

SOCIAL PROTECTION VIA RICE: THE OPK RICE SUBSIDY PROGRAM IN INDONESIA

STEVEN R. TABOR
M. HUSEIN SAWIT

I. INTRODUCTION: FROM GENERAL TO TARGETED RICE SUBSIDIES

PRIOR to the 1997–99 economic downturn, Indonesia had made tremendous progress in reducing poverty and food insecurity. In 1970 a total of 59 per cent of the rural population were classified as poor, as were 51 per cent of urban residents. By 1996 the figures had fallen to 9 per cent in the cities and 12 per cent in the rural areas, or 11 per cent overall (Irawan and Sutanto 1999).

Many more people fell into poverty as a result of the economic downturn.¹ Based on the SUSENAS (National Socio-Economic Survey) surveys, between 1996 and 1998, the poverty headcount increased from 23 million to just under 50 million persons. Poverty incidence increased the most in urban areas, rising from a prevalence level of 9 to 22 per cent, but the absolute number of poor persons was greater in rural areas. In 1999 the poverty headcount fell to 38 million, due to falling food prices and large public transfer programs (Irawan and Sutanto 1999).

The depth and intensity of poverty increased during the crisis. Irawan and Sutanto (1999) report that in 1996 around 74 per cent of the poor population reported monthly expenditures that were at least 80 per cent of the poverty line income. In 1998 and 1999, less than 60 per cent of the poor population had an average expenditure that was at least 80 per cent of the poverty line income.² Although mounting urban poverty has attracted considerable press attention, the results from a series of

The authors are, respectively, director, EMSI, the Netherlands, and director, External Affairs and International Cooperation, BULOG, Jakarta, Indonesia. Both authors served as experts to the State Ministry for Food and Horticulture Affairs in 1998 and 1999, and were involved in the initial design and 1999 mid-term evaluation of the OPK program.

¹ In this paper, the “poor” refers to the share of the population with a total expenditure level below the poverty line reported by the Central Bureau of Statistics.

² The rural poverty line was Rp 59,560 per capita in the rural areas in 1998 (Irawan and Sutanto 1999). This implies that 60 per cent of those individuals classified as poor reported monthly expenditures between Rp 47,648 and Rp 59,560 per capita per month. Some 40 per cent of those classified as poor reported monthly expenditures of less than Rp 47,648 per capita.

SUSENAS surveys suggest that poverty has intensified the most in rural Java and in the urban parts of eastern Indonesia.

Absolute poverty in Indonesia is closely linked to food insecurity and malnutrition.³ Surveys show that among those earning less than Rp 40,000 a month in 1996, average energy consumption levels were already far below the 2,100 kilocalorie per day minimum standard set for Indonesia (Jalal and Atmojo 1998). Of special concern is the plight of the most vulnerable groups. UNICEF (1997, 1999) reports that 36 per cent of children under five are suffering from energy/protein deficiency, 35 per cent from anemia, and 30 per cent from iodine deficiency. Among pregnant women, 41 per cent are suffering from energy deficiency. Malnutrition is thought to be the main cause of almost half of all child deaths in Indonesia (Jalal and Bloem 1999).

Indonesia policymakers have historically defined food security in terms of the nation's ability to provide itself with adequate supplies of rice at an affordable price. Since large numbers of poor families were involved in rice production, efforts to promote higher levels of domestic production capacity were consistent with long-run poverty reduction. In the past, to protect consumers, the government monopolized staple food imports and operated a national buffer stock and seasonal price stabilization system. Over the past two decades, the government has generally managed to keep the domestic rice price far more stable than world rice prices (Darmawan 1999; Dawe 1999) while on roughly the same trend as world rice prices. Dawe (1999) reports that the coefficient of variation in de-trended urban rice prices in Indonesia during the 1980s and early 1990s was one-quarter that of the variation in world market rice prices. But since 1996, food imports have soared, prices have fluctuated sharply, and the costs of interventions aimed at stabilizing prices have been rising (Wiebe 1998). The 1998 urban food riots, historically high levels of food imports, and surging poverty levels are signs that the food security system has been badly compromised.

The government's initial reaction to the deteriorating food security situation in 1997 and 1998 was to impose sweeping controls on food trade and marketing and to use public grain stock releases to hold down food prices. From mid-1997 to mid-1998, trade and price controls were used to maintain domestic food prices at 50 to 60 per cent of prevailing import parity prices.⁴ Food price subsidies for fiscal 1998/

³ The BPS (Statistics Indonesia) measures absolute poverty using the value of total expenditures necessary to afford a diet that will provide 2,100 kilocalories per day and non-food expenditures equivalent to that required to buy a non-food basket of goods and services reported by a family at the calorie cutoff point. Those families with per capita expenditures below the poverty cutoff level would have total expenditures less than that needed to afford a minimal diet and minimal consumption of essential non-food goods and services (see Sutanto [1999] for a further discussion of survey methodology).

