MIMAP
Micro Impacts of Macroeconomic Adjustment Policies
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Project Updates

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Tax Changes in the 1990s:
Where did the burden fall?

In the 1990s, a number of changes in the revenue structure of the national government took place in the Philippines. The changes affected, in general, the levels and proportion of shares of taxes in the national government's total revenues and, in particular, those of direct and indirect taxes in the tax earnings.

How have the changes affected households? On whose shoulders did the burden of the tax changes fall?

In a series of simulation exercises[1] using the computable general equilibrium (CGE) model[2] conducted under the auspices of the MIMAP–Philippines project, these tax changes were analyzed. The analysis included (a) changes in income taxes between 1990 and 1997, and (b) changes in indirect taxes between 1990 and 1994.

[1] *MIMAP–Philippines Research Paper No. 45. "Impact Analysis of Tax Changes Using a Computable General Equilibrium Model: A Summary of Results."*

[2] *The model has 34 production sectors and 10 household types grouped in deciles. The model was calibrated using the 1990 Social Accounting Matrix (SAM) constructed by the National Statistical Coordination Board (NSCB).*

Table 1: Structure of government revenue

	1988	*1991*	*1994*	*1997*
Distribution (%)				
Total Tax Revenue	80.1	82.6	80.7	87.4
Direct	24.3	27.7	27.3	34.8
Indirect	52.1	52.6	47.1	47.9
Local	29.4	23.2	22.6	27.7
Foreign trade-based	22.7	29.4	24.5	20.2
Others	3.7	2.3	6.3	4.7
Other Revenue	19.9	17.4	19.3	12.6
Total NG Revenue	100.0	100.0	100.0	100.0
Total Taxes/GNP (%)	11.6	14.5	15.6	16.3
Direct taxes/GNP	3.5	4.9	5.3	6.5
Indirect taxes/GNP	7.5	9.3	9.1	9.0

Source: Philippine Statistical Yearbook

Tax changes

Table 1 shows an increasing share of tax revenue to the total revenue of the national government—from 80.1 percent in 1988 to 87.4 percent in 1997. The share of direct taxes increased from 24.3 percent in 1988 to 34.8 percent in 1997. Over the same period, the share of indirect taxes, on the other hand, declined from 52.1 percent to 47.9 percent.

In particular, for indirect taxes, both local and foreign trade-based taxes showed declining shares. However, between 1994 and 1997, the share of local indirect taxes increased from 22.6 to 27.7 percent which may be attributed to the implementation of the expanded value-added tax. Foreign trade-based indirect taxes increased from 22.7 percent in 1988 to 29.4 percent in 1991 as a probable result of the temporary implementation of the import levy ("the Estanislao levy") during the stabilization period in the early 1990s. Since then, however, foreign trade-based indirect taxes had declined, resulting from the tariff reform program.

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WHAT'S INSIDE

MIMAP Policy Forum Series Launched

As part of the advocacy plan of the Micro Impacts of Macroeconomic Adjustment Policies (MIMAP)–Philippines Project, the first of a series of policy fora was held on January 25, 2000 at the Dusit Hotel Nikko in Makati City. The first forum tackled the socioeconomic effects of tax and trade reforms in the Philippines.

Invited as resource speakers were Dr. Josef Yap, Dr. Aniceto Orbeta, Jr. and Dr. Caesar Cororaton, Senior Research Fellows at the Philippine Institute for Development Studies (PIDS).

Among the papers presented were:

- "Structural Adjustment, Stabilization Policies and Income Distribution in the Philippines: A Re-examination of the Period 1986-1999" by Dr. Josef Yap,
- "The Philippine Tariff Structure: An Analysis of Changes, Effect and Impact" and
- "Impact Analysis of Tax Changes Using A Computable General Equilibrium Model: A Summary of Results" by Dr. Caesar B. Cororaton,
- "Macroeconomic Policy Changes and the Joint Schooling and Labor Force Participation Decision of Children, 10-24 Years Old" and
- "Impact of Macroeconomic Policy Change on the Demand for Outpatient Care: A Note on Further Simulation Results" by Dr. Aniceto Orbeta Jr.

