

# **STRUCTURAL ADJUSTMENT AND POVERTY IN THE PALESTINIAN TERRITORIES**

A research proposal  
submitted to the

**Poverty and Economic Policy (PEP) Research Network:  
Modeling and Policy Impact Analysis (MPIA)**

by

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*“Even though our proposal might be rejected, we are definitely enriched by the experience”.*

**Palestinian Poverty Research Team  
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## **1. Abstract**

Since the outbreak of the second *Intifada* in September 2000, Palestinian labor flows to Israel have been substantially reduced. From a peak of 150,000 workers in early 2000 - generating an annual average income of over \$800 million - Palestinian daily labor flows to Israel have been reduced to less than 20,000 in 2004. The Palestinian economy, with the aid of donor countries, has been able to absorb only a small amount of this excess labor supply through employment generation schemes and other emergency programs. Tightened border closures with Israel, within the Palestinian Territories, and with the rest of the world have all worked against the creation of new employment opportunities. This structural adjustment shock has dramatically increased the rates of unemployment and poverty in both the West Bank and the Gaza Strip. We will construct a Computable General Equilibrium (CGE) model to analyze the effects of this structural adjustment shock on household incomes and poverty, calibrated to a Palestinian Social Accounting Matrix (SAM) for 2003. Households will be disaggregated into different socio-economic groups – urban low education; urban high education; rural landless; and rural landowners – and their consumption behavior will be represented by a Linear Expenditure System (LES) expenditure function. The model will then simulate several fiscal, labor, and trade policies to cushion the poverty impact of this structural adjustment shock.

## **2. Research questions and objectives**

### **2.1 Introduction**

Several studies using different methodologies have pointed to a sharp increase in poverty levels since 2000. The Palestinian Central Bureau of Statistics (PCBS) published

a series of *Impact Surveys* between 2001 and 2004 which reported the proportion of households below the poverty line ranging between 61 and 72 percent<sup>1</sup>. The University of Geneva, based on their most recent *Palestinian Perception Surveys*<sup>2</sup>, estimated the proportion of poor Palestinians at 58 percent in July 2003. The World Bank, in a study titled “Twenty Seven Months” estimated that poverty in 2003 affected some 60 percent of the Palestinian population.

There are no shortages of studies describing the dramatic increase in poverty since the start of the second *Intifada* in September 2000. The major causes of this dramatic increase has been tightened border closures both within the Palestinian Territories and with the rest of the world, higher unemployment rates, and an expansion of the informal sector. A simple back-of-the-envelope calculation clearly demonstrates that Israeli policies of tightened border closures, house demolitions, and destruction of property have all contributed towards increasing levels of poverty, especially in the Gaza Strip. As poverty rates have increased, Palestinian households have adopted various coping strategies, the most common being transfers within households and relatives.

## **2.2 Research questions and objectives**

Although several studies have been conducted on the rates and levels of poverty in the Palestinian Territories, there has been no systematic analysis of the impact of the structural adjustment shock on household income distribution within and between different socioeconomic groups. This research undertaking aims to answer three related questions. First, what are the transformations in a Palestinian Social Accounting Matrix

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<sup>1</sup> Source: PCBS (December 2003) “Impact of Israeli Measures on the Economic Conditions of Palestinian Households”, Ramallah, West Bank.

<sup>2</sup> *Palestinian Public Perceptions*, Report VI, October 2003, Palestine research Unit, IUED Geneva.

(SAM) with respect to income distribution? Second, what is the mechanism through which these transformations impact poverty? And third, what is the level of household disaggregation that one needs to consider for an effective strategy against poverty?

Although the primary objective is to determine the impact of the structural adjustment shock on different socioeconomic groups, the research proposal has two related objectives. First, in constructing the SAM for 2003, we hope to identify any data deficiencies and work towards institutionalization of SAM construction within the Palestinian Central Bureau of Statistics (PCBS). The second objective is to identify policies (fiscal, labor, trade) that are most effective in alleviating poverty.

