Food-For-Work versus Cash-For-Work:
Emergency Assistance in Palestine*

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Abstract In this paper we analyze the provision of emergency assistance (food assistance, cash transfers, employment programs, etc.) to a country whose economy has been decimated since the start of the second intifada. We try to simulate the different potential effects brought about by these different policies and, especially, to draw some policy implications concerning the Food-for-Work versus Cash-for-Work debate. To that end we have constructed a general equilibrium model of the Palestinian economy that we calibrate on the (pre-intifada) Social Accounting Matrix (SAM) of 1998. We give a so-called "intifada-shock" to construct a counterfactual "post-intifada" SAM which serves as basis for our policy simulations. We show that monetary aid from abroad is to be preferred to food aid from abroad. We argue that a labor-oriented approach (subsidizing the most labor-intensive sectors) is to be preferred to a welfare-oriented approach where the subsidized sectors produce those goods that dominate the consumption basket.

Keywords: Food-for-Work, Cash-for-Work, Computable General Equilibrium Model, Palestine.

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1. Introduction

The most recent years of the Palestinian history, those of the second *intifada* and the so-called "closure" - i.e. the Government of Israel's imposition of restrictions on the movement of Palestinian goods and people across borders and within the West Bank and Gaza (WBG) – have witnessed a dramatic decline in all Palestinian economic and social indicators. Since September 2000, when the violent confrontations started, conditions for a normal life have nearly disappeared and the economic situation has steadily disintegrated. Table 1 which has been compiled by the World Bank (2003) from World Bank staff estimates and data from the Palestinian Central Bureau of Statistics (PCBS) illustrates the declining performance of the Palestinian economy over the last four years.

Table 1: West Bank and Gaza Macro Economic Trends and Projections

	1999	2000	2001	2002
Gross National Income (GNI), US$ mill.	5,166	5,419	4,501	3,273
Gross Domestic Product (GDI), US$ mill.	4,289	4,607	4,012	2,951
Real annual change (%)				
GNI per capita	3.9	-7.5	-23.2	-26.4
GDP per capita	3.1	-5.3	-19.5	-25.5
Private Consumption	7.5	-5.6	-15.5	-17.0
Public Consumption	20.3	31.0	-2.1	-7.7
Total Fixed Investment	-8.3	-28.3	-76.9	-84.2
Exports	2.3	-8.8	-13.4	-34.8
Imports	5.4	-16.2	-29.0	-17.3
Other items				
Poverty, % of population below poverty line	20.1	30.7	45.7	60.0
NIS/US$, annual average	4.14	4.08	4.21	4.75
CPI, annual change (%)	5.5	2.7	2.1	7.6
Population, mid-year (1,000)	2,842	2,966	3,096	3,231

All data exclude East Jerusalem. Source: World Bank (2003)

Among these impressive data, the most impressive concerns poverty. Using a poverty line of US$ 2 per day, the World Bank (WB) estimated that 60 percent of the population was poor in 2002, which is three times as many as in 1999 on the eve of the *intifada*. Many discussions are ongoing on the so-called "final status", or Phase III of the *Road Map*. These discussions are mainly concerned with the regulation of those issues that can only be regulated once a permanent, two-state solution (or in any case a solution whatsoever) is finally agreed upon, namely the regulation of trade regime, labor flows, investment support, etc. In this paper we do not want to add to this already very rich debate[1]. Rather, we want to analyze a somewhat more urgent problem, the provision of emergency assistance to a country whose economy has been decimated since the start of the second *intifada*.

Emergency assistance may take a number of forms: budget support, food assistance, cash transfers, employment programs. The latter, in turn, may be organized as Food-for-Work (FFW) or Cash-For-Work (CFW) programs. In this paper we want to analyze the different potential effects brought about by these different relief policies and, especially, to draw some policy lessons concerning the FFW versus CFW debate: should the workers participating in an employment program be paid in food and other essentials or in cash? We are perfectly aware that this is not a purely economic issue: psychological benefits or damages are clearly to be considered for an overall assessment of such policy measures (for instance, people may dislike getting a voucher rather than a cash transfer), and the political preferences of the donors should be put into the picture as well. For instance, the donors - due to internal reasons of political economy (farmers' support and *similia*) - could dispose of excess food and then prefer to fund a FFW rather than a CFW program. However, in this paper we will disregard these non-economic (or non-purely-economic) aspects and concentrate on the economic dimensions of emergency relief provision.

In order to simulate the effects associated with different policies we use a CGE (Computable General Equilibrium) model. The idea of looking at the FFW versus CFW issue as a general equilibrium topic was originally developed by Basu (1996). In his paper, Basu underlines the circumstances that can make the FFW a better option than the CFW. In particular, he claims that cash payments (as well as pure cash distribution) exert a stronger upward pressure on the price of foodstuff and, through this channel, make those poor who are left out of the CFW program worse off. This way, he weakens the traditional arguments in favor of CFW schemes. We will briefly come back to this point in section 4.

We will proceed as follows. Section 2 clarifies some aspects of the SAM (Social Accounting Matrix) for 1998 which has been used to calibrate the model and illustrates how a counterfactual SAM is obtained to get a more realistic picture of the Palestinian economy after a couple of years of violent confrontation and economic destruction. Section 3 is devoted to a description of the basic version of the model. In the various subsections we present the behavior of the five economic agents: the firms, the household, the bank that allocates the savings over investments, the Palestinian Authority (PA) and the rest of the world (RoW). In section 4, starting from the counterfactual SAM, the results of some relevant policy experiments are presented, while section 5 concludes. In appendix 1 we give the 1998 SAM, appendix 2 is devoted to the definition of the symbols that we use in our model, the equations of which are presented in appendix 3.

2. The 1998 Social Accounting Matrix and the counterfactual SAM

2.1. The 1998 SAM

The CGE model used in this paper is calibrated around the SAM for 1998 constructed by the World Bank (a reduced SAM is reported in Appendix 1). Compared to this original version, we aggregate the several sectors and sub-sectors included in it to eight main sectors: Food, Other Agriculture, Manufacturing, Construction, Transport, Trade, Private Services and Public Services, each of them producing one good. The food sector is an aggregation of the food producing agricultural activities and of those activities that, although belonging to the Manufacturing sector in the SAM, produce food items as well (for instance the "food and beverages" activity). Clearly, this is a way of producing a database well suited for simulating a FFW intervention.

The data in the SAM are organized in a way that implicitly separates the role of the PA as a consumer from its role as a producer. More precisely, in the SAM the PA does not buy intermediate goods, labor and capital services. It only buys consumption goods. The role of the PA as a producer is captured by the sector "Public Services", which is considered in the SAM as any other producing sector of the economy. In the model, we follow this convention and therefore the reader must be aware that this is not a way of disregarding the overwhelmingly important role of the PA as a producer and, above all, labor demander. If one looks at the "Public Services" column of the SAM, the extremely important role the PA plays as a producer will be immediately apparent.

Our model is a standard one, where each producing sector maximizes its profits under a technological constraint (see section 3.2). This assumption might seem inadequate to describe the behavior of the "Public Services" sector, i.e. of the PA as a producer. Indeed, it is inadequate. One of the key reasons that the Palestinian economy still functions and did not collapse after the tremendous shocks of the last three or four years, lies in the fact that the PA, thanks to donors' budget support, has been regularly paying salaries and providing basic services to the population. It is very difficult to label this behavior as "profit maximization": the PA hired (or did not fire) people in order to provide a sort of social insurance. To overcome this problem - the inadequacy of the profit maximization assumption of the "Public Services" sector - we simply assume that the "PA as a consumer", i.e. the government collecting taxes and receiving donors' support, pays labor subsidies to the "PA as a producer", i.e. the "Public Services" sector. This way, we can rationalize the employment level in this sector as being mainly determined by socio-political reasons.