The papers presented were the results of the simulations from the various models developed by the project through the years, namely, the macroeconometric with an income distribution bloc model, the computable general equilibrium model, and the household models on education, health and nutrition.

Serving as discussants were Tariff Commission Chairman Emmanuel Velasco, Assistant Director Cleofe Pastrana of the Social Development Staff of the National Economic and Development Authority (NEDA), Dr. Exaltacion Lamberte, Professor at the De La Salle University, and Dr. Erlinda Medalla, Senior Research Fellow at the PIDS.

Some of the crucial points raised include:

- Identify safety nets since the results of the studies showed that the resources have not flowed into the disadvantaged sector.
- Take into account the magnitudes because if policy changes will have to be justified, the gainers should be able to compensate the losers.
- Researchers should take into account the regional difference or possibly provincial difference since data are already available at this level.
- Include productivity in the study because it has a more direct impact than income distribution.
- Focus on income distribution by deciles to highlight the social dimension of poverty.

"Identify safety nets since the results of the studies showed that the resources have not flowed into the disadvantaged sector."

The forum was also participated in by representatives from the Department of Budget and Management (DBM), Department of Trade and Industry (DTI), Food and Nutrition Research Institute (FNRI), Department of Education, Culture and Sports (DECS), National Statistics Office (NSO), National Statistical Coordination Board (NSCB), Congressional Planning and Budget Office (CPBO), National Anti-Poverty Commission (NAPC), Bureau of Labor and Employment Statistics (BLES), University of the Philippines School of Economics (UPSE), and NEDA. */LEV/* MIMAP

Second MIMAP Modelling Training Held in Manila

The MIMAP–Philippines hosted the 2nd MIMAP Modelling Training Workshop on February 28-March 11, 2000 at the Asia-Pacific College in Makati City. The workshop was intended to teach the techniques for evaluating the impacts of macroeconomic policies, with special emphasis on Computable General Equilibrium Models (CGEMs), and to introduce the Social Accounting Matrices (SAMs) which are the database for CGE models.

The course also provided a hands-on training on the use of the General Algebraic Modelling System (GAMS) software and included some programming and simulation exercises. It likewise served as an opportunity for the senior economists from MIMAP country projects to directly take part in the teaching activities as they were given specific topics to discuss in the early part of the workshop.

Mr. Dumont (extreme right) supervises the hands-on training of the participants of the MIMAP Modelling Workshop.

Handling the basic training component was the MIMAP team from Quebec under the leadership of Dr. Bernard Decaluwe and with the assistance of Mr. Jean-Christophe Dumont and Ms. Veronique Robichaud. Dr. Madanmohan Ghosh, resource person from the University of Western Ontario, also gave a special lecture on welfare analysis in CGE models and presented the results of his study on "State-Owned Enterprises, Shirking and Trade Liberalization."

Participating in the two-week workshop were the senior and junior modellers from the different MIMAP teams, including the Impact of Macroeconomic Adjustment Policies on the Environment (IMAPE) Project–Philippines, the Vietnam Economic and Environment Management (VEEM) Research Program and the gender project of the International Research Development Centre (IDRC) of Canada.

The last two days of the training were alloted for the 2nd MIMAP Modeller's Meeting where updates on the status of the modelling work being undertaken by each country project were discussed. The discussion focused on the sharing of experiences of the MIMAP modelling teams on some of the very crucial technical points in CGE modelling. At the end of the meeting, it was agreed that each MIMAP project will present the results of its study in the upcoming annual meeting in September. */RCR/*

Dr. Bernard Decaluwe explains the relevance of the training session to the respective modelling work by the MIMAP country teams.

Tax Changes in the 1990s...

From Page 1

Table 2 shows the changes in the direct income taxes of households in 1991, 1994 and 1997 based on the various issues of the *Family Income and Expenditures Survey (FIES)*. Per computation of taxes-to-expenditure and taxes-to-income ratios across decile groups, it is shown that the change in the direct tax structure was progressive in the sense that the tax incidence was much higher for higher decile groups than for the lower ones.

