absence of senior male member from the household, female becomes head of household. Own account worker, self employed and employer receive, 56 percent and 92.9 percent, of their income from capital (which includes land and live stock)⁹(Table 4).

Households distribute income between consumption and saving, which yield demand for goods; the rural households' share of total households demand is about 52percent for about 70percent of total population¹⁰ and urban households' accounts for 48 percent of the total household demand, where thirty percent of population live. Households and intermediate consumption account for over 80percent of total aggregate demand, of which household consumption is 34percent. Exports represent absorption by non resident, 6percent of the total; leaving 8 percent for the investment (Table 5).

The difference between national saving and aggregate investment is the net inflow of foreign capital, which measures the degree of dependence of Pakistan on external financing.

Intra-Household Allocation of Resources and Poverty

Household surveys collect data for consumption expenditure on household basis not on individual basis. However, some studies estimate individual consumption using Engles and

⁹ Self employed income from operating surplus may still be overestimated as surveys report their income as part of capital income. We adjusted for labour share with minimum wage.

¹⁰ Even after taking into account home consumption of own production in rural areas, this bias remains important.

Rothbarth methods or demand systems analysis etc (For detail see Deaton (1997), White and Masset (2002) etc). In this study, 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 or total consumption and demographic characteristics of individuals in the following way.

$$1. \quad W_i = \mathbf{b}_o + \mathbf{b}_1 M + \mathbf{b}_2 F + \mathbf{b}_3 \ln(Y_{PC}) + \sum_k \mathbf{b}_{4k} \Psi_k$$

Where W = Household Consumption share of i^{th} good in total expenditure, Y_{pc} = Household Income per capita, M = Number of adult equivalent males, F = Number of adult equivalent females, k = other socio economic characteristics, i = Commodities consumed

The coefficients of M and F , β_1 and β_2 , represent the percentage change in households' consumption share of good i with the increase in one adult man and one adult woman, respectively. We estimate this equation for each type of households assuming all households in a group have same characteristics and behave homogenously. Therefore, we drop last term in actual estimation. We test hypotheses that β_1 is statistically different from β_2 or not. Outlay equivalent ratios are calculated using estimates from this equation. Other things remaining equal we have ratio of the coefficient $\beta_1:\beta_2$. Normalise the coefficients by one of the coefficient say β_1

$$\beta_1 / \beta_1 = 1 \text{ and } \beta_2 / \beta_1 = x$$

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.

Earlier 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. Therefore distribution of resources between men and women also depends on bargaining power and discrimination. Mother's education or share of women's unearned income determines female bargaining power. These are embodied in distribution factor, which is exogenously determined.

Regression results for food items, clothing, education and health shows that there is a difference in consumption of male and female. Other 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. The expenditure on these goods is independent of gender composition. Focussing on basic need goods only it is found that discrimination exist in food consumption, in provision of health and education, clothing etc.

Table 6 reports consumption pattern of households by gender. It reveals that household resources, including food, are prioritized for men and boys in most of the cases. Consumption share in households' expenditure on crop is larger for females than for male in urban area. While in rural area, except female headed households, men consume larger crop sector goods than women. The consumption of goods from live stock sector is higher for males than females except in richest families [High-Education families in urban and employer in rural areas].

For fish results are mixed no explicit pattern is found, because it has very small share in household expenditure. In urban, men has larger share in manufactured food items than females.

While in rural areas reverse is true except for other (miscellaneous group of household). For clothing (goods from textile sector), poor families spend more on men clothing while rich families spend more on women clothing. In rural areas female headed households spend equally for men and women, employer spends more on female's clothing.

In urban and rural areas, poor families [Illiterate and low education households in urban areas and employees and self employed] spend more on girls education than boys education. The reason may be that in poor families boys are sent to labour market to earn money not to school. Rich families both in urban and rural areas spend equally for boys and girls or spend more for boys.

Capability indicators such as literacy rate, life expectancy and infant mortality rate are strongly associated with intra household's allocation of resources. These indicators show some improvement in the standard of living over time. Literacy rate has increased from 30.2 percent to 65 percent for males and from 11.6 percent to 40 percent for females during 1971 to 2004-5. Child mortality rate has declined from 21 to 15.1 (per 1000 live births) for males and from 30 to 24.3 (per thousand live births) for females over the decades of 1980s and 1990s (Table 7).

Life expectancy for men and women has increased from 54 to 64 years and from 53 to 63.8 years, respectively, over the same period. All these indicators show improvement for both men and women, but gender gap is still prevalent in the economy.

Both absolute as well as relative poverty indicators show an increase in poverty during the adjustment period though the extent of increment and the numerical magnitudes differ (MCHD, 1999). Approximately one-third of population are living without enough resources to fulfil their basic needs, of which more than half are women. The head count ratio has increased from 29.4 percent in 1990-91 and to 33.7 percent in 1999-00. The poverty gap, which represents roughly 21

percent of the poverty line in 1986-87, increased to 28 percent in 1993-94. The severity index has increased substantially from 1.8 in 1986-87 to 4.1 in 1993-94. Income inequality has increased as Gini coefficient has increased from 0.35 in 1987-88 to 0.41 in 1993-94(Siddiqui and Kemal, 2002).

Time Use in Work-Leisure Activities

In this SAM, labour use is measured in hours assuming economically active persons are involved in all activities, market, households and leisure. Table shows that inequality in time use by gender, women spend about 80percent of their available time in households and market work, while men spend about 60percent of their time in these activities. Men allocate more than 50 percent of available hours to market work, about 10 percent to household work and 40 percent to leisure activities¹¹. Whereas women spend about 35 to 40 percent of their time on market work and by the same percentage on household social reproductive services and 20percent time on leisure [Table 8].

A comparison of time allocation of men and women reveals that irrespective of type of households, work status and education level, all type of women have larger working hours relative to their working hours of men¹². The results confirm the findings of Fafchamps and Quisumbing (1999) that human capital partly determines time allocation by gender 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. This gender SAM serves as input into the construction of a gendered CGE model for Pakistan, which is discussed in the next section.

¹¹ Some people argue that male leisure time may be over estimated as this is forced leisure due to under employment. But this is not male specific bias as female leisure time may be more over estimated as under-employment is more frequent among women than men in market economy.

¹² Detailed results are available on request from author.

Computable General Equilibrium Model for Pakistan

The model has all major characteristics which are necessary for income distribution and poverty analysis of macroeconomic policies. It has six blocks of equations, income and saving, production, demand, prices, trade and equilibrium (For details see Siddiqui and Iqbal, 2001 and Siddiqui *et al*, 2006).

Gender Features of the Model

A CGE model traditionally assumes that male and female labor is perfect substitute. In the first step we drop the assumption of homogenous labour and assume that men and women labour are imperfect substitute in market and non market activities. Model has nine types of households and each household has two non market sectors; social reproduction and leisure. The gender inequalities and rigidities are introduced by keeping low elasticities. At the second stage intra-household allocation of resources by gender is introduced in the model through distribution factor.

In this model it is assumed that non-marketed sectors- social reproduction and leisure- behaves like productive sectors¹³. They produce goods, which are consumed by the households themselves. Social reproduction services and leisure are joint product of all type of women and men labour in a household¹⁴ with low elasticity of substitution.

On the consumption side, household consume market goods (C_i), home produce goods (C_H), and leisure (C_L) 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. Household maximize utility function facing income and

¹³ 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 others extended the model by including home production and leisure.

¹⁴ In the country like Pakistan, where gender rigidities are prevailing relatively in greater intensity, women leisure is considered a luxury item and men's leisure as basic needs. Women supply their labour at the cost of their leisure and men supply their labour by reducing households work.

time constraints. Total available time of 14 hours a day of an individual is allocated to market, household and leisure activities and assumed to be separable. It is assumed that household production does not use capital or intermediate inputs but labour, which combines first male and female labour for each education level with CES technology and then produce household's goods with four types of composite labour of men and women time input with CES technology. It is assumed that in households production men's labour can be substituted for women's labour and men leisure can be substituted for women's leisure. Assuming that social reproduction and leisure sectors in the model behaves like market sectors. Higher rigidities in household production than in market sectors are introduced by setting low substitution elasticity between male and female labour. Demand for labour in this production can be derived as in market production. Household consume all goods produced social reproduction and leisure. The price of these goods (P_h) is weighted average of the wages of labour used in its production. Thus total income of a household (Y_T) is defined as sum of receipts from market economy and non-market economy. Maximizing Stone-Geary utility function s.t constrains of total income and time constraint of 14 hours, household demand for goods produced in market and non-market sectors are derived. Equilibrium condition for labour: Total labour used in market and non market activities is fixed, which can move between market and household economies. Female wage and male wage are determined through demand and supply of their labour, respectively.

Earlier studies document that male preference differs from female preferences, but due to lack of data it remains a mystery. This study overcomes this problem by estimating a distributive parameter. Dropping the assumptions of unitary households consumption function, it is assumed that all female have same preferences but different from the male preferences. Given this assumption, total consumption of a household is divided into consumption of men and

consumption of women using distribution factor. The male and female utility function is maximised s.t resources they receive from the total resources determine by distribution factor.