2.2. The counterfactual SAM

As already stated, the objective of this paper is to simulate the effects on the Palestinian economy of alternative policies of emergency relief provision. To this purpose, we cannot take the 1998 SAM as a credible base for running our simulations. In general, four years is a rather short period for an economy: its structure changes slowly and using a four-year- old SAM may be justifiable. In our case, however, the four years 1998-2002 cannot be considered a "short period" at all. Everything has changed: the capital stock has markedly declined, people are not allowed anymore to get a job on a regular basis in Israel or in the settlements and those lucky enough to get one are most probably attaching a higher risk premium (due to higher transaction and psychological costs) to the same job; donors' intervention, however welcome usually, is significantly increasing the already high dependency of the Palestinian economy on the vagaries of external, international factors; the Israeli demand for Palestinian products has collapsed due to the crisis that Israel and the settlements are suffering as well, etc., etc.

These are the reasons why we want to make our exercise of policy simulations start from a different, more "realistic" picture than that offered by the 1998 SAM. But the latter is the most recently available SAM for Palestine. For this reason, we built a "counterfactual" SAM, by giving a big "*intifada* shock", to the 1998 benchmark. What are the ingredients of this "*intifada* shock"?

a)   A reduction in the capital stock. According to the World Bank (2003), physical damages resulting from the conflict (private and public buildings, infrastructure, productive trees and soils, etc.) amounted to 14% of 1998 GNI (Gross National Income) by the end of August 2002. Assuming, according to a well established practice (see for instance Easterly, 2002, chapter 2), an ICOR (Incremental Capital Output Ratio) of 4, this means that 3.5% of 1998 capital stock has been destroyed over the last years. Of course, this is not the whole story. What we are mainly interested in is the reduction in capital income rather than in capital stock. The reduction in capital income may be thought of as the sum of the variation in the rate of return to capital and in capital stock. The latter has already been dealt with, the former is difficult to evaluate because we do not dispose of any estimate. Indirectly, however, we can guess that the return on capital has lowered, since, due to the rapidly rising unemployment level, the labor-capital ratio has declined. According to our calculations, capital income decreased by at least 30% during the last three years.

b)   A dramatic fall in the level of labor income earned in Israel or in the settlements. If one looks at the official figures[2], it would make sense to assume a 75% reduction in this source of income, but, taking into consideration the rather large number of Palestinians who manage to cross into Israel or its settlements illegally, we give this variable a 50% shock.

c)   An increase in donors' disbursements, that more than doubled over the period 1998-2002. According to World Bank staff calculations (2003), total disbursements increased from around US$ 400 million to around US$ 1.1 billion.

d)   A sharp reduction in the propensity to save of the Palestinians. As can be seen in Table 1, the reduction in per capita GNI has always outpaced the reduction in private consumption, which is a normal and predictable reaction to a negative shock.

e)   A reduction in government saving, defined as the difference between revenues (including donors' assistance) and expenditures.

f)   An increase in the transfers paid by the PA to the households and in the labor subsidies handed out to the "Public Services" sector. More precisely, we assumed that the bulk of the increase in foreign aid was used by the PA to fund social transfers to the households, whereas the remaining fraction was devoted to the payment of labor subsidies. As discussed in section 2.1, these subsidies are a convenient way of modeling the intervention of the PA aimed at absorbing, however partially, the labor market shock suffered by the Palestinian economy.

g)   An increase in the labor force. The rise of the population between 1998 and 2002 was almost 15%, but, according to the PCBS data ([www.pcbs.org)](www.pcbs.org), the labor force growth was around 8%, a fact that witnesses the sharp increase of the dependency ratio.

h)   An increase in the parameter that, as explained in section 3.3, describes both (the inverse of) the probability of getting a job in Palestine, and the risk premium attached by Palestinian workers to transaction and psychological costs associated with a job in Israel or in the settlements. It makes sense, looking at the data on unemployment in West Bank and Gaza, to assume that over the last years the probability of getting a job in Palestine has fallen remarkably. This decline is likely to be more important in the minds of the Palestinian workers than the increase in transaction and psychological costs of looking for a job or working in Israel or in the settlements. To put it in other words: however sad, one must recognize that Palestinian workers are getting used to these risks, as witnessed by the growing number of people trying to cross into Israel and its settlements illegally.

The combined effect of all the ingredients of the "*intifada* shock", as predicted by our model, is summarized in Table 2.

**Table 2: Selected economic indicators (in real terms) of the effects of *intifada*
(SAM 1998 = 100)**

Gross national income	Unemployment	Unemployment rate	PA revenues	Welfare
70.7	219.8	35.6	99.4	90.7

Sector	Domestic production	Consumption
Food	91.3	95.3
Other Agriculture	83.9	98.5
Manufacturing	83.2	90.9
Construction	80.5	94.9
Trade	79.1	95.2
Transport	88.6	90.4
Private Services	84.4	79.4
Public Services	114.8	99.1

The figures in Table 2 deserve some comment. First of all, real production declines in each sector of the economy but in the "Public Services" sector. The reason is that in our simulation of the "*intifada* shock" a portion of the increase in donors' assistance is used to subsidize labor input in that sector. As already explained, this is a way of capturing the political choice of the PA to support employment and provide a sort of insurance against the increasing risk of being unemployed. The consumption of "Public Services" decreases less than other items; this time, the reason is demand-driven: the income elasticity for these services is low and one could even legitimately take a negative value for it, i.e. treat them as an inferior good.

The reduction in the level of GNI is more optimistic than the World Bank estimate (minus 30 percent instead of minus 40). The reason can be found in our relatively optimistic assumption concerning the fall in the labor income earned by the commuters (Palestinians working in Israel or in the settlements and living in the Territories). Obviously, a tougher shock could easily reproduce the World Bank result.

The simulated value for the unemployment rate, 35.6 percent, is very reasonable, even prudent. Indeed, according to the most recent World Bank study on Palestine (World Bank, 2003), the current unemployment rate is estimated at 42 percent, whereas the PCBS puts it at a lower level (36.8 percent).

Again, it is worth noticing that the surge in foreign aid less than compensates the fall in other revenue sources for the PA, so that overall revenues decrease, which is consistent with the available data.

These data, together with all the remaining figures we have omitted for brevity, are put together in our counterfactual SAM, the base on which we build our simulations of the

different policies of emergency assistance. Before turning to them, let us take a closer look at the CGE model employed in this paper.
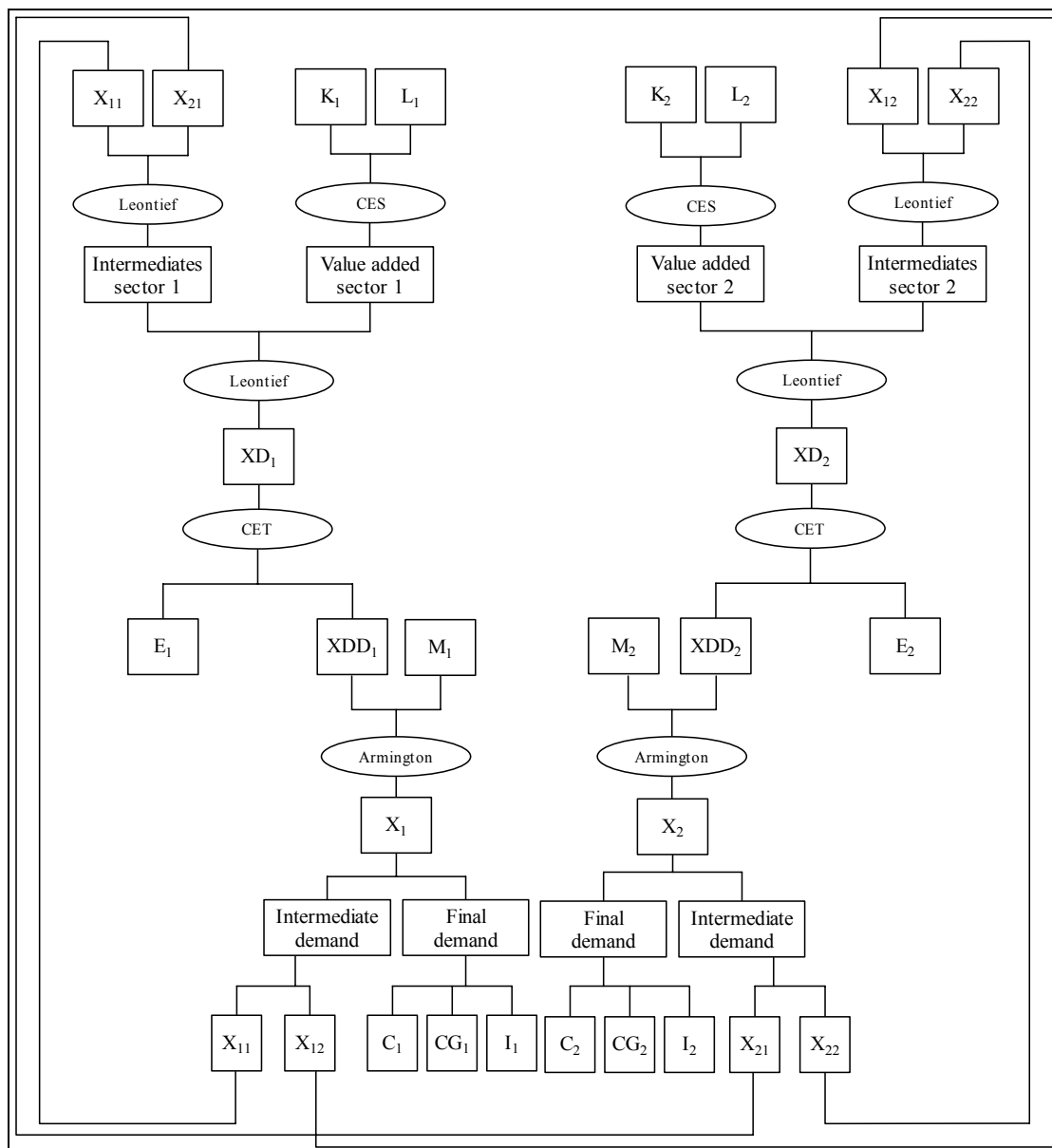
3. Description of the model