For indirect tax changes, Table 3 outlines the indirect tax ratios across the different production sectors of the economy over the period 1990 and 1994. These ratios were computed from the 1990 and 1994 input-output tables. Among the sectors which saw high increases in the indirect tax were: other food manufacturing (9.6); forestry (9.4); private health services (5.2); fishing (3.3), and nonmetal manufacturing (3.0).

Table 2: Direct tax ratios of households

	Taxes/Expenditures (%)			Taxes/Income (%)		
	1991	1994	1997	1991	1994	1997
Total	**1.44**	**1.40**	**2.50**	**1.15**	**1.14**	**2.02**
Decile 1	0.16	0.17	0.17	0.17	0.18	0.19
Decile 2	0.18	0.21	0.15	0.18	0.21	0.16
Decile 3	0.15	0.20	0.20	0.15	0.19	0.19
Decile 4	0.23	0.22	0.21	0.21	0.20	0.20
Decile 5	0.26	0.26	0.34	0.23	0.23	0.31
Decile 6	0.41	0.39	0.48	0.35	0.34	0.43
Decile 7	0.61	0.55	0.90	0.52	0.47	0.79
Decile 8	0.92	0.86	1.38	0.76	0.71	1.15
Decile 9	1.37	1.25	2.10	1.10	1.01	1.67
Decile 10	3.00	3.06	5.38	2.05	2.19	3.70

Source: Family Income and Expenditures Surveys
Note: Deciles 1 to 3 represent the lower income classes while deciles 9 to 10 are the higher income groups.

Table 3: Sectoral indirect tax ratios:* 1994 relative to 1990

Sectors	Tax Ratio**	Sectors	Tax Ratio**
Palay and corn	1.4	Paper and paper manufacturing	1.3
Fruits and vegetables	2.2	Chemicals manufacturing	0.5
Coconut and sugarcane	0.8	Petroleum refining	0.1
Livestock and poultry	2.0	Nonmetal manufacturing	3.0
Fishing	3.3	Metal manufacturing	1.1
Other agricultural production	1.5	Electrical equipment manufacturing	0.7
Forestry	9.4	Transport and other machinery mfg.	0.7
Mining	2.8	Other manufacturing	0.3
Rice and corn milling	1.5	Construction	0.7
Milled sugar	0.6	Electricity, gas and water	1.2
Meat manufacturing	2.7	Financial sector	0.5
Fish manufacturing	0.7	Private education services	1.7
Beverage and tobacco manufacturing	0.1	Private health services	5.2
Other food manufacturing	9.6	Public education services	0.0
Textile manufacturing	0.8	Public health services	0.0
Garments and leather manufacturing	0.5	General government services	0.0
Wood manufacturing	0.3	Other services	1.6

*Indirect Taxes/(Imports+Output)
**1994/1990
Source: 1990 and 1994 Input-Output Tables

Simulation results

The results of the direct income tax simulations are summarized in Table 4. On the whole, the results are generally progressive. The change in the direct income taxes across households was higher for lower income classes than for higher income groups, with the progressivity quite evident in the change in consumption of households, especially in 1997. Both deciles 9 and 10 (the higher income classes) showed negative consumption change in 1997 while the lower decile groups (deciles 1 to 3) all had positive consumption changes.

On the other hand, the results of the indirect tax simulations

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What's Happening to the Nutrition Status of Children in the Country?

An Update

Recent results of the *National Nutrition Survey* show that protein-energy malnutrition among children continues to persist in the country. Protein-energy malnutrition is manifested through the prevalence of underweight, stunting, and wasting among children. And although there is a slight nutritional improvement as indicated by a decline in *stunting*, a measure of chronic/long-term malnutrition particularly among school children, the deteriorating performance of children in terms of current or acute malnutrition remains a great concern.

The national estimates on the prevalence of malnutrition among children, 0-10 years of age, are shown in Figure 1. The results show that among the preschool-aged children, 9.2 percent are at least moderately underweight and 5.4 percent are stunted. Meanwhile, the incidence of wasting among this age group is common in about 7 out of every 100 (7.2%) children. Translating these proportions into the number of preschoolers, the figure amounts to 967,000 preschoolers being underweight, 568,000 stunted, and 757,000 with incidence of wasting.