⁴ In December 1997 the average Jakarta rice price (for International Rice Research Institute medium quality rice) was Rp 1,200 per kilogram, and the equivalent import parity price was Rp 1,275 per

1999 were initially budgeted at Rp 4 trillion but eventually reached Rp 12 trillion, the equivalent of 12.4 per cent of government development outlays and just under 2 per cent of GDP.

Faced with a widening gap between domestic and international food prices, large quantities of rice and other basic foodstuffs were smuggled out of the country. Rather than sell rice at distress prices, farmers withheld rice from the markets and urban traders ran down their stocks. As supplies became more scarce, domestic rice prices rose by nearly 50 per cent from May to August of 1998, triggering a near-panic in several urban markets.

By August 1998 the government abandoned its general food price subsidy policy. A targeted rice subsidy program (Operasi Pasar Khusus [special market operation], or OPK program) was mounted to protect the food security of low-income households. Under OPK, eligible households are allowed to buy ten (later twenty) kilograms of rice per family per month at a subsidized price of Rp 1,000 per kilogram from the government.⁵

The introduction of OPK was just one of many changes that were to sweep Indonesia's food markets in 1998 and 1999. In September 1998 the government announced that BULOG (the National Food Logistics Agency)⁶ would confine its domestic procurement activities to rice and would dispose of its non-rice food stocks. In September the government also announced that trade in foodstuffs would be liberalized, including rice. This was implemented in November 1998, ending BULOG's long-standing rice import monopoly. In January 2000 rice imports were fully liberalized, and a 30 per cent specific import duty was applied to imported rice. This dismantling of BULOG's broad-based food trade monopoly and price stabilization authority implies that, by default, the OPK targeted rice subsidy program has become the government's single most important policy instrument for protecting food security. Taken together with the liberalization of food markets, the

kilogram (for Thai 25 per cent broken). In January 1998 the Jakarta rice price was Rp 1,350 per kilogram, and the equivalent import parity price was Rp 2,927 per kilogram. Between May and June, the import parity price surged from Rp 3,148 to Rp 4,500 per kilogram while the domestic price rose from Rp 1,350 to Rp 1,850 per kilogram. In August the Jakarta rice price reached Rp 3,200 per kilogram, compared to a border price of Rp 3,790 per kilogram. From August to December, import parity prices declined, as did domestic prices. From November to December 1998, the import parity price declined from Rp 2,383 to Rp 2,181 per kilogram while domestic Jakarta prices rose from Rp 2,527 to Rp 2,775 per kilogram (BULOG 1999).

⁵ Prior to 1998, BULOG and the Department of Social Affairs had periodically mounted rice-based relief operations. This involved the distribution of relief rice to regions suffering from drought, floods, or other disasters. Such operations differed from OPK in that the tonnage involved was typically quite small; assistance was targeted to regions rather than households; and the subsidized rice was provided for just a matter of a few months.

⁶ As a nondepartmental government agency, the chairman of BULOG reports directly to the president.

attempt to target rice subsidies to the poor represents an important innovation in government's food security tool kit.

Some eight months after OPK was established, it was included as one of the elements of the World Bank's social sector safety net loan. Thereafter, it was classified as one of the nation's main social safety net (Jaring Pengaman Sosial [JPS]) efforts. In some respects, this is a misnomer. The OPK program was primarily intended to replace one type of food security intervention with another. It was not intended to be an anti-crisis program per se. Unlike the other JPS programs, it is financed from the routine budget and was defined and operated well before donor assistance came on the scene. While the program does contribute to social protection, its aim was to enhance household food security, an objective that is less crisis-related and more closely linked to poverty reduction and to the stability of the food economy.

This article reviews the first year's performance of the OPK program. Program and beneficiary impact data are drawn on to assess the cost-effectiveness and incidence of the transfer scheme. Drawing on a series of secondary data sources, indicative estimates of the program's impact are drawn. The final section looks to the future and discusses the public policy challenges posed by OPK.

II. THE OPK PROGRAM

The OPK program works much like any other targeted income redistribution scheme, with the main difference being that the income is redistributed in kind (as a rice subsidy) rather than in cash. From an operational standpoint, what is remarkable about the OPK program is that it was mounted and scaled up to a national effort extremely quickly and with relatively few administrative teething problems. The program was mounted in the midst of the economic crisis, a setting that could hardly be described as conducive to innovation in public administration.

OPK program eligibility is formally based on the quarterly welfare cadastre of the National Family Planning Coordinating Agency (Badan Koordinasi Keluarga Berencana Nasional [BKKBN]).⁷ Those families classified as "pre-prosperous (Pras)" and "just prosperous (KS1)" were designated as the program target group. The BKKBN criteria were used to define eligible program participants because this was the only available list of households categorized by welfare categories. The other data sources that were available were both too highly aggregated and had collection and reporting lags that were too long to be of much practical use for identifying program eligible households.

