One step forward, two steps back: Economic and poverty impact of trade policy reversals in the Philippines[a]

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Abstract

This paper analyzes the economy-wide impact of policy reversals in the Philippines. The simulation results suggests that the country may have given up significant gains from trade, in the form of welfare improvements and poverty reduction due to the indefinite postponement of the planned 5 percent uniform tariff rate. Nonetheless, this study finds two viable tariff reform alternatives that the government may pursue moving forward. Although the poverty reductions are slightly less in these simulations, the benefits through higher real GDP and export growth remain sizeable.

Keywords: International trade, poverty, computable general equilibrium, micro-simulation, Philippines

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1. Introduction

The Philippine trade reform program (TRP) which started in 1981 has been beset by policy reversals due to economic and political reasons particularly lobbying by interest groups (Aldaba 2005). The most significant series of lobby group influenced reversals occurred between 1998 to 2005 when: (a) the government increased the tariff rates of selected manufacturing and agriculture sectors; and (b) indefinitely postponed the planned 5 percent uniform tariff rate originally scheduled to be implemented by 2005.

The policy reversals were emphasized by no less than the president herself during a speech delivered before the Philippine Stock Exchange in 2003 where she announced the government's policy of slowing the pace of the tariff reduction in order to take full advantage of all exception windows allowed in the WTO—particularly for the petrochemical industry. This message imparts a great degree of policy uncertainty especially that the country's tariff overhang[1] in the WTO remains substantial[2]. Moreover, the message shows lobby groups' influence on the government thereby aggravating the public and business sector's perception on the credibility of sustaining the trade reforms.

This has become the subject of policy debates in the country. The series of reversals led to questions on the possible medium-term cost and consequences on the economy. Indeed, the literature on the political economy of trade reforms warns that lack of credibility offsets the efficiency gains from trade liberalization as it distorts consumption, savings, and investments (Calvo 1989; Rodrik 1992).

This paper analyzes the economy-wide impacts of the trade policy reversals in the Philippines. The country provides an interesting case for analysis because the recent reversal came at the heels of the rapid pace of tariff reduction undertaken between the early up to the late 1990s. We employ a numerical simulation analysis using a dynamic computable general (CGE) model calibrated to Philippine data. The results from the CGE simulations are applied recursively to the actual distribution of the most recent household survey to determine the poverty effects using a micro-simulation process following the method proposed by Vos (2005)[3].

Although numerous papers using CGE models have assessed the impact of trade reforms in the Philippines, none has so far analyzed the impact of indefinitely postponing the 5 percent uniform tariff rate. This paper attempts to fill this gap in order to aid the

current policy debate. We carefully designed 8 policy simulations—3 ex-post and 5 ex-ante—with a political economy perspective in mind. The former offers indication on whether the country may have missed the benefits from trade when it postponed the adoption of tariff uniformity. Whereas the latter set identifies how the government can best maximize the gains from trade between now and 2020. The discussion of the results is presented within the context of the macro-economic, sectoral and poverty impacts in order to analyze the impact of policy shifts on poor households.

The rest of the paper is organized as follows: The next section gives a background of the Philippine economy and the trade reform program. Section 3 provides a brief survey of the Political economy of trade reform focusing on credibility and uniform tariff rates. Section 4 presents the model while section 5 explains the simulation scenarios. Section 6 discusses the results of the simulation. Summary and insights drawn are laid down in section 7.

2. Background

2.1 Philippine Economy

Table 2.1 presents selected key indicators of the Philippine economy during the past one and a half decade. Real GDP grew marginally from 3 percent in 1990 to 5.4 percent in 2006 as a result of the growth in personal consumption expenditure. The national government budget deficit increased to 4 percent of GDP in 2000 after registering a surplus in 1995 because of declining tariff revenues and tax leakages. Exports and imports grew significantly by 1995 as a result of trade openness and a resilient economy but tapered off in the first half of the millennium, only to increase once again starting 2006. The unemployment rate declined significantly from 11.4 percent in 2005 to 7.3 percent in 2006 due to the expansion of the services sector as the country continues to attract massive investments in business process outsourcing[4].

Table 2.2 shows the contribution of major sectors. Total agricultural contribution to GDP has declined from 22 percent in 1990 to 20 percent in 2004. The share of the manufacturing sector declined as well, while the share of the services sector expanded from 42 in 1990 to almost 46 percent in 2004 owing to expansion in trading activities as

well as business process outsourcing. The contribution of palay production (unhusked rice) to the gross domestic product (GDP) is roughly 3.5 percent over the last 10 years, while the share of 'rice and corn milling', which is under the industrial sector, is about 1.3 percent.

The structure of households' expenditure show that 60 percent of expenditure of rural poor households is on food; about half is on cereals, consisting of rice and corn (Table 2.3). Almost similar structure is observed in the expenditure pattern of urban poor households. Figure 1 presents the evolution of the poverty-headcount index and the Gini coefficient from 1985 to 2000. The poverty-headcount index dropped continuously from 49 percent in 1985 to 33 percent in 1997 but then worsened to roughly 34 percent in 2000 as a result of the 1998 El Niño phenomenon and the Asian financial crisis. On the other hand, income inequality steadily increased over this period as the Gini coefficient worsened from 0.42 in 1985 to 0.48 in 2000.

2.2 Trade Reform Program

The first phase of the trade reform program (TRP-1) started in the early 1980s with three major components: tariff reductions, an import-liberalization program, and the complementary realignment of indirect taxes. The implementation of TRP-1 was suspended in the mid-1980s because of a BOP crisis, but was resumed in 1986.

In 1991, the government launched the TRP-2 to realign tariff rates over a five-year period. The program was aimed at clustering tariff rates within the 10-30 percent range by 1995. In 1992, a program to convert quantitative restrictions (QRs) into tariff equivalents was initiated. In 1994, the Philippines became part of the World Trade Organization (WTO), and thereby committed to gradually removing QRs on sensitive agricultural product imports (products identified by the government as politically sensitive in nature), with the exception of rice, by switching towards tariff measures.

In 1995, the TRP-3 was implemented with the aim of adopting a uniform five percent tariff rate by 2005 with the exception of sensitive products. In 1996, the government implemented a tariff-quota system for sensitive agricultural products. The minimum-access-volume (MAV) provision was instituted in which a relatively low tariff rate was imposed upon imported sensitive agricultural products up to a minimum import

level (in-quota tariff rate), while a higher tariff rate was levied beyond the minimum import level (out-quota tariff rate).

In 1998, the TRP-4 was undertaken to recalibrate the tariff-rate schedules implemented under the previous TRPs. In 2003, the tariff rates on selected agricultural and manufactured products were increased[5]. This resulted from a tariff-review process that evaluated the pace of tariff reduction in line with the competitiveness of the local industry and to raise additional government revenues. With this, the planned uniform tariff rate was indefinitely postponed. Overall, the various rounds of TRPs were beset by policy reversals due to economic and political reasons, particularly lobbying by interested groups (Aldaba 2005).

Table 2.4 summarizes the structure of nominal tariff protection from 1990 to 2005. The economy-wide average tariff rate fell from 33.33 percent in 1990 to 6.82 percent in 2005, with the highest reduction in tariff rate experienced by the mining and quarrying sector at 91 percent, followed by the manufacturing sector with 80 percent. The pace of tariff reduction is faster in both mining and the manufacturing sector as a result of the relative protection afforded by the government towards agriculture. Notably, Table 2.4 shows that the policy reversals initiated under the TRP-4 resulted in a marginal increase in tariff rates for all sectors except mining and quarrying.

An analysis of tariff peaks and the coefficients of variation[6] by Aldaba (2005) revealed that the tariff structure is heavily distorted. The tariff legislations enacted between 1998 and 2005 (including policy reversals) increased not only the tariff lines but more importantly, the percentage of tariff peaks and coefficients of variation. From 1988 to 2005, overall tariff peaks increased from 2.24 to 2.71 percent while the overall coefficient of variation increased from 0.44 to 1.07 percent.

The implementation of the various rounds of TRPs also resulted in dramatic changes in the government's revenue structure (Table 2.5). In 1990, tariff revenue accounted for 30 percent of total government revenue. This dropped to 20 percent in 2004. However, the tariff recalibration process minimally increased the share of tariff revenue from 18.3 percent in 1998 to 19.5 percent in 2002 and 20.5 percent in 2004. The revenue share of taxes on goods and services declined from 33.5 to 28 percent, while the share of income taxes rose from 32.5 to 46.5 percent suggesting that the foregone tariff

revenues as a result of tariff reductions have been compensated by an increase in income taxes imposed on households.

3. Political Economy of Trade Reform

3.1 Policy Uncertainty and Credibility

International trade theory suggests that trade liberalization brings about resource reallocation and productivity enhancements. In turn, this stimulates economic activity and results in welfare improvements in the long run. However, three decades have past since the onset of trade reforms in most developing countries and it appears that the benefits from trade liberalization fell short of what was initially expected. As a result, trade critics were rejoicing whereas developing countries have been found wanting.

So when will developing countries reap the full benefits of trade liberalization? Has the development strategy of adopting a more liberal trade regime backfired? Rodrik (1992) argues that the answer to these questions lie within the broader domain of political economy. That is, lack of credibility in sustaining trade reforms can partly be blamed to the little gains that have been achieved so far. Credibility problems have hounded developing countries since the 1980s. The adoption of trade reforms[7] in the presence of macro-economic instability which led to balance of payments (BOP) problems that halted liberalization commitments. At present, developing country governments frequently succumb to pressures from industry lobby groups, making the sustainability of trade reforms subject to greater uncertainty and questionable credibility.

Calvo (1989) warns that lack of credibility distorts the inter-temporal relative prices as economic agents base their decisions on prices which are different from those when the reform is not carried out. He posits that this distortion creates a second best environment with all the second best complications resulting in over-all losses in welfare. Rodrik (1989a) supports this view suggesting that lack of credibility is tantamount to an unsuccessful trade reform as consumers tend to increase their current consumption, reduce their current savings and over-borrow from abroad resulting in a large current account deficit. He warns that investment falls as a result of imperfect credibility—this arises from the inter-temporal distortion caused by anticipation of future tariffs. The fall

in investment, apart from the reduction in savings is also due to a high probability of capital flight which dampens real investment until the credibility doubts disappear (Van Wijnbergen 1985). Hence, domestic real investment performance in the presence of capital flight is poorer whenever reforms are only partially credible (Bassanini 2006).

Moreover, lack of credibility can interact with capital irreversibilities[8] which produce a hefty tax on investment (Rodrik 1992). Thus, the private sector will tend to withhold their investment until the uncertainty of the reform is eliminated (Rodrik 1991). Serven and Solimano (1993) in an analysis of investment response among developing countries between the 1980s to the early 1990s conclude that policy credibility and macro stability are key ingredients to investment response.

How can trade reform be sustained? How can the distortions caused by policy uncertainty be lessened or if not eliminated? Obviously, all authors cited in this section point to one thing—Credibility. Rodrik (1992) advices that governments must not only build reputation but must also find mechanisms to commitments. It must convince its citizens especially the business sector that the reforms will be sustained. If this is undertaken, firms' incentive to invest will no longer be distorted thereby resulting in efficiency gains for the economy. In contrast, allowing even a small uncertainty may be too high a price even for a sensible reform as it sends a wrong signal that the government does not fully commit to the reform process (Rodrik 1989b).