3.1. Introduction

In the model we have five economic agents: firms (8), one household, a bank that allocates savings over investments, the Palestinian Authority (PA) and the rest of the world (RoW).

3.2. The firms

Figure1. Production of the domestic commodity, domestic supply, production of the composite commodity and domestic demand

In Figure 1, where for ease of exposition we have only dealt with two firms (sectors), we summarize the production structure. At the top, on the one hand intermediate inputs are combined into the intermediates by means of a Leontief technology, whereas on the other hand capital and labor are combined into value added by means of a CES technology. Both aggregates are, using the Leontief assumption, combined into XD, the supply of the domestically produced commodity. This commodity is transformed via a CET function into an export commodity, E, and into a domestic commodity supplied to the domestic market (XDD). This commodity is combined with imports to produce the composite commodity X. To that end we adopt the Armington assumption by using a CES functional form. This commodity is either used in the production process (intermediate demand) or for final purposes: consumption, consumption of the PA and investment.

3.3. The household

Figure 2. The decisions of the Household
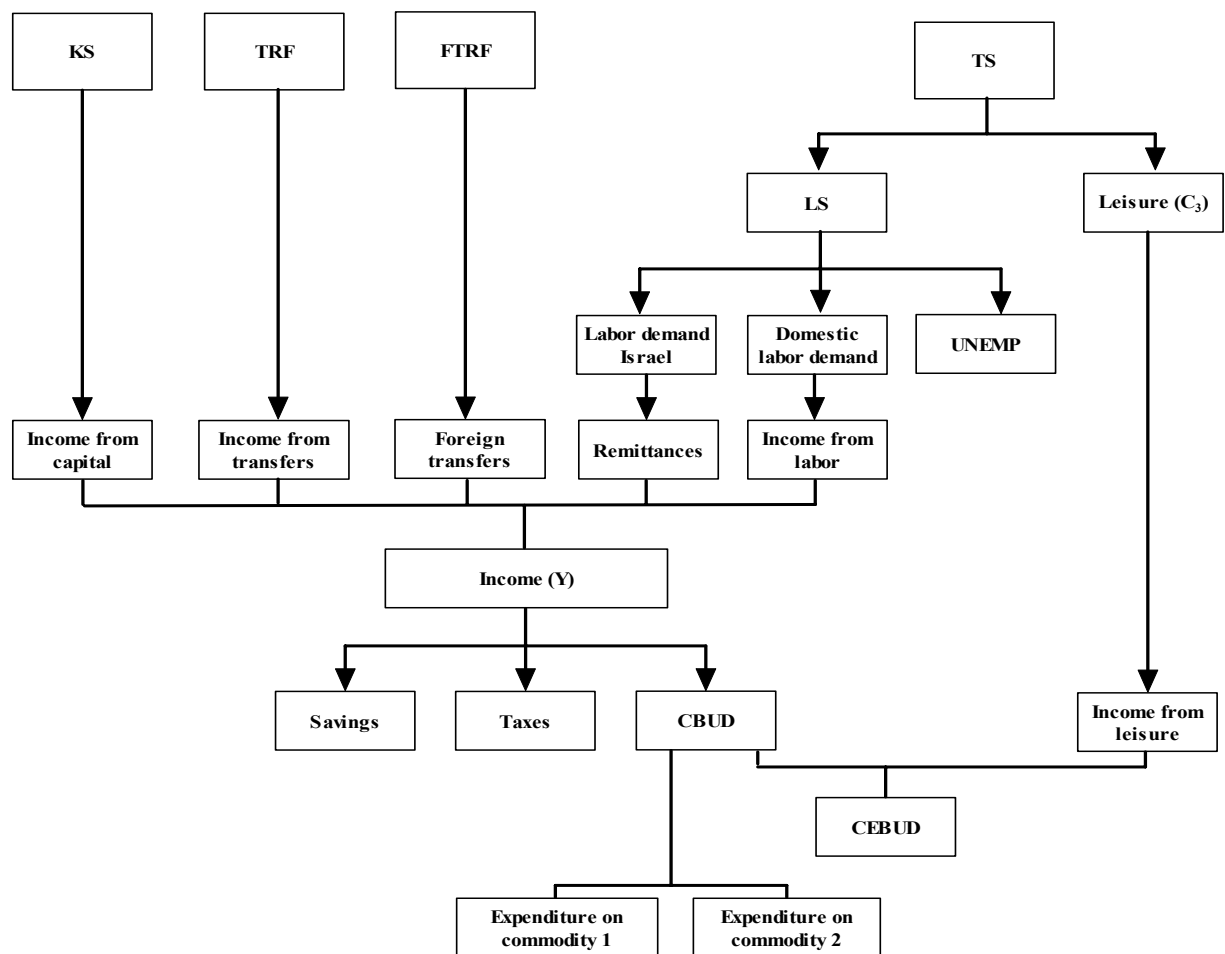
The household owns the capital (KS), receives transfers from the PA (TRF) and from the rest of the world (FTRF), and it disposes of a time endowment (TS). The household is

assumed to maximize its utility in two stages: in the first one it allocates its time endowment over labor supply (LS) and leisure (C_3). We allow for unemployment so that the labor demand is smaller than the labor supply. We assume that the unemployed do not receive unemployment benefits.

In the model we use the unemployment theory delineated in the migration literature by Harris and Todaro (1970) to describe the wage gap between rural and urban jobs. Compared to the modified version proposed by Ruppert Bulmer (2001), we stay closer to the original Harris-Todaro model. The core of the theory is described by the following arbitrage condition (acting as a wage curve):

$$PL = (\frac{LF}{LF + UNEMP}).b.PLF$$

The wage rate paid by Palestinian firms to Palestinian workers, PL, must be equal, in equilibrium, to the expected wage rate of the Palestinian workers employed in Israel or in the settlements. The latter is equal to the wage rate prevailing in Israel and the settlements, PLF, multiplied by the probability of getting a job in Israel or in the settlements and a factor b. The probability of getting a job in Israel or in the settlements is simply given by the ratio of the Palestinian workers actually employed in Israel or in the settlements (LF) to the workers who look for a job there: those who manage (LF) and those who do not (UNEMP). The factor b can be given different interpretations.

(i) <u>The inverse of the probability of getting a job in Palestine[3].</u> Then, the arbitrage condition states nothing but the equality between two expected wages:

P (Job in Palestine).PL = P (Job in Israel or in the settlements).PLF

(ii) <u>The risk premium attached by Palestinians workers to a job in Israel or in the settlements:</u> the higher the transaction and psychological costs associated with such a job, the lower b. In other words: for each given level of the wage in Israel and the settlements, the Palestinian workers accept a lower wage at home when the risk of closure, the social stigma exerted by the settlers, the difficulties of reaching the workplace in Israel or in the settlements, etc. increase.