Closure

Current Account Balance (CAB) is fixed. The nominal exchange rate acts as a numeraire and real exchange rate varies to keep the balance. The increase in imports following trade liberalization leads to a real exchange rate depreciation and stimulates exports. This closure eliminates the possibility that external resources would finance domestic policies. Price-taking behaviour for exports and imports is assumed¹⁵. In the simulation of trade liberalization, tax rate adjusts to eliminate the impact of reduction in tariff rate on government revenue. Household saving rate vary to equilibrate the investment-saving condition. For poverty analysis, government consumption and investment are fixed in real term. Therefore, outcomes are driven exclusively by the differences in the initial socio economic structure of the country. In simulation with fiscal reforms, fiscal deficit is reduced by reducing government expenditure. National saving is used to finance fiscal deficit and domestic investment. Here, the assumption of fixed real investment is relaxed. Reduction in government consumption reduces fiscal deficit and release resources for investment or consumption purposes as saving rate is determined endogenously.

Poverty Analysis

This study uses various measures of poverty to assess the impact of a policy shock; capability indicators, FGT indices, and relative time poverty. Capability indicators such as education and health indicators measured by literacy rate (LR) and infant mortality rate (IMR) are the best for gender impact analysis¹⁶. IMR is used to measure satisfaction of four out of six

¹⁵ Small open economy assumption.

¹⁶ They measure composite effects of inputs and outputs indicators (Kabeer, 2003)

basic needs; nutrition in take, clothing, health services, education, shelter with safe drinking water and sanitation facilities (Siddiqui, 2003)¹⁷. In the model these impacts are endogenized by defining IMR and LR as a function of income and public provision of social services using elasticities from Siddiqui (2004a)¹⁸ as follows

$$(1) \quad IMR = IMR_{base} + \frac{(IMR_{max} - IMR_{min})}{1 + 2.06 * CH_{PC}^b * YG_{PC}^g}$$

$$(2) \quad LR = 100 - \frac{(100 - LR_{base})}{1 + 2.06 * CH_{PC}^b * YG_{PC}^g}$$

The difference between maximum and minimum values of the indicators is calibrated using elasticities and the base year values of variables. The base year values for IMR and LR for each household group is projected on the bases of per capita income of household using IMR and LR estimates from Siddiqui, 2003. In static exercise population for each household is fixed. Given income and government expenditure elasticities, the change in public expenditure on social sector (education and health) and income per capita determine the IMR and LR in post shock period. Given the logistic relationships with real per capita disposable income and government expenditure on social sector, the gap between desired and actual level of indicators reduce with the increase in inputs.

Using basic need poverty line, FGT indices¹⁹ are calculated (Foster *et al*, 1984). With change in prices and given quantity of basic needs, monetary value of poverty line is determined before and after the shock (for details see Decaluwe *et al*, 1999, Siddiqui and Kemal, 2002a)²⁰. Changes in prices shift poverty line and the change in income of households' shifts distribution function.

¹⁷ Infants are more sensitive to water born diseases.

¹⁸ The following relationship is estimated using cross district data for Pakistan (for detail see Siddiqui, 2003)

$(IMR_{base} - IMR_{min}) = a * Y_{PC}^b * YG_{PC}^g$ and $(100 - LR_{base}) = a * Y_{PC}^b * YG_{PC}^g$

¹⁹ $P a^2 / n S(Z-Y)/Z^3$

Where n is total number of households, Z is basic need poverty line based on basket of commodities required to satisfy basic needs, y is household income. $a = 0$ for head count ratio, $a=1$ for poverty gap measure and $a=2$ measures severity of poverty. Prices are endogenously determined in the model.

²⁰ However, poverty analysis approach differs from Decaluwe *et al* (1999) in some aspects, it uses actual distribution of micro data form HIES instead of assuming beta-distribution (Siddiqui and Kemal, 2002).

The vector of simulated income is obtained by multiplying the base year income vector (taken from HIES-90-91) by the change in income of the group of household after the policy shock. Using vector of simulated income and changed poverty line, FGT indices are estimated using DAD program (Duclos et al, 2001). Time poverty is measured in relative term. Taking the base year leisure as threshold level, the change in leisure time of women relative men's leisure time measures time poverty.

Calibration

The model is calibrated to the data of Pakistan economy for the year 1989-90. Policy parameters-tariff rate, 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 (Pakistan, 1993). For intra-household allocation of resources, income elasticities are borrowed from unitary household demand function. But they are kept high for female consumption by 2 percentage points than elasticities for male consumption as feminist economist emphasis that in presence of discrimination, female consumption is more receptive to change in income and prices than male consumption. Elasticities for production function are taken from Malik *et al* (1989) and Kemal (1981). The elasticities, which were not available from empirical studies, are arbitrarily fixed. The GAMS software package is used to solve and simulate the model.

Simulation Results

The impact of two policy shocks, tariff reduction and retrenchment in government expenditure is discussed in this section. Simulations are conducted under two assumptions; (i) consumption is invariant to distribution of income (ii) consumption varies by gender. The main

purpose of simulation exercises is to bring gender differentiated impact of economic reforms in focus.

Simulation 1: Tariff Reduction on Imports in Presence of Compensatory Measure

In this revenue neutral exercise, tariff cut on all imports accompanied by introducing general sales tax (GST) on both imports and domestic production²¹. Magnitude of the imposed shocks is approximated on the bases of historical evidence. Impact propagates through change in relative prices that ultimately affect labour demand in export oriented and import competing sectors in opposite direction. The first direct effect of tariff reduction is reduction in import prices and upward adjustment in domestic tax rate. In Pakistan, industry is highly protected with 25 percent tariff on its imports and services sector is not protected at all. Reduction in tariff leads to decline in import prices and an increase imports inflow the most in manufacturing sector [Table 9].

Consumers switch demand to cheap imported goods. Domestic producers reduce production who experiences a decline in price [Table 9]. Given high penetration ratio and a larger decline in price of machinery, consumption of machinery rises by 1.2 percent. The access demand of machinery in the country is covered by 3.5 percent rise in imports as domestic production decline.

Depreciation of real exchange rate boost exports from Pakistan. With high export intensity of 42 percent and elasticity of transformation a little greater than one, textile exports increase by 4.6 percent. Output rise in textile sector more than the rise in domestic sale, which is directed to foreign market i.e., 'Export push effect' of trade liberalisation [Cockburn *et al* (2005)]. The decline in prices of goods does not always lead to a rise in demand of the respective goods as consumers switch demand towards relatively cheaper goods. Therefore, despite tariff reduction,

²¹ 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.

consumption of goods from crop sector decline by [-0.2] percent. Production as well as imports decline in this sector by 0.2 and 0.4 percent, respectively.

Services sector has no tariff on its imports, hence homogenous rise in tax on all goods increase domestic import price in this sector and imports decline [Table 9]. Although exports from services sectors are very small except in whole sale and retail trade, but real depreciation channel output to export market from this sector too. However, despite, high export intensity of 9.1 percent of 'whole sale and retail trade', this sector does not expand as consumer switch to cheaper goods of industry and agriculture [Table 9].

In this gender-aware model, with endogenous labour supply- men and women respond to change in prices and output by changing their supply of labour from non market activities to market activities or vice versa. Overall results show that aggregate employment change in similar fashion as out put. Aggregate demand for labour rises in textile with rise in labour demand for all skill level i.e., 5.3 percent [Table 10]. The change in employment varies by gender. Employment for women rises by 4.3 percent in textile. However, the increase in labour demand decline with the increasing skill level, [7, 4.7, 4.2 and 1.8] percent, respectively, for illiterate, low-skill, medium skill, and high skill level. The rise in women employment in textile is larger than the decline in all other industrial sectors. Consequently, women employment rises by 2.2 percent in industry.

The increase in market participation is larger for unskilled women worker, 6.2 percent as unskilled labour is more intensively used in crop and textile. However, employment of unskilled female labour increases marginally by 0.2 percent in agriculture as this sector has very low export intensity of 0.7 percent. Aggregate female employment declines in agriculture and services sectors by 1.1 and 2.7 percent, respectively [Table 10] as negative impact on women

employment dominate the positive impact in these sectors. Aggregate demand for illiterate women worker rises by 0.8percent, but it declines for all other skill level. Consequently, market participation of women declines and labour move toward unpaid economy [Table 10].

Trade liberalisation hit the most to import competing industrial sectors where men are employed intensively; non-metallic, metallic and machinery. In these sectors, demand for both men and women labour decline. The decline is highest for high skill labour, which is more intensively used in capital intensive-import competing sector. Aggregate demand for men's labour declines by 6.2 percent. The results suggest that the most beneficiary group is unskilled labour. From table 10 it can be observed that the effect of employment decline in contracting sectors overcome the effect of increase in employment in expanding sectors. Therefore aggregate employment reduce in all sectors with largest decline of 0.54 percent in services sector and labour move from market sectors to non market sectors of the economy.

The results suggest that the impact of trade liberalization on time allocation between market and non market activities varies not only by gender and skill level but also by rich and poor households. Total labour demand in household production decline in poor households -illiterate urban, and all rural households except female headed households and they supply their labour by reducing non market work [Table 11]. On the other hand skilled labour owned by relatively rich households face decline in the demand for labour and move towards non market activities [Table 11]. It reveals that irrespective of the type of households, leisure of women decline more than men's leisure but rises less for women than men if it rises for both.