However, developing country governments may find reputation building and sustaining commitment to reforms difficult. Rodrik (1992) suggests that the best way to stick to reform commitments and to withstand pressures exerted by lobby groups is to undertake uniform tariff rates, where it would be easier to say "no since that would imply deviating from the norm of uniformity"

3.2 Uniform Tariff Rate

The case for uniform tariff rates (UTR) has been gaining considerable interest from both economists and developing country policy makers alike. This is because UTR not only offers administrative simplicity but also act as the best instrument to honor trade reform commitments and establishing credibility. The case for UTR was proposed by Corden (1958; 1968) for Australia; Macario (1964) for Latin America; Balassa (1989)

and Harberger (1990) for developing countries based on two perspectives. First, it equalizes the effective rates of protection thereby minimizing the efficiency cost of protection[9]. Second, it provides administrative convenience and transparency, especially in "combating special interest or lobby groups" (Harberger 1990).

However, Panagariya (1996) notes that to some extent, both policy and academic economists are divided on the issue—the former frustrated by complexities of trade regimes in developing countries, advocates the use of uniform tariff as a tool to minimize distortions; while the latter working within the confines of optimal tariff and tax literature rarely considers uniform tariffs as a viable option. Nonetheless, he suggests that a strong case for the adoption of UTR exists whenever government tariff decisions are influenced by either lobbying pressures or towards favoring certain sectors.

Panagariya and Rodrik (1993), explain that UTR is preferred relative to a highly differentiated tariff structure whenever the tariff rates are endogenous, i.e., whenever government decisions are likely to bend over lobby group demands or whenever the government favors certain groups. Thus, under these conditions, UTR increases efficiency by reducing the "social cost of rent dissipation associated with the use of resources for lobbying" (Panagariya and Rodrik 1993). Moreover, Uniform tariffs can serve as a powerful instrument that turns lobbying from a private to a public good, giving rise to a free rider problem for most industries (Panagariya 1996). This is because under UTR, all sectors have the same tariff rates which turn tariffs into a public good. Each sector's lobby resources fall since it would be more optimal to free ride on the most active lobbyer. Thus, resources devoted to lobbying are reduced with lobbying activity contained resulting in less socially wasteful activity. At the same time, efficiency gains from trade reforms can be realized as policy uncertainty and lack of credibility in sustaining the reforms is lessened if not eliminated. Indeed, Harrison, Rutherford and Tarr (1993) finds that applying uniform tariff rates in Turkey provides more that two thirds of the economic gains.

Tarr (2000) provides a practical guide on the design of tariff policy and outlines that the adoption of uniform tariffs in the economy is most conducive for political economy considerations. It not only discourages rent seeking activities and corruption per se but also reduces lobbying efforts thereby giving firms and industries a signal on the

government's sincerity towards trade liberalization. On the other hand, a highly differentiated tariff rate schedule designed to favor a selected few—firms or industries—hurt consumers as they pay higher commodity prices due to a higher tariff. Finally, he argues that the gains in terms of administrative convenience are enhanced due to greater transparency with lesser incentive to classify goods; simplicity in customs procedures which can lessen the administrative cost of trading; and reduces smuggling which are caused by outlier products which have high tariff rates.

4. The CGE Model

4.1 Model Specification

The CGE model constructed is recursive-dynamic[10] . In particular, it is specified in a two-stage dynamic formulation. In the first stage, it is solved like a static model where all markets are cleared. In the second stage, the dynamic adjustment of certain variables whose values are fixed in the first stage is explicitly modeled. For purposes of the paper the model is solved sequentially from 2000 to 2020 to generate a baseline which is compared to the various simulation experiments conducted in the paper.

The model is calibrated to the 2000 Social Accounting Matrix (SAM). The model has 41 production sectors[11], 2 labor types (skilled[12] and unskilled labor), capital, and land. The household sector is grouped in decile. There is a government sector, firm, and rest of the world.

The basic relationships in the model are presented in Figure 2. Output (X) is a composite of value added (VA) and intermediate input. Output is sold either to the domestic market (D) or to the export market (E) or both. The model allows for some degree of substitution between E and D through a constant elasticity of transformation (CET) function. The substitution depends upon changes in relative prices of E and D and on the substitution parameter. Supply comes from two sources: domestic output sold to the domestic market and imports (M). The model also allows for some degree of substitution between D and M through a CES function. Similarly, the substitution depends upon changes in relative prices of D and M and on the substitution parameter.

Figure 3 gives the basic relationships in the determination of output. Output is a composite of intermediate input and value added using fixed coefficients. Value added is

a CES function of skilled labor, unskilled labor, and capital. In agriculture, land is one of the factor inputs, while there is no land input in non-agriculture.

Sectoral output has a fixed coefficient with intermediate input (CI) and value added (VA). Value added in agriculture is a CES function of skilled labor, unskilled labor, capital, and land. Value added in non-agriculture is also a CES function of the same factors except land. Capital is fixed in all sectors, but is be updated in the next period using a capital accumulation function discussed below.

The consumption function is specified as a linear expenditure system (LES). Sectoral output is a CET function of exports and domestic demand. The supply of exports is a function of the relative price of exports and local price[13]. Export demand is is a function of the world price of exports, and the FOB export price. The model defines a sectoral composite good, using a CES function of imports (M) and domestic demand. The demand for imports is a function of the relative price involving the domestic price[14] and the import price. The current account balance is the residual between the outflow and inflow of foreign exchange. The outflow includes import payments, dividend payments to foreigners, capital payments to foreigners, and foreign debt-service payments, while the inflow includes export receipts, household foreign remittances, and foreign grants to the government.

Import price in domestic currency. It is determined by the world price of imports, exchange rate, tariff rate, and indirect tax. Export price is a function of the world price of exports and the exchange rate.

The price of output is the weighted price of local price and export price. The difference between the domestic price and the local price is the indirect tax, itxr. We define a general price variable called Pindex, which is the weighted sectoral value added price.

The supply of labor types is fixed but is updated in the next period. The total savings, which is composed of household savings, firm savings, government savings, and foreign savings, is equal to total investment.

The model is closed with total savings equal to investment. Furthermore, we assume foreign savings, as fixed in the current period, but updated in the next period. The nominal exchange rate, er, is the numeraire. The foreign trade sector is effectively cleared

by changes in the real exchange rate[15]. Government savings is endogenous. Its total income, is also endogenous. Total government consumption, is also endogenous. However, we fix output of non-tradable, which is the government. The other sources of savings are all endogenous.

In each period, the capital stock, K, is updated using the following equation.

$K_{t+1} = (1\text{-}dep)K_t + Ind_t$

where dep is depreciate rate. Investment demand follows the specification of Bourguignon et al. (1989) and Jung and Thorbecke (2003), which is given by

$$\frac{Ind_t}{K_t} = \lambda\left(\frac{r_t}{u_t}\right)^2$$

This specification states that capital accumulation rate (the ratio of investment demand, IND, to capital stock, K) is increasing function of the ratio of the rate of return to capital, r, and its user cost, u. The user cost of capital is

$$u_t = Pinv_t \cdot (ir + dep)$$

where $Pinv_t$ is the investment price, and ir the real interest rate.

4.2 Micro-simulation Process

There have been numerous attempts to adapt CGE models to the analysis of income distribution and poverty issues. The simplest approach is to increase the number of categories of households in the model and examine how different types of households (rural vs. urban, landholders vs. sharecroppers, region A vs. region B, etc.) are affected by a given shock. A popular approach is to assume a lognormal distribution of income within each category where the variance is estimated with the base year data (De Janvry, Sadoulet, and Fargeix, 1991). In this approach, the change in income of the representative household in the CGE model is used to estimate the change in the average income for each household category, while the variance of this income is assumed fixed. Decaluwé et al (2000) argue that a beta distribution is preferable to other distributions such as the lognormal because it can be skewed left or right and thus may better represent the types of intra-category income distributions commonly observed. Cockburn et al. (2004) use the actual incomes from a household survey, rather than assume any given functional

form, and apply the change in income of the representative household in the CGE model to each individual household in that category.

One of the concerns on this method is that it generates information only on representative (or average) households. There is increasing evidence that households within a given category may be affected quite differently according to their asset profiles, location, household composition, education, etc. Although this problem of intra-category variation may decrease with greater disaggregation of household categories, for example in the work of Piggott and Whalley (1985) where over 100 household categories were considered, one still has to impose strong assumptions concerning the distribution of income among households within each category in order to conduct the conventional poverty and income distribution analysis.

An alternative approach is to model each household individually. As demonstrated by Cockburn (2006) and by Cororaton and Cockburn (2007), this poses no particular technical difficulties because it involves constructing a standard CGE model with as many household categories as there are households in the household survey providing the base data. Decaluwé, Dumont and Savard (1999) present an integrated CGE micro-simulation model, in which 150 households are directly modeled within a CGE model, using fictional data from an archetypal developing country. They construct the model to allow comparisons with the earlier approaches with multiple household categories and fixed intra-category income distributions. They show that intra-category variations are important, at least in this fictional context.

Some authors – e.g. Savard (2004) – have applied price variations generated by a standard CGE model to this type of micro-simulation model. Savard (2004) has taken this approach further by creating a loop between a CGE model and a micro-simulation model in order to ensure that their results are coherent. This approach has the advantage of easily incorporating quite sophisticated specifications, including regime-switching, within the micro-simulation model.

In these procedures, labor income of households is based on its original income structure. That is, if the household does not earn labor income initially because of unemployment, it will continue to have zero income even after the policy shock. On the other hand, if it is originally employed, it will continue to receive labor income even if

the sector where it is employed has reduced employment after the policy shock. Thus, households do not have the opportunity to change employment status.

The process adopted in this paper addresses this concern. Although it still uses the results of the representative households, it allows for a change in employment status after the policy shock. The change in employment status would depend upon the sectoral employment ratios derived from the CGE results. The micro-simulation process used in the paper is based from Cororaton and Corong (2007), which is a modified version of the one proposed by Vos (2005).

Let total income of household n in decile group h be given as

$$YT_{n,h} = YL_{n,h} + YK_{n,h} + YO_{n,h}$$

where $YL_{n,h}$ is labor income, $YK_{n,h}$ capital income, and $YO_{n,h}$ other income. The CGE model generates average changes in YL, YK, YO and the weighted consumer price for each group h[16]. We apply these results to all individual households in each of the groups to arrive at a new column of household income and nominal poverty line. The poverty line is altered by the change in the consumer price index. However, we modify YL using the employment ratios generated from the CGE model. That is, we apply the following the ratio to change the employment status of household in the survey

$$\frac{emp^{s}_{i,l}}{emp^{b}_{i,l}}$$

where emp is employment, s is simulated, b is base, i is major sector (agriculture or non-agriculture), l is labor type (skilled or unskilled). If the ratio is greater than 1, then there is improvement in employment in the sector. This will increase the variable **u*.** In this case, the inequality $\mathbf{r_{ij} \leq u^*}$ will change to capture higher employment. $\mathbf{r_{ij}}$ is a ratio of weights. The microsimulation process will assign labor income to those who were previously unemployed but have become employed because they are now within the new $\mathbf{r_{ij} \leq u^*}$. In the microsimulation process, a random number from a normal distribution is assigned to those who are employed. The process is repeated a number of times (30 times), and in each iteration FGT poverty indices[17] and Gini coefficient[18] are computed. In 30 iterations, 30 estimates of poverty and inequality indices are generated. 95 percent confidence interval is computed to see whether the estimates are statistically significant. The same microsimulation process is used and repeated in the case of a ratio which is less than 1.