The BKKBN register was not designed to identify food insecure households. OPK program authorities were well aware of this when the program was started.

⁷ The BKKBN eligibility criteria are provided in Appendix.

OPK program administrators were also aware that local communities would re-allocate the subsidized rice to the more food insecure households, effectively improving the targeting of the rice subsidy by augmenting formal beneficiary selection criteria with local knowledge. Indeed, program administrators were instructed to allow OPK beneficiaries to redistribute, sell, or otherwise utilize the subsidized rice as they wished (State Ministry for Food and Horticulture Affairs 1998).

In the first six months of the program, eligible beneficiaries were provided a ration card with which they could purchase ten kilograms of rice at a subsidized price of Rp 1,000 per kilogram, approximately a quarter of the price prevailing in urban markets in August 1998. In December 1998 the monthly ration was doubled to twenty kilograms of rice per family—an amount equivalent to close to one-third of the total rice consumption of an average poor family.

In February 1999 beneficiary selection criteria were tightened to include only those families classified as poor and food insecure on economic grounds by the BKKBN (i.e., excluding those classified as poor for lack of various social amenities). To ensure that the program was not excluding widows and other food insecure “non-family” persons, local governments were allowed to increase the beneficiary rolls by up to an additional 10–15 per cent to include families not captured by the BKKBN criteria.

While the main rules of the subsidy program were the same nationwide—in terms of eligibility criteria, subsidy allotment, and co-payment amount—the way in which the program is implemented was designed to differ from province to province. In some provinces, the local BULOG office distributes the subsidized rice directly to the villages. In other provinces, local government officials collect the rice from BULOG’s regional warehouses (DOLOGs, or Depot Logistik) and make their own distribution arrangements. In most instances, it is the family planning field workers (the KB volunteers) who ultimately distribute the rice to program eligible households.

OPK program coverage increased rapidly over time. In July 1998 the program was pilot tested in West Java on some 140,000 households. In August 1998 the program was scaled up to reach some 3.4 million households, with 34,000 tons of rice distributed throughout the country. Gradually, eligibility rolls and distribution capabilities of the program increased. By the end of the first fiscal year, in March 1999, the OPK program was reaching 10.4 million families with a monthly rice distribution of 207,000 tons of rice (Table I). In the first months of fiscal 1999/2000, program coverage stabilized at approximately 10.5 million households. In December 1999 a total of 225,000 tons of rice were distributed to 10.5 million families. With an average family size of 4.75 for poor families (Sutanto 1999), this would imply that the program is reaching approximately 49.8 million persons, or approximately the amount estimated by the Central Bureau of Statistics (presently Statistics Indonesia: Badan Pusat Statistik [BPS]) as classified as “poor” at the end of calendar 1998.

TABLE I
OPK PROGRAM SUMMARY STATISTICS

Indicator	August 1998	October 1998	December 1998	March 1999	June 1999	December 1999
BULOG OPK rice distribution statistics:						
Rice distributed (1,000 tons)	34	75	179	207	210	225
Households reached ^a (1,000)	3,365	7,521	9,291	10,372	10,507	10,458
Urban	71	286	478	n.a.	n.a.	n.a.
Rural	3,295	7,234	8,814	n.a.	n.a.	n.a.
BKKBN beneficiary summary statistics (maximum possible beneficiary pool): ^b						
Pra-S households (1,000)	8,072	9,339	9,796	6,877	n.a.	n.a.
Per cent of total national households	18.2	21.3	22.4	15.7	n.a.	n.a.
KS1 households (1,000)	9,433	9,461	9,414	5,846	n.a.	n.a.
Per cent of total national households	21.3	21.5	21.5	13.4	n.a.	n.a.
Pra-S + KS1 households (1,000)	17,504	18,799	19,210	15,747 ^c	n.a.	n.a.
Per cent of total national households	39.5	42.8	43.9	36.0	n.a.	n.a.

Sources: BULOG, *Monthly OPK Monitoring Report*, 1999 issues; and BKKBN, *Computer Print-Out of the Quarterly Results from the Family Planning Welfare Survey* (Jakarta, 1999).

^a Households reached is defined as the program distribution divided by the eligibility amount. The total refers to a weighted average, with rice distributions used for the weighting.

^b A household is classified as Pra-S if it is unable to practice its religion, unable to eat at least twice a day, unable to have a change of clothing, lives in a house with a dirt floor, and is unable to obtain medicines or family planning services when a child is sick. KS1 households would satisfy these conditions but fail to satisfy one or more of an additional sixteen basic need conditions. For the full listing of the Pra-S and KS1 criteria, see Appendix.