The overall effect of the "*intifada* shock" on b is therefore uncertain: on the one hand, getting a job in Palestine is more unlikely than before (b increases); on the other, transaction and psychological costs are clearly on the rise (b decreases).

All five sources of income together yield the household income (Y).

The household pays income taxes and saves a fixed fraction out of its income after taxes. Subtracting taxes and savings from income yields the budget (CBUD) that it devotes to the purchase of the commodities. In the second stage the household maximizes a utility function, with the consumption of these commodities as arguments, subject to its budget constraint.

For both stages we use a Linear Expenditure System (LES). This is equivalent to the maximization of an Extended LES utility function, with the consumption of the commodities, and of leisure as arguments, subject to the extended budget, in which the income for leisure is included (CEBUD).

3.4. The Palestinian Authority (PA)

The PA derives its revenues from two sources: taxes (on imports, capital, labor, consumption commodities and on household's income) and foreign aid[4]. These revenues are spent on transfers, savings and on other expenditures. With respect to the latter we assume that the PA maximizes a Cobb-Douglas utility function with its purchases of the two commodities "Private Services" (CG_1) and "Public Services" (CG_2) as arguments subject to the expenditure constraint. To come back to our discussion in section 2.1, Figure 3 only describes the role of the PA as a consumer, but the reader should bear in mind that the "Public services" sector basically includes the activities of the PA as a producer.

Obviously, CG_1 and CG_2, i.e. individual final government consumption (schools, clinics, etc.) and collective final consumption (defense, security, public administration) are not included as arguments in the household utility function, since these items are not chosen by the household. However, it does benefit from them. Hence, the welfare index calculated in the model takes them into account[5].
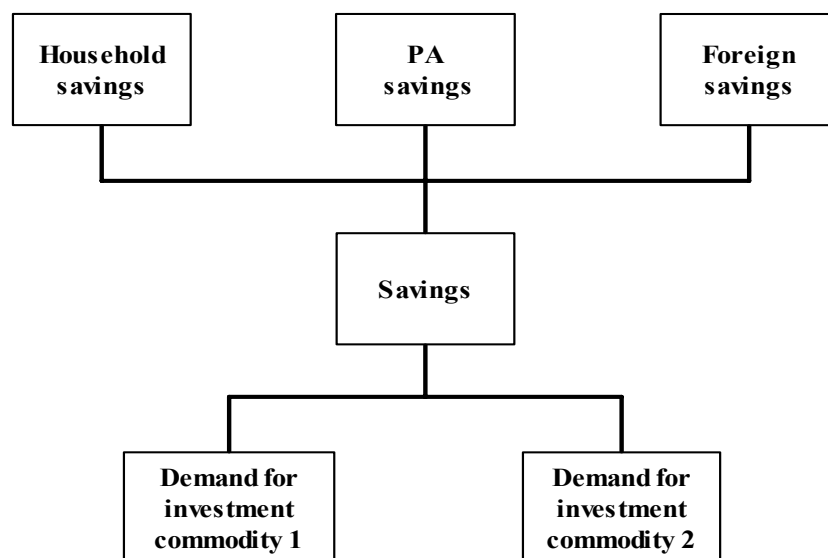
Figure 3. The decisions of the Palestinian Authority
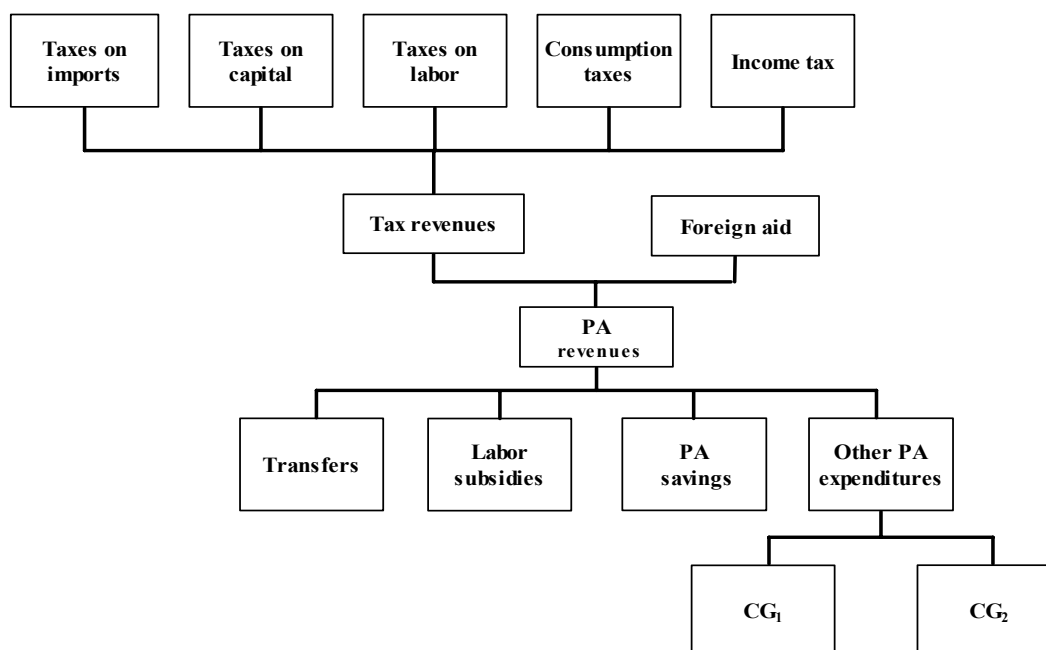
3.5. The bank

In Figure 4 we summarize the decisions of the bank.

Figure 4. The decisions of the bank

The household savings (SH), the PA savings (SG) and the foreign savings (SF) are allocated over the investment demand for commodities 1 and 2. To that end the bank is assumed to maximize a Cobb-Douglas utility function with arguments I_1 and I_2 subject to the constraint that savings are equal to total investments.

A word of caution is needed. Since we are interested in a short run issue[6] here, the provision of emergency assistance to Palestine, our model is a static CGE model; however, investment decisions are intrinsically dynamic, dictated by expectations on the future and by some process of intertemporal maximization. So, as in any other static model, the only meaningful reason for incorporating investments is basically accountancy: the SAM reproduces a picture of a given economy in a given point of time and, looking at that picture, one sees that people save and invest. But the reader must be warned that a static model has nothing to say as to the effects of any policy simulation on the level and composition of investments. This is the reason why in the next sections we will not consider these effects at all, concentrating on what a static model can seriously say.

3.6. The rest of the world

In Figure 5, finally, we summarize the RoW. Before briefly illustrating Figure 5, let us say that when one considers the Palestinian economy, the RoW basically coincides with Israel and its settlements, at least as far as foreign trade is considered. In 1998, 76 percent of imports and 96 percent of exports came from and were directed toward Israel and its settlements (Astrup and Dessus, 2001). Obviously, the picture is different if one looks at foreign aid disbursements. For instance, out of a total of US$ 1.1 billion by the end of 2002, US$ 840 million came from Arab League countries and US$ 230 million from the EU (World Bank, 2003).

In Figure 5, Palestine earns revenues from the RoW via exports and other sources: foreign aid (FAID) accruing to the PA, remittances from the workers employed in Israel or in the settlements (RE), foreign transfers directly accruing to the households (FTRF) and foreign savings (FS), i.e. the deficit in the current account balance. These revenues are spent on imports of goods 1 and 2. Imports and exports are treated in a rather standard way, through, respectively, an Armington-CES and a CET assumption.

