

Who Benefits from the Tariff Reforms?

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After a decade or so of pursuing a tariff reduction program, what effects can be shown in terms of the impact of said reduction in tariff rates on unemployment, income distribution and poverty in the Philippines? To date, significant changes have taken place: tariff rates have been drastically reduced, tariff structure simplified, and quantitative restrictions tariffied. But how had these been translated into changes that really count? This short *Notes* summarizes the key results of the simulations done by this author to analyze the impacts of tariff rate reductions on the general economy and on certain households.

Tariff reduction triggers changes in the domestic–foreign price ratios as well as in the sectoral price ratios. Changes in these price ratios in turn lead to production and re-

source reallocation. Thus, some production sectors will contract while others will expand.

Households may be affected in two fronts: income and consumption. In terms of income, tariff reform may generate a series of changes in sectoral imports, exports, production, demand for factors and factor payments, and ultimately in household income. Households who are endowed with factors that are used intensively in the expanding sectors may benefit from the tariff reform. In terms of consumption, on the other hand, tariff reform may change the structure of consumer prices and benefit those household groups whose consumer basket is dominated by goods with declining prices as a result of said reform.

Macro effects

Table 1 summarizes the effects of tariff reforms at the macro level. In the period 1994-2000, the average nominal tariff rate declined by –65 percent. Based on the simulation, the effects of this reduction indicate that the overall import prices in local currency declined by –10.4 percent, which in turn increased import volume by 5.2 percent. The decline in import prices translated into a reduction in domestic prices, including all other taxes, by –2.6 percent. Consequently, the decrease in both the

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import and domestic prices led to a reduction in consumer prices by -2.9 percent.

The increase in import volume meanwhile saw a crowding out of local production for local sales marginally by -0.4 percent. Despite the crowding-out effects, however, and because of the relatively higher imports, the quantity of goods available in the market (composite goods) nonetheless improved by 0.5 percent. In principle, this should benefit the consuming public.

Table 1. Effects at the macro level

	Percentage change (%)
<i>Average change in:*</i>	
Nominal tariff rate reduction: 1994-2000	-65.0
<i>Effects:</i>	
Import prices in domestic currency	-10.4
Import volume	5.2
Domestic prices including other local taxes	-2.6
Domestic production for local sales	-0.4
Consumer prices	-2.9
Composite good	0.5
Local cost of production	-2.6
Export volume	5.4
Overall output	0.4
*Percentage change from base	

Another favorable effect of the decline in tariff rates was the reduction in the local cost of production by -2.6 percent, which in turn improved the country's competitiveness in the international market. Thus, export volume increased by 5.4 percent. Because of the relatively higher growth in exports than the crowding-out effects of higher imports on local production, overall output of the economy improved marginally by 0.4 percent.

Sectoral effects

With regard to the sectoral impact, the decline in tariff rates on agriculture imports (-48.9 percent) during the period analyzed was much lower than the drop in tariffs on industrial imports (-65.3 percent) as shown in Table 2. The effects of these sectoral tariff changes on various indicators of volume change have to be analyzed together with the percentage share of the sectors to the total. For example, although the growth in imports of food manufacturing (12.7 percent) is higher than that of the non-food manufacturing sector (5.4 percent), it is the latter which contributes largely to the overall import growth of 5.2 percent. This is because the nonfood manufacturing sector has a commanding share of 76.1 percent to total imports. Also, in the same manner, it is the nonfood manufacturing sector that contributes significantly to the overall export growth of 5.4 percent, because it has the largest export share of 48.2 and has the highest export volume growth of 10.1 percent.

Table 2. Sectoral effects

	Tariff δm_i	Volume changes (%)					Percentage share (%)				δ in labor demand	δ in return to capital
		δm_i	δe_i	δd_i	δq_i	δx_i	m	e	x	va		
Agriculture	-48.9	2.3	0.8	-1.7	-1.5	-1.4	1.5	6.5	14.3	20.0	-2.9	-1.9
Industry	-65.3	6.1	8.4	-0.3	1.5	1.5	88.8	59.7	46.7	31.6	2.7	3.0
of which: Food manufacturing	-55.4	12.7	1.1	-1.7	-0.6	-1.4	5.4	8.6	14.7	8.8	-3.8	-2.9
Nonfood manufacturing	-64.0	5.4	10.1	1.0	3.1	4.2	76.1	48.2	23.0	13.4	9.6	10.7
Services		-2.0	0.8	-0.4	-0.2	-0.2	9.7	33.8	39.0	48.4	-0.3	0.6
Total	-65.0	5.2	5.4	-0.4	0.5	0.4	100.0	100.0	100.0	100.0		0.9
where												
m: imports		q: composite commodity		δ : means change								
e: exports		x: total output										
d: domestic sales		va: value added										