^c For fiscal 1999/2000, the total ceiling for beneficiary participation includes 1.7 million households classified by local governments as food insecure, but not captured in the BKKBN standards.

To reach this large number of program beneficiaries, a distribution network had to be established. The DOLOGs and local governments cooperated closely to establish a widespread network of rice ration distribution points. At each distribution point, monthly rations of one to two tons of subsidized rice were distributed by DOLOG representatives to local government officials, based on the amount of rice estimated to be required according to local government beneficiary rolls. At each

distribution point, which is either in a sub-DOLOG warehouse or a local government office, community representatives collect the rice and transport it to their villages. Within each participating village, local community volunteers collect the rice and redistribute it to program beneficiaries. The volunteers also collect the beneficiary co-payments which are then transmitted to the collection points and paid into a special BRI (Bank Rakyat Indonesia, or People's Bank) program account. By December 1998 a total of 36,000 distribution points had been established throughout the country. By August 1999 the number of distribution points had expanded to 45,000, making this the largest single distribution network in the nation. That such a large distribution network could have been established in so short a period of time, and under such difficult circumstances, is a remarkable logistical accomplishment.

The OPK program has had a distinctly rural bias. The number of assisted urban households has increased from 71,000 in August 1998 to 478,000 in December 1998. The program's rural bias can be explained by the fact that the BKKBN poverty rolls severely underestimated the number of urban poor. Although the OPK program has been rapidly increasing its coverage in urban areas, large numbers of urban poor still do not have access to the program. To improve OPK program coverage in urban slum areas, a supplementary OPK effort was implemented with the assistance of the United Nations World Food Programme and nongovernmental groups (Lembaga Sosial Masyarakat [LSM]). This was launched in Jakarta in February 1999. By late 1999, some 500,000 urban slum households were covered by what is termed the OPK-LSM program in the five largest cities of the country. This program is identical to the government OPK program except that beneficiaries are identified, the rice is distributed, and co-payments collected by LSM organizations instead of the local government.

The OPK program has also had a decidedly Java bias. In June 1999, for example, the program provided 158,000 tons of rice rations to beneficiaries in Java out of a total of 210,000 tons distributed (see Table II). In other words, 75 per cent of the beneficiaries were in Java. The coverage bias can be explained both by the severity of the crisis impact in Java, the greater preponderance of rice-eaters and the relative ease of establishing a rice subsidy distribution network on that island. Logistical, security, and beneficiary registration difficulties impede progress in expanding OPK coverage in several of the other islands. However, steady progress has been made in expanding off-Java coverage from mid-1998 to mid-1999, particularly in a number of the poorest provinces.⁸

The OPK program has been extensively monitored and evaluated, both by the program implementers and by independent NGO and university evaluators. The

⁸ For example, coverage in Nusa Tenggara Timur rose from 76,000 households in October 1998 to 246,000 households in May 1999. Coverage of poor households rose from 188,000 in Nusa Tenggara Barat in October 1998 to 300,000 in June 1999.

TABLE II
PERCENTAGE OF THE POPULATION RECEIVING OPK RICE

Province	Total Population (1,000)	Total Population Receiving OPK Rice (1,000)	Population Share Receiving OPK Rice (%)
Dista Aceh	4,075	932	22.9
Sumatera Utara	11,754	541	4.6
Riau	4,198	252	6.0
Sumatera Barat	4,531	198	4.4
Jambi	2,538	401	15.8
Sumatera Selatan	7,610	1,064	14.0
Bengkulu	1,521	137	9.0
Lampung	6,982	2,569	36.8
DKI Jakarta	9,489	486	5.1
Jawa Barat	41,578	4,867	11.7
Jawa Tengah	30,703	18,018	58.7
DI Yogyakarta	3,018	332	11.0
Jawa Timur	34,842	13,304	38.2
Kalimantan Barat	3,871	85	2.2
Kalimantan Timur	2,516	126	5.0
Kalimantan Selatan	3,053	237	7.8
Kalimantan Tengah	1,737	148	8.5
Sulawesi Utara	2,767	512	18.5
Sulawesi Tengah	2,083	176	8.5
Sulawesi Tenggara	1,708	146	8.5
Sulawesi Selatan	7,962	871	10.9
Bali	3,014	77	2.6
Nusa Tenggara Barat	3,853	488	12.7
Nusa Tenggara Timur	3,785	451	11.9
Maluku	2,192	161	7.3
Irian Jaya	2,112	56	2.6
Timor Timur	901	296	32.8

Sources: BPS, *Statistik Indonesia 1999*; and BULOG, *Monthly OPK Management Report*, 1999 issues.