From 1996 to 1998, the proportion of underweight children, 0-5 years old, increased by 0.4 percent as seen in Table 1. Likewise, the prevalence of wasting among preschool and school-aged children rose by 1.4 percent and 0.8 percent, respectively. On the other hand, the proportion of underweight children among the school-age group declined by 0.4 percent. Stunting likewise declined by 0.1 percent among preschoolers and by 0.6 percent among school-aged children.

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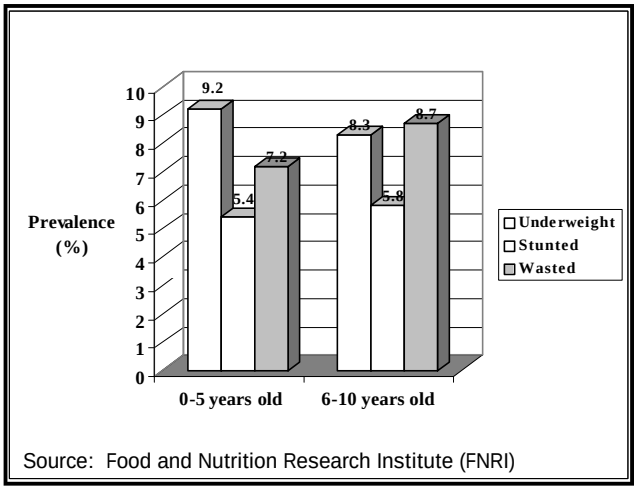
Figure 1: Prevalence of malnutrition among 0-5 and 6-10 year-old children: Philippines, 1998



Source: Food and Nutrition Research Institute (FNRI)

Table 1: Prevalence of malnutrition among 0-5 and 6-10 year-old children: Philippines, 1996 and 1998

Nutritional Status	*Prevalence (%) 1996*	*1998*	*Difference*
0-5 Years old			
Underweight	8.8	9.2	0.4
Stunted	5.5	5.4	(0.1)
Wasted	5.8	7.2	1.4
6-10 Years Old			
Underweight	8.7	8.3	(0.4)
Stunted	6.4	5.8	(0.6)
Wasted	7.9	8.7	0.8

Source: Food and Nutrition Research Institute (FNRI)

Nutrition Status of Children...

From Page 5

Table 2: Prevalence of malnutrition among 0-5 year old children by province/city: Philippines, 1998

Province / City	Underweight[1]	Stunted[2]	Wasted[3]
Philippines	**9.2**	**5.4**	**7.2**
NCR	**7.1**	**2.7**	**7.1**
Manila	6.0	1.6	6.3
Quezon City	5.5	2.9	4.8
Pasay City	6.4	3.0	7.6
Kalookan City	5.2	4.2	5.3
Makati City	7.0	4.1	7.2
San Juan/Mandaluyong City	9.5	2.5	4.0
Marikina/Pasig City	8.0	2.6	10.8
Taguig/Muntinlupa/Pateros	8.5	1.9	6.4
Las Piñas/Parañaque	10.2	4.3	8.6
Malabon/Navotas/Valenzuela	12.2	4.9	13.8
I. Ilocos	**9.6**	**3.1**	**11.5**
Ilocos Norte	9.1	3.0	10.5
Ilocos Sur	9.3	1.4	10.5
La Union	11.1	3.8	13.4
Pangasinan	9.5	3.3	11.4
CAR	**8.2**	**6.7**	**4.3**
Abra	13.1	5.1	12.5
Apayao	7.5	5.4	9.8
Benguet	3.0	2.1	0.9
Ifugao	6.2	8.4	1.4
Kalinga	16.6	12.0	5.1
Mountain Province	4.8	6.7	1.8
II. Cagayan Valley	**9.9**	**3.8**	**8.4**
Batanes	1.5	0.6	2.3
Cagayan	11.4	3.7	7.8
Isabela	9.2	4.0	10.4
Nueva Vizcaya	6.8	3.0	5.6
Quirino	11.9	4.2	6.4
III. Central Luzon	**7.1**	**3.6**	**8.4**
Bataan	4.9	1.3	8.2
Bulacan	5.1	3.0	7.3
Nueva Ecija	7.5	2.2	7.8
Pampanga	6.6	5.2	9.1
Tarlac	11.9	5.0	10.5
Zambales	12.6	5.9	8.1