The increase in the volume of imports of nonfood manufacturing does not crowd out its domestic production. In fact, this is the only sector that registers a positive growth of one percent in domestic production for local sales. These two reinforcing effects result in the increased availability of nonfood manufacturing goods in the market for consumption by 3.1 percent.

The sectoral production reallocation effects of tariff reduction are evident in the results. Agriculture and service sectors contracted by -1.4 percent and -0.2 percent, respectively, while industry expanded by 1.5 percent. The expansion in the latter is primarily due to the favorable effects on the nonfood manufacturing sector.

Sectoral results in terms of resource movement also show favorable effects for the nonfood manufacturing sector. Labor, for instance, moved towards this sector, as indicated by the improvement in its demand for labor by 9.6 percent and by the contraction in agriculture and service sectors, -2.9 percent and by -0.3 percent, respectively.

The expansion in output of the nonfood manufacturing sector also improved the return to capital by 10.7 percent. The return to capital in agriculture declined by -1.9 percent because of the contraction in the sector's output. However, the service sector enjoyed a slightly higher return to capital of 0.6 percent.

Table 3. Wages and unemployment effects (in agriculture and industry)

Labor type:	Change in average wage	Change in average unemployment rate
Skilled* agriculture labor	-1.1	6.1
Unskilled agriculture labor	-1.4	9.8
Skilled industry/production labor	1.2	-2.6
Unskilled industry/production labor	2.0	-11.5
Overall	1.0	

*skilled implies high school graduate and up while unskilled zero education to third year high school

Wage and unemployment effects

There are four labor types that the study analyzed, the effects on each type's wages and unemployment of which are presented in Table 3.

In agriculture, the contraction led to a reduction in wages for agriculture labor. Wage for skilled agriculture labor declined by -1.1 percent while for unskilled by -1.4 percent. Again, because of the contraction in agriculture, unemployment in agriculture worsened. The unemployment rate for skilled agriculture labor increased by 6.1 percent while for unskilled, it increased by 9.8 percent.

Contrasting results meanwhile show up in production labor (or that referring to industry). Because of the expansion in industry, particularly the nonfood manufacturing sector, wage for skilled production labor improved by 1.2 percent and for unskilled, by 2.0 percent. Again, because of the expansion, unemployment rate for skilled production labor dropped by -2.6 for the skilled and by -11.5 for the unskilled.

Income effects

From the above results, it follows that because of the overall increase in the rate of return to capital by 0.9 percent and the overall wage by one percent, factor incomes of household improved. However, the effects are not uniform across sectors and across factor inputs. In fact, it is apparent that the reduction in tariffs favors the nonfood manufacturing sector. As a result, payments to factors used in agriculture dropped and unemployment in agriculture labor worsened. This would certainly have an effect on the income distribution.

Table 4 indicates that household income from agriculture labor dropped. This is due largely to the drop in wages and the increase in the unemployment of agriculture labor. On the other hand, labor income from industry or production labor improved for both skilled and unskilled type due to the favorable effects on wages and employment of production labor.

In terms of income from capital used in agriculture, Table 4 also shows that it dropped by -1.9 percent. This is entirely due to the reduction in the rate of return to capital in agriculture as discussed earlier. For the rest of the sectors, capital income improved.

To analyze the effects on income distribution, it is necessary to have an idea of the sources of urban and rural household incomes. One can observe from the structure of household income in Table 5 that rural households depend heavily on unskilled agriculture labor (19.5 percent) and capital in agriculture (16.8 percent). In fact, the overall dependence of rural households on agriculture factor income is 39.2 percent (sum of 2.9 + 19.5 for labor + 16.8 percent for capital). In contrast, the dependence of urban households on agriculture income is only 6.6 percent (sum of 1.2 + 3.0 for labor + 2.4 percent for capital). For households in the National Capital Region (NCR), the dependence is almost nil at only 0.5 percent (sum of 0.2 + 0.1 + 0.2 percent). Thus, based on this household income structure, the effects would not be so favorable to rural household income compared to that of urban households.