5. Definition of Scenarios

The analysis compares eight simulation results, which are defined below and compared with the baseline. We derive a baseline that would approximate a "steady state" growth path from 2000 to 2020. Since the model is homogenous, the model is calibrated so that all variables grow at the same rate while all prices remain the same in the "steady state" baseline growth path.

We use the actual sectoral tariff rates for 2000 and 2005. For in-between years, we interpolate the sectoral tariff rates using straight line. The first three simulations provide an ex-post scenario while the rest are designed as ex-ante scenarios in order to evaluate alternative tariff reduction strategies that the government can undertake starting 2007.

SIM – 1: Uniform 5 percent tariff rate for non-sensitive products by 2005 and for all products by 2015. Tariff reduction is undertaken in two steps. First, all non-sensitive products adjust their tariff starting the year 2001 to achieve a 5 percent tariff rate by 2005. This entails a decrease (increase) in tariffs for sectors with tariffs above (below) 5 percent in the year 2000. Sensitive products retain their 2000 tariff level until 2005 but tariffs falls gradually to reach a 5 percent tariff rate by 2015. All changes in tariff is undertaken in a straight line manner.

SIM – 2: Uniform tariff rate for non-sensitive products by 2005 with sensitive products retaining their 2000 tariffs until 2004, but imposes out-quota tariffs starting 2005 until 2020.

SIM – 3: Reduction in tariff rates of all sectors with more than 5 percent in 2005, including the sensitive products, gradually (using straight line) so that by 2015 all have 5 percent rates. Sectors with tariffs below 5 percent in 2005 retain their tariffs until 2020.

SIM – 4: Retain 2006 tariffs until 2009 but gradual tariff Reduction for all starting 2010 to achieve 5 percent by 2015, with the exception of sensitive products which retain their 2006 tariffs until 2020.

SIM – 5: This is a variation of SIM – 4 wherein all 2006 tariffs—both sensitive and non-sensitive products—are retained until 2011, but falls gradually starting 2012 to achieve a 5 percent tariff by 2020.

SIM – 6: Gradual Tariff Reduction for all Starting 2007 to achieve a uniform tariff rate for all products starting 2015. This entails a decrease (increase) in tariffs for all sectors with tariffs above (below) 5 percent in the year 2007.

SIM – 7: This is a variation of SIM – 6, where all sectors with tariffs above 5 percent in 2006 reduce their tariff gradually starting 2007 to achieve a 5 percent tariff rate by 2015. All sectors with tariff rates below 5 percent in 2006 are reduced to attain a zero percent tariff by 2020.

SIM – 8: This is a variation of SIM – 7, and entails a faster liberalization for sectors with tariffs below 5 percent in 2006 to achieve a zero percent tariff by 2015. All sectors with tariffs above 5 percent in 2006 reduce their tariff gradually starting 2007 to achieve a 5 percent tariff rate by 2015.

6. Simulation Results[19]

6.1 Ex-post Scenarios

To facilitate the analysis, we take the percentage difference of each of the 8 simulations from the baseline from 2000 to 2020. We then sum up these yearly differences to get the accumulated percentage difference for the whole period. Table 6.1 provides a summary of all eight simulations. We will initially focus on the ex-post scenario SIM – 1 to analyze what could've happened had the government implemented the planned uniform tariff rate by 2005, and compare this with SIM – 2 and 3 which is an alternative to SIM – 1 (i.e, the adoption of uniform tariff rates by 2005).

The initial impact of a change in tariff is through the import prices. The drop in import prices is highest under SIM – 1 with 1.45 percent. The fall in import prices under SIM – 3 (1.3 percent) is not significantly different relative to SIM – 1. As expected, the fall in import prices is lowest in SIM – 2 with 0.73 percent as this scenario sensibly depicts government protection and responsiveness towards lobby groups, i.e., towards selected sectors producing politically sensitive products.

Composite prices decline the most in SIM – 1 with 0.76 percent with consumer prices falling by 1.14 percent as the rapid reduction in tariffs reduce the distortions in consumer goods due to the imposition of high tariffs rates. The fall in composite prices

and consumer prices is somewhat less in magnitude for SIM – 3 compared to SIM – 1. Once again, it is not surprising that the fall in SIM – 2 is the lowest due to a less liberalized environment.

Domestic prices under SIM – 1 and SIM – 3 decline by 0.49 and 0.39 percent respectively, but increases marginally by 0.05 percent for SIM – 2 due to the impact of increasing protection afforded to sensitive products. Imports increases for the three simulations as the higher change in import prices relative to domestic goods favor imported products.

Table 6.3, 6.4 and 6.5 presents the major sectoral results for SIM – 1, 2 and 3 respectively. For SIM – 1 and 3, the highest increase in import is in food manufacturing (24.23 and 24.1 percent respectively) since a more liberalized environment allows for cheaper food related intermediate inputs available for the sector relative to the base. In contrast, the highest import growth under SIM – 2 is in non-crops with 14.72 percent, with food manufacturing import registering a lower (3.9 percent) growth. In food manufacturing the major items include rice and corn milling, meat processing, and sugar milling. The large difference in the change in food manufacturing imports between SIM – 1 and 3 relative to SIM – 2 can be traced to the change in the import prices. This is because the imposition of out-quota tariff rates among sensitive products reduces the food manufacturing sectors access to cheaper imports.

The increase in non-crop imports which includes livestock and poultry is also significant with 23.26, 14.72, and 14.9 for SIM – 1, 2 and 3 respectively. In general, consumer prices fall (table 6.1) due to the reduction in import prices of food and other food related items.

On the other hand, the changes in exports are traceable to the changes in local prices. The largest reduction in local prices is in SIM – 1 with 0.79 percent followed by SIM – 3 and SIM – 2 with 0.77 and 0.19 percent respectively. The reduction in local prices results in: (a) increased competitiveness of exports in the international market as Philippine made goods become relatively cheaper; and (b) a real exchange rate depreciation. Indeed, these two factors increase exports particularly for SIM – 1 and 3 (3.14 and 2.90 percent respectively). The increase in exports is higher for these two

simulations compared to SIM – 2 owing to higher reduction in local prices and the real exchange rate depreciation.

Notably, the food manufacturing sectors' exports decline in SIM – 2. This is due to higher tariff rates imposed among sensitive agricultural and agro-industrial products, which is a vital input of the food manufacturing sector. Indeed, the higher tariff rates translate to a slight increase of 0.01 percent in export prices for the food manufacturing sector in SIM – 2. Nonetheless, the positive increase of overall exports in the three simulations is due to the relatively higher export growth in the non-food manufacturing sector which includes semi-conductors and textiles among others.

The three simulation results show that the output of the agricultural sector falls, but increases for industry (except SIM – 3) and services, with the latter increasing more. This is not surprising since agriculture, apart from being the most protected sector is the least competitive sector in the country. SIM – 1 and 3 registers the largest reduction in agricultural output while SIM – 2 shows the lowest reduction due to increased protection afforded to the sector's sensitive products. The reduction in agricultural output in SIM – 2 show that additional protection to the sector does not even translate to output gains due to its relative un-competitiveness. SIM – 1 registers the highest drop in sectoral agricultural output, especially. This is observable in SIM – 2 and 3 as well, though lesser in magnitude.

The increase in industrial output is mainly due to the expansion of the non-food manufacturing sector primarily due to its strong export growth (Table 6.2, 6.3, 6.4). The industrial output for SIM – 3 decreases owing to a stronger output contraction in other industry compared to SIM – 1 and 2. Output of the food manufacturing sector also declines across the three scenarios due to higher imports, with SIM – 1 and 3 showing almost the same changes but comparatively higher than SIM – 2.

The impact on factor prices and sectoral movement of labor can be traced to the inter-sectoral results. In Table 6.1, changes in nominal factor prices are all negative. This is due to the decline in the general price level as a result of the reduction in tariff rates. However, the size of the change varies significantly across simulations. SIM – 1 has the highest negative impact on agriculture and food manufacturing, which is also closely linked to agriculture. Thus, the average return to land drops by 5.55 percent compared to

4.72 and 1.98 percent in SIM – 3 and 2. The average wage of unskilled labor, which is used intensively in agriculture drops owing to the reduction in the sectors output. Average unskilled wage drops by 1.5 and 1.26 percent in SIM – 1 and 3, with return to capital falling by 0.95 and 0.67 percent for the two simulations respectively. On the other hand, the fall in average return to land, unskilled labor and return to capital is lower under SIM – 2 with 1.98. 0.50, and 0.57 respectively as a result of higher protection afforded to sensitive agricultural products[20].

The inter-sectoral results and their impact on factor prices are the forces that drive the movement of labor across sectors. Table 6.11 presents the changes in employment shares across sectors under various simulations. In SIM – 1 and 3, the share of skilled labor employed in agriculture drops by 0.97 and 0.89 percent respectively, whereas, its share in non-agriculture improves by 0.03 and 0.028 percent for both simulations respectively. Similarly, in SIM – 1 and 3, the employment share of unskilled labor in agriculture drops by 0.78 and 0.691 percent respectively, while, it improves in non-agriculture with 0.186 and 0.165 percent for both simulations respectively. Thus, this suggests a labor resource reallocation from agriculture towards non-agricultural sectors especially non-food manufacturing and services sectors. The results for SIM – 2 follow the same pattern but lesser in magnitude.

The impact on factor prices and the changes in sectoral employment affect household income. Table 6.2 shows the impact on household income across decile groups. This table also presents three sets of results that show the effects on household income: changes in nominal income; changes in the consumption weighted consumer price index; and changes in real income.

Across the three simulations, the nominal income effect for all household groups is negative. This is due to the negative change in nominal factor prices discussed above. Households experience a higher reduction in nominal income in SIM – 1 followed by SIM – 3 and 2, though the changes in the latter are comparatively less with respect to the former. Moreover, the reduction in nominal income is higher for lower income groups when compared with the higher income groups due to the higher decline in nominal returns to land and in the average nominal wage of unskilled labor which these groups depend on (Table A3).

However, the impact on the consumption weighted consumer price is higher among lower income relative to higher income groups for SIM – 1 and 3. This is because the prices of food and food related products fall under both scenarios. This is not the case under SIM – 2 due to increased protection afforded to sensitive products which creates additional consumer price distortions which greatly affect the poor. Since these items have significant shares in the consumption basket (Table A2) of lower income groups than of higher income groups, the impact on the consumer price is relatively higher in the former than in the latter.

The impact on consumer price across households is important in assessing the impact on households. The results in Table 6.1 show similar results for SIM – 1 and 3 but, a different one for SIM – 2. Let us first focus on SIM – 1 and 3. These two simulations indicate that that the real income effect for the lower income groups is higher relative to higher income groups as the former benefited from a higher reduction in weighted consumer prices, in spite of the reduction in their nominal income[21]. Thus for SIM – 1 and 3, the real income improves by 0.42 and 0.37 percent respectively for the first decile. In contrast, all household groups under SIM – 2 experiences declining real income—once again due to higher tariffs on sensitive products. The lowest income decile experiences the largest drop in real income with 0.27 percent. This is because group experiences an increase in weighted consumer prices as well as a reduction in nominal income. The reduction in real income declines as we move up to higher income brackets, though still negative for all household groups.