Province / City	Underweight	Stunted	Wasted
IV. Southern Tagalog	**7.0**	**3.9**	**5.6**
Aurora	10.7	7.5	10.5
Batangas	5.8	2.9	5.3
Cavite	3.1	1.0	3.0
Laguna	7.0	1.9	5.5
Marinduque	11.2	6.9	5.9
Occidental Mindoro	9.9	7.0	10.1
Oriental Mindoro	8.0	5.2	6.9
Palawan	10.3	6.8	6.6
Quezon	8.3	5.5	5.1
Rizal	9.4	5.4	9.7
Romblon	8.5	7.0	5.8
V. Bicol	**9.7**	**5.7**	**6.8**
Albay	4.9	2.4	8.2
Camarines Norte	11.4	4.9	7.4
Camarines Sur	9.3	7.8	4.9
Catanduanes	10.0	4.4	7.6
Masbate	14.9	9.1	7.1
Sorsogon	11.3	4.4	7.1
VI. Western Visayas	**13.9**	**6.2**	**11.3**
Aklan	14.2	5.0	11.0
Antique	18.6	9.8	12.4
Capiz	11.8	5.9	7.5
Guimaras	10.6	5.2	7.5
Iloilo	12.9	5.6	8.6
Negros Occidental	14.0	5.9	13.3
VII. Central Visayas	**8.4**	**6.5**	**4.7**
Bohol	7.6	4.9	3.1
Cebu	8.6	8.7	5.5
Negros Oriental	7.8	3.8	4.7
Siquijor	5.6	2.5	3.8
VIII. Eastern Visayas	**11.1**	**6.4**	**6.5**
Biliran	6.1	3.0	5.7
Eastern Samar	8.6	9.1	5.4
Leyte	9.6	4.7	4.6
Northern Samar	12.7	5.2	8.4
Southern Leyte	16.8	11.4	11.7
Western Samar	11.9	5.8	6.4

[1]A child is considered underweight if his/her weight is less than that of normal children of the same age.
[2]A child is considered stunted if his/her height is less than that of normal children of the same age.
[3]A child is considered wasted if his/her weight is less than that of normal children of the same height.

Table 2 (con't.)

Province / City	Underweight	Stunted	Wasted
IX. Western Mindanao	**11.1**	**7.1**	**8.2**
Zamboanga del Norte	9.8	9.1	4.7
Zamboanga del Sur	12.7	6.5	10.8
X. Northern Mindanao	**7.7**	**6.5**	**5.0**
Bukidnon	7.9	8.9	2.0
Camiguin	4.7	1.6	5.1
Misamis Occidental	6.3	7.8	7.4
Misamis Oriental	7.3	4.5	4.9
XI. Southern Mindanao	**9.3**	**6.4**	**6.1**
Compostela	9.1	5.8	4.5
Davao del Norte	9.2	4.0	11.1
Davao del Sur	7.5	5.8	7.5
Davao Oriental	6.1	7.0	4.9
Sarangani	13.0	5.5	6.6
South Cotabato	14.5	10.1	5.0
Sultan Kudarat	11.1	6.3	5.1
XII. Central Mindanao	**11.1**	**9.7**	**6.0**
Cotabato City	12.8	7.4	7.1
Marawi City	14.2	20.7	9.9
Lanao del Norte	5.6	9.2	3.4
North Cotabato	14.1	9.5	7.6
Caraga	**10.1**	**6.9**	**5.2**
Agusan del Norte	8.3	6.1	4.9
Agusan del Sur	8.8	6.3	3.2
Surigao del Norte	12.3	6.0	6.0
Surigao del Sur	10.0	9.3	6.5
ARMM	**9.2**	**10.1**	**8.2**
Lanao del Sur	7.4	14.6	7.8
Maguindanao	10.7	5.5	9.2
Sulu	8.9	12.4	6.9
Tawi-tawi	10.4	8.1	9.4
Highly Urbanized Cities			
*Luzon***			
Baguio City	5.1	7.9	0.6
Visayas			
Iloilo City	13.1	6.0	13.2
Bacolod City	16.1	7.3	13.7
Cebu City	10.5	6.4	5.8
Mandawe City	11.7	7.7	4.1
Toledo City	10.0	7.6	3.8
Mindanao			
Zamboanga City	8.2	5.1	7.7
Cagayan de Oro City	10.3	2.2	10.1
Davao City	5.8	6.6	3.6
Iligan City	4.6	6.3	1.1