Figure 5. The rest of the world
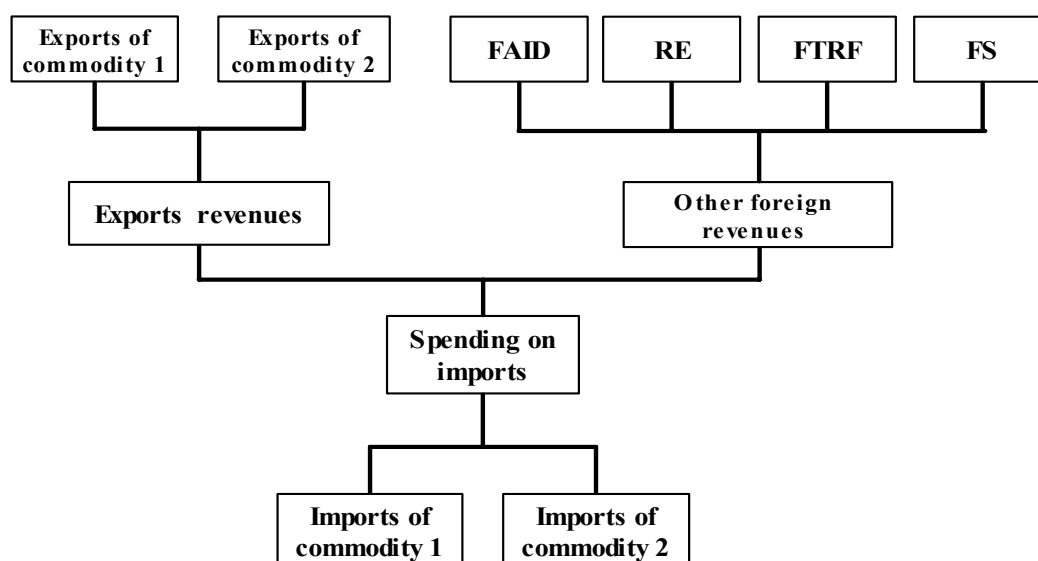
4. FFW versus CFW

4.1. Introduction

Our empirical investigation reaches three main conclusions. Two of them are well-known results in economics – first: food and cash payments are basically equivalent when they are funded with *monetary* assistance from abroad; second: they are not equivalent when food payments are funded out of *food* aid from abroad – whereas our third result has not received much attention: food-for-work and cash-for work should be regarded and evaluated not just on the "food" or "cash" side, but on the "work" side as well. Food for which work? Cash for which work?

Before looking at these results in more detail, let us briefly illustrate a methodological point. In order to run our FFW and CFW simulations, the model has been slightly modified with respect to the basic version presented in section 3. In particular, the consumption variable was replaced by two new variables for each good: desired consumption (DC in Diagram 1) and actual consumption (AC in Diagram 1). When people are given too much food (with respect to their desired consumption: in Diagram 1 they are given OF, but they would like to consume OC), they are either allowed to sell the food in excess (the market for the vouchers) or, if they are not, they simply have to use their vouchers. In this latter case, given the monetary value of their income (in food and in cash), they will also have to reduce their expenditure devoted to other items correspondingly. Therefore there will be a gap, for each good, between what they wish to consume and what they actually consume. Potentially, this gap could prompt serious general equilibrium consequences, via its influence on the price system.
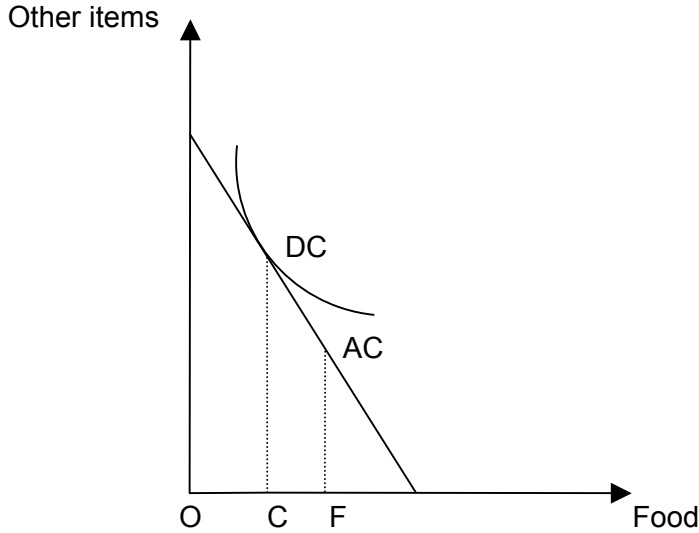
Diagram 1: the economics of in-kind transfers

In our simulations we abstracted from the possibility for people to resell their vouchers. Indeed, in the model there is just one representative household, and it's difficult to think it can resell its vouchers to the PA or to the RoW[7].

A possible way of analyzing a food-for-work scheme is to think of it as an in-kind transfer, for which a kinked budget constraint is required. In the kink, however, the function is not differentiable and a way of solving this problem is to resort to a mixed complementary formulation of the model. There is another, simpler route we pursued, which is closer to the graphical representation of Diagram 1. This alternative route may be illustrated through the help of the equations describing the household behavior:

$$C_i = f(P_1,...,P_n, CBUD) \tag{1}$$

$$sf_i.PL.L_i = (1 + tc_1).P_1.FFW_i \tag{2}$$

$$EFOOD = \sum_{i=1}^{n} FFW_i - C_1 \tag{3}$$

$$AC_i = C_i \qquad \text{if} \qquad EFOOD \le 0 \tag{4}$$

$$AC_1 = \sum_{i=1}^{n} FFW_i \qquad \text{if} \qquad EFOOD > 0 \tag{5}$$

$$NFEXP = \sum_{i>1} (1 + tc_i).P_i.C_i - (1 + tc_1).P_1..EFOOD \quad \text{if} \qquad EFOOD > 0 \tag{6}$$

$$AC_{i>1} = g(P_2,...,P_n, NFEXP) \qquad \text{if} \qquad EFOOD > 0 \tag{7}$$

Equation (1) describes the optimal (desired) consumption of each good i as a function of all prices and its budget (CBUD). Equation (2) is extremely important because it represents the way we model a food-for-work scheme: labor subsidies paid to each sector i (and this is the for-work side of the story) must be spent by the workers on food items (and this is the food-side of the story) and FFW$_i$ is the quantity of food that must be bought by workers of sector i. Equation (3) is a definition: EFOOD is the excess of food vouchers over the desired food consumption. Equation (4) states that the actual consumption of food is equal to the desired consumption if EFOOD is less than or equal to zero. Equations (5)-(7) describe the behavior if EFOOD is positive. The actual consumption is equal to the FFW transfer, cf. (5), (remember that people are not allowed to resell vouchers). The budget devoted to the purchase of non-food items is now different, determined by equation (6), whereas in equation (7) the actual consumption is a function of the non-food prices and the budget allotted to the purchase of non-food items. For (1) and (7) we have chosen the LES function (see appendix 3).

This methodology, essentially based on conditional statements, allows analyzing the provision of in-kind transfers without having recourse to a mixed complementary format. Basically, depending on which condition on EFOOD holds, we have two different models and the equations just illustrated are a very convenient way of telling GAMS which of them must be activated.

4.2.   Simulation results

4.2.1. Introduction

According to the WB (World Bank, 2003), out of US$ 1.1 billion of predictable donors' assistance for 2003, US$ 375 million is needed for emergency and humanitarian programs. Therefore, in all simulations we increase foreign aid to 1.1 billion, of which 725 million is for general budget support and 375 million for emergency assistance in the form of employment programs. In section 4.2.2. we deal with the case that the emergency assistance from abroad is monetary in nature, whereas in section 4.2.3. it takes the form of food aid from abroad.

4.2.2. FFW versus CFW: monetary assistance from abroad

FFW program:

- the emergency assistance of 375 million US$ is used by the Palestinian Authority to pay a uniform labor subsidy (the same subsidy *rate*) to each sector in the economy,

- workers must spend the amount of the subsidy on food items and are not allowed to resell their vouchers.

CFW program:

- Idem, but workers are allowed to spend the amount of the subsidy freely.

The two programs produce the same outcomes. This is not surprising, because with an emergency aid of 375 million US$ we do not fall into the case described in section 4.1 because this size of the FFW program, however relevant, is not large enough to restore the pre-*intifada* level of food consumption. The interesting case described in section 4.1 remains theoretical[8].