Given all these changes and effects, overall welfare under SIM – 1 and 3 improves by 0.15 and 0.23 percent respectively. The higher increase in welfare in SIM 3, is due to the gradual tariff reduction allowing consumers more time to adjust relative to a uniform 5 percent by 2005 for SIM – 1. Nonetheless, both scenarios are welfare improving. On the other hand, welfare declines by 0.31 percent under SIM – 2, where additional protection for sensitive products is aggressively pursued.

What are the effects on poverty? We utilize the CGE simulation results in our microsimulation process. Table 6.2 shows that the overall poverty headcount index in the country in 2000 is 33.95 percent. The poverty incidence varies significantly across different groups. The poverty incidence of the first decile is 86 percent. The poverty

incidence is above 50 percent for the first 4 income brackets. The poverty incidence ratio drops significantly as we move to higher income brackets. There are practically no poverty problems in the 8th and the 9th decile groups. There is zero poverty incidence in the 10th decile group.

Overall poverty headcount declines by -0.48 and 0.43 percent[22] under SIM – 1 and 3. The reduction in the poverty gap and poverty severity ratios is even higher implying favorable conditions among the poorest of the poor. All household groups experience a reduction in poverty incidence with the higher intensity of reduction in among households belonging to the 5th decile. In contrast, all poverty indices increase under SIM – 2 with overall poverty headcount increasing by 0.30 percent. The increase in the poverty gap and poverty severity is even higher implying that the poorest of the poor become even poorer. Thus, all household experience a worsening poverty situation.

The results indicate that non-selective tariff reduction, SIM – 1 and 3, instead of favoring any group and providing additional protection to sensitive agricultural and agro-industrial products appears to be a better option in terms of real GDP, Exports, welfare and poverty reduction. This is because a non-selective tariff reduction, reduces the distortionary impacts of tariff on consumption. This is evident especially on prices of food and food-related items which dominate the consumption basket of lower income groups. Thus, overall household welfare improves while poverty indices fall. In contrast, aggressively pursuing additional protection on sensitive products results in a reduction in households' welfare, real income, less reduction in consumer prices and worsening poverty situation.

6.2 Ex-ante Scenarios

The results presented in the preceding section suggest that the Philippines may have missed some benefits from trade liberalization due to policy reversals. Are there options that could provide the maximum benefit given what has been learned so far? Fortunately, the answer is yes. The results of 5 additional ex-ante scenarios are shown in table 6.1 where various alternatives are shown to identify how the government can best maximize the gains from trade liberalization between now and 2020.

SIM – 4 and SIM – 5 which allows a 3 and 5 year tariff freeze based on 2007 tariff level respectively is the least viable alternative. The argument that domestic producers need additional time to enhance their competitiveness and must be protected for extended period comes at the expense of a lower real GDP growth, reduction in welfare, and worsening poverty situation (for SIM – 4 only) . Indeed, poverty indices for the lower household groups worsen under SIM – 4. On the other hand, although poverty indices fall slightly in SIM – 5, the amount of reduction is less when compared to those achieved in SIM – 6, 7 and 8.

We will now focus on the results generated from SIM – 7 and 8 which are the most viable option relative to SIM – 6 which provides similar results but smaller in magnitude. Note that the analysis presented here focuses solely on the significant results gleaned from SIM – 7 and 8 since the mechanisms driving the model are the same and that the analytical pattern of explaining the results has been extensively carried out in the preceding section.

The macro-economic impacts show that import prices fall more for SIM – 8 with 3.09 percent as oppose to 2.82 percent fall in SIM – 7 as the zero tariff rate for some sectors is achieved earlier. Thus, imports increase more for SIM – 8, thereby allowing prices (composite, consumer, domestic, local, and domestic prices of exports) to fall more. The higher decline in local prices and the real exchange rate depreciation makes exports competitive in the international market. Thus, the higher increase in exports for SIM – 8 (with 5.02 relative to 4.82 percent for SIM –7) allows more room for the real GDP to expand.

The nominal factor price effects paint the same story with SIM – 8 generating lower reduction in factor prices relative to SIM – 7. Moreover, SIM – 8 allowed a slightly higher resource reallocation effect as laborers, both skilled and unskilled were able to move from agriculture towards industry and services (table 6.11). The inter-sectoral results (Table 6.9 and 6.10) show the same pattern with non-food manufacturing registering a 1.45 percent increase in output for SIM – 8 compared to the 1.43 increase in SIM – 7. The growth in industrial output is the same for both simulations, although the reduction in agricultural output is higher in SIM – 8. Nevertheless, the expansion in

services output for SIM – 8 is slightly higher with 0.39 compared to 0.37 percent for SIM – 7.

The changes in nominal income effects are lower for SIM – 8 although the reduction in household weighted consumer prices is higher for SIM – 7 (Table 6.2). The changes in real income are almost the same with the exception of a slightly higher increase in real income for the first decile under SIM – 7. This is the same case for the reduction in poverty indices as both simulations achieve a 0.43, 0.73 and 0.93 percent reduction in over-all poverty headcount, poverty gap and severity of poverty respectively. The results are almost identical with the household belonging to the 5^{th} decile generating the highest reduction.

In summary, it appears that both SIM – 7 and 8 provides a viable option for the Philippines to undertake. The results show that the magnitude of the results is not significantly different for both scenarios with SIM – 8 registering a slightly higher increase in real GDP as a result of higher exports. The reduction in nominal income is lower in SIM – 8, but the fall in weighted household consumer prices is higher in SIM – 7. Nevertheless, the changes in poverty indices are almost identical for both simulations.

7. Summary and Insights

The discussion on trade reform program of the Philippines showed that the fast paced tariff reduction initiated between the early and late 1990s started to lost steam. The culprit is the government itself as it struggled and failed to sustain the reforms by bending over to the demands of lobby groups and due to fiscal considerations. Thus, the government's credibility in sustaining the reform suffered tremendously.

The literature on political economy of trade reform posits that lack of credibility can be very costly. It suggests that governments must enhance their credibility and must inhibit themselves from succumbing to pressures from interest groups. An optimal way to achieve these objectives is through the adoption of a uniform tariff rate. This is because a uniform tariff rate—aside from providing administrative simplicity and efficiency—makes tariff a public good, thereby creating a free rider problem that reduces wasteful lobbying activities. Moreover, uniform tariff rates makes it easier for governments not to give in to lobbying pressures as giving in would mean deviating from the norm.

Eight policy simulations—3 ex-post and 5 ex-ante—were carried out in this paper. The ex-post scenarios offered an indication on whether the country may have missed the benefits from trade when it postponed the adoption of tariff uniformity. Whereas the ex-ante scenarios identified how the government can best maximize the gains from trade between now and 2020.

The first policy simulation, SIM – 1, showed the impact of adopting a uniform tariff rate by 2005 as originally planned by the government. The simulation results suggest that the country could have gained from trade in terms of exports and real GDP growth, welfare improvements and poverty reduction. On the other hand, the scenario of adopting a selective tariff reduction scheme where sensitive products are imposed out-quota tariff rates show (SIM – 2) a reduction in welfare coupled with an increase in poverty indices. The economy-wide impact of SIM – 3, which is an alternative gradual tariff reduction scenario (to attain a maximum tariff rate of 5 percent by 2015 instead of 2005) is identical to SIM – 1 although smaller in magnitude.

Among the ex-ante simulations, we find that a gradual tariff reduction policy starting 2007 to achieve a 5 percent maximum tariff rate by 2015 (Sim – 7 and 8), provides the best alternative in terms of real GDP and exports growth as well as reduction in poverty indices.

In conclusion, the simulation results suggests that the country may have given up significant gains from trade, in the form of welfare improvements and poverty reduction due to the indefinite postponement of the planned 5 percent uniform tariff rate. However, abandoning the trade reform process will only make the country wanting, as indeed this study finds that there are two viable reform alternatives that the government may pursue moving forward. Although the poverty reductions are slightly less, the benefits through higher real GDP and export growth remains sizeable.

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TABLES

Section 2: Tables

Table 2.1: Key Economic Indicators

Indicator	1990	1995	2000	2005	2006 /p
Real GDP Growth, Percent	3	4.7	6	5	5.4
National Government Deficit, as a % of GDP	-3.5	0.6	-4	-2.7	-1
Inflation Rate, Percent	12.7	6.8	4	7.6	6.2
Current Account Balance, as % of GDP	-	-	-2.9	2	3.2
Export Growth, in Percent	3.5	29.4	8.7	4	15.3
Import Growth, in Percent	16.6	23.7	12.2	7.7	9.7
Exchange Rates, PhP/US$	24.3	25.7	44.2	55.1	51.3
Unemployment Rate, Percent	8.1	9.5	11.2	11.4	7.3

Source: National Statistical Coordination Board.

/p: Preliminary

Table 2.2: Gross Domestic Product (%)

	1990	1995	2000	2004
1. Agriculture, Fishery, Forestry	22.3	21.55	19.78	20.16
a. Agriculture	17.02	17.03	15.83	16.1
Palay	3.45	3.51	3.41	3.5
Corn	1.52	1.23	1.1	1.09
Coconut including copra	0.98	0.92	0.74	0.73
Sugarcane	0.51	0.49	0.48	0.49
Banana	0.37	0.35	0.46	0.47
Other crops	5.08	5.12	4.15	4.16
Livestock	2.34	2.47	2.54	2.57
Poultry	1.69	2	2.12	2.25
Agricultural activities & services	1.07	0.93	0.82	0.85
B. Fishery	4.27	4.29	3.81	3.96
C. Forestry	1.02	0.22	0.14	0.1
2. Industry Sector	35.46	35.38	35.46	33.99
Rice and Corn Milling /a/				
3. Service Sector	42.24	43.07	44.76	45.85
Gross Domestic Product	100	100	100	100

Source: National Statistical Coordination Board.

/a/ in 2000 Input-Output Table its contribution to total value added was about 1.3%.

Table 2.3: Food and poverty

	Rural				Urban			
Poverty	1997		2000		1997		2000	
Incidence	50.7		48.8		21.6		18.6	
	Poor		Nonpoor		Poor		Nonpoor	
Consumption %*	1997	2000	1997	2000	1997	2000	1997	2000
Food	63.6	63.6	47.6	47.6	61.4	60.8	38.8	38.7
Cereals**	29.5	28.8	15.4	14.6	24.5	23	8.6	8.2

Source: 1997 and 2000 Family Income and Expenditure Survey.