### **3. Scientific contribution**

In recent years there have been some attempts to construct Palestinian CGE models for policy analysis. Almost all are static trade-focused models based on an outdated SAM for 1998 with an aggregated household account. The model by Astrup and Dessus (2001) attempts to determine some orders of magnitude between a Customs Union and a Free Trade Area and concludes that an FTA reduces transaction costs and has some positive welfare effects. The model by Balian (2002) tries to explain the deterioration in export competitiveness through Dutch Disease effects as capital inflows are increased. A similar model by Balian (2003) looks at several trade policy options to increase the competitiveness of the Palestinian export sector. Astrup and Dessus (2003) also develop a model to determine the choice between export of labor or export of goods as the dependency of Palestinian labor on the Israeli labor market is gradually reduced. The model by Missaglia and de Boer (2003) look at the issue of *food-for-work* versus *cash-for-work* to

reduce the level of poverty and argue that in a relief program the sectors to be privileged are those producing the goods that dominate the consumption basket of the household. They label this as a “welfare-oriented” approach. On the other hand, they postulate that the sectors to be preferred are the most labor-intensive, those which are in a good position to absorb as much unemployed labor as possible and call this view the “labor-oriented approach”. Their main conclusion is that adopting a welfare-oriented approach entails a privilege for the sectors “Food”, “Manufacturing”, “Private Services” and “Public Services”. A labor-oriented approach would accord a preference to the sectors “Trade”, “Construction”, “Transport” and Public Services”. Finally, a more recent model by Misaglia and de Boer (2004) looks at the economic consequences of the Intifada by introducing an “Intifada Shock” to the 1998 SAM. It is no surprise that their simulation results exhibit a dramatic slowdown in economic activity and higher levels of poverty.

None of these models look at income distribution effects of structural adjustment shocks as experienced by the Palestinian economy. This is primarily due to the lack of disaggregated data at the household level. However, recent household income and expenditure surveys conducted by the PCBS have tried to disaggregate households into different socioeconomic groups on the basis of which we disaggregate our households into 4 groups: urban low education; urban high education; rural landless; and rural landowners. Moreover, all previous models have adopted ‘standard’ expenditure and production functions (CES or Cobb-Douglas) based on a SAM for 1998 which does not take into account the severe structural shocks experienced by the Palestinian economy in recent years. Our proposed CGE model will be based on a newly compiled SAM for 2003 and adopt a

more “realistic” Linear Expenditure System (LES) expenditure function to reflect the consumption patterns of households more accurately.

#### 4. Policy relevance

There are currently two interlinked policies in place in the fight against poverty. The Medium Term Development Plan (MTDP 2005-2007), and the Socioeconomic Stabilization Program (SSP), both of which are to be implemented by the Ministry of Planning. The MTDP is a three year general development plan dealing with economic growth, private sector development, infrastructure, and primarily other macroeconomic issues. The SSP tries to be more focused by targeting specific sectors, namely, health, education, and social security<sup>3</sup>. Although both of these policies aim at reducing the economy-wide poverty rate, they do not target specific socioeconomic groups. This is because there has been no systematic study of the *transformation* channels through which structural adjustment shocks impact these different groups, and the different policies (fiscal, labor, trade) that can positively affect these groups.

For poverty analysis, we need to determine the links (transformations) between value-added (generated by production) and the incomes of different socioeconomic groups. There are three basic transformations: transformation from *value-added* to *factorial income distribution*; transformation from *factorial income distribution* to *institutional (household) income distribution*; and transformation from *institutional (household) income distribution* to *household consumption patterns*. A CGE model based on an up-

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<sup>3</sup> The Palestinian Authority is also trying to put in place a Social Security Insurance system and an Unemployment Benefit system. However, due to severe budget constraints and the withholding of indirect import and purchase tax revenues by Israel, these programs are moving at a very slow pace.

dated disaggregated SAM at the household level will enable us to *quantify* these transformation channels and devise policies that target these groups much more accurately.