In the next sub-section we present selected economic indicators of our simulations with monetary assistance from abroad and compare them with those of the simulation with food aid from abroad. Here, let us recapitulate Basu's argument: in some circumstances FFW is to be preferred because CFW exerts a stronger upward pressure on the price level and thus people left out of the emergency scheme can suffer a loss. Our model is not perfectly suited to analyze the point, but we can guess that in the Palestinian context this argument does not apply. Who are those "left out" of the relief scheme in our model? Basically, those who remain unemployed and can only make their living out of the transfers made by the PA and/or the RoW. Well, in our FFW and CFW simulations with monetary assistance we kept the amount of *real* transfers to the household fixed and, given that the reduction in the unemployment rate under the two schemes is the same, we are inclined to conclude that the household should be indifferent between them. Again, the reason is apparent from Diagram 1: if a FFW scheme does not force the household to relocate its choice from DC to AC, there is no reason to think of CFW as a more inflationary scheme than FFW.

4.2.3.   FFW versus CFW: food aid from abroad

Here, we want to compare an experiment of CFW along the lines already described, with a different experiment of FFW. This time, food itself comes from abroad in the form of food aid. This kind of FFW program may be conceptualized as follows:

- the emergency aid of 375 million US$ is used by the donors to pay a part of the world price of food to the world producers; only the remaining part is paid by Palestinian importers,

- as before, the PA pays a uniform labor subsidy (the same subsidy *rate*) to each sector in the economy. Workers must spend the amount of the subsidy on food items and are not allowed to resell their vouchers.

Table 3: FFW (food aid from abroad) and CFW ($\equiv$ monetary FFW)
        Selected economic indicators (in real terms)
        (Counterfactual SAM = 100)

	Gross national income	Unemployment	Unemployment rate	PA revenues	Welfare
FFW	104.9	94.4	32.9	90.5	111.2
CFW	111.9	89.1	31.4	100.1	108.7

Sector	Domestic production **FFW**	Domestic production **CFW**	Consumption **FFW**	Consumption **CFW**
Food	86.5	101.9	118.6	106.5
Other Agriculture	100.0	112.6	106.3	106.1
Manufacturing	103.0	100.5	112.0	113.8
Construction	101.6	99.6	104.7	104.6
Trade	100.9	102.2	111.9	109.0
Transport	106.3	108.0	113.0	114.0
Private Services	106.0	108.4	119.8	118.7
Public Services	83.5	97.1	92.0	98.1

The main results of this experiment, as well as those of the experiments described in the previous section, are summarized in Table 3. Since CFW turned out to produce the same results as the FFW in the form of monetary assistance to the PA, we speak about the "CFW program" from now on.

One can see that the main differences between food assistance and monetary assistance are the reactions of domestic food production and of Public Services.

Under the food assistance FFW program domestic food production falls significantly, which is exactly what is expected from such a program: the household simply substitutes domestic production with cheaper, imported food. However, it is worth stressing that other responses of the economy are less obvious. Nevertheless, they should be carefully considered when taking into account the relative merits of different emergency programs. Notably, food production (in the extended but more realistic definition we adopted for this sector, see section 2.1) accounts for almost 20% of the economy: it is a large sector. The decline in its production level is therefore the main reason behind the smaller increase of GNI under the FFW program (5%) than under the CFW program (12%).

In turn, this is the reason why, despite the relevant reduction in the price level prompted by a FFW program, real consumption does not grow faster under such a program. The only item

whose consumption grows faster is food, and this is obvious: the reduction in the world price of food paid by the Palestinian importers produces a standard substitution effect.

Why does the price level fall under a FFW program whereas it is basically stable under a CFW program (which is the reason why the welfare index improves with a FFW scheme)? Because food products are not only a relevant portion of the consumption basket, but also an important input in the production process of those goods and services that are largely consumed by the households (see the benchmark SAM in Appendix 1).

Let's go back to Basu's point again. It is true that- due to the fall in the general price level- food aid from abroad can make the unemployed (those left out of the relief schemes) better off. But, as usual, there is no free lunch. This choice erodes the PA revenues that fall by 9.5% (under CFW these revenues remain almost unchanged). Consequently, FFW negatively affects the production level of the "Public Services" sector (-16.5%, to be compared with the -3% under CFW), by far the most labor intensive sector. This explains why the unemployment rate under CFW decreases to 31.4% and to 32.9% only under FFW. This constitutes a valid argument against FFW emergency schemes. In an economy whose productive base has been eroded by a conflict, an emergency program should never let the producers pay the price of an increasing welfare to the advantage of the consumers: it would be a short-sighted strategy.

4.3. For which work?

If we exclude the case of food aid from abroad, especially for its negative impact on the domestic production of "Food" and "Public Services", we are left with CFW programs. Cash for which work? This kind of program is generally thought of as a social instrument; basically, it is believed that the ultimate beneficiary should be the household and the problem is to provide it with some income. In our view this is the reason why in the economic literature there are plenty of contributions on the issue of in-kind versus cash transfers, whereas much less attention has been paid on the "for-work" side of the story.

Here, to conclude our paper, we want to present the results of a simulation that clearly points to the "for-work" side as a crucial one. In this simulation we basically consider the same program already illustrated in section 4.2.1, with only one relevant difference. We abandon the hypothesis of a uniform labor subsidy paid to each sector of the economy and, keeping fixed the size of the program (US$ 375 million), we try different possible allocations of these funds following two criteria. On the one hand, it could be argued that in a relief program the sectors to be privileged (to be given the largest amount of subsidy) are those producing the goods that dominate the consumption basket of the household. This could be labeled as a "welfare-oriented" approach. On the other hand, one could legitimately think

that the sectors to be preferred are the most labor-intensive, those which are in a good position to absorb as many unemployed as possible. Let us call this view the "labor-oriented approach".

According to the Palestinian data, 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". Table 4 summarizes the results.

Table 4: Welfare-oriented and Labor-oriented Approach
Selected economic indicators (in real terms)
(Counterfactual SAM = 100)

	Gross national income	Unemployment	Unemployment rate	PA revenues	Welfare
Welfare-oriented	110.8	88.5	31.2	100.6	108.6
Labor-oriented	109.6	91.0	32.0	101.4	107.4

Sector	Domestic production **Welfare-oriented**	Domestic production **Labor-oriented**	Consumption **Welfare-oriented**	Consumption **Labor-oriented**
Food	97.7	103.0	105.5	105.9
Other Agriculture	90.0	92.0	102.5	102.7
Manufacturing	102.9	98.3	112.6	110.7
Construction	98.1	101.5	103.1	105.0
Trade	99.8	103.6	102.9	111.8
Transport	98.2	115.4	107.3	116.5
Private Services	110.9	100.9	121.6	107.8
Public Services	101.9	105.9	109.6	108.5

The results are as expected. Under the welfare-oriented approach the performance of the different sectoral GDP is, on average, a bit more disappointing. However, the household is better off. It is worth noticing that unemployment falls faster under the welfare-oriented approach: firms are producing less but, due to the upward pressures on the price of capital[9], with less capital and more labor.

What is the "optimum"? Of course, it is very difficult to say. The results of our model seem to indicate a slight preference for work in the welfare-oriented sectors. This is an important conclusion, but a word of caution is needed. These results must be checked in a fully dynamic model[10] since capital accumulation is not to be neglected in a complete assessment of alternative emergency programmes. It could be that pursuing a route where firms produce less with less capital for the sake of a "plus one percent" in the welfare index turns out to be a mistake. Most probably, in a fully dynamic framework, emergency assistance should follow a sort of modulated sequencing: first, work in the welfare-oriented sectors and then some emphasis on policies aimed at lowering the price of capital and reactivating its accumulation.

5. Summary and conclusions

In this paper we have calibrated a CGE model for the Palestinian economy around the ''pre-*intifada''* SAM of 1998. We have given a big "*intifada*" shock to our model in order to derive a counterfactual SAM that captures the economic effects of *intifada*. This SAM served as base for our policy simulations to compare various employment programs with each other.

In the first simulations the Palestinian authority is supposed to distribute 375 million US$ emergency aid by giving a *uniform* labor subsidy to each sector of the economy. In the case of Food-for-Work the household got vouchers that it is not allowed to resell. In case of Cash-for-Work it could freely dispose of the subsidy. It turned out that the amount of food aid was not large enough to restore the pre-*intifada* level of food consumption so that the actual consumption was equal to the desired one, so that both programs gave the same outcomes.