Note: Total population figures are 1998 estimates from the BPS, *Statistik Indonesia 1999*. The numbers of individuals receiving OPK rice are based on BULOG estimates of households receiving OPK rice, on average during April–June 1999, and assuming an average family size of 4.75 persons per beneficiary family.

independent monitoring and evaluation reports reveal a number of common implementation problems, the most important of which are: (i) that the BKKBN welfare criteria were not designed specifically to identify food insecure households and that villagers often define food insecurity differently from the way in which program managers would define it (SMERU 1998; Sumarto et al. 2000; Wiebe 1998); (ii) there is a tendency in some beneficiary villages to redistribute the rice more widely amongst both poor and near-poor families, hence diluting the impact on the very poor (Rachman et al. 1999; Sumarto et al. 2000); (iii) that operational costs have

been insufficient to meet the high transport costs to some Outer Island regions (State Ministry for Food and Horticulture Affairs 1999c); (iv) that some food insecure families are not eligible to participate in the program (Tim-JPS 1999); (v) that the program was not well socialized by the government and understood by the poor population (Tim-JPS 1999); and (vi) that urban coverage was very low (Pusat Pengembangan Agribisnis 1998).

As in any large-scale program, there have been reports of malfeasance and corruption. A survey conducted by the Indonesian Consumer Foundation (Yayasan Lembaga Konsumen Indonesia 1999) found that small quantities of OPK rice were sold in the markets by village heads, other local government officials, and by the beneficiaries themselves. In addition to malfeasance, market sales of the subsidized rice were attributed to a number of factors, including (i) an inability of the target beneficiaries to purchase all of the subsidized rice scheduled to be delivered to a village at one time; (ii) provision of rice that was of a quality standard unacceptable to the target beneficiaries; and (iii) a need to mobilize small amounts of funding to repay the cost of distributing the rice from the distribution point to the household. The monitoring and evaluation reports do find, however, that the program has generally been implemented with a high degree of operational efficiency and a relatively little corruption or bureaucratic mismanagement (Gadjah Mada University 2000; State Ministry for Food and Horticulture Affairs 1999b; SMERU 1999; Tim-JPS 1999). This stands in sharp contrast to many of the other social safety net programs (Booth 1999).⁹

Based on the independent monitoring and evaluation reports, the national OPK steering committee has made a large number of mid-course program corrections in the first year of program operation. Rice rations were doubled to twenty kilograms; eligibility criteria were tightened to include only those families classified as Pra-S and KS1 for economic reasons; higher operational costs were sanctioned for distant regions; local community representatives were allowed to nominate up to 10–15 per cent of the beneficiaries to ensure that the food insecure were adequately covered; and an urban slum OPK effort, implemented by NGOs, was launched. To improve public awareness, an information outreach (or socialization) campaign was mounted. The main theme of that campaign is to “provide rice to the needy first” to encourage communities to ensure that OPK rice is provided primarily to the most food insecure households.

⁹ The social safety net program has received considerable adverse coverage in Indonesia’s press, leading some observers to declare that it would be better to stop all forms of social safety net assistance. In the case of the OPK program, some observers have concluded that the program is badly managed or ineffective because of evidence that rice is sold in the market or that it is not perfectly targeted to the very poor (Mubyarto 1999). The more detailed program evaluations recognize that there are numerous reasons for market sales—some of which are indeed legitimate—and that perfect targeting of any social assistance program cannot be achieved in practice.

III. PROGRAM COSTS

The cost of the OPK program can be divided into four different categories.¹⁰ The first is the cost of the rice subsidy. This is the difference between BULOG's cost of rice and the price at which it is sold to the beneficiaries. The second is the operational cost of distributing the rice. This is equivalent to the cost of administering the program, handling and distributing the rice. These first two costs are budgetary costs which are fully financed by the government. The third set of costs are the indirect costs involved when either government officials or community volunteers contribute their time to implementing the program. The fourth set of costs are the opportunity or additional shadow costs that arise when the cost of rice to BULOG is either higher or lower than the equivalent world market parity price.

In the first full twelve months of OPK operations, the total rice subsidy cost was equivalent to Rp 2.4 trillion (Table III). This is by far the largest cost component in the OPK program. The rice subsidy cost is equal to BULOG's statutory average rice cost less the Rp 1,000 co-payment received from program beneficiaries multiplied by the total amount of rice distributed. For fiscal 1998/1999 and fiscal 1999/2000, BULOG's statutory rice cost (*harga patokan bulog*) was Rp 1,924 and Rp 2,645 respectively. Therefore, the total budgetary rice subsidy is as follows:

1998/1999:	1.055 million tons × Rp 924/kg ¹¹ = Rp 975 billion.
1999 (Apr.–Aug.):	0.86 million tons × Rp 1,645/kg = Rp 1,414 billion.

In the program's first full twelve months of operations, the total subsidy cost was equivalent to Rp 2.4 trillion.