* Percent of Total; ** largely rice

Table 2.4: Structure of Nominal Tariff Protection (1990-2005)

Sectors	1990	1998	1999	2000	2001	2002	2003	2004	2005
All Industries	33.33	11.32	10.25	8.47	8.28	6.45	6.6	6.82	6.82
Coefficient of Variation	0.44	0.96	0.91	0.99	1.04	1.17	1.06	1.07	1.07
% of Tariff Peaks	-	2.24	2.24	2.48	2.5	2.69	2.53	2.71	2.71
Agriculture	36.73	15.9	13.2	11.5	12.3	10.4	10.4	11.3	11.3
Coefficient of Variation	-	1.07	1.14	1.3	1.23	1.31	1.22	1.17	1.17
Fishing and Forestry	11.71*	9.4	8.9	6.7	6.7	5.8	5.7	6	6
Coefficient of Variation	18.21**	0.63	0.7	0.66	0.62	0.45	0.48	0.57	0.57
Mining and Quarrying	29.24	3.3	3.3	3.1	3.2	2.8	2.7	2.5	2.5
Coefficient of Variation	-	0.42	0.41	0.24	0.23	0.38	0.4	0.48	0.48
Manufacturing	34.66	11.38	10.35	8.5	8.28	6.39	6.57	6.76	6.76
Coefficient of Variation	-	0.93	0.88	0.95	1	1.13	1.03	1.03	1.03
Number of Tariff Lines	6193	7363	7363	7363	7363	7363	7363	7382	7382

*Fishing; **Forestry

Sources: Manasan and Pineda (1999); Aldaba (2005)

Table 2.5: Sources of Government Tax Revenue (in percent share)

Tax Revenue	1990	1994	1998	2002	2004
Income taxes	32.5	33.9	44.1	45.6	46.5
Property Tax	0.2	0.1	0.1	0.1	0.1
Taxes Goods and Services	33.5	28	31.4	29.6	28
Tariff	30.7	30.3	18.3	19.5	20.5
Other Taxes	3.1	7.6	6.1	5.2	4.8
Total	100	100	100	100	100

Source: 2005 Philippine Statistical Yearbook

Section 6: Tables

Table 6.1: Summary of Simulation Effects (% change from baseline, cumulative 2000-2020)								
	SIM - 1	SIM - 2	SIM - 3	SIM - 4	SIM - 5	SIM - 6	SIM - 7	SIM - 8
Macro Effects								
Real GDP	0.50	0.41	0.41	0.78	0.74	0.88	1.37	1.49
Exports	3.14	2.12	2.90	3.12	3.20	3.88	4.82	5.02
Domestic demand	-0.79	-0.43	-0.82	-0.43	-0.49	-0.68	-0.84	-0.87
Imports	2.18	1.38	2.01	2.18	2.26	2.70	3.19	3.29
Composite good /1/	-0.01	0.04	-0.07	0.24	0.22	0.20	0.21	0.21
Welfare /2/	0.15	-0.31	0.23	-2.25	-2.15	-2.05	-2.07	-2.07
Output price	-0.79	-0.19	-0.66	-0.17	-0.27	-0.59	-0.98	-1.08
Domestic price of exports	-0.52	-0.30	-0.48	-0.39	-0.40	-0.55	-0.85	-0.92
Domestic price /3/	-0.49	0.05	-0.39	0.21	0.09	-0.16	-0.29	-0.32
Local price /4/	-0.92	-0.19	-0.77	-0.18	-0.29	-0.68	-1.19	-1.31
Domestic price of imports	-1.45	-0.73	-1.30	-1.27	-1.29	-1.74	-2.82	-3.09
Composite price /5/	-0.76	-0.16	-0.65	-0.18	-0.28	-0.59	-0.97	-1.06
Household CPI /6/	-1.14	-0.25	-0.93	-0.14	-0.34	-0.76	-0.68	-0.66
Real exchange rate /7/	0.84	0.14	0.70	0.10	0.21	0.58	1.08	1.20
Nominal Factor Price Effects								
Wages of skilled labor	-0.78	-0.21	-0.57	0.15	0.07	-0.27	-0.14	-0.11
Wages of unskilled labor	-1.50	-0.50	-1.26	-0.39	-0.57	-1.07	-1.05	-1.04
Return to land	-5.55	-1.98	-4.72	-2.80	-3.51	-5.09	-5.20	-5.21
Average return to capital	-0.95	-0.57	-0.67	-0.50	-0.53	-0.83	-0.75	-0.72
Nominal Income Effects								
Decile 1	-1.26	-0.46	-1.03	-0.25	-0.39	-0.82	-0.76	-0.74
Decile 2	-1.26	-0.45	-1.03	-0.26	-0.39	-0.83	-0.77	-0.74
Decile 3	-1.24	-0.45	-1.01	-0.25	-0.38	-0.81	-0.75	-0.72
Decile 4	-1.22	-0.44	-0.99	-0.24	-0.37	-0.80	-0.74	-0.72
Decile 5	-1.19	-0.42	-0.97	-0.23	-0.36	-0.77	-0.72	-0.70
Decile 6	-1.15	-0.41	-0.94	-0.22	-0.35	-0.75	-0.69	-0.67
Decile 7	-1.11	-0.39	-0.91	-0.21	-0.33	-0.72	-0.67	-0.65
Decile 8	-1.06	-0.37	-0.86	-0.19	-0.31	-0.68	-0.63	-0.61
Decile 9	-0.99	-0.34	-0.81	-0.16	-0.27	-0.63	-0.57	-0.55
Decile 10	-0.87	-0.30	-0.69	-0.08	-0.17	-0.50	-0.42	-0.40
Household Consumer Price Index Effects								
Decile 1	-1.68	-0.19	-1.40	-0.13	-0.51	-1.14	-1.10	-1.07
Decile 2	-1.65	-0.23	-1.37	-0.17	-0.52	-1.13	-1.08	-1.05
Decile 3	-1.62	-0.26	-1.35	-0.19	-0.53	-1.12	-1.06	-1.04
Decile 4	-1.54	-0.28	-1.28	-0.21	-0.51	-1.07	-1.01	-0.99
Decile 5	-1.46	-0.27	-1.22	-0.21	-0.49	-1.02	-0.97	-0.95
Decile 6	-1.37	-0.26	-1.14	-0.20	-0.46	-0.95	-0.90	-0.88
Decile 7	-1.27	-0.24	-1.06	-0.18	-0.42	-0.88	-0.82	-0.80
Decile 8	-1.18	-0.25	-0.97	-0.16	-0.37	-0.80	-0.73	-0.71
Decile 9	-1.07	-0.25	-0.87	-0.14	-0.32	-0.70	-0.63	-0.61
Decile 10	-0.82	-0.23	-0.63	-0.06	-0.16	-0.47	-0.39	-0.36
Real Income Effects								
Decile 1	0.42	-0.27	0.37	-0.13	0.12	0.32	0.34	0.33
Decile 2	0.39	-0.22	0.34	-0.09	0.13	0.30	0.31	0.31
Decile 3	0.38	-0.19	0.34	-0.05	0.15	0.31	0.32	0.32
Decile 4	0.32	-0.16	0.29	-0.04	0.14	0.27	0.27	0.27
Decile 5	0.27	-0.15	0.25	-0.02	0.13	0.24	0.25	0.25
Decile 6	0.22	-0.15	0.20	-0.02	0.12	0.20	0.20	0.20
Decile 7	0.16	-0.14	0.15	-0.03	0.09	0.15	0.15	0.15
Decile 8	0.12	-0.12	0.11	-0.02	0.07	0.12	0.11	0.11
Decile 9	0.07	-0.09	0.06	-0.02	0.05	0.08	0.06	0.06
Decile 10	-0.05	-0.06	-0.07	-0.02	-0.01	-0.02	-0.04	-0.04

Table 6.2 : Summary of Poverty and Distributional Effects (% change from baseline, cumulative 2000-2020)

	2000 index	SIM - 1	SIM - 2	SIM - 3	SIM - 4	SIM - 5	SIM - 6	SIM - 7	SIM - 8
All - Gini	0.51	0.12	0.05	0.10	0.06	0.07	0.10	0.11	0.11
P0	33.95	-0.48	0.30	-0.43	0.07	-0.31	-0.43	-0.43	-0.43
P1	10.56	-0.82	0.43	-0.76	0.08	-0.38	-0.72	-0.73	-0.73
P2	4.45	-1.06	0.57	-0.98	0.13	-0.47	-0.91	-0.93	-0.93
Decile 1- P0	86.01	-0.15	0.26	-0.11	0.17	-0.09	-0.11	-0.12	-0.11
P1	39.96	-0.54	0.31	-0.49	0.12	-0.20	-0.43	-0.46	-0.44
P2	21.68	-0.77	0.46	-0.70	0.18	-0.28	-0.62	-0.65	-0.63
Decile 2- P0	81.85	-0.32	0.29	-0.25	0.06	-0.15	-0.26	-0.26	-0.26
P1	30.36	-0.73	0.38	-0.65	0.10	-0.29	-0.61	-0.61	-0.61
P2	13.66	-1.03	0.56	-0.93	0.15	-0.40	-0.85	-0.86	-0.86
Decile 3- P0	74.63	-0.33	0.09	-0.32	-0.02	-0.28	-0.28	-0.29	-0.29
P1	23.20	-0.91	0.43	-0.85	0.05	-0.43	-0.79	-0.80	-0.80
P2	8.99	-1.27	0.62	-1.19	0.08	-0.60	-1.11	-1.12	-1.12
Decile 4- P0	58.24	-0.64	0.18	-0.51	-0.02	-0.44	-0.52	-0.54	-0.54
P1	14.53	-1.05	0.50	-0.95	0.04	-0.53	-0.92	-0.95	-0.94
P2	4.82	-1.39	0.67	-1.26	0.07	-0.69	-1.22	-1.25	-1.23
Decile 5- P0	37.27	-1.11	0.47	-1.09	-0.03	-0.60	-1.12	-1.11	-1.09
P1	7.23	-1.22	0.64	-1.20	-0.02	-0.70	-1.23	-1.21	-1.25
P2	2.01	-1.49	0.80	-1.47	-0.02	-0.85	-1.50	-1.47	-1.58
Decile 6- P0	19.53	-0.71	0.49	-0.69	-0.01	-0.43	-0.72	-0.71	-0.71
P1	3.18	-1.25	0.78	-1.21	0.00	-0.76	-1.24	-1.24	-1.24
P2	0.75	-1.54	0.99	-1.53	0.01	-0.95	-1.54	-1.54	-1.53
Decile 7- P0	9.27	-0.86	0.15	-0.90	-0.02	-0.83	-0.88	-0.86	-0.90
P1	0.96	-1.50	1.31	-1.58	0.09	-0.98	-1.61	-1.52	-1.58
P2	0.16	-1.66	1.47	-1.74	0.11	-1.10	-1.78	-1.69	-1.73
Decile 8- P0	1.28	-0.32	12.64	-0.19	10.54	0.00	0.00	-0.32	0.25
P1	0.13	-1.42	1.25	-1.29	-0.04	-0.79	-1.26	-1.45	-1.27
P2	0.02	-1.39	1.22	-1.30	0.02	-0.86	-1.34	-1.43	-1.31
Decile 9- P0	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
P1	0.02	-0.94	1.06	-0.87	0.04	-0.76	-1.17	-0.95	-0.90
P2	0.00	-1.09	1.24	-1.01	0.05	-0.89	-1.36	-1.11	-1.05
Decile 10- P0	.								
P1	.								
P2	.								