## **5. Methodology**

### **5.1 SAM construction**

The adopted methodology will follow closely Decaluwe et al (1999), “Poverty Analysis within a General Equilibrium Framework”, with some modifications and adjustments in the measurement of poverty. Table 1.1 at the end of this document shows the accounts and disaggregations of the Palestinian SAM to be compiled for 2003.

One very important entry which is seldom found in other national SAMs is the *Revenue Transfers Account* of the government. Because of restrictions placed on Palestinians to import directly from the rest of the world, all import duties and indirect taxes on products destined to the Palestinian Territories are first collected by Israel and then transferred to the Palestinian Authority<sup>4</sup>. This source of much needed income, about half of total government revenue, has been repeatedly withheld by Israel and has been transferred only intermittently to the PA causing severe budget deficits and fiscal imbalances<sup>5</sup>.

### **5.2 CGE model**

The proposed CGE model is described as a six sector model (quarrying & mining, manufacturing, agriculture, construction, private services, and public services) and the

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<sup>4</sup> The so-called Revenue Clearance System in place under the Oslo Agreement.

<sup>5</sup> A few days after President Arafat’s death, Israel transferred about \$40 million which enabled the Palestinian Authority to pay its November salaries.

import competing sector is manufacturing. The export sectors are represented by quarrying & mining, manufacturing, and agriculture. Land, agricultural capital, capital, unskilled labor and skilled labor are the five primary factors of production employed by the activities. Households are aggregated into four groups (urban low income; urban high income; rural landless; and rural landowners). The geographical location of a household and the origin of their income or occupation and other socio-economic characteristics define the groups. For example, a rural household has the characteristics of living in rural areas and being endowed exclusively with unskilled labor (and thus being landless).

### ***Production and employment***

At the highest level of aggregation there are two aggregate inputs, value added and intermediate inputs, which combine in fixed proportions (Leontief) to produce sectoral output. At the next level of aggregation, value added is a *CES* function of composite labor and composite capital. At the lowest level of aggregation, composite labor is a *CES* function of skilled labor and unskilled labor. This hierarchical multi-level and nested specification allows substitution among primary factors (different labor skill categories) in the production of the respective activities in response to changes in the relative prices of the factors. The extent of substitutability depends on the magnitude of the respective elasticities of substitution.

### ***Labor Market***

There are two labor markets for skilled and unskilled workers, respectively. Total supply of these two skill groups is given exogenously and full employment is assumed to prevail. The wage rates for the two labor skills are endogenously determined so as to

equate labor supply to labor demand. Labor is assumed to be mobile among the different production activities.

### ***Incomes and Savings***

Households receive their income from primary factor payments and transfers from the government. From this income, we can derive the disposable income by subtracting the direct taxes collected by the government. Savings and total consumption are then specified as fixed proportions of disposable income. A fixed share of capital and land remuneration determines the firms' income. In turn, firms' savings are a fixed share of their income. Government revenue is generated from direct taxes collected on household income, indirect taxes on domestic goods and taxes levied on imports. Government savings are obtained from the difference between revenues and expenditures. In turn, government expenditures consist of transfers made to other agents and government consumption.

### ***Demand***

The demand system is the Stone-Geary linear expenditure system (LES) which represents a household utility function whereby a specific minimum consumption bundle is postulated for each socioeconomic group. Total intermediate demand, for a given commodity, aggregates the input requirements for that commodity by the various production activities. The investment demand for a good is presented as a fixed proportion of total investment.

### ***Foreign Trade***

We follow the Armington approach by assuming an imperfect substitutability between domestic and imported goods. As for exports, a constant elasticity of transformation (CET) characterizes the relative facility of a producer to switch between markets.

Following a change in the relative price of domestic and export goods, the producer is able to switch between the domestic and export markets to a degree expressed by the elasticity of transformation. The exogenous current account balance representing the flow of foreign savings is presented as the difference between the import value and export value.