The change in structure of employment translates into changes in wage rate. The real wage rates rises for all types of labour except unskilled female labour, unskilled and medium skill male labour [Table 10]. Resultantly, wage rate prevailing in the economy rises by [0.7] percent. In the

majority of cases, wage rate for women rises more and decline less than the wage rate for men across all skill level. Thus, wage gap by gender reduces. With the change in wage rate, wage income of illiterate workers goes down, while it rises across all skill. The largest increase is in the income of high-educated women workers [Table 12]. Therefore, trade liberalisation favours women in market economy, who belong to non poor households.

The change in factor prices affects household income according to their endowment of factors of production. In urban households income disparity between rich and poor increase after trade liberalization; income of rich households- High Education- rises by 1.1 percent who earns larger share of their income from skilled labour. But income of illiterate households reduces by 0.6 percent. On the hand, income of employees, self-employed and employer goes down who earns larger share of their income from factors of production; labour and capital. Income of female headed households rises by 1.02 percent. The reason may be their high reliance on remittances, (as they receive 37percent of their income from remittances), whose value in domestic currency increased with devaluation. Therefore, non factor income is also important in determining the income of households. It suggests that trade liberalization is pro-rich in the urban area, but it is not clear for the rural households as income of employee and employer decline.

It is not only the income but prices are also important in explaining welfare and poverty impact. The change in consumer price index (CPI) differs between households according to their consumption patterns. Rural households consume more of agriculture goods, whereas urban households consume relatively more services. The reduction in consumer prices for industrial goods benefits both the urban and the rural households. But agriculture prices decline more than services. Therefore, CPI declines more in the rural households than in the urban households

[Table 12]. Within the urban households, CPI declines more for poor households than for rich household. However, difference is very small of 0.02 percentage points. In rural households CPI declines by 1.7 percent for all households except for other group of households where it declines more by only 0.10 percentage points [Table 12]. Table 12 shows that poor households [urban-illiterate and rural-employee, self employed and other miscellaneous groups of household] reduce expenditure on basic need goods, whereas it rises for all other households [Table 12]. These changes in consumption have important implications for capability development, which is discussed in the following sections.

The effect on the women income varies by skill level. Women with no skill loose as their real wage rate and total wage income declines after trade liberalization, by 2.1, and 0.6 percent respectively. But high skill women workers gain as wage rate and wage income both rises [Table 11]. These changes in wage income across the skills result in change in share of women wage income relative to men wage income in a household. Table 12 reveals that wage income of high-education households experience a large increase of 1.1 percent with equal rise in wage income of men and women by 4.1 percent. While in all other households, women wage income rises more than men wage income. Hence they are better off in terms of income and it is expected to improve their bargaining power.

The poverty consequences are mixed for rich and poor households. Monetary poverty declines by all indicators in all urban households except illiterate, where population below poverty line rises by 3.7 percent. In the rural areas, poverty increases by all measure in all households except in female headed and employer households [Table 13]. In aggregate, urban poverty reduces and rural poverty rise by all measures. In aggregate, poverty measured by head count ratio decline but other two measures show rise in poverty [Table 13].

Capability indicators of poverty -IMR and LR-also show improvement in rich households and deterioration in poor households in both the urban and the rural areas [Table 13]. Two channels which effect non monetary indicators of poverty are per capita household expenditure and per capita government expenditure on education and health. From this it may be concluded that government provision of social services can play an important role in capability development of the poor or to offset the adverse impact of trade liberalization. In aggregate, IMR reduce in urban area, but deteriorate in rural area, while literacy rate deteriorate in both. [Table 13]. The negative impact dominates for Pakistan as a whole.

In terms of time poverty, results reveal that men leisure time decline less but rise more than the women leisure time in all the urban and the rural households except in rich households, where pattern is reversed. In the urban area, time poverty reduce for both men and women relative to base period, but it reduces less among females who are relatively more poor. Whereas in the rural area, time poverty increases among men and women, but it increases more among women. The positive impact on women in urban area is not enough to counter negative impact in rural area, hence time poverty among women relative to base period rise in Pakistan [Table 13]. All indicators of poverty indicate that trade liberalisation during the nineties was pro rich. It is found that education can be the most appropriate tool to counter negative impact on poor.

Trade Liberalisation and Intra Household Allocation of Resources

At the second stage, intra household allocation of resources is introduced through distribution factor to capture gender differentiated impact in consumption. The results reveal that effect in consumption behaviour depends on the base year values of consumption of men and women (distribution factor), and price and income elasticities. In this exercise, effects on output, employment, wages income and time allocation etc remains the same as in previous exercise.

Therefore, focus of the results here is to explain variation in household demand for goods and services by gender and its consequences for capability development.

Row one in table 14 shows symbols 'F' if consumption of a woman is larger than a man and show 'M' if a 'man's consumption is larger than a woman in the base year. The results show that the direction of change in consumption of a man and a woman remains the same as the change in aggregate household consumption, but quantitative impact differs by gender. Table 12 indicates that tariff reduction generate such impacts on demand for basic needs [crop, live stock, fish, food, textile, education and health], which leave poor households worse off. It shows that the poorer household group [urban-illiterate, rural households-employee, self employed and other] reduce expenditure on basic need goods. All other households in the urban area and employer and female headed households in the rural area show an increase in the demand for all goods. The results show if female share is larger than the male share in the base year, their consumption absorbs more effect of a policy shock. But this rule does not apply to all households and to consumption of all goods within a household especially in rich households. The expenditure on girl's education rises more than expenditure on boys' education in medium and high education households. This confirms that prosperity reduces gender gap in capability development.

The changes in consumption have important implications for capability indicators of poverty-IMR and LR-, which are defined by gender for each household. We can observe from table 15 that infant mortality rate and literacy rate deteriorate for both men and women in relatively poor households [illiterate, employee, self employed and other]. The effect on IMR is same for male and female. But the change in literacy rate varies by gender. It declines more for females than males. In all other households, both IMR and LR show improvement for both men and women. Indicators show more improvement for women than men. The change in these indicators depends

on elasticities with respect to income and public provision of social services, and their base year values. In these exercises, elasticities are same, therefore impact depends largely on base year values, and change in income and public provision. A comparison of results reveals that despite rise in households' expenditure on education, literacy rate decline. This impact can be channelled from the reduction in public provision of social services by 8 percent. The aggregate show that IMR decline in the urban area [Table 13]. Brake down of capability indicators by gender show that it improves less and deteriorates more for female than male in the urban area [Table 15]. But difference is very small. Same pattern is found in the rural area. In Pakistan, all indicators for male and female deteriorate.

Simulation II: Change in Fiscal Policies-Cut in Government Expenditure

Cut in government expenditure was the principal means that Pakistan used to achieve its targeted value of 4 percent of GDP, which had been fluctuating between 6 to 7 percent of GDP since 1985. A closer look at the government budget reveals that Pakistan adopted various policies to reduce fiscal deficit such as ban on jobs, golden hand shake to reduce expenditure on wage bill, austerity measures, reduction in development expenditure mostly on social sector, health and education etc. In this experiment chosen policy variable is government final consumption expenditure, which is reduced by 8percent to bring fiscal deficit down to 4 percent of GDP²² from 5.4percent in the base year. In the model, fiscal deficit is financed through household saving, corporate saving or foreign saving, which can be used alternatively for investment purposes. First impact of reduction in government expenditure is that fiscal deficit reduces and release resources. With fix current account balance, resources flow towards investment or with endogenous saving rate it may flow back to households to finance its

²² Recently, fiscal deficit drops below 3 percent of GDP.

consumption to offset price hike effect. Reduction in total government expenditure reduces expenditure in three government sectors, 'education and health', public administration' and 'other government sectors' by 7.3, 7.2 and 8.2 percent, respectively [Table 9], which has inflationary pressure as GDP deflator rises by 0.5 percent.

The main consequences of expenditure-reducing policies during adjustment period were a sharp increase in unemployment, which can be depicted by the movement of labor from market economy to household economy after the policy shock. The results show that employment reduces in services sector very significantly. The change in prices benefits the workers engaged in agriculture and industry. However, tradable sector could not generate enough jobs and labor move towards households sectors. Total employment in market sectors reduces by 1.6 percent. It has more negative impact on women worker than on men worker as market employment reduces by 1.8 percent for women and by 1.6 percent for men(indicate unemployment)[Table 16].

Skilled labor of both men and women are affected the worst across all skill level, their market employment reduced by 5 and 5.2 percent, respectively, because public sectors are major employer of skilled labor, 42percent of skilled women worker and 64 percent of skilled men worker are employed in public sector[Table 2]. Output expansion occurred in agriculture, which is major absorbent of labor. However rise in production is very small. Real wage rates rises for women across all skill level except illiterate labour.