/1/ Composite of imports and domestic demand

/2/ Aggregate equivalent variation (EV) of households

/3/ Indirect tax included

/4/ Indirect tax excluded

/5/ Composite of import and domestic prices

/6/ Consumption weighted composite price

/7/ Real exchange rate defined in footnote 18

Table 6.3: Results of Major Sectors, 2000-2020, SIM - 1 (% change from base)

	Volume					Price					
	Output	Com. good	Dom. dem.	Exports	Imports	Output	Com. good	Dom. dem.	Exports	Imports	Local
Agriculture	-2.10	-1.23	-2.23	0.69	14.91	-1.80	-2.30	-1.51	-0.05	-12.87	-1.88
Crops	-3.15	-1.41	-3.32	-0.14	14.07	-1.66	-2.80	-1.38	0.02	-11.95	-1.76
Non-crops	-1.19	-1.06	-1.30	1.88	23.26	-1.93	-1.83	-1.62	-0.14	-21.96	-1.99
Industry	0.06	0.11	-1.33	3.11	2.31	-0.64	-0.87	-1.69	-0.19	-1.19	-0.84
Food manufacturing	-2.17	0.28	-2.42	1.28	24.23	-1.91	-3.52	-1.66	-0.08	-16.82	-2.04
Non-food manufacturing	0.79	0.33	-1.21	3.21	1.89	-0.30	-0.99	-0.01	-0.20	-1.92	-0.39
Other industry	-0.09	-0.96	-0.12	1.39	-3.35	-0.35	2.66	0.03	-0.09	10.63	-0.35
Services	0.27	0.14	0.10	1.30	-0.59	-0.73	-0.28	-0.35	-0.09	0.38	-0.73

Com. good = composite good Dom. dem. = domestic demand

Table 6.4: Results of Major Sectors, 2000-2020, SIM - 2 (% change from base)

	Volume					Price					
	Output	Com. good	Dom. dem.	Exports	Imports	Output	Com. good	Domestic	Exports	Imports	Local
Agriculture	-0.37	-0.01	-0.35	-0.89	6.19	-0.54	-0.67	-0.37	0.08	-4.02	-0.57
Crops	-0.68	-0.02	-0.60	-1.98	5.32	-0.34	-0.67	-0.17	0.16	-3.15	-0.37
Non-crops	-0.10	0.01	-0.13	0.65	14.72	-0.72	-0.66	-0.54	-0.04	-12.66	-0.74
Industry	0.13	0.07	-0.87	2.29	1.63	-0.10	-0.23	-0.76	-0.14	-0.73	-0.08
Food manufacturing	-0.54	-0.28	-0.57	-0.14	3.90	-0.20	-0.28	-0.01	0.01	-3.11	-0.21
Non-food manufacturing	0.36	0.41	-1.35	2.42	2.18	-0.10	-1.00	0.14	-0.15	-2.10	-0.06
Other industry	0.01	-0.86	0.00	0.75	-3.38	0.04	2.78	0.24	-0.05	10.45	0.04
Services	0.06	0.04	0.00	0.32	-0.10	-0.23	0.01	-0.01	-0.02	0.20	-0.21

Com. good = composite good Dom. dem. = domestic demand

Table 6.5: Results of Major Sectors, 2000-2020, SIM - 3 (% change from base)

	Volume					Price					
	Output	Com. good	Dom. dem.	Exports	Imports	Output	Com. good	Dom. dem.	Exports	Imports	Local
Agriculture	-1.88	-1.30	-2.00	0.84	9.78	-1.54	-1.77	-1.27	-0.06	-8.06	-1.61
Crops	-2.44	-1.28	-2.61	0.43	9.27	-1.55	-2.18	-1.30	-0.03	-7.29	-1.64
Non-crops	-1.38	-1.32	-1.48	1.43	14.90	-1.53	-1.39	-1.25	-0.11	-15.64	-1.58
Industry	-0.05	0.02	-1.40	2.91	2.18	-0.59	-0.84	-1.41	-0.18	-1.13	-0.78
Food manufacturing	-2.16	0.29	-2.43	1.53	24.10	-1.69	-3.37	-1.47	-0.09	-16.70	-1.81
Non-food manufacturing	0.64	0.20	-1.31	3.00	1.73	-0.28	-0.90	-0.02	-0.19	-1.73	-0.36
Other industry	-0.19	-0.96	-0.20	0.42	-3.18	-0.46	2.32	-0.13	-0.03	9.71	-0.47
Services	0.20	0.12	0.06	0.92	-0.38	-0.54	-0.13	-0.18	-0.06	0.33	-0.52

Com. good = composite good Dom. dem. = domestic demand

Table 6.6: Results of Major Sectors, 2000-2020, SIM - 4 (% change from base)

	Volume					Price					
	Output	Com. good	Dom. dem.	Exports	Imports	Output	Com. good	Dom. dem.	Exports	Imports	Local
Agriculture	-1.01	-0.28	-1.02	-0.79	11.59	-0.59	-0.86	-0.28	0.07	-8.34	-0.62
Crops	-1.27	0.11	-1.24	-1.79	10.81	-0.49	-1.21	-0.18	0.14	-7.41	-0.53
Non-crops	-0.79	-0.64	-0.84	0.64	19.28	-0.68	-0.54	-0.36	-0.05	-17.52	-0.70
Industry	0.51	0.36	-0.85	3.47	2.31	-0.16	-0.38	-0.53	-0.22	-1.23	-0.14
Food manufacturing	-0.79	-0.08	-0.89	0.53	7.59	-0.49	-0.79	-0.18	-0.03	-6.17	-0.52
Non-food manufacturing	1.02	0.79	-1.14	3.64	2.76	-0.09	-1.03	0.35	-0.23	-2.39	0.01
Other industry	-0.02	-0.80	-0.02	-0.08	-3.06	0.00	2.60	0.34	0.01	9.45	0.00
Services	0.18	0.20	0.03	0.25	0.11	-0.09	0.26	0.26	-0.02	0.34	-0.09

Com. good = composite good Dom. dem. = domestic demand

Table 6.7: Results of Major Sectors, 2000-2020, SIM - 5 (% change from base)

	Volume					Price					
	Output	Com. good	Dom. dem.	Exports	Imports	Output	Com. good	Dom. dem.	Exports	Imports	Local
Agriculture	-1.37	-0.62	-1.41	-0.45	11.86	-0.86	-1.15	-0.57	0.04	-8.35	-0.90
Crops	-1.77	-0.32	-1.79	-1.32	11.35	-0.83	-1.58	-0.55	0.11	-7.55	-0.88
Non-crops	-1.02	-0.91	-1.09	0.79	16.95	-0.89	-0.74	-0.58	-0.06	-16.26	-0.92
Industry	0.47	0.36	-0.93	3.53	2.38	-0.25	-0.48	-0.69	-0.22	-1.19	-0.27
Food manufacturing	-1.20	0.14	-1.36	0.91	13.48	-0.90	-1.70	-0.63	-0.06	-9.77	-0.97
Non-food manufacturing	1.10	0.71	-1.03	3.68	2.50	-0.08	-0.88	0.38	-0.23	-2.12	0.04
Other industry	-0.03	-0.79	-0.03	-0.10	-2.99	-0.09	2.48	0.24	0.01	9.28	-0.10
Services	0.23	0.24	0.06	0.37	0.09	-0.15	0.21	0.20	-0.02	0.34	-0.14

Com. good = composite good Dom. dem. = domestic demand

Table 6.8: Results of Major Sectors, 2000-2020, SIM - 6 (% change from base)

	Volume					Price					
	Output	Com. good	Dom. dem.	Exports	Imports	Output	Com. good	Dom. dem.	Exports	Imports	Local
Agriculture	-2.03	-1.19	-2.13	0.26	13.90	-1.45	-1.75	-1.04	-0.01	-10.80	-1.52
Crops	-2.71	-1.05	-2.83	-0.62	13.26	-1.39	-2.26	-1.00	0.06	-9.89	-1.48
Non-crops	-1.43	-1.32	-1.54	1.52	20.16	-1.50	-1.27	-1.08	-0.11	-19.74	-1.55
Industry	0.44	0.40	-1.22	4.08	2.92	-0.52	-0.84	-1.14	-0.25	-1.62	-0.64
Food manufacturing	-2.05	0.27	-2.29	1.30	22.87	-1.51	-2.91	-1.13	-0.08	-15.36	-1.61
Non-food manufacturing	1.33	0.77	-1.07	4.24	2.65	-0.26	-1.09	0.22	-0.26	-2.38	-0.26
Other industry	-0.08	-0.86	-0.09	0.51	-3.06	-0.28	2.55	0.20	-0.03	9.67	-0.29
Services	0.32	0.26	0.10	0.98	-0.28	-0.47	0.04	0.00	-0.07	0.48	-0.48

Com. good = composite good Dom. dem. = domestic demand

Table 6.9: Results of Major Sectors, 2000-2020, SIM - 7 (% change from base)

	Volume					Price					
	Output	Com. good	Dom. dem.	Exports	Imports	Output	Com. good	Dom. dem.	Exports	Imports	Local
Agriculture	-2.10	-1.29	-2.23	0.53	13.64	-1.59	-1.49	-0.79	-0.04	-10.43	-1.66
Crops	-2.77	-1.15	-2.91	-0.30	12.99	-1.65	-2.12	-0.88	0.03	-9.51	-1.75
Non-crops	-1.53	-1.43	-1.64	1.71	20.06	-1.53	-0.91	-0.72	-0.13	-19.49	-1.58
Industry	0.44	0.44	-1.56	4.83	3.60	-1.14	-1.68	-1.12	-0.30	-3.01	-1.52
Food manufacturing	-2.28	0.19	-2.59	1.96	25.10	-1.64	-2.91	-0.89	-0.12	-17.82	-1.75
Non-food manufacturing	1.43	0.81	-1.51	5.00	3.19	-1.01	-1.94	-0.72	-0.31	-3.09	-1.59
Other industry	-0.23	-0.68	-0.26	0.92	-1.79	-1.01	0.77	-0.16	-0.05	3.59	-1.03
Services	0.37	0.24	0.09	1.35	-0.66	-0.64	0.26	0.19	-0.10	0.87	-0.68

Com. good = composite good Dom. dem. = domestic demand

Table 6.10: Results of Major Sectors, 2000-2020, SIM - 8 (% change from base)

	Volume					Price					
	Output	Com. good	Dom. dem.	Exports	Imports	Output	Com. good	Dom. dem.	Exports	Imports	Local
Agriculture	-2.12	-1.31	-2.24	0.56	13.60	-1.60	-1.40	-0.70	-0.04	-10.34	-1.67
Crops	-2.77	-1.15	-2.91	-0.29	12.95	-1.68	-2.04	-0.81	0.03	-9.42	-1.78
Non-crops	-1.56	-1.46	-1.67	1.77	20.04	-1.53	-0.81	-0.61	-0.13	-19.42	-1.58
Industry	0.44	0.45	-1.63	4.98	3.75	-1.29	-1.88	-1.07	-0.31	-3.36	-1.75
Food manufacturing	-2.31	0.16	-2.63	2.10	25.20	-1.62	-2.81	-0.77	-0.13	-17.93	-1.73
Non-food manufacturing	1.45	0.82	-1.60	5.15	3.30	-1.21	-2.15	-0.98	-0.32	-3.24	-1.95
Other industry	-0.27	-0.60	-0.30	0.95	-1.33	-1.19	0.21	-0.24	-0.06	1.60	-1.22
Services	0.39	0.24	0.08	1.45	-0.78	-0.68	0.32	0.24	-0.11	0.97	-0.73