In addition to the rice subsidy cost, the OPK program incurs operational costs for administration, coordination, transport, bagging, and other costs. In fiscal 1998/1999 these amounted to Rp 267 billion, out of which 72 per cent was for the cost of transporting rice from the DOLOG warehouses to the distribution points, 7 per cent was for the cost of bagging, 5 per cent was for monitoring and evaluation, 4 per cent was for local distribution expenses (i.e., from the DOLOG distribution point to the household), and 12 per cent was for administration, supervision, and coordination (Table III). For fiscal 1999/2000, these costs are estimated at Rp 293 billion.

It is important to note that the operational cost budget does not include the full cost of all the government personnel and facilities involved in the program. The administrative and personnel costs involved in operating the rice distribution points have not been explicitly included in the costs of operating the OPK program. Most of the rice distribution points are staffed by local government officials and commu-

¹⁰ There is no evidence that adverse incentive costs—or costs that are incurred because of change in recipient behavior—are significant in this case. These have been excluded from this analysis.

¹¹ Equivalent to BULOG's average rice cost less the Rp 1,000 per kilogram beneficiary co-payment.

TABLE III
TOTAL OPK PROGRAM COSTS

Program Costs	(Rp billion)	
	August 1998–August 1999	Fiscal 1999/2000 Estimates
Rice subsidy	2,400	3,400
Operational costs	267	293
Indirect community costs	63	67
Additional shadow costs	628	0
Total	3,358	3,760

Sources: Authors' estimates based on BULOG, *Monthly OPK Management Report*, 1999 issues; and BULOG, *Budget Request to the Ministry of Finance, Fiscal 1999/2000*, Jakarta.

nity volunteers. This typically involves the use of a pre-existing local government administrative office to store and distribute rice for one to two days a month. The subdistrict and village leaders who staff the distribution points are engaged in a wide range of other administrative tasks, in addition to their OPK duties, the costs of which are funded by the government as part of the routine budget for local government administration.¹²

The total budgetary burden of OPK is equivalent to the rice subsidy cost plus the operational costs. For the first twelve months of program implementation, this was equivalent to Rp 2.7 trillion.¹³ For fiscal 1999/2000, the eventual budget cost is expected to reach Rp 3.7 trillion (Table III). This is approximately 14 per cent of the government's budget allocation for subsidies in that fiscal year.¹⁴ With 9.3 million participating households in the first year of the program, and an estimated 10.4 million participating households in the second year, the budgetary outlay per beneficiary was Rp 293,000 in fiscal 1998/1999 and Rp 356,000 in fiscal 1999/2000.

There are other indirect costs associated with implementing the program. The largest of these is the cost borne by the community to collect and distribute the rice from the distribution points, bring it to program beneficiaries, collect co-payments, and track progress in distributing the rice. These local costs are generally not reimbursed by the program. They are either borne by the volunteers themselves or are reimbursed by local community leaders or OPK beneficiaries. Using prevailing wage rates, transport costs, and an average of three days per month spent distributing rice

¹² Indeed, it can be argued that the opportunity cost for the use of local government offices and personnel to operate distribution points for the OPK program was near-zero because of an almost chronic underutilization of local government staff and facilities.

¹³ It should be noted that the Ministry of Finance has challenged reimbursement of BULOG's operational costs for program implementation, and that these may eventually be assumed within BULOG's implicit rice cost (*harga pembelian bulog*, or HPB-BULOG).

¹⁴ By far the largest subsidy is for energy products (with a budget of more than Rp 20 trillion).

from each OPK distribution point, the indirect costs incurred by community volunteers would be on the order of Rp 67 billion in 1999/2000.¹⁵

The cost of rice to BULOG in 1998/1999 was not the same as its economic opportunity cost because of trade restrictions and BULOG's preferential access to foreign exchange. The actual opportunity cost of rice to Indonesia is the "economic value" of the rice to the population. As Indonesia was a food deficit country for fiscal 1998/1999, this is equivalent to the import parity price for rice. During fiscal 1998/1999, the average world market price (in import equivalent terms) for low-quality (Thai 25 per cent broken) rice was U.S.\$240 per ton. At an average exchange rate of Rp 10,500 to the U.S. dollar, this would imply that the economic opportunity cost of rice was Rp 2,520, or some Rp 596 above BULOG's rice cost price (Rp 1,924 per kilogram).

If we value the 2 million tons of OPK rice that BULOG distributed in its first year of program operations at the border price, then the rice subsidy would have been Rp 3,028 billion rather than the Rp 2,400 billion actually incurred by the government (see Table III).¹⁶ The difference between the rice subsidy calculated at BULOG's statutory rice cost price and what it would have been had the rice been valued at its import parity value provides an estimate of the additional shadow cost of the rice used in the OPK program.¹⁷ In fiscal 1999/2000, domestic and world market rice prices converged. BULOG's rice cost price was almost identical to the import parity price, and accordingly, the additional shadow cost of OPK rice was negligible in that fiscal year.