**Includes cities of NCR as indicated above
Source: Food and Nutrition Research Institute (FNRI)

"The Food and Nutrition Research Institute (FNRI) attributed the relatively bleak nutrition picture to unforeseen events like the recent Asian financial crisis."

As far as the local government situation is concerned, the survey results indicate that some provinces / cities had an even higher prevalence of malnutrition as compared to the national average (Table 2). Topping the list of areas with the highest prevalence of malnutrition among children were Antique, Marawi City, and the cluster of Malabon / Navotas / Valenzuela. Among the provinces, Antique was noted to have the highest prevalence of underweight children, with nearly 2 out of every 10 preschoolers (18.6%) afflicted by the condition. The prevalence rate is about twice that of the average for the country. Meanwhile, Marawi City was ranked as having the highest proportion of stunted children at 20.7 percent, which is about four times that of the national level. On the other hand, the cluster of Malabon / Navotas / Valenzuela had the highest prevalence of wasting among children, followed closely by another highly urbanized area, Bacolod City, at 13.7 percent.

The Food and Nutrition Research Institute (FNRI) attributed this relatively bleak nutrition picture to unforeseen events like the recent Asian financial crisis. It further noted a study conducted by the Micro Impacts of Macroeconomic Adjustment Policies (MIMAP) Project–Philippines analyzing the social impact of the financial crisis in the country which disclosed the sequential events that generated such adverse impact on the nutritional status in the country. These events include, among others, the fall of the peso in July 1997 combined with the El Niño weather phenomenon.

In view of the survey results, the FNRI recommends the strengthening of relevant protein-energy malnutrition (PEM)-oriented programs, especially in the areas of Antique, Southern Leyte, Bacolod City, Marawi City, North and South Cotabato. In addition, it stresses the importance of an intensified nutrition advocacy program for policymakers and local government units. */BEM/*

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Tax Changes in the 1990s...
From Page 4

Table 4: Analysis of tax changes

Households	Indirect Taxes*		Direct Taxes**			
			Income		Consumption	
	Income	Consumption	1994	1997	1994	1997
Decile 1	-2.6	-2.6	0.6	2.1	0.6	2.0
Decile 2	-2.9	-3.1	0.6	2.2	0.5	2.1
Decile 3	-2.9	-3.2	0.5	2.2	0.3	1.7
Decile 4	-2.9	-3.3	0.5	2.1	0.5	1.7
Decile 5	-3.0	-3.4	0.4	2.0	0.4	1.2
Decile 6	-2.8	-3.3	0.3	2.1	0.3	1.3
Decile 7	-2.5	-3.0	0.2	2.2	0.4	0.5
Decile 8	-2.3	-2.9	0.1	2.2	0.3	0.1
Decile 9	-2.1	-2.7	0.1	2.4	0.4	-0.5
Decile 10	-2.3	-3.0	0.2	2.3	-0.6	-6.0

*Percent change: 1994 relative to base
**Percent change: 1994 and 1997 relative to base

indicate regressivity both in terms of income and consumption. In terms of income, the decline in income was faster for lower deciles than for higher deciles. The same pattern holds for consumption.

In sum, the recent change in the tax structure which moved towards direct taxation is beneficial in the sense that the tax burden falls more on the household groups which have the ability to pay. Given the country's income distribution problem in general, this tax restructuring will surely be welfare-improving. */CBC/* MIMAP

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