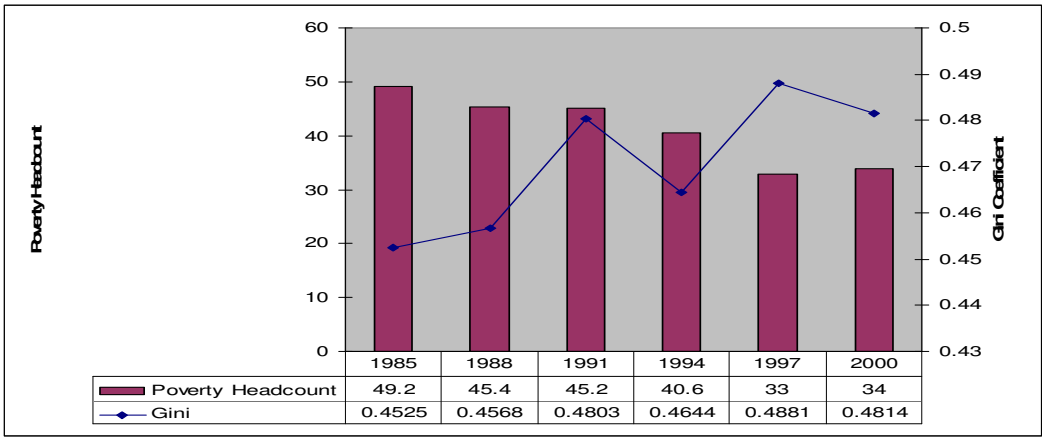
Com. good = composite good Dom. dem. = domestic demand

Table 6.11: Labor movement

	Base	mployment Shares From Base							
	share	Sim -1	Sim -2	Sim -3	Sim -4	Sim -5	Sim -6	Sim -7	Sim -8
Skilled	100.00								
agriculture	3.04	-0.970	-0.164	-0.894	-0.490	-0.698	-0.980	-1.035	-1.043
non-agriculture	96.96	0.030	0.005	0.028	0.015	0.022	0.031	0.032	0.033
Unskilled	100.00								
agriculture	19.25	-0.780	-0.116	-0.691	-0.357	-0.524	-0.759	-0.787	-0.790
non-agriculture	80.75	0.186	0.028	0.165	0.085	0.125	0.181	0.187	0.188

FIGURES

Figure 1: Income Distribution and Poverty: The Philippines (1985 - 2000)



	1985	1988	1991	1994	1997	2000
Poverty Headcount	49.2	45.4	45.2	40.6	33	34
Gini	0.4525	0.4568	0.4803	0.4644	0.4881	0.4814

Figure 2 - Key Relationships in the Model

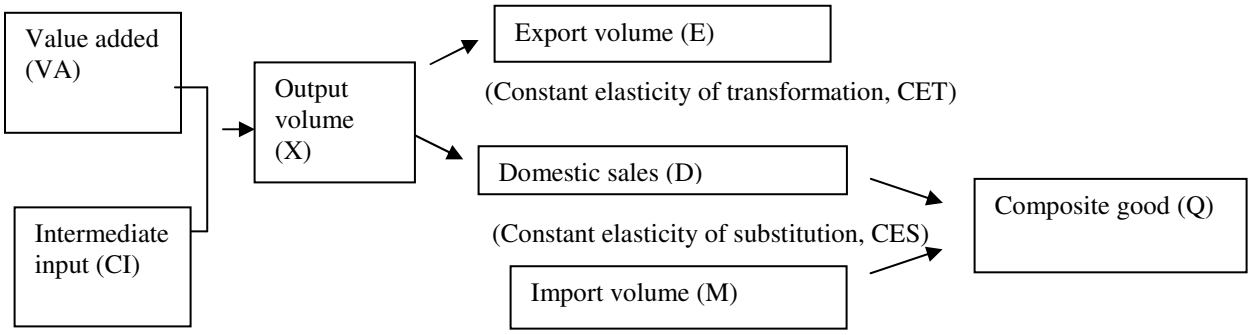
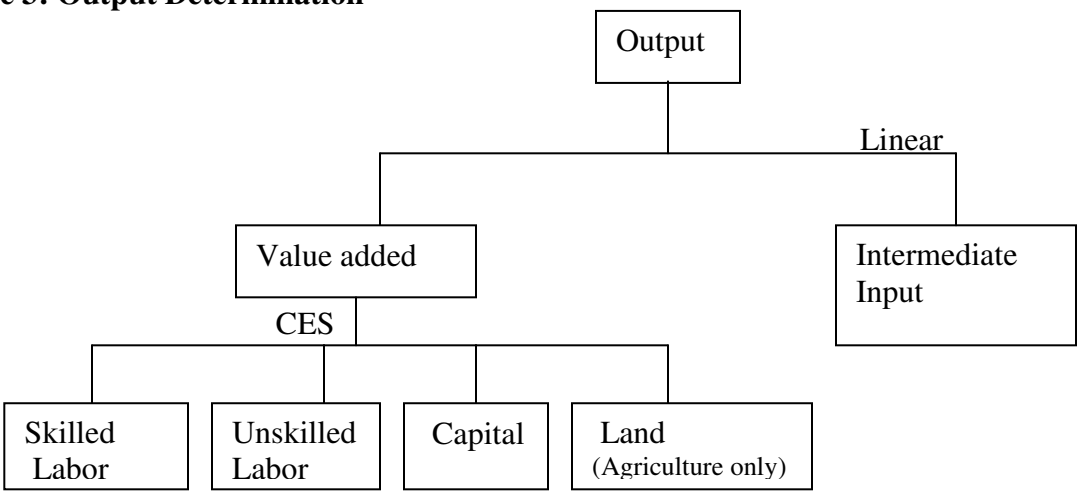


Figure 3: Output Determination



APPENDIX

Key Model Parameters and Economic Structure

Table A1 presents some features of the production and trade structure in the SAM as well as the production and trade elasticities used in the model. Generally, agricultural and service sectors have higher value added ratios (value added over output) compared to the industrial sector. In agriculture, coconut and forestry have the highest value added ratios of almost 90 percent, while in industry Petroleum refining has the lowest ratio of 14 percent. The capital-output ratio in agriculture is generally lower than industry and service sectors. The largest employer of labor is the service sector. More than 90 percent of labor input into agricultural production is unskilled labor. The share of skilled labor employed in the industrial sector is substantially higher compared to the agricultural sector.

Almost 50 percent of exports come from electrical machineries. A major part of this sector is the semi-conductor industry. Sizeable amount of exports also comes from other machineries. In terms of export intensity ratio, almost 90 percent of the production of electrical is exported. There is also very high ratio for machinery. Other sectors that have significant export intensity are other manufacturing, coconut oil, leather, fertilizer, other chemicals, garments, fruit processing, and fish processing. On the other hand, 35 percent of imports is by electrical machineries. Other machineries also have high import shares. While these two sectors have high import intensity ratios, there are almost other sectors where import is a major source of supply. These sectors are other crops, cattle, mining and crude oil, milk and diary, fruit processing, fish processing, coconut oil, sugar milling, other food, textile, leather, paper, fertilizer, other chemicals, petroleum, cement, and transportation and communication.

The consumption structure of households is presented in Table A2. For the first decline, 14.3 percent of its consumption is on rice. The share decreases substantially as we move up to higher decile groups. Only 1.8 percent of consumption of the 10^{th} decile is on rice. The other significant item in the consumption of household is fish and meat, fruits and vegetables, other food. Generally, the lower income groups have substantial amount of consumption is on food and food related products. For the first decile, 42.4 percent of its consumption is on these items. This ratio drops substantially as we move to

higher decile groups. For the 10th decile group, only 13.4 percent is on food and related commodities. The largest part of consumption of the 10th decile is on services.

The sources of income of households are presented in Table A3. The first decile group sources its income from capital (mostly informal capital) and unskilled labor. Unskilled labor (which includes zero education up to third year college) is also a significant source of income up until the 9th decile group. The share drops substantially in the 10th decile group as the share of income from skilled labor dominates. The 10th decile group also relies heavily from foreign remittances.

Table A1: Elasticity Parameters and Production Structure

		Production									Trade						
		Value-added Ratio	Value added	Output	Capital-Labor	Employ-memt	Share of skilled	Share of unskilled	Land-output		Elasticities			Exports (%)		Imports (%)	
	Sectors	va ÷ x, %	Share, %	Share, %	Ratio	Share,%	labor, %	labor, %	ratio, %	sig_va	eta	sig_m	sig_e	Share	Intensity /1/	Share	Intensity /2/
s1	Palay	77.5	2.0	1.39	0.41	3.06	6.16	93.84	7.29	0.7				0.00	0.00	0.00	0.00
s2	Corn	78.5	0.6	0.39	0.25	1.02	6.16	93.84	5.27	0.7	13	1.2	1.6	0.00	0.06	0.15	8.41
s3	Coconut	88.9	0.6	0.37	0.59	0.80	6.16	93.84	10.27	0.7	13		1.6	0.00	0.19	0.00	0.00
s4	Fruits & vegetables	79.7	2.2	1.48	0.88	2.39	6.16	93.84	11.27	0.7	13	1.2	1.6	1.17	15.09	0.34	6.16
s5	Sugarcane	69.7	0.3	0.23	0.83	0.33	6.17	93.83	11.20	0.7				0.00	0.00	0.00	0.00
s6	Other crops	77.3	0.6	0.40	1.05	0.55	6.17	93.83	13.71	0.7	13	1.2	1.6	0.06	2.84	1.26	44.23
s7	Agricultural services	84.7	0.4	0.24	0.61	0.50	6.16	93.84	9.95	0.7	13	1.2	1.6	0.00	0.01	0.00	0.07
s8	Hog	63.7	1.4	1.14	0.84	1.56	9.50	90.50	6.80	0.7		1.2		0.00	0.00	0.00	0.05
s9	Cattle	71.9	0.4	0.33	1.11	0.42	9.51	90.49	10.95	0.7	13	1.2	1.6	0.00	0.25	0.14	9.15
s10	Chicken	60.7	1.3	1.13	0.92	1.35	9.51	90.49	8.73	0.7	13	1.2	1.6	0.00	0.02	0.02	0.37
s11	Fishing	77.4	2.8	1.91	1.96	2.10	2.43	97.57	3.76	0.7	13	1.2	1.6	0.79	7.93	0.02	0.25
s12	Forestry	89.4	0.2	0.13	2.17	0.10	16.91	83.09	33.05	0.7	13	1.2	1.6	0.07	10.33	0.00	0.58
s13	Mining	63.0	0.6	0.49	2.53	0.39	30.54	69.46		1.1	16	1.4	1.8	0.41	15.79	1.43	45.76
s14	Crude oil	34.6	0.0	0.01		0.00				1.1		1.4		0.00	0.00	7.53	99.65
s15	Meat Processing	20.5	1.1	2.79	2.10	0.82	24.99	75.01		1.1	16	1.4	1.8	0.01	0.04	0.40	3.36
s16	Milk & diary	31.1	0.3	0.50	2.16	0.22	24.98	75.02		1.1	16	1.4	1.8	0.04	1.66	1.02	33.63
s17	Fruit processing	36.5	0.4	0.54	1.66	0.33	24.99	75.01		1.1	16	1.4	1.8	0.68	24.14	0.27	13.91
s18	Fish processing	28.5	0.3	0.61	3.55	0.17	24.99	75.01		1.1	16	1.4	1.8	0.71	22.04	0.16	7.41
s19	Coconut oil	28.7	0.5	0.88	5.74	0.17	25.00	75.00		1.1	16	1.4	1.8	1.51	32.92	0.56	19.00
s20	Rice & corn milling	30.3	1.4	2.38	1.26	1.42	24.99	75.01		1.1	16	1.4	1.8	0.00	0.01	0.30	3.02
s21	Sugar milling	22.0	0.2	0.41	1.91	0.14	24.97	75.03		1.1	16	1.4	1.8	0.18	8.26	0.14	8.20
s22	Other food	30.9	1.3	2.24	1.62	1.17	24.99	75.01		1.1	16	1.4	1.8	0.56	4.81	0.90	9.34
s23	Tobacco & alcohol	40.4	1.0	1.36	1.56	0.96	57.73	42.27		1.1	16	1.4	1.8	0.10	1.43	0.33	5.67
s24	Textile	37.3	1.0	1.39	1.30	1.00	6.44	93.56		1.1	16	1.4	1.8	1.23	16.89	2.76	36.73
s25	Garments	46.1	2.1	2.39	1.62	1.87	4.48	95.52		1.1	16	1.4	1.8	0.23	1.80	0.13	1.30
s26	Leather & rubber	42.9	0.7	0.91	1.43	0.71	9.80	90.20		1.1	16	1.4	1.8	1.27	26.58	2.30	45.57
s27	Paper and wood products	39.3	1.7	2.27	1.63	1.50	23.49	76.51		1.1	16	1.4	1.8	2.35	19.75	1.78	19.26
s28	Fertilizer	39.7	0.1	0.15	1.40	0.11	37.83	62.17		1.1	16	1.4	1.8	0.13	16.80	0.51	49.39
s29	Other chemicals	41.1	1.9	2.42	2.01	1.47	37.82	62.18		1.1	16	1.4	1.8	0.94	7.45	5.03	35.40
s30	Petroleum	14.2	0.7	2.58	1.14	0.76	42.45	57.55		1.1	16	1.4	1.8	1.59	11.77	1.85	16.56
s31	Cement	41.7	0.7	0.87	1.65	0.60	29.80	70.20		1.1	16	1.4	1.8	0.43	9.55	0.51	13.77
s32	Metals	36.9	1.9	2.69	2.10	1.42	8.40	91.60		1.1	16	1.4	1.8	2.45	17.44	4.21	31.66
s33	Machineries	40.0	3.6	4.76	3.68	1.80	30.45	69.55		1.1	16	1.4	1.8	18.25	73.24	12.53	70.59
s34	Electrical machineries	45.5	8.5	9.85	1.71	7.33	39.54	60.46		1.1	16	1.4	1.8	45.90	89.02	35.42	88.88
s35	Other manufacturing	48.1	1.4	1.58	1.35	1.44	6.73	93.27		1.1	16	1.4	1.8	3.66	44.26	2.04	36.12
s36	Construction	53.0	3.9	3.89	0.67	5.49	14.86	85.14		1.1	16	1.4	1.8	0.31	1.50	0.31	1.91
s37	Utilities	68.3	3.4	2.60	3.24	1.86	43.73	56.27		1.1				0.00	0.00	0.00	0.00
s38	Transportation & communication	53.6	7.0	6.91	2.10	5.29	18.20	81.80		1.2	14	1.4	1.8	3.71	10.25	8.10	24.18
s39	Wholesale trade	66.1	13.2	10.60	1.92	10.66	25.62	74.38		1.2	14	1.4	1.8	2.87	5.17	0.64	1.53
s40	Other services	63.5	20.2	16.78	1.71	17.44	31.52	68.48		1.2	14	1.4	1.8	8.38	9.53	6.93	10.02
s41	Public services	72.2	8.2	6.00		19.25	60.65	39.35		1.2							