For men real wage rate rises for low and high skill and decline for no skill and medium skill. The impact depends on the type of labour employed intensively in public sectors. Wage rate prevailing in the economy rises by 0.8percent. The change in structure of production and employment in market sector leads to reallocation of time from market activities towards non market activities. Composition of labour used in household reproduction sectors determines total

impact on households. The urban illiterate households and the rural-employee, self employed, and other-show reduction in labour use in social reproduction and leisure. All other households show rise in labour use in these activities [Table 17].

A comparison of the change in time use by men and women in non market activities reveals that demand for women time rise less relative to men in household production for majority of households. However, in absolute term it remains higher for women.

It can be observed from table 18 that real income of majority of households decline. This impact hit the most to relatively poorer group of households in the urban and the rural households, illiterate households and employees, where income declines by 0.7 and 1.1 percent respectively. The results show that consumption of basic need goods decline in urban poor-illiterate- and rural poor-employee, self-employed, other households. But prices rise more for poor and less for rich in the urban area. In rural areas it rises the most for rich households- 'employer' [Table 18]. The increase in CPI leads to increase in cost of living and shift value of poverty line. The change in value of poverty line and income determine change in incidence of poverty among households.

Monetary indicators of poverty show that poverty rise in illiterate households, but it declines or remains constant in all others (Table 19). This pattern is found in all monetary indicators of poverty, head count, poverty gap and severity indices except in employee and other group of households where severity index rises. In aggregate positive impact of poverty dominate and poverty reduces in the rural and the urban area by all measures but severity of poverty in rural area. However, poverty reduces by all measures in Pakistan. From the table we may note that cut in government expenditure is harmful for rural households as all poverty indicators rise for rural areas compared to the urban households where poverty decline. We can conclude that the policy

shock benefits the poor and increase the gap between urban and rural households. This unexpected finding of reduction in poverty despite decline in real income and rise in CPI can be explained from the closure rule adopted in the model. Increase households expenditure is at the expense of saving which deplete significantly as saving rate adjust after reduction in fiscal deficit. Price hike effect is neutralised by saving.

The decline in real income and government expenditure on social sectors affects capability indicators-IMR and LR- negatively in all households. However, table 19 reveals that poor households are hit the most. In the urban area, IMR and LR rate rise/declines by 0.47 and 4.4 percent among illiterate households. While in the rural areas the worst impact is recorded for employees i.e., IMR rises by 0.5 percent and LR decline by 9.3 percent. Over all results show that capability indicators deteriorate for the rural areas more than in the urban area. In Pakistan both indicators show deterioration as well.

The results confirm that education can be the most appropriate tool to improve condition of women as women remain time poor relative to men in illiterate, low and medium education households, but not women with high skill. But in rural areas, time poverty rise among women relative to men in all households, where tradition and norms are hard to change. The table indicates that cut in government expenditure reduce time poverty more in the urban area and increase time poverty more in the rural area compared to in the previous exercise of trade liberalization. However, contrary to previous exercise relative time poverty reduces among both men and women [Table 19].

Cut in Government Expenditure and Intra Household Allocation of Resources

Introduction of intra household allocation of resources reveals that demand for goods and services decline among poor households but rise in rich households as in previous exercise of

fiscal adjustment. But the change in demand for goods varies by gender. The results suggest that impact is not gender neutral even in rich households, where demand for goods rise (Table 20). Among illiterate urban households cost of decline in consumption is absorbed by the individuals who have larger share in the base year. But in rural areas, this pattern is not found.

Table 21 reveals that deterioration in non-monetary indicators of poverty for male and females in all households. Literacy rate for females declines more than male literacy rate. A comparison of the results with the results of trade liberalisation indicates that this policy has more adverse impact. The reason is that government expenditure on social sector decline by 8 percent which is crucial for capability development of poor households. Disaggregation by gender shows that in both areas the rural and the urban, these indicators deteriorate more for females and less for males. Same pattern is found in Pakistan as whole.

Simulation III- Bargaining Power

In earlier exercises of policy simulation with intra household allocation of resources, it is assumed that sharing rule is exogenous to the model and depict the level of discrimination and bargaining power which depends on female human capital and unearned income (such as dowry). In this exercise, we assume that female bargaining power improves as women's wage income share rises in households by 1.9 percent relative to rise in men wage share of 0.5 percent.

They bargain over household resources which result in redistribution of income between male and females members of households that increase allocation of resources by 0.01 percentage point toward females with the rise in women wage share. We feed this impact in the simulation of trade liberalisation exogenously through distribution factor. This exercise reveals the impact of improvement in bargaining power of women on consumption and capability development indicators by gender. We compare results of trade liberalization with no change in

bargaining power (simulation-1) with the results when bargaining power improves with the rise in women wage share after trade liberalization.

It is assumed that women bargaining power improves and distribution factor change by 0.01 percent in favour of women with rise in relative share of women to men (1.9/0.5). With the change in distribution factor, female share in total household resources rises. But male share declines. It affects men and women consumption in opposite direction and capability indicators as well. A comparison of results presented in table 22 with the results in table 15, it reveals that female IMR and LR improve with the improvement in bargaining power of women in presence of trade liberalization, but deteriorate more and improve less for male. Overall results show that improvement in bargaining power results in gain for Pakistan as a whole in terms of female capability development as indicated by IMR and LR, but it deteriorates for males compared to earlier exercise. However, this needs to be explored further by endogenously defining bargaining power in the model.

Concluding Remarks and Some Policy Implications

The study develops a gender sensitive SAM and CGE to overcome problems in gender impact analysis of economic reforms. The SAM has many distinct features such as adjusted for wage of own account workers, reveals hidden market work of women based on improved participation rate and incorporate households social reproduction and leisure sectors. This is the first study in CGE framework, which incorporates intra household allocation of resources based on the view that both production and consumption sides are important for gender impact analysis. CGE developed here integrates market and households' economies with labor input differentiated by gender and by education level, and incorporate distribution factor for intra household allocation of resources.

The study reveals that female participation in the market activities is higher by 40 percentage points over the female participation reported on the bases of old data and wage share is 21 percent of total wage bill instead of five percent. GDP rises by 5 percent. In work-leisure hours distribution, women spend 80 percent of their time in work (40 percent in households and 40 per cent in market) and 20 percent in leisure activities, whereas men spend 60 percent of their time in work (50 percent in the market and 10 per cent in the household work) and 40 per cent in leisure activities. Distribution factor reveals that consumption of basic need items varies by gender. Gender biases in consumption vary by rich and poor households as well as by commodities.

The model is simulated to assess the impact of two shocks: trade liberalisation and fiscal adjustment on macro aggregates in general and on monetary poverty, time poverty and capability poverty by gender in particular. Results support the contention that trade liberalization (economic reforms) increase real wage rate of women more than of men. However, despite change in allocation of time to various activities, gender division of labour remains unequal. The time poverty relative to the base period increases among women compared to men except in rich households. Similarly, poverty measured by income or by capability indicators hit the most to poorer groups of households in both the urban and the rural areas. This implies trade liberalisation is pro rich.

Retrenchment in government expenditure has more negative impact on women market employment than on men's employment. It reduces real income of all households except low education. The results show that consumption of basic need goods decline more for poor and less for rich in both the urban and the rural areas. Poverty reduces in all households except in illiterate urban households. The results indicate that retrenchment in government expenditure is also biased against poor.

The study shows that inclusion of intra household allocation of resources is as important as resource generation for gender impact analysis. The results indicate that women absorb more adverse impact than men as capability indicators deteriorate more for women than for men due to change in prices and income. On the other hand they show more improvement for the women in rich households. From this it may be concluded that prosperity help to reduce gender gap in capability indicators. Improvement in bargaining power also helps to improve women condition.

The results of the study suggest that education is the most important single variable, which can help to improve status of women in Pakistan. It reduces gender gap not only in income but also help to reduce time and capability poverty among women. In this regard, government can play important role by opening more female school, or by hiring female staff in schools and health centres, taxing commodities more which are consumed by rich and less to basic needs items. Government can foster labor migration by exploring international market.

However, there are a number of areas where this work can be extended such as inclusion of activities under taken simultaneously by an individual, capital goods in home production and the role of women not employed in market work²³, etc. For intra household allocation of resources, income elasticities of consumption by gender would be more appropriate. Data should be collected by gender for in depth consumption analysis. Government should organize nation wide surveys to develop a comprehensive gender-aware data base and promote gender sensitive research and incorporate the findings in her development programs to reduce biases against women. Finally, women's bargaining power can be modelled endogenously determined by earned income.

²³ This is very important issue in time allocation which dominates in South Asia. Because, social norms, particularly patriarchy and the norms of females seclusion or purdha, dominate economic factors that affects time allocation (Khandker, 1988, Alderman and Chishti 1989). The labour use is motivated by a desire to follow social norms (Facchamps and Quisumbing,1999). Therefore, in SAM a distinction is made between individuals involved in household production: ones who works in market economy and others who do not work in market economy, which can be used in further analysis of gender dimensions

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Appendix I.