### ***Equilibrium Conditions***

Three equilibrium conditions are respected in the model. The first condition implies the equilibrium between the demand for primary factors and its supply, namely one market for skilled labor, one for unskilled labor and one for agricultural capital. There is no market clearing condition for non-agricultural capital and land since they are immobile. The second condition dictates the equilibrium between total investment and total savings. The third equilibrium condition respects the Walrasian framework. The domestic demand for each good is equal to its corresponding supply.

### ***Closure***

Since this small economy has no impact on international markets, the world prices of import and export are exogenous to the model. The current account balance and the nominal exchange rate are also exogenous to the model. The predetermined current account balance (i.e. foreign savings) has to equal the import surplus. Furthermore, government consumption and its transfers to households are exogenous. As a last closure condition, the primary factor supplies are all exogenous to the model.

## 6. Data requirements and sources

### 6.1 Data requirements

Since the SAM can be seen as a major extension of an Input-Output matrix, we will start with the *Supply and Use Tables* (SUT) for 2003 compiled by the Palestinian Central Bureau of Statistics (PCBS). The SUT will provide the basis for the intersectoral transactions in the Palestinian SAM. In particular, the SUT will furnish us with the needed information to fill in the appropriate production activities' row sums in representing the vector of aggregate demands and the corresponding vector of column sums yielding the vector of aggregate supplies (sectoral outputs).

The second step will be the breaking down of value-added into income accruing to different labor categories, and profits and rent going to one or more capital categories with the help of the *Labor Force, Agricultural, and Service Surveys* periodically conducted by the PCBS since 1998. The third step will yield the incomes of the various socioeconomic groups relying on the PCBS's numerous *Household Income and Expenditure Surveys*. Particularly crucial in this context is the mapping of the household income distribution from the factorial income distribution. On the household expenditure side, again the *Household Income and Expenditure Surveys*, together with information on taxes available from the Ministry of Finance, will provide the main source of data to fill in the household account column. With regard to companies, since most SAMs aggregate all firms into one category, the information needed to fill in the relevant column and row is available from the Palestinian *National Accounts* for 2003. The PA budget (which is now published on the internet) and additional public finance information relating to the

sources of PA revenues and the composition of expenditures will supply us with the required entries for the government account. Finally, we will use the balance of payments published by the Ministry of Finance and supplemented by disaggregated trade statistics published by the PCBS (*Foreign Trade Statistics*), the Israeli Central Bureau of Statistics (ICBS), and the IMF, to fill in the entries with the rest of the world. When all the cells of the SAM are filled except one account (usually the capital account), the income row and expenditure column of this account will appear due to a conceptual requirement under Walras' Law. The recorded entries in the SAM for the capital account will then be checked against whatever primary information is available relating to any specific receipt or expenditure of that account.

## 6.2 Data sources

Most of the data requirements for the compilation of the SAM is available from the Palestinian Central Bureau of Statistics (PCBS). In addition to this source, we will use sources from various Palestinian Ministries, the World Bank, IMF, and other governmental and non-governmental organizations.

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## **7. Consultation and Dissemination (CD) strategy**

Perhaps the most important relevance of any research on Palestinian poverty is the conventional belief that a reduction in poverty (on both sides<sup>6</sup>) will help solve the Israeli-Palestinian conflict. Although the Palestinian people in the Territories receive one of the highest rates of foreign aid in the world (about \$300 per capita), poverty remains a serious problem due to tightened border closures and, to some extent, conditionality on disbursements, which in turn feed more hatred and resentment towards the occupation. For this reason, it is very important to also engage the Israelis as partners in the quest for reducing poverty on both sides.