Table 4. Household income effect (%)

	Labor				Capital			
	Skilled agriculture	Unskilled agriculture	Skilled production	Unskilled production	Agriculture	Industry	Wholesale and retail	Other services
Total households	-2.0	-2.0	1.3	2.8	-1.9	3.0	0.6	0.5

Table 5. Sources of household income: various regions (%)

	Labor				Capital				Dividends	Transfers	Foreign remittances	Total
	Skilled agriculture	Unskilled agriculture	Skilled production	Unskilled production	Agriculture	Industry	Wholesale and retail	Other services				
Philippines	1.7	7.4	35.1	7.5	6.2	11.2	5.6	9.9	6.7	5.6	3.1	100
NCR	0.2	0.1	40.7	4.9	0.2	9.5	5.4	14.2	18.3	3.6	2.9	100
Urban*	1.2	3.0	39.8	6.8	2.4	11.3	6.1	11.8	9.2	5.2	3.2	100
Rural	2.9	19.5	22.2	9.4	16.8	10.9	4.2	4.6	0.0	6.8	2.7	100

*Including NCR, National Capital Region
Source: 1994 FIES

Indeed, the effect on income distribution is not favorable. In fact, the Gini coefficient increased from 0.4644 before the tariff reduction to 0.4672 after the tariff reduction, implying a worsening of the income inequality problem.

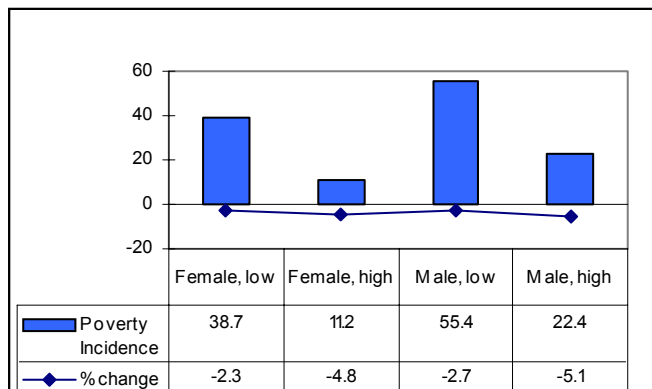
Poverty effects

For purposes of this *Notes*, only the results of poverty incidence (headcount index) are being reported and analyzed although the longer version of our study also looked at poverty gaps and poverty severity.

The results are disaggregated by major location and by type of household head (gender and level of education). Figure 1 shows the results for the entire Philippines, Figure 2 for the National Capital Region (NCR), Figure 3 for urban areas excluding the NCR, and Figure 4 for rural areas. The bar charts indicate the 1994 poverty incidence for each of the class of households while the line segments show the percentage change of the poverty incidence after the tariff change.

One can observe that tariff reduction leads to a reduction in poverty incidence across household types and

Figure 1. Poverty incidence (Philippines) 1994 before and after tariff change



across major location. The improvement in poverty comes from the improvement in the overall factor prices (wages and return to capital) and the reduction in consumer prices.

However, across major location and household groups, the poverty effects vary considerably. In general, the reduction in poverty incidence is significantly higher in locations where the level of incidence is lowest. For example, NCR has the lowest poverty incidence (average of 10.4 percent in 1994) as compared to the rural areas (average of 54.3 percent), yet the drop in the incidence is significantly higher in the former than in the latter. The same thing holds in the results for urban (excluding NCR) and for rural. The difference is largely attributed to the favorable effects of tariff reduction on the nonfood manufacturing sector, which is largely located in urban areas particularly the NCR, and the contraction in agriculture, the major source of income of rural households.