The total cost of the program (see Table III) for its first calendar year was some Rp 3.4 trillion. For fiscal 1999/2000, the total estimated cost has increased to Rp 3.8 trillion. These estimates are indicative that actual subsidy costs for fiscal 1999/2000 were not fully accounted for and approved when this analysis was prepared.

¹⁵ Based on monitoring and evaluation reports, we estimate that an average of three persons are needed for two days per month to distribute two tons of rice from the distribution point to the beneficiaries and to collect beneficiary co-payments. At prevailing wage rates in 1998, the opportunity cost of their time would be approximately Rp 6,000 per day. Hence, the total opportunity cost of their labor for distributing rice and collecting co-payments would be approximately Rp 36,000 per distribution. In addition, the average transport cost for a delivery of two tons of rice from the distribution point to the ultimate beneficiaries (using local transport) would be approximately Rp 30,000. This would bring the total cost borne by the community to some Rp 66,000 for a two ton monthly delivery, or some Rp 33,000 per ton. No opportunity cost is imputed for project participants in collecting the rice since the rice is typically collected as part of the households "routine" shopping activity.

¹⁶ The figure of Rp 3,028 billion is derived by adding Rp 2,400 billion and additional shadow costs of Rp 628 billion which was calculated by multiplying 1.055 million tons by Rp 596 per kilogram.

¹⁷ The additional shadow cost refers to the resources that BULOG would have had to expend if that organization purchased rice at the official exchange rate and at world market prices for distribution to OPK beneficiaries.

IV. PROGRAM TRANSFER BENEFIT

OPK beneficiaries are able to buy rice for Rp 1,000 per kilogram, in other words, at a price well below the market price. By definition, the indirect income transfer benefit to the program participants is equal to the difference between the prevailing rice price and the co-payment amount (i.e., the Rp 1,000 per kilogram). This income transfer benefit varies by region and time-period because in some regions and at certain times of the year, the price of rice is much higher than in others. Accordingly, the household income transfer benefit will differ by location and by month, depending on the prevailing retail rice price.

That the household indirect income transfer benefit does vary over time and location has certain distinct social protection advantages. In areas where the rice price is high, such as remote regions, the household benefit would be greater. During the *paceklik* (pre-harvest) period, when local rice prices rise, the household income transfer benefit will increase. Should rice prices suddenly rise, because of devaluation or some other international shock, the income transfer benefit to eligible households will also increase.

We can estimate the program transfer benefit for each geographic area by multiplying the amount of OPK rice that was distributed in a given province by the difference between the average monthly provincial rice price and the Rp 1,000 co-payment amount. Summing these results across provinces provides an estimate of the program transfer benefit for the country as a whole. These results are presented in Table IV below.

For the first twelve months of program implementation, the program conveyed Rp 3.4 trillion in indirect income transfer benefits (Table IV) to an average of 9.3 million households that received program benefits. Therefore, the average annual income transfer benefit was equivalent to Rp 365,590 per participating household. At an average household size of 4.75 persons per poor family (Sutanto 1999), the monthly per capita income transfer benefit of individuals that received OPK rice in the first year of the program's operation was equivalent to Rp 6,413 per person per month.

How important was this transfer benefit to the poor? Average per capita incomes (total expenditures) of poor households in 1998, according to the December 1998 SUSENAS survey results, were Rp 66,850 per month. In urban areas, average per capita 1998 incomes of poor households were Rp 80,160 per month, and in rural areas it was Rp 59,560. Accordingly, the average transfer benefit was equivalent to 10 per cent of the average income of the poor households in 1998, and 11 per cent of the average income of the poor rural households in 1998.

TABLE IV
MONTHLY INDIRECT INCOME TRANSFER TO OPK PROGRAM
BENEFICIARIES

Month	Income Transfer (Million Rupiah)
July 1998	1,706
August 1998	59,839
September 1998	139,051
October 1998	146,671
November 1998	160,097
December 1998	353,015
January 1999	409,630
February 1999	390,583
March 1999	371,225
Total (FY1998/1999)	2,031,817
April 1999	316,366
May 1999	361,682
June 1999	380,520
July 1999	334,182
Total (July 1998–July 1999)	3,424,567

Sources: Authors' estimates based on data provided by BULOG in the *Monthly OPK Management Report*; and the *Laporan informasi pasar* [Market information report] (Jakarta, 1999).

V. PROGRAM COST-EFFECTIVENESS

One of the important tests of any social protection effort is how cost-effective it is in delivering benefits to the food insecure. For cost-effectiveness calculations, four different types of information are required: (i) an estimate of the target population, in this case the food insecure group; (ii) an estimate of the net benefits conveyed to program beneficiaries; (iii) an estimate of the direct and indirect costs of providing assistance to the beneficiary group; and (iv) an estimate of targeting error, or benefit leakages to unintended beneficiaries.