To the extent that the Palestinian economy is operating under severe constraints and restrictions, and that one of the principle ‘policy makers’ is the Government of Israel – through the Disengagement Plan, the Separation Wall, withholding of tax revenues, etc - it is of utmost importance to bring in the Israelis as true partners in the common fight against poverty. Policy makers, academics, and civil society on both sides should be consulted and informed through direct contacts, specific events, and publications. Donor countries and multilateral organizations should also act as the catalyst in the dissemination of the research results on a regular basis. More specifically, SAM results will be dis-

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<sup>6</sup> The most recent report by the Israeli National Insurance Institute (November 2004) estimates that about 1.4 million people in Israel proper, 33 percent of whom are children, currently live below the poverty line.

seminated on a regular basis through conferences, seminars, and workshops at academic institutions and research think-tanks, which tend to be much less politically charged than the general public, and can include policy makers, academics, and civil society from both the Israeli and Palestinian sides. For this reason, it is important to devise a dissemination and consultation strategy at the national, regional, and international levels.

## **8. Capacity building**

### **8.1 Strategic aspects**

The Policy, Analysis, and Statistics (PAS) directorate at the Ministry of National Economy is a newly established directorate to conduct peer reviewed research on a wide range of policy issues. It consists of four departments: macroeconomics, policy analysis, private sector, and statistics. It is headquartered in the West Bank city of Ramallah with regional offices in the various governorates and Gaza.

For capacity building purposes, this research exercise aims at generating a learning-by-doing effect and getting-funded as well! One of the primary objectives of this undertaking will be to bring together these different departments and regional offices by engaging staff members in the compilation of the SAM and the construction of the CGE model. In many ways, the division of the PAS directorate into these four departments fits well with the required research tasks. For example, the macroeconomics department will be engaged in the collection of national income and other macroeconomic data. The private sector department will deal with intersectoral transactions derived from the Supply and Use Tables (SUT). The statistics department will contribute to the collection of all

other data requirements such as taxes, foreign trade statistics, decomposition of value-added, and disaggregation of households into different socioeconomic groups. And the policy analysis department will contribute to the construction of the CGE model and conduct the policy simulations.

Currently, the heads of these four departments are engaged in an intensive course (October 4 – December 22, 2004) in "Quantitative Techniques in Economics" at the University of Pavia in Italy. This course will be supplemented with a six week intensive online CGE modeling course by ECOMOD (Brussels) in mid January 2005. Funded by the UNDP, this online course will train the staff in the latest techniques in CGE modeling with GAMS. By the beginning of 2005, we intend to acquire enough skills and expertise to conduct in-house applied general equilibrium modeling. Table 1.3 in the Appendix is the list of the team members to be engaged in the specific research tasks of the proposal.

A second aspect of the capacity building process is to interact closely with the Palestinian Central Bureau of Statistics (PCBS) to ultimately institutionalize the construction of the SAM and update it on a regular basis. One of the advantages of such an exercise is the identification of data deficiencies since the SAM compilation process is based on fundamental economic identities and relationships.

A third aspect of this exercise is the improvement in analytical and modeling capacity which will enable policy makers and researchers alike to coordinate and cooperate more effectively with the World Bank office here in the West Bank and Gaza, especially since the Bank's findings are very often based on simulations conducted with their own CGE model.