In the second simulation we considered a FFW program where donors used the emergency aid to pay a part of the world price of food to the world producers; the remaining part being paid by Palestinian importers. As before, the PA gave a uniform labor subsidy to each sector, and workers were not allowed to resell the vouchers. We found that the main differences between food assistance and monetary assistance are the reactions of domestic food production and of Public Services. Under the food assistance FFW program domestic food production fell significantly because the household substituted domestic production with cheaper, imported food. Since food production is a large sector (almost 20% of the economy) the decline in its production level was the main reason behind the smaller increase of GNI under the FFW program (5%) than under the CFW program (12%). Because food products are not only a relevant portion of the consumption basket, but also an important input in the production process of those goods and services that are largely consumed by the households the price level fell under a FFW program, whereas it remained basically stable under a CFW program (which was the reason why the welfare index improved with a FFW scheme).

Basu's argument that- due to the fall in the general price level- food aid from abroad could make the unemployed left out of the relief schemes better off is valid. But this choice eroded the real PA revenues which fell by 9.5%, whereas under CFW they remained almost unchanged. Consequently, FFW negatively affected the production level of the "Public Services" sector (-16.5%, to be compared with the -3% under CFW), by far the most labor intensive sector. Therefore, the unemployment rate under FFW only decreased to 32.9%, whereas under CFW it dropped to 31.4%.This is the core of our argument against FFW emergency schemes: it would be a short-sighted strategy to let the producers pay the price of an increasing welfare to the advantage of the consumers.

Having rejected the FFW scheme, we tried to find an answer to the question: cash for which work? We considered the same program as before, but with one important difference: we abstracted from the hypothesis of a uniform labor subsidy paid to each sector of the economy. We considered two approaches. The first one was labeled as a "welfare-oriented" approach: we gave the largest amount of subsidy to sectors producing the goods that dominate the consumption basket of the household, i.c. "Food", "Manufacturing", "Private Services" and "Public Services". The second one was labeled the "labor-oriented approach": we gave the largest amount of subsidy to sectors that are the most labor-intensive, i.c. "Trade", "Construction", "Transport" and "Public Services".

Under the welfare-oriented approach the performance of the different sectoral GDP was, on average, a bit more disappointing. However, the household turned out to be better off. Unemployment fell faster under the welfare-oriented approach: firms were producing less but, due to the upward pressures on the price of capital, with less capital and more labor. But, as stressed in the paper, these outcomes should be given a time perspective: in a fully dynamic model it might turn out that producing less with less capital is not a good choice and therefore emergency assistance should follow a sort of modulated sequencing: first, work in the welfare-oriented sectors and then some emphasis on policies aimed at lowering the price of capital and reactivating its accumulation. Emergency assistance should never compromise development perspectives.

Appendix 1: The Palestinian SAM for 1998

Input-output structure and primary income (US$, million)

	Food	Oth Agr	Manuf	Const	Trade	Transp	Priv Svc	Pub Svc
Food	195	6	23	0	229	0	0	4
Oth Agr	46	1	28	0	0	0	0	0
Manuf	489	23	445	829	78	73	84	135
Const	4	0	6	113	7	0	22	36
Trade	507	0	512	3	263	9	13	58
Transp	21	4	25	4	45	7	14	40
Priv Svc	61	8	39	20	119	19	225	67
Pub Svc	0	0	0	0	0	0	15	0
Labor	89	38	205	179	473	103	426	349
Capital	177	4	321	245	214	80	546	18

Imports and final demand (US$, million)

	Import	Private Cons	Govt Cons	Invest	Export
Food	733	1,736	0	117	219
Other Agr	34	40	0	0	8
Manuf	1,793	821	0	382	450
Const	1	61	0	1,108	38
Trade	64	126	0	1	10
Transp	135	249	0	33	1
Private Svc	264	84	215	33	2
Public Svc	29	7	761	1	1

Other data (US$, million):

Foreign aid	390
Factor payments from abroad	779
Transfers from abroad	140
Foreign Saving	1,015

Appendix 2. The glossary of symbols of PalMod

Variables:

AC_i	: actual demand for commodity i by the household
C_i	: desired demand for commodity i by the household
C_{n+1}	: demand for leisure
CZ_i	: demand for commodity i in the benchmark
CBUD	: consumption budget of the household
CEBUD	: extended budget of the household
CG_i	: demand for commodity i by the Palestinian Authority
E_i	: export of the domestically produced commodity i
EFOOD	: excess of food-for-work vouchers
ER	: exchange rate
FAID	: foreign aid
FFW_i	: food-for-work vouchers in sector i
FTRF	: transfers to household from abroad
GOVR	: revenues of the Palestinian Authority
I_i	: demand for commodity i for investment
K_i	: capital demand by firms
KS	: capital endowment
L_i	: labor demand by firms
LF	: labor demand by Israel

LS : labor endowment

M_i : imports of commodity i

NFEXP : non-food expenditures of household

P_i : price of composite commodity i
PZ_i : price of composite commodity i in the benchmark
PCINDEX : Laspeyres consumer price index
PD_i : price of domestically produced commodity i
PDD_i : price of the domestically produced commodity i supplied to the domestic market
PE_i : export price (in local currency)
PK : return to capital
PL : domestic wage rate
PLF : wage rate in Israel
PM_i : import price (in local currency)
$PWEZ_i$: world price of exports
$PWMZ_i$: world price of imports

RE : remittances

S : total savings
SF : foreign savings
SG : Palestinian Authority savings
SH : household savings

TAXR : total tax revenues
TRF : nominal other transfers to the household
TRO : real other transfers to the household
TS : time endowment

UNEMP : unemployment

X_i : supply of composite commodity i
XD_i : supply of domestically produced commodity i
XDD_i : domestic commodity i supplied to the domestic market

Y : household's total income

Parameters:

aA_i : efficiency parameter of the Armington function
aF_i : efficiency parameter of firm's i CES production function
aT_i : efficiency parameter of the CET function

αCG_i	: Cobb-Douglas power of the demand of commodity i by the Palestinian Authority
$\alpha HLES_i$	: marginal budget shares of commodity i in the household's LES utility function
$\alpha H_{i>1}$	: marginal budget shares of commodity i = 2,...,n in case there is an excess of food-for-work vouchers
$\alpha HLES_{n+1}$	: marginal budget share of leisure in the household's LES utility function
αI_i	: Cobb-Douglas power of the bank's utility function
b	: shift parameter of the arbitrage condition
γA_i	: share parameter of the imports in the Armington function
γF_i	: share parameter of capital of firm's i CES production function
γT_i	: share parameter of exports of the CET function
$io_{i,j}$	: technical coefficients of the inter-industry flows
mps	: marginal propensity to save
μH_i	: subsistence level of commodity i in the household's LES utility function
μH_{n+1}	: subsistence level of leisure in the household's LES utility function
σA_i	: elasticity of substitution of the Armington function
σF_i	: elasticity of substitution of firm's i CES production function
σT_i	: elasticity of transformation of the CET function
sf_i	: labor subsidy rate granted to sector i
tc_i	: tax rate on consumer commodities
tcz_i	: tax rate on consumer commodities in the benchmark
tk_i	: tax rate on capital use
tl_i	: tax rate on labor use
tm_i	: tariff rate
ty	: tax rate on income

Appendix 3. The equations of PalMod

Note: the index i (= 1: food; 2,…,n: non-food) refers to commodities, while the index n+1 refers to leisure.