Table 1-Structure of Accounts in SAM

Labour	Male	No education (NEDU), less than five years of education (LEDU), five but less than ten years of education (MEDU) and ten years and above (HEDU)	
	Female		
Households	Urban	Urban households are classified by the education of head of households, 1. No education, 2. Less than five years of education, 3. Five but less than ten years of education, and 4. Ten and above education level.	
	Rural	Male Headed	These households are classified by the employment status of the head of households, i.e., employees, self-employed, employer, and all others with male head of households.
		Female Headed	All female Headed Households in rural area
Activities	Crop, Live stock, Forestry and others, Fisheries, Mining, Food and Beverages, Textile, Wood and Paper, Chemical and Chemical Products, Non Metallic Industry, Metallic Industry, Machinery, Fabricated and Handicrafts, Gas and Electricity and Water, Whole sale and retail Trade, Education and Health, Other International Services, Households services, Public Administration and Defence, Construction,		

Table 2-Time Allocation by Men and Women in Market Sectors of the Economy (Percent)

Sectors	Men Labour in hours				Women labour in hours			
	No Education	Low Education	Medium Education	High Education	No Education	Low Education	Medium Education	High Education
Crop	39.5	21.3	21.8	7.9	66.2	55.5	51.9	0.0
Live stock	11.5	6.5	5.9	1.8	10.0	11.2	6.5	0.0
Forestry and others	0.2	1.2	1.1	0.7	0.0	0.0	0.0	0.0
Fisheries	1.2	6.1	0.6	0.0	0.0	0.0	0.0	0.0
Agriculture	52.4	35.1	29.3	10.4	76.2	66.7	58.4	0.0
Mining	2.0	2.8	2.3	0.6	0.2	0.0	6.0	8.2
Food and Beverages	2.1	2.2	3.2	1.9	0.1	0.0	0.1	0.2
Textile	6.3	6.5	7.9	3.9	9.5	18.6	19.7	27.0
Wood and Paper	1.4	1.6	1.7	0.5	0.0	0.1	0.2	0.0
Chemical and Chemical Products	0.8	1.4	2.0	3.2	0.2	0.0	1.0	1.5
Non Metallic Industry	2.7	0.9	0.6	0.6	0.1	0.0	0.0	0.0
Metallic Industry	0.5	0.1	0.6	1.3	0.0	0.0	0.0	0.0
Machinery	1.8	4.3	3.4	2.0	0.0	0.0	0.0	0.5
Fabricated and Handicrafts	0.5	1.2	0.5	0.4	0.0	0.0	0.1	0.3
Industry	18.1	21.0	22.2	14.4	10.3	18.7	27.0	37.7
Gas and Electricity and Water	0.2	0.5	0.5	1.0	0.0	0.0	0.0	0.1
Whole sale and retail Trade	9.7	14.9	15.0	8.4	0.6	0.0	0.5	1.2
Education and Health	1.4	2.3	4.3	13.5	1.3	0.0	0.9	26.7
Other International Services	1.0	1.2	3.7	18.7	0.2	0.0	0.3	1.8
Households services	0.7	0.9	0.8	0.2	0.6	0.1	0.1	0.2
Public Administration and Defence	8.0	13.2	16.8	31.5	4.3	0.0	0.3	13.3
Construction	8.5	11.1	7.4	1.8	6.6	14.4	12.5	18.9
Services	29.5	44.0	48.5	75.2	13.5	14.5	14.6	62.3
Total	100	100	100	100	100	100	100	100

Source: Authors' calculations.

Table 3-Structure of Cost of Production (Percent)

Sectors	Male Labour				Female Labour				Capital	Taxes	Total	Labour			Share in Total Gross Value Added	Intermediate Production at Factor Cost	
	No Education	Low Education	Medium Education	High Education	No Education	Low Education	Medium Education	High Education				Male	Female	Total			
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	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
Other government 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 4-Sources of Households Receipts (Percent)

Urban Households	Men Labour				Women Labour					Total Labour Income	Capital Income	Dividends	Govt. Trans.	Remittances	Total Receipts	Poverty
	No Education	Low Education	Medium Education	High Education	No Education	Low Education	Medium Education	High Education								
No Education	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	39.8	
Low Education	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	34.6	
Medium Education	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	35.4	
High Education	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	13.3	
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	35.9	
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	26.5	
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	26.7	
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	19.7	
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	15.3	

Note: Author's Calculations

Table 5: Composition of Demand by Sector at Market Prices (Percent)

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	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
Other government 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
Shares	48/100	52/100	33.6	6.2	8.0	45.6	6.6	100.0

Source: Authors calculations

Table 6. Consumption by Gender for Basic Needs Commodities

Goods	Urban Households by Education of the Head of Household				Rural Female Headed Households	Rural Households by Employment Status			
	Illiterate	Low-Education	Medium Education	High Education		Employee	Self Employed	Other	Employer
Crop	F	F	F	F	F	M	M	M	M
Live Stock	M	M	M	F	M	M	M	M	F
Fish	F	M	F	M=F	M	M	M	F	F
Food(manufacturing)	M	M	M	M	F	F	F	M	F
Textile(clothing)	M	M	F	F	M=F	M	M	M	F
Social Sector (education and health)	F	F	M	M	M	F	M	M	M

*F stands for Females and M for males. IF female consume a good more than male then F is presented in the cell and vice versa, M=F implies that male and female consume equally.

Table 7 Non Monetary Indicators of Poverty by Gender*

Income Poverty	Gini Coefficient	Literacy Rate (Population age>=10)		Child Mortality Rate-(1-5 years) (per1000 live Births)		Life Expectancy		Other Indicators Malnutrition	
		Male	Female	Male	Female	Male	Female	Maternal mortality rate(per 100,000 live births)	Anaemia among pregnant and lactating women(currently married)
Pakistan	Pakistan								
28.6 (1986-7)	0.351(1986-7)	35.0	15.9	21	30(1982-86)	54	53 (up to 1978)	600-800	35.2(1985-87)
29.4(1990-1)	0.41			18	36.5(1985-90)	55	55(1983)	600-700	35.8(1990-94-urban)
35.7(1993-4)	0.41 (1993-4)			18	27(1987-91)	57	56(1988)	500-600	33.4(1990-94-rural)
					23(1992-96)	61	60(1993)	400-500	34.9(Married Women Urban)
32.6(1998-9)		56.5	32.6	15.1	24.3(1997-2000)	62	62(1998)	300-400	26.6(Married Women Rural)
33.5(1999-00)	-	-	-	-	-	-	-	533(2001)	20.3(All Women)
35.7(2001-2)	-	-	-	-	-	-	-	-	-
2004-5	-	65(2004-5)	40	-	-	64	63.8	350.4	-

Source: CRPRID, 2002, Pakistan d (2004-5). * Year is mention in Brackets

Table 8- Time Allocation between Market and Non-Market Activities

Urban	Women		Men	
	Minimum	Maximum	Minimum	Maximum
Market	26.5	40.0	50.6	57.4
Social Reproduction	34.1	45.3	2.9	10.7
Leisure	10.0	20.0	40.0	Above 40
Rural				
Market	34.1	45.3	47.5	53.3
Social Reproduction	35.9	47.3	1.6	16.8
Leisure	10.0	20.0	40.0	About 40

Table 9. Variation in Macro Variables and Domestic Prices over the Base Period (Percent) *

Sectors	M/Q	E/VA	Simulation I- Trade Liberalization							Simulation II-Retrenchment in Government Expenditure							
			PC	PM	Q	D	M	E	VA	PC	PM	Q	D	M	E	VA	CG
Crop	5.3	0.7	-1.3	-1.1	-0.2	-0.2	-0.4	3.0	-0.2	0.62	-0.02	0.12	0.09	0.77	-0.72	0.08	0
Live stock	0.5	0.5	-0.8	-1.3	-0.3	-0.3	0.5	2.6	-0.3	1.03	-0.02	0.31	0.3	1.88	-1.05	0.29	0
Forestry and others	5.9	6.9	-6.6	-26.1	0.8	-1.1	33.4	4.4	-0.7	0.24	-0.02	-0.06	-0.08	0.24	-0.3	-0.1	0
Fisheries	0.0	4.1	-1.6	-27.9	-0.3	-0.3	44.7	4.2	-0.1	1.2	-0.02	0.22	0.22	1.7	-1.59	0.15	0
Mining	30.9	2.7	-2.0	-0.1	-2.7	-1.2	-5.2	4.4	-1.0	0.12	-0.02	-0.17	-0.27	0.02	-0.54	-0.28	0
Food and Beverages	11.0	5.0	-1.2	-2.9	-0.5	-0.8	1.7	2.6	-0.6	0.54	-0.02	0.32	0.22	1.05	-0.73	0.17	0
Textile	3.8	42.0	-2.2	-5.4	1.2	1.0	4.7	4.6	2.6	0.55	-0.02	-0.14	-0.16	0.45	-0.76	-0.41	0
Wood and Paper	15.5	0.6	-1.2	-1.3	-0.4	-0.4	-0.2	3.3	-0.4	0.11	-0.02	-0.05	-0.08	0.12	-0.31	-0.08	0
Chemical	33.0	1.6	-5.3	-10.7	0.1	-2.8	6.3	1.0	-2.8	0.1	-0.02	0.05	-0.01	0.17	-0.19	-0.01	0
Non Metallic Industry	3.6	0.8	-4.2	-16.1	-1.6	-2.2	12.6	3.9	-2.1	-0.4	-0.02	-0.32	-0.3	-0.7	0.17	-0.3	0
Metallic Industry	52.2	3.7	-9.0	-13.5	-1.2	-6.7	4.0	-0.7	-6.4	-0.01	-0.02	-0.5	-0.51	-0.5	-0.53	-0.51	0
Machinery	61.5	3.5	-8.0	-9.5	1.2	-2.4	3.5	6.0	-2.1	-0.17	-0.02	-1.49	-1.17	-1.69	-0.69	-1.15	0
Handicrafts	6.4	14.8	-2.5	-10.5	0.2	-0.6	12.1	3.4	0.1	0.56	-0.02	1.37	1.31	2.13	0.56	1.2	0
Utilities	0.2	0.0	-2.0	1.3	0.0	0.0	-3.9	4.4	0.0	-4.72	-0.02	-0.35	-0.34	-5.94	6.1	-0.34	0
Whole sale and Retail Trade	2.2	9.1	-1.7	1.3	-0.4	-0.3	-3.9	2.2	0.0	0.32	-0.02	-0.08	-0.09	0.32	-0.36	-0.11	0
Education and Health	0.4	0.0	-1.3	1.3	-0.4	-0.4	-3.5	3.6	-0.4	-0.78	-0.02	-3.87	-3.87	-4.75	-2.75	-3.87	-7.28
Other	7.7	0.0	-0.6	1.3	-0.2	0.0	-2.5	2.6	0.0	0.48	-0.02	0	-0.05	0.6	-0.7	-0.05	-8.44
Sanitation and Other	3.0	0.0	-1.2	0.8	-0.1	0.0	-2.5	3.9	0.0	1.54	-0.02	0.19	0.13	2.06	-2.24	0.13	0
Public Administration and Defense	0.0	0.0	-2.4	-	0.22	0.22	-	-	0.2	0.19	-	-7.6	-7.6	-	-	-7.6	-8.17
Construction	0.0	0.0	-3.1	-	-1.7	-1.7	-	-	-1.7	0.15	-	-0.44	-0.44	-	-	-0.44	0