Meanwhile, interesting results are observed across household types. Female-headed households with high education in the NCR and in other urban centers enjoy the largest drop in poverty incidence. These are incidentally the household groups with the lowest poverty incidence. In 1994, for the whole country, the poverty incidence for female-headed households with high education was 11.2 percent, significantly lower than the 55.4

Figure 2. Poverty incidence (NCR) 1994 before and after tariff change

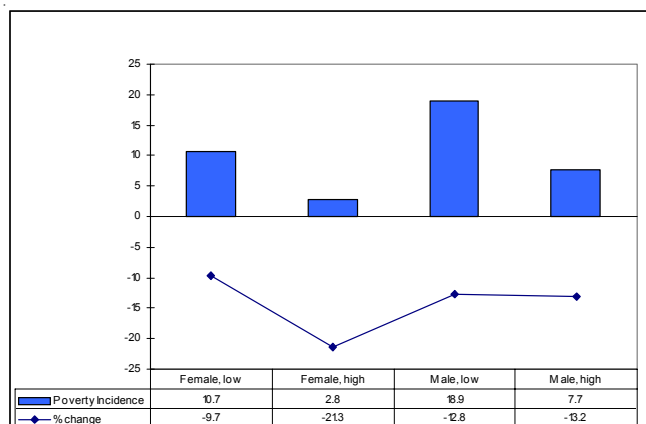


Figure 3. Poverty incidence (urban excluding NCR) 1994, before and after tariff change

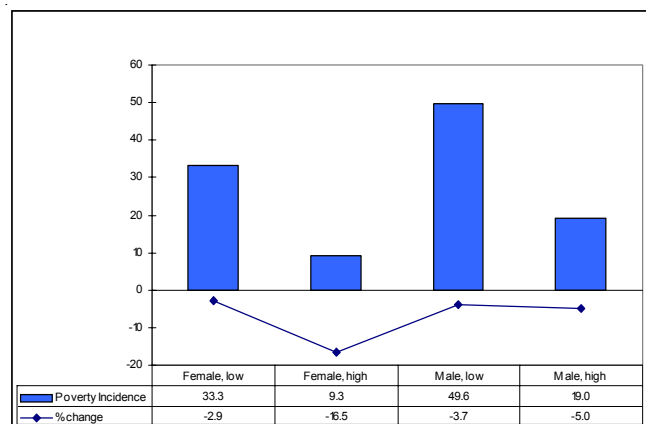
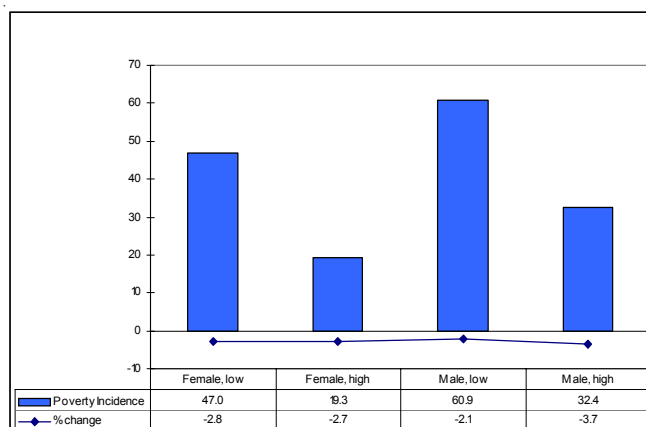


Figure 4. Poverty incidence (rural) 1994 before and after tariff change




poverty incidence for male-headed households with low education. The factor that led to this particular set of results is the relatively high export growth effect in the nonfood manufacturing sector (10.1 percent growth, see Table 2). One should note that the leading export items in the nonfood manufacturing sectors are semiconductor and garments. These items are largely produced in export processing zones, which are usually located in urban areas. Furthermore, labor employed in semiconductor and garments industries is dominated by females who are usually at least high school graduates, and with vocational training.

Summary and implication

From the simulation results involving the actual tariff reduction between 1994 and 2000, it is evident that agriculture contracted while industry expanded, particularly the nonfood manufacturing sector. Since rural households depend heavily on agriculture for their income, the problem of income inequality therefore further deteriorated.

However, the impact on poverty is positive. On the whole, poverty incidence dropped because of the general increase in factor prices and the decline in consumer prices. Across household groups, meanwhile, female-headed

households in urban areas, particularly in the NCR, experienced the largest drop in poverty incidence. This is mainly due to the biased effects of tariff reduction in favor of the nonfood manufacturing sector, which is largely located in urban centers and where labor employed is usually dominated by women.

The implication of all these for policy is that tariff reduction is generally pro-poor. Although there is a bias in favor of factors employed in the manufacturing sector, the overall reduction in consumer prices resulted in the reduction in the poverty incidence across households. 

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