Variables:

$AC_i, C_i, CZ_i, CBUD, CG_i, E_i, EFOOD, ER, FAID, FFW_i, FTRF, GOVR, I_i, K_i, KS,$
$L_i, LF, LS, M_i, NFEXP, P_i, PZ_i, PCINDEX, PD_i, PDD_i, PE_i, PK, PL, PLF, PM_i, PWEZ_i,$
$PWMZ_i, RE, S, SF, SG, SH, TAXR, TRF, TRO, TS, UNEMP, X_i, XD_i, XDD_i, Y$

Parameters:

$aA_i, aF_i, aT_i, \alpha CG_i, \alpha H_{i>1}, \alpha HLES_i, \alpha HLES_{n+1}, \alpha I_i, b, \gamma A_i, \gamma F_i, \gamma T_i, io_{i,j}, mps, \mu H_i, \mu H_{n+1},$
$\sigma A_i, \sigma F_i, \sigma T_i, sf_i, tc_{i,}, tcz_i, tk_i, tl_i, tm_i, ty$

Household:

$$C_i = \mu H_i + \alpha HLES_i.[(1+tc_i).P_i]^{-1}.(CBUD - \sum_{j=1}^{n}(1+tc_j).P_j.\mu H_j)$$

$$sf_i.PL.L_i = (1+tc_1).P_1.FFW_i$$

$$EFOOD = \sum_{i=1}^{n} FFW_i - C_1$$

$$AC_i = C_i \qquad \text{if} \qquad EFOOD \le 0$$

$$AC_1 = \sum_{i=1}^{n} FFW_i \qquad \text{if} \qquad EFOOD > 0$$

$$AC_{i>1} = \mu H_{i>1} + \alpha H_{i>1}[(1+tc_{i>1}).P_{i>1}]^{-1}.[NFEXP - \sum_{j>1}(1+tc_{j>1})P_{j>1}.\mu H_{j>1}]$$

$$\text{if} \qquad EFOOD > 0$$

$$NFEXP = \sum_{i>1}(1+tc_i).P_i.C_i - (1+tc_1).P_1.EFOOD$$

$$\text{if} \qquad EFOOD > 0$$

$$LS = (TS - \mu H_{n+1}) - \frac{\alpha HLES_{n+1}}{(1-\alpha HLES_{n+1})}.[(1-ty).PL]^{-1}\left(CBUD - \sum_{j=1}^{n}(1+tc_j).P_j.\mu H_j\right)$$

$$SH = mps.(1-ty).Y$$

$$PL = \left(\frac{LF}{UNEMP + LF}\right).b.PLF$$

$$PCINDEX = \frac{\sum_{i=1}^{n}(1+tc_i).P_i.CZ_i}{\sum_{i=1}^{n}(1+tcz_i).PZ_i.CZ_i}$$

Investment demand:

$$S = SH + PCINDEX.SG + ER.SF$$

$$P_i.I_i = \alpha I_i.S$$

Firms:

$$K_i = \gamma F_i^{\sigma F_i}.[(1+tk_i).PK]^{-\sigma F_i}.\left(\gamma F_i^{\sigma F_i}.[(1+tk_i).PK]^{1-\sigma F_i} + (1-\gamma F_i)^{\sigma F_i}.[(1+tl_i - sf_i).PL]^{1-\sigma F_i}\right)^{\sigma F_i/(1-\sigma F_i)}.$$
$$.(XD_i / aF_i)$$

$$L_i = (1-\gamma F_i)^{\sigma F_i}.[(1+tl_i - sf_i).PL]^{-\sigma F_i}.\left(\gamma F_i^{\sigma F_i}.[(1+tk_i).PK]^{1-\sigma F_i} + (1-\gamma F_i)^{\sigma F_i}.[(1+tl_i - sf_i).PL]^{1-\sigma F_i}\right)^{\sigma F_i/(1-\sigma F_i)}.$$
$$.(XD_i / aF_i)$$

Foreign sector:

$$XDD_i = (1-\gamma A_i)^{\sigma A_i}.PDD_i^{-\sigma A_i}.\left[\gamma A_i^{\sigma A_i}.PM_i^{1-\sigma A_i} + (1-\gamma A_i)^{\sigma A_i}.PDD_i^{1-\sigma A_i}\right]^{\sigma A_i/(1-\sigma A_i)}.(X_i / aA_i)$$

$$M_i = \gamma A_i^{\sigma A_i}.PM_i^{-\sigma A_i}.\left[\gamma A_i^{\sigma A_i}.PM_i^{1-\sigma A_i} + (1-\gamma A_i)^{\sigma A_i}.PDD_i^{1-\sigma A_i}\right]^{\sigma A_i/(1-\sigma A_i)}.(X_i / aA_i)$$

$$XDD_i = (1-\gamma T_i)^{\sigma T_i}.PDD_i^{-\sigma T_i}.\left[\gamma T_i^{\sigma T_i}.PE_i^{1-\sigma T_i} + (1-\gamma T_i)^{\sigma T_i}.PDD_i^{1-\sigma T_i}\right]^{\sigma T_i/(1-\sigma T_i)}.(XD_i / aT_i)$$

$$E_i = \gamma T_i^{\sigma T_i}.PE_i^{-\sigma T_i}.\left[\gamma T_i^{\sigma T_i}.PE_i^{1-\sigma T_i} + (1-\gamma T_i)^{\sigma T_i}.PDD_i^{1-\sigma T_i}\right]^{\sigma T_i/(1-\sigma T_i)}.(XD_i / aT_i)$$

$$PM_i = (1+tm_i).ER.PWMZ_i$$

$$PE_i = ER.PWEZ_i$$

$$\sum_{i=1}^{n} PWMZ_i.M_i = \sum_{i=1}^{n} PWEZ_i.E_i + SF + FAID + RE + FTRF$$

$$RE = PLF.LF$$

Palestinian authority:

$$CG_i = \alpha CG_i.P_i^{-1}.(GOVR - TRF - PCINDEX.SG)$$

$$TAXR = \sum_{i=1}^{n} \left(tc_i.P_i.C_i + tk_i.PK.K_i + (tl_i - sf_i).PL.L_i + tm_i.ER.PWMZ_i.M_i\right) + ty.Y$$

$$GOVR = TAXR + ER.FAID$$

$$TRF = PCINDEX.TRO$$

Market clearing:

$$\sum_{i=1}^{n} K_i = KS$$

$$*\sum_{i=1}^{n} L_i + LF = LS - UNEMP$$

$$X_i = \sum_{j=1}^{n} io_{i,j}.XD_j + CG_i + AC_i + I_i$$

Income equations:

$$Y = PK.KS + PL.(LS - UNEMP - LF) + TRF + ER.(FTRF + RE)$$

$$CBUD = (1 - ty).Y - SH$$

$$PD_i.XD_i = (1 + tk_i).PK.K_i + (1 + tl_i - sf_i).PL.L_i + XD_i.\left(\sum_{j=1}^{n} P_j.io_{j,i}\right)$$

$$P_i.X_i = PM_i.M_i + PDD_i.XDD_i$$

$$PD_i.XD_i = PE_i.E_i + PDD_i.XDD_i$$

*Commented out (Law of Walras): market clearing of labor market

Closure: $CZ_i, FAID, FTRF, KS, LF, PLF, PZ_i, PWEZ_i, PWMZ_i, SF, SG, TRO, TS$

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Notes

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[1] Trade options for the future are analysed at length by Astrup and Dessus (2001) and the World Bank (2002b). Labour policy options are investigated by Ruppert Bulmer (2001).

[2] According to the World Bank (2003), from September 2000 to the end of 2002, the number of permits was reduced from 128,000 to 32,000.

[3] Since probabilities are bounded by 0 and 1, $b \geq 1$. The calibrated value in the 1998 benchmark is 1.178.

[4] Rising unemployment, reduced demand and the withholding by the Government of Israel of taxes collected on the PA's behalf made the total tax revenue fall by over 300 percent in less than two years, from late 2000 to mid-2002.

[5] The welfare index calculated in the model is a Cobb-Douglas aggregation of the utility level of the household, U_H, and the utility level reached by the PA, U_{PA}.

[6] Being interested in a short run issue does not mean that this is a short run model. It is not, since labour and capital are assumed to be mobile among sectors. In other words: we are especially interested in the long (medium) run consequences of a short run issue (the provision of *emergency* assistance). Indeed, the magnitude of such an emergency programme is such that some relevant consequences must be envisaged.

[7] It turned out, see endnote 8, that the food aid is so low that in all our simulations we are in the first state where the household uses all food vouchers so that there is no need to model the market of food vouchers. In the case of two households, a poor one and a non-poor one, it makes sense to model a market for vouchers where the poor household sells vouchers to the non-poor one. Because of lack of data we did not as yet construct a model of this type.

[8] If we give food aid of 600 million US$ (or more), we obtain the case depicted in diagram 1.

[9] The reason why GNI growth is higher under the welfare-oriented approach lies in the behavior of the price of capital (the rental rate of capital). Indeed, when labor subsidies are paid to some relatively capital-intensive sectors, as is the case in this simulation, their expansion causes a pressure on the given capital stock and then increases its price.

[10] For which at the moment we lack some of the necessary data.