CG= Government Consumption, D= Demand for Domestically produced Goods, E= Exports, M=Imports, PC= Consumer Price, PM= Import Price, Q=Domestic Absorption of composite Good, VA=Value Added,

Table 10-Trade Liberalization-Percentage Change in Employment, Returns to Factor of Production and Output Over Base Values

Market Sectors	Women Employment					Men Employment					Total Labour Demand
	No Education	Low Education	Medium Education	High Education	Total	No Education	Low Education	Medium Education	High Education	Total	
Crop	0.3	-1.8	-2.4	0.0	-1.02	1.1	-2.2	-0.3	-4.3	0.16	-0.3
Live Stock	-0.5	-2.4	-3.5	0.0	-1.79	0.3	-2.8	-1.4	-4.9	-0.55	-0.8
Other	0.0	0.0	0.0	0.0	0.00	-1.7	-4.5	-4.0	-6.7	-4.76	-4.8
Fisheries	-0.2	0.0	0.0	0.0	-0.24	0.6	-2.3	-1.7	-4.6	-0.64	-0.7
Agriculture	0.2	-1.9	-2.5	0.0	-1.12	0.91	-2.40	-0.66	-4.57	-0.10	-0.42
Mining	-1.9	0.0	-4.2	-6.3	-4.80	-1.1	-3.9	-2.2	-5.8	-2.11	-3.1
Food	-1.4	0.0	-4.9	-6.2	-4.05	-0.6	-3.5	-2.9	-5.7	-2.80	-2.9
Textile	7.0	4.7	4.2	1.8	4.34	7.9	4.5	6.4	2.4	6.12	5.3
Wood and Paper	-0.4	-2.2	-3.8	0.0	-3.36	0.5	-2.4	-1.7	-4.7	-1.03	-1.1
Chemicals	-6.1	0.0	-9.2	-10.7	-9.21	-5.4	-8.1	-7.2	-10.2	-8.54	-8.6
Non-Metallic	-6.3	0.0	0.0	0.0	-6.28	-5.5	-8.2	-7.7	-10.4	-6.39	-6.4
Metallic	0.0	0.0	0.0	0.0	0.00	-8.6	-11.2	-10.7	-13.3	-	-11.7
Machinery	-4.0	0.0	0.0	-8.5	-7.68	-3.2	-5.9	-5.4	-8.1	-5.48	-5.5
Handicrafts	1.4	0.0	-2.1	-3.4	-1.99	2.2	-0.7	0.1	-3.0	0.25	0.1
Industry	6.24	4.65	1.72	-0.68	2.17	1.04	-1.91	-0.43	-5.64	-1.21	-0.41
Utilities	2.5	0.0	-1.1	-2.4	-1.41	3.4	0.4	1.0	-1.9	-0.43	-0.5
Whole Sale and Retail Trade	1.2	0.0	-2.4	-3.6	-1.37	2.0	-0.9	-0.3	-3.2	-0.17	-0.2
Social sector	3.1	0.0	-0.6	-1.9	-1.25					-0.42	-0.6
Other	3.8	0.0	0.1	-1.2	0.05	3.9	0.8	1.6	-1.5	-0.10	-0.1
Sanitation	0.7	-1.3	-2.9	-4.2	0.02	4.6	1.6	2.3	-0.8	-0.04	-0.1
Public Administration	3.1	0.0	-0.7	-1.9	0.49	1.6	-1.5	-0.8	-3.7	0.26	0.2
Construction	-2.0	-4.0	-4.7	-6.6	-4.45	1.79	-1.03	0.33	-1.62	-2.27	-3.0
Services	-4.0	-1.0	-1.7	-3.5	-2.66	3.9	0.9	1.5	-1.5	-0.31	-0.54
Total	0.84	-0.99	-1.62	-2.34	-0.73	-1.2	-4.2	-2.6	-6.2	-0.40	-0.47
Real Wage Rate	-2.1	1.5	2.9	6.6		-3.2	1.8	-0.2	5.8		0.66

Table 11-Trade Liberalization -Labour in Non Market Activities (Percentage Change Over Base Value)

Social Reproduction	Female Employment				Male Employment				Total Social Reproduction
	No Education	Low Education	Medium Education	High Education	No Education	Low Education	Medium Education	High Education	
No-Education	-1.0	-2.2	-2.1	-3.5	-0.6	-2.3	-1.2	-3.3	-1.5
Low-Education	5.2	3.8	4.0	2.3	5.5	3.7	5.0	2.6	4.0
Med-Education	1.5	0.2	0.2	-1.1	1.9	0.1	1.1	-0.9	0.3
High-Education	5.2	3.8	4.0	2.4	5.6	3.7	5.0	2.6	3.0
Employee Male	-0.9	-2.1	-2.4	-3.5	-0.6	-2.2	-1.5	-3.3	-1.6
Female Headed	3.6	2.2	2.3	0.9	4.0	2.1	3.3	1.1	2.8
Self Employed	-0.6	-1.9	-1.8	-3.2	-0.3	-2.0	-0.9	-3.0	-1.1
Other	-0.2	-1.6	-1.4	-2.8	0.1	-1.7	-0.5	-2.6	-1.2
Employer	1.6	0.2	-0.2	-1.0	2.0	0.0	0.7	-0.8	-0.8
Real Wage rate	-2.1	1.5	2.9	6.6	-3.2	1.8	-0.2	5.8	-
Wage Income*	-0.6	1.7	3.0	5.6 (1.9)	-2.2	1.0	-0.1	4.4 (0.5)	-
Leisure									
No-Education	-0.6	-1.7	-2.0	-3.1	-0.3	-1.7	-1.0	-2.9	-0.8
Low-Education	7.6	6.3	6.2	4.7	7.9	6.2	7.2	5.0	6.4
Med-Education	2.7	1.5	1.0	0.1	3.1	1.4	2.0	0.3	1.6
High-Education	6.2	5.0	5.0	3.5	6.6	4.9	5.9	3.7	3.9
Employee Male	-1.2	-2.3	-2.9	-3.7	-0.9	-2.4	-2.0	-3.5	-1.8
Female Headed	5.4	4.0	4.0	2.6	5.8	3.9	5.0	2.9	4.8
Self Employed	-0.9	-2.1	-2.4	-3.5	-0.6	-2.2	-1.5	-3.3	-1.4
Other	-0.5	-1.6	-2.0	-3.0	-0.2	-1.7	-1.1	-2.8	-1.5
Employer	3.0	1.8	1.1	0.5	3.3	1.7	2.0	0.7	1.2

* Figures in the bracket are total change in labour income

Table 12-Trade Liberalization: Income and consumption of Basic Need Goods-Real (Percentage Change Over Base Values)