Source: 2000 Social Accounting Matrix

va= value added; x=output

/1/ exports/output; /2/ imports/composite good

Table A2: Household Consumption Structure

	Decile									
	1	2	3	4	5	6	7	8	9	10
Palay										
Corn	0.5	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.1	0.1
Coconut	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1
Fruits & vegetables	4.1	3.8	3.6	3.4	3.1	2.8	2.5	2.2	1.9	1.3
Sugarcane	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other crops	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0
Agricultural services										
Hog										
Cattle										
Chicken	0.8	0.9	0.9	1.0	1.1	1.1	1.1	1.1	1.0	0.7
Fishing	6.8	6.4	6.1	5.5	4.9	4.2	3.6	3.1	2.5	1.5
Forestry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mining	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1
Crude oil										
Meat Processing	4.2	4.6	4.9	5.6	6.2	6.8	7.1	6.8	6.3	4.2
Milk & diary	1.1	1.2	1.3	1.3	1.4	1.3	1.3	1.2	1.1	0.8
Fruit processing	1.2	1.1	1.0	0.9	0.9	0.8	0.7	0.6	0.5	0.4
Fish processing	2.0	1.9	1.8	1.6	1.4	1.2	1.1	0.9	0.7	0.4
Coconut oil	0.7	0.6	0.6	0.6	0.5	0.5	0.4	0.4	0.3	0.2
Rice & corn milling	14.3	12.9	11.7	10.0	8.4	6.9	5.7	4.5	3.4	1.8
Sugar milling	1.2	1.1	1.0	1.0	0.9	0.8	0.7	0.6	0.5	0.3
Other food	5.1	4.8	4.7	4.3	4.0	3.7	3.3	2.9	2.5	1.6
Tobacco & alcohol	4.5	4.8	4.9	4.8	4.5	4.2	3.6	3.1	2.6	1.6
Textile	0.8	0.9	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.8
Garments	1.7	1.9	2.1	2.2	2.2	2.1	2.1	2.0	2.0	1.7
Leather & rubber	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3
Paper and wood products	0.8	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.7	0.9
Fertilizer	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other chemicals	2.7	2.4	2.2	2.1	1.9	1.8	1.8	1.9	2.2	3.1
Petroleum	1.9	1.6	1.6	1.6	1.6	1.5	1.5	1.4	1.3	0.9
Cement	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Metals										
Machineries	0.1	0.3	0.3	0.5	0.7	0.9	1.0	1.1	1.1	1.3
Electrical machineries	0.3	0.7	0.8	1.1	1.5	1.8	1.9	2.1	2.2	2.4
Other manufacturing	0.6	0.8	0.9	0.9	1.0	1.1	1.1	1.1	1.1	1.0
Construction										
Utilities	3.4	3.0	2.9	2.9	2.9	2.8	2.8	2.6	2.3	1.7
Transportation & communication	6.0	7.0	7.3	8.2	9.4	10.1	11.5	12.9	14.7	17.4
Wholesale trade	17.8	17.5	17.1	16.7	16.3	15.9	15.7	15.5	15.3	14.6
Other services	16.5	17.5	18.8	20.8	22.2	24.8	26.9	29.3	32.0	38.7
Public services										
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Crops, food, and food related	42.4	40.2	38.6	36.0	33.5	30.8	28.0	24.8	21.1	13.4
Non-food	17.3	17.7	18.1	18.3	18.6	18.3	17.9	17.5	17.0	16.0
Services	40.3	42.0	43.3	45.6	47.9	50.8	54.1	57.8	61.9	70.6

Source: 2000 Social Accounting Matrix

Table A3: Sources of Income of Households

	Decile									
	1	2	3	4	5	6	7	8	9	10
Unskilled labor	20.1	24.1	24.8	29.4	32.7	36.3	39.4	38.4	35.2	17.9
Skilled labor	0.1	0.2	0.3	0.4	1.0	1.8	3.8	7.9	12.6	25.0
Capital*	70.5	66.1	65.1	59.7	55.2	49.2	41.9	36.6	31.6	35.3
Land	5.5	4.9	4.5	3.8	2.9	1.9	1.3	0.8	0.5	0.5
Dividends	1.1	0.8	0.6	0.7	0.8	1.0	0.7	0.5	0.6	1.0
Transfers	1.3	2.2	2.5	2.4	2.7	3.1	3.3	3.5	3.7	4.6
Foreign Remittances	1.3	1.7	2.2	3.7	4.8	6.8	9.7	12.2	15.6	15.6

Soure: 2000 Social Accounting Matrix

*major part of this item is informal capital, especially for lower income groups

[1] Tariff overhang is the gap between the applied and bound tariff rates
[2] This implies a great possibility of raising applied tariff rates in the future.
[3] A process of random assignation is introduced and is repeated large number of times in a Monte Carlo fashion to establish confidence interval for indices of inequality and poverty
[4] These include call center operations, accounting related services, medical transcriptions etc.
[5] Increased tariffs for locally produced products, while decreased tariffs for non-locally produced products
[6] The tariff peak is the proportion of products with tariffs exceeding three times the mean tariff. The coefficient of variation is the ratio of the standard deviation to the mean
[7] The World Bank documents that there are at least 42 developing countries that have received loans with the commitment to reform their trade policy which was partially spurred by the Bank's loan-tied structural adjustment and macro-stabilization policies in the 1980s
[8] Capital irreversibilities is defined by Van Wihnbergen (1985) as entry and exit costs of real investment
[9] From a theoretical perspective, this does not always hold as Johnson (1964) show that uniform tariff rates fail to take into account distortions in consumption which inevitably accompanies tariffs. Similarly, Corden (1971) argue that uniform tariff rate will fail to yield the desired objective if impotables use exportable inputs or if exportables use imported inputs.
[10] The specification of the model is generally based on "EXTER-DS" (Anabi, Cockburn, Decaluwe, 2004). There are other CGE specifications such as the IFPRI Standard CGE Models (Lofgren, et al. 2002)
[11] See Table A1 for the list of production sectors
[12] Skilled refers to those that have at least college diploma.
[13] Pl does not include indirect tax.
[14] Pd includes indirect tax.
[15] There is no explicit form of the real exchange rate. The change in the real exchange rate reported in the presentation of results is derived as the weighted world prices of exports and imports multiplied by the nominal exchange rate, divided by the weighted local price.
[16] changes in household income are affected by changes in factor prices and sectoral factor demands.
[17] Poverty impacts are measured by variations in Foster-Greer-Thorbecke (FGT) indices given by $P_\alpha = \frac{1}{n}\sum_{i=1}^{q}\left(\frac{z - y_i}{z}\right)^\alpha$ where n is population size, q is the number of people below poverty line, y_i is income, z is the poverty line. The poverty line is equal to the food poverty line plus the non-food poverty line, respectively representing the estimated cost of basic food and non-food requirements. Poverty headcount index, which measures the proportion of the population whose income (or consumption) falls below the poverty line, is obtained when $\alpha = 0$. When $\alpha = 1$, we obtain the poverty gap, which measures the depth of poverty, that is how far the poor are below the poverty line on average. The poverty severity index is obtained with $\alpha = 2$. This measure is sensitive to the distribution among the poor as more weight is given to the poorest below the poverty line.
[18] The Gini coefficient before and after the policy change is computed in the following manner

$$\text{Gini coefficient} = \left(\frac{1}{2\times n^2}\right)\times\left[\sum_i w_i \times \sum_j w_j \left|y_i - y_j\right|\right]$$

where n is the overall population, w_i is the number people in household i ($\sum_i w_i = n$) and y_i is household income.
[19] The discussion of the model parameters and economic structure is presented in Appendix 1.
[20] Note that these are just nominal changes in factor prices
[21] For instance in SIM – 1, households belonging to the first decile experiences a 1.26 and 1.68 percent reduction in nominal income and weighted consumer prices respectively compared to the 0.87 and 0.82 percent reduction in nominal income and weighted consumer prices respectively for the 10^{th} decile
[22] For a population of 80 million and a poverty incidence of 33.95 percent, a 0.5 percent reduction in the poverty incidence ratio would imply 135,800 people crossing and moving up the poverty threshold.