## **8.2 List of team members**

**LIST OF TEAM MEMBERS**

<b>No</b>	<b>Name</b>	<b>Age</b>	<b>Gender</b>	<b>Specialization</b>	<b>Office Location</b>
1	Ohan Balian	45	Male	Ph.D. Economics	Ramallah
2	Nisreen AL-Taher	27	Female	BA in Computer Information Systems	Ramallah
3	Abdelwahab Sabag	51	Male	Ph.D. Sociology and Statistics	Ramallah
4	Ahmad Hababeh	29	Male	Diploma in Programming and System Analysis	Ramallah
5	Azmi Abdel-Rahman	38	Male	MA. Economic Policy	Ramallah
6	Imad Jallad	42	Male	MA. Economics and Statistics	Ramallah
7	Saleh Mutawea	45	Male	BA Business Administration and Economics	Ramallah
8	Tania Khateeb	45	Female	MA. Physics and Mathematics	Ramallah
9	Yousef Basharat	27	Male	Computer Science and Statistics	Ramallah
10	Ziad Karablieh	48	Male	MA. International Affairs	Ramallah
11	Abedelfattah Nassralah	28	Male	MA. Economic Policy Management	Gaza
12	Hanin Dammagh	27	Female	BA. Economics and Political Science	Gaza
13	Mohammad Hashash	45	Male	BA International Trade	Gaza
14	Mohammed Al-Ra'ee	25	Male	BA. Economics and Political Science	Gaza
15	Jehad Jarayseh	28	Female	BA. Agricultural Economics	Bethlehem
16	Maysoon Khalil	30	Female	BA. Nutrition and Food Technology	Ramallah
17	Hanan Arafat	29	Female	BA. Social Services	Nablus
18	Taghreed Kawasmi	26	Female	BA. Accounting	Hebron
19	Sameeha Dra'at	49	Female	BA Sociology and Statistics	Jericho
20	Nadia Khateeb	24	Female	BA. English Language and Translation	Ramallah

### 8.3 Specific tasks

No.	Name	Task
1	Ohan Balian	<b>Team Leader</b> SAM compilation, CGE modeling, GAMS programming
2	Nisreen AL-Taher	SAM compilation, data gathering and data organization
3	Abdelwahab Sabag	Statistical analysis, Input-Output matrix construction, regression analysis
4	Ahmad Hababeh	SAM compilation, data gathering, tabulations
5	Azmi Abdel-Rahman	Policy analysis, CGE simulations
6	Imad Jallad	CGE functional forms (utility, production, Armington) and policy simulations
7	Saleh Mutawea	Data collection, compilation, household disaggregation
8	Tania Khateeb	GAMS programming, functional forms, closures, policy simulations
9	Yousef Basharat	Data gathering, tabulation, SAM organization
10	Ziad Karablieh	Functional forms, labor market, household disaggregation, GAMS programming
11	Abedelfattah Nassrallah	Policy simulations, household disaggregations, internal trade statistics

<b>12</b>	Hanin Dammagh	Poverty measurement, household disaggregations, policy simulations
<b>13</b>	Mohammad Hashash	International trade statistics, government expenditure and revenue data collection and organization
<b>14</b>	Mohammed Al-Ra'ee	Input-Output matrix construction from Supply and Use Tables
<b>15</b>	Jehad Jarayseh	Agricultural statistics, factors of production disaggregation, value-added distribution data
<b>16</b>	Maysoon Khalil	Poverty measurement
<b>17</b>	Hanan Arafat	Poverty measurement
<b>18</b>	Taghreed Kawasmi	SAM compilation and various account disaggregations
<b>19</b>	Sameeha Dra'at	SAM compilation, statistical analysis, socioeconomic disaggregations
<b>20</b>	Nadia Khateeb	Translation, proofreading, and editing

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## **10. Proposed 2003 SAM accounts**

(Please see next page)

### Note:

U1: Urban low education households

U2: Urban high education households

R1: Rural landless households

R2: Rural landowners

Table1.1 : Palestinian SAM For 2002

		Expenditures													
		1	2a				2b	3		4	5	6			
		Factors	Institutions								Combined Capital Account	Production Activities	Row	Totals	
			Current Accounts						Companies	Government					
			Households				Gov.	Revenue Transfers							
			U1	U2	R1	R2									
Receipts	1	Factors												Factor Income	
	2a	Institutions	Current Account	Households	U1										Household Income
					U2										
					R1										
					R2										
	2b	Institutions	Current Account	Companies										Company Income	
	3			Gov.	Gov.										Gov. Revenue
		Revenue Transfers													
	4	Institutions	Current Account	Combined Capital Account										Combined Capital Acco.Saving	
	5			Production Activities										Gross Output	
6	Row												Imports		
Totals		Factors Expend.	Households Expenditure				Comp.Exp.	Gov. Expenditure		Investment	Cost of Output	Savings			