	Urban households				Rural Household				
	No- Education	Low- Education	Med- Education	High- Education	Employee Male	Female Headed	Self Employed	Other	Employer
Income	-0.55	0.15	0.10	1.06	-0.49	1.02	-0.41	0.34	-0.36
Women Wage Income	1.3	2.6	3.0	4.1	0.8	1.5	0.9	2.0	5.2
Men Wage Income	-1.2	0.9	0.5	4.1	-0.3	0.0	-0.5	0.7	1.8
Consumption of Good									
Crop	-1.7	3.21	0.57	2.78	-1.19	0.94	-1.65	-0.92	1.09
Live Stock	-1.98	2.4	0.18	3.55	-1.77	1.48	-1.8	-0.93	1.05
Fish	-1.46	3.46	0.54	4.38	-2.24	2.48	-1.31	-0.73	1.23
Food Manufactured	-1.32	1.61	0.3	3.05	-1.3	1.75	-1.77	-1.22	1.48
Textile	-2.11	4.36	0.7	4.28	-2.26	2.64	-1.27	-0.45	2.1
Education and Health	-2.89	3.91	0.49	5.48	-3.03	2.21	-2.02	-0.96	1.0
Total Household Consumption Expenditure	0.28	3.17	1.42	3.05	0.26	2.73	0.22	0.75	1.59
Consumer Price	-1.64	-1.64	-1.7	-1.62	-1.72	-17.3	-1.71	-1.81	-1.73

Table 13- Trade Liberalization - Monetary and Non-Monetary Indicators of Poverty (Percentage Variation over Base Values)

Monetary Indicators (FGT-Indices)	No- Education	Low- Education	Med- Education	High- Education	Total Urban	Employee Male	Female Headed	Self Employed	Other	Employer	Total Rural	Pakistan
Head Count	3.68	-11.84	-1.45	-13.97	-3.55	3.03	-3.27	2.78	1.73	-3.51	2.33	-0.29
Poverty Gap	5.56	-11.11	-1.22	-13.79	-2.63	6.17	-5.56	5.17	2.17	-5.41	4.46	1.31
Severity	6.90	-12.50	-3.57	-13.33	-2.51	7.69	-5.88	5.56	7.14	-8.33	5.67	2.03
Non-Monetary Indicators												
Infant Mortality Rate	0.08	-0.21	-0.06	-0.24	-0.06	0.08	-0.10	0.07	0.03	-0.11	0.06	0.004
Literacy Rate	-0.80	0.46	0.09	0.05	-0.29	-1.59	0.75	-0.57	-0.11	0.29	-0.81	-0.58
Time Poverty												
Men	-0.7	6.4	1.7	3.8	1.87	-1.7	4.8	-1.3	-1.4	1.7	-1.49	0.15
Women	-1.3	6.3	1.2	4.3	1.74	-1.9	4.8	-1.5	-1.5	0.6	-1.68	-0.09

*Base Year Poverty Line for Urban Rs 318 per capita per month and Rural Poverty line is Rs 264 per capita per month

Table 14. Trade Liberalization and Demand for Basic Need Goods by Gender-Real (Percentage Variation Over Base Values)

Consumption of	Urban Households by Education of the Head of Household				Rural	Rural Male Headed Households classified by Employment Status			
	No Education	Low Education	Medium Education	High Education	Female Headed Households	Employee	Self Employed	Other	Employer
Crop by	F	F	F	F	F	M	M	M	M
Women	-1.65	3.01	0.55	2.63	1.15	-1.12	-1.56	-0.89	1.08
Men	-1.63	3.08	0.48	2.71	1.0	-1.21	-1.57	-0.93	0.94
Live Stock by	M	M	M	F	M	M	M	M	F
Women	-2.01	2.26	0.17	3.35	1.69	1-.71	-1.67	-0.9	1.09
Men	-2.11	2.28	0.13	3.46	1.71	-1.76	-1.75	-0.96	0.89
Fish by	F	M=F	F	M=F	M	M	M	F	F
Women	-1.42	3.31	0.51	4.43	2.82	-2.15	-1.34	-0.7	1.12
Men	-1.41	3.26	0.48	4.07	2.82	-2.22	-1.12	-0.75	1.16
Food (manufacturing) by	M	M	M	M	F	F	F	M	F
Women	-1.26	1.49	0.33	2.97	1.12	-1.3	-1.67	-0.86	1.34
Men	-1.3	1.52	0.28	2.87	1.08	-1.28	-1.77	-0.89	1.38
Textile(clothing)	M	M	F	F	M	M=F	M	M	F
Women	-1.93	4.29	0.74	4.25	3.36	-2.16	-1.12	-0.38	1.92
Men	-2.15	4.36	0.72	4.18	3.33	-2.29	-1.23	-0.43	2
Social (education and health) by	F	F	M=F	M	F	M	M	M	M=F
Women	-2.87	3.9	0.47	5.36	2.52	-3.04	-1.84	-0.9	0.91
Men	-2.71	3.59	0.4	4.86	2.55	-3.0	-1.97	-0.98	0.94

Table 15-Monetary and Non-Monetary Indicators of Poverty (Percent Change Over Base values)

	Trade Liberalization and Intra Household Allocation of Resources											Pakistan
	Urban Households					Rural Households						
	No Education	Low Education	Medium Education	High Education	Total	Employee Male	Female Headed	Self Employed	Other	Employer	Total	
Female Infant Mortality Rate	0.07	-0.2	-0.06	-0.24	-0.05	0.07	-0.11	0.07	0.02	-0.1	0.05	0.01
Female Literacy Rate	-0.92	0.95	0.17	0.08	-0.33	-3.33	1.57	-1.12	-0.1	0.59	-1.69	-1.11
Male Infant Mortality Rate	0.07	-0.2	-0.06	-0.23	-0.08	0.07	-0.11	0.07	0.02	-0.1	0.04	0.03
Male Literacy Rate	-0.6	0.24	0.04	0.02	-0.20	-0.92	0.49	-0.3	-0.04	0.15	-0.37	-0.29

Table 16 Cut in Government Expenditure- Percentage Change in Employment, Returns to Factor of Production and Output Over Base Value)

Market Sectors	Women Employment(market)					Men Employment(market)					Total Labour Demand
	No	Low	Medium	High	Total	No	Low	Medium	High	Total	
	Education	Education	Education	Education		Education	Education	Education	Education		
Crop	0.59	-1.22	-2.53	0	-0.87	1.53	-2.55	0.54	-3.31	0.70	0.12
Live Stock	1.15	-0.43	-2.44	0	-0.35	2.09	-1.77	0.63	-2.66	1.28	0.9
Other	0	0	0	0	0.00	2.29	-0.86	-0.11	-2.31	-0.70	-0.72
Fisheries	1.28	0	0	0	1.28	2.22	-0.94	-0.18	-2.39	0.92	0.9
Agriculture	0.7	-1.1	-2.5	0.0	-0.81	1.67	-2.07	0.52	-3.13	0.80	0.29
Mining	0.21	0	-2.58	-3.69	-2.84	1.14	-2	0.48	-3.01	0.27	-0.9
Food	1.96	0	-2.54	-2.41	-0.86	2.91	-0.27	0.52	-1.73	0.80	0.76
Textile	0.54	-1.54	-2.52	-3.72	-2.03	1.48	-2.31	0.54	-3.04	0.07	-0.86
Wood and Paper	0.38	-1.06	-3.89	0	-3.31	1.31	-1.84	-0.87	-3.25	-0.13	-0.23
Chemicals	2.28	0	-1.74	-2.13	-1.34	3.23	-0.01	1.35	-1.44	0.12	-0.04
Non-Metallic	-0.96	0	0	0	-0.96	-0.04	-3.13	-2.39	-4.55	-0.91	-0.93
Metallic	0	0	0	0	0.00	2.08	-1.07	-0.31	-2.51	-0.92	-0.96
Machinery	-1.76	0	0	-5.87	-5.10	-0.85	-3.91	-3.18	-5.3	-3.08	-3.12
Handicrafts	3.87	0	-0.48	-0.46	0.29	4.83	1.58	2.65	0.15	2.96	2.8
Industry	0.58	-1.54	-2.51	-3.64	-2.15	1.33	-1.99	-0.12	-2.77	-0.28	-0.72
Utilities	-4.65	0	-8.86	-8.65	-8.12	-3.76	-6.73	-5.99	-8.09	-6.95	-6.99
Whole sale and retail	0.48	0	-3.95	-3.74	-2.20	1.41	-1.73	-0.93	-3.16	-0.65	-0.7
Social sector	-2.35	0	-6.57	-6.5	-6.05	-1.44	-4.64	-3.63	-5.94	-5.10	-5.28
Other government sectors	2.98	0	-1.53	-1.37	-0.60	3.94	0.69	1.57	-0.78	-0.23	-0.25
Sanitation	1.8	0.07	-2.78	-2.58	1.06	2.75	-0.61	0.27	-1.99	1.17	1.13
Public Administration	-5.73	0	-9.99	-9.75	-7.88	-4.85	-7.88	-7.16	-9.21	-7.91	-7.93
Construction	0.1	-1.79	-3.14	-3.93	-2.47	1.03	-2.45	-0.09	-3.35	0.06	-0.77
Services	-1.8	-1.8	-3.5	-6.2	-4.08	-0.45	-3.87	-3.04	-5.67	-3.71	-3.74
Total	0.32	-1.27	-2.66	-5.24	-1.76	0.98	-2.84	-1.35	-4.99	-1.6	-1.6
Real Wage Rate	-1.60	1.77	4.33	6.09		-2.88	2.92	-0.18	5.04		0.8

Table 17. Labour in Non Market Activities (Percentage Change Over Base Value)

Simulation-Cut in Government Expenditure and Social Reproduction and Leisure									
Urban Households	Female Employment				Male Employment				Total
	No Education	Low Education	Medium Education	High Education	No Education	Low Education	Medium Education	High Education	
No-Education	-0.93	-2.21	-2.12	-3.23	-0.54	-2.54	-0.81	-2.94	-1.44
Low-Education	6.39	4.98	5.17	3.79	6.81	4.62	6.57	4.1	5.19
Med-Education	1.78	0.28	0.3	-0.52	2.19	-0.06	1.64	-0.22	0.58
High-Education	5.46	3.92	4.24	2.96	5.88	3.56	5.63	3.27	3.52
Rural Households									
Employee Male	-1.31	-2.53	-2.97	-3.61	-0.92	-2.86	-1.67	-3.32	-1.88
Female Headed	2.58	1.06	1.27	0.19	2.99	0.72	2.63	0.5	1.77
Self Employed	-0.39	-1.76	-1.69	-2.66	0.01	-2.09	-0.37	-2.36	-0.82
Other	-1.07	-2.49	-2.34	-3.35	-0.67	-2.82	-1.03	-3.06	-1.98
Employer	3.46	1.88	1.23	1.12	3.87	0	2.59	1.43	1.3
Real wage Rate	-1.60	1.77	4.33	6.09	0.98	1.02	1.04	1.06	
Real Wage Income	-0.4	1.9	3.8	3.2	-2.0	1.5	-0.7	2.3	
Urban Households									
Leisure									
No-Education	-0.3	-1.25	-1.87	-2.51	0.09	-1.58	-0.56	-2.21	-0.44
Low-Education	9.61	8.47	8.05	7.03	10.04	8.1	9.49	7.36	8.39
Med-Education	3.67	2.43	1.6	1.32	4.08	2.08	2.96	1.62	2.6
High-Education	7.13	5.88	5.76	4.68	7.55	5.52	7.18	5	5.11
Rural Households									
Employee Male	-1.66	-2.54	-3.67	-3.82	-1.27	-2.87	-2.38	-3.53	-2.07
Female Headed	4.14	2.69	2.56	1.67	4.55	2.35	3.93	1.98	3.47
Self Employed	-0.32	-1.41	-2.03	-2.61	0.07	-1.74	-0.72	-2.32	-0.73
Other	-1.3	-2.33	-3.01	-3.52	-0.91	-2.66	-1.71	-3.23	-2.12
Employer	5.72	4.52	3.38	3.48	6.14	4.16	4.76	3.79	4.15

Table 18. Cut in Government Expenditure and Demand for Basic Need Goods -Real (Percentage Change Over Base Value)

	No Education	Low Education	Medium Education	High Education	Employee Male	Female Headed	Self Employed	Other	Employer
Income	-0.70	0.01	-0.37	-0.13	-1.11	-0.17	-0.46	-0.38	-0.16
Female Wage Income	1.60	3.25	3.29	3.27	0.92	1.82	1.11	2.04	3.01
Male Wage Income	-1.31	0.84	-0.30	2.13	-0.76	-0.41	-0.88	-0.07	0.62
Consumption									
Crop	-0.83	5.36	1.96	3.55	-0.87	1.12	-0.62	-0.62	2.65
Live Stock	-1.06	4.13	0.99	4.6	-1.33	1.83	-0.79	-0.66	2.81
Fish	-1.03	5.14	1.14	4.98	-2.15	2.16	-0.78	-0.84	2.41
Food Manufactured	-0.6	2.76	1.32	3.97	-0.9	2.19	-0.62	-0.74	3.73
Textile	-1.3	6.35	1.26	4.86	-2.1	2.4	-0.61	-0.52	3.84
Education and Health	-0.34	7.46	2.4	8.08	-1.13	3.74	0.03	0.02	2.95
Total Household Consumption Expenditure	-0.68	5.63	1.96	5.12	-1.09	1.98	-0.35	-0.38	3.79
CPI	0.449	0.432	0.419	0.413	0.526	0.497	0.541	0.506	0.541

Table 19-Monetary and Non-Monetary Indicators of Poverty (Percentage Change Over Base Value)

Simulation - Cut On Government Expenditure and Unitary Household Demand												
FGT-Indices	No Education	Low Education	Medium Education	High Education	Total Urban	Employee Male	Female Headed	Self Employed	Other Employer	Total Rural	Pakistan	
Head Count	1.96	-14.33	-5.22	-16.91	-6.16	-1.93	0.00	-4.86	-5.63	0.00	-3.55	-4.71
Poverty Gap	2.22	-16.67	-4.88	-17.24	-6.14	-2.47	-3.70	-5.17	-4.35	-5.41	-4.04	-4.97
Severity	3.45	-16.67	-7.14	-17.78	-6.33	3.85	-5.88	0.00	7.14	-8.33	1.74	-1.85
Non-Monetary Indicators												
Infant Mortality Rate	0.47	0.12	0.31	0.14	0.32	0.49	0.32	0.45	0.45	0.22	0.45	0.39
Literacy Rate	-4.36	-0.05	-0.27	-0.01	-1.9	-9.31	-1.46	-3.24	-1.78	-0.29	-5.13	-3.69
Time Poverty												
Men	-0.3	8.5	2.8	5.1	2.84	-2.0	3.6	-0.6	-2.0	4.5	-1.53	0.61
Women	-1.1	8.2	1.9	5.3	2.43	-2.3	3.4	-1.0	-2.4	3.6	-1.87	0.13

*Base Year value of poverty line in RS per adult per month: urban -318, Rural-264, Pakistan -280

Table 20-Cut in Government Expenditure and Consumption of Basic Need Goods by Gender-Real (Percentage Change Over Base Value)

Sectors	Urban Households					Rural Households				
	No Education	Low Education	Medium Education	High Education	Female Headed Households	Employee	Self Employed	Other	Employer	
Crop Consumption by Women	F	F	F	F	F	M	M	M	M	
Men	-0.81	5.23	1.94	3.47	1.41	-0.83	-0.61	-0.67	2.77	
Live Stock Consumption by Women	M	M	M	F	M	M	M	M	F	
Men	-1.08	4.06	0.95	4.5	2.16	-1.3	-0.75	-0.71	3.12	
Fish Consumption by Women	F	M=F	F	M=F	M	M	M	F	F	
Men	-1.02	5.11	1.11	5.2	2.52	-2.1	-0.84	-0.92	2.32	
Food(manufacturing) Consumption by Women	M	M	M	M	F	F	F	M	F	
Men	-0.58	2.64	1.33	4	1.45	-0.91	-0.59	-0.58	3.6	
Textile(clothing) Consumption by Women	M	M	F	F	M	M=F	M	M	F	
Men	-1.14	4.15	0.97	4.67	2.03	-1.32	-0.8	-0.73	2.66	
Education and Health on Women	F	F	M=F	M	F	M	M	M	M=F	
Men	-0.31	7.73	2.3	8.18	4.4	-1.13	0.05	0.03	2.84	
Men	-0.33	7.2	2.28	7.46	4.14	-1.12	0.01	0.01	3.02	

Table 21 - Monetary and Non-Monetary Indicators of Poverty (Percentage Change Over Base Value)

Cut in Government Expenditure with Intra Household Allocation of Resources												
Non monetary Indicators	Urban Households					Rural Households						Pakistan
	No Education	Low Education	Medium Education	High Education	Total	Employee Male	Female Headed	Self Employed	Other	Employer	Total	
Infant Mortality Rate for Females	0.48	0.13	0.32	0.15	0.35	0.5	0.33	0.46	0.46	0.23	0.46	0.42
Female Literacy Rate	-5.64	-0.15	-0.57	-0.02	-2.79	-21.61	-3.07	-7.54	-3.35	-0.67	-11.92	-8.05
Infant Mortality Rate of Male	0.48	0.13	0.32	0.15	0.31	0.5	0.33	0.46	0.46	0.23	0.39	0.25
Male Literacy Rate	-3.69	-0.04	-0.14	-0.01	-1.42	-5.99	-0.96	-2.02	-1.18	-0.17	-2.71	-2.10

Table 22-Simulation III-Improvement in Bargaining Power and Capability Development by Gender (Percentage Change Over Base Value)

Non Monetary Indicators of Poverty	Urban Households					Rural Households						Pakistan
	No Education	Low Education	Medium Education	High Education	Total	Employee	Female Headed	Self Employed	Other	Employer	Total	
Female Infant Mortality Rate	0.01	-0.27	-0.12	-0.3	-0.11	0.01	-0.15	0	-0.05	-0.17	-0.01	-0.05
Female Literacy Rate	0.09	1.26	0.33	0.1	0.19	0.1	2.07	0.36	0.58	0.9	0.36	0.29
Male Infant Mortality	0.13	-0.15	0	-0.18	-0.03	0.13	-0.05	0.12	0.08	-0.05	0.09	0.06
Male Literacy Rate	-1.15	0.17	0.01	0.02	-0.42	-1.77	0.25	-0.62	-0.22	0.08	-0.77	-0.60