The December 1998 SUSENAS survey results suggest that there were 49.5 million poor persons, of which 31.9 million were in rural areas and 17.6 million were in urban areas. The OPK program reached some 44 million persons in its first program year. If the BPS poverty group is used as a proxy for the number of food insecure, then the number of recipients targeted by OPK was within a 10 per cent difference of the numbers considered to be at risk of poverty and food insecurity at the time.

But there is little reason to believe that those classified by the BKKBN and those reported as low-income households using the SUSENAS criteria are one and the same. Evidence from the 100 Village Survey, reported by Sumarto et al. (1998) finds that the correspondence between expenditure levels and BKKBN KPS (Pra-S) and KS1 screening criteria is weak. The results of the 100 Village Survey also suggest that there was some leakage of OPK program benefits to unintended beneficiaries (Sumarto et al. 2000).

A number of independent universities and research institutes evaluated the OPK program in eighteen provinces in the last quarter of 1998. The independent evaluations found 94 per cent of the respondents who purchased OPK rice reported that they were “pre-prosperous (Pra-S)” and should be eligible for the program. According to income estimates reported by the evaluators, these households were both poor and in clear need of food assistance (Rachman et al. 1999). Only 6 per cent of those households who had access to OPK rice had incomes significantly above the poverty line.

Indeed, some of the benefits of any transfer program will leak to unintended beneficiaries and some of those who should be eligible are inevitably excluded. We can estimate the share of the program benefits that “leak” to non-food-insecure households as:

$$\text{leakage population} = (S1 - S2 + S3) \times \text{population},$$

where $S1$ = share of food insecure population who are not eligible for OPK; $S2$ = share of food insecure households who receive OPK benefits through local community redistribution of the OPK rice; $S3$ = share of the food secure population who are eligible and have access to OPK rice; and population = total population of beneficiary households.

The result from the field evaluations conducted in eighteen provinces by universities and research institutes in the last quarter of 1998 can be used to estimate the parameters of the leakage population equation.¹⁸ The field evaluations found that some 15 per cent of the poor, food insecure population were deemed ineligible for the OPK program for a variety of reasons. The field evaluations also found that some two-thirds of these excluded food insecure households do, indeed, receive some OPK rice due to redistribution of the allocation rights within the beneficiary communities. The evaluation results also found that approximately 10 per cent of those who receive OPK rice are food secure.

We can apply the results to set parameter values for the leakage population equation. This implies that $S1$ would be 15 per cent, $S2$ would be 10 per cent, and $S3$ would be 10 per cent.¹⁹ Therefore, average program leakage, as a share of the

¹⁸ These evaluations have been summarized in Rachman et al. (1999).

¹⁹ Other authors (see Sumarto et al. 2000) have estimated that leakages from the OPK program to unintended beneficiaries were much higher. The issue, however, is the distinction between

beneficiary population, would be rather small, or approximately 15 per cent of the total beneficiaries. In practice, the two main reasons for leakages are the lack of full concordance between BKKBN screening criteria and food insecurity and community redistribution of access rights for OPK rice to middle- and upper-income households.

The value of the OPK program transfer benefit to the food insecure households is the difference between the total amount of program benefits conveyed to all beneficiaries less that which has leaked to the non-food-insecure. With a 15 per cent leakage rate, this implies that the transfer benefits of the OPK program received by the food insecure “target” poor group was equivalent to Rp 2.9 trillion in the first year of operations (i.e., 85 per cent of the Rp 3.4 trillion in year 1 benefits).

The most common measure of cost-effectiveness is the ratio of total program costs (i.e., rice subsidy, operational, indirect, and shadow costs) to the transfer benefit received by target (food insecure) beneficiaries. Total OPK program costs, in its first full year of operation, was Rp 3.36 trillion. Total benefits conveyed to target food insecure beneficiaries was Rp 2.9 trillion. Therefore, for each thousand rupiah of costs incurred, the target food insecure beneficiaries received Rp 863. In other words, with full economic costing and allowances for program benefit leakage to unintended recipients, the project operated at a transfer cost-efficiency level of 86 per cent.

We can compare program financial costs to the transfer benefit conveyed to target beneficiaries by excluding the additional shadow costs that arise because of the gap between BULOG’s statutory rice cost and import parity prices. If we compare OPK financial costs of the program to the transfer benefit received by the target population (Rp 2.9 trillion), then the transfer efficiency level was 1.06. In other words, for each Rp 1,000 of program expenditures, the ultimate target beneficiaries received Rp 1,060. This result reflects the fact that BULOG had preferential access to low-cost sources of imported rice in 1998 and shared some of these economic rents with the food insecure population. This is undoubtedly one of the rare experiences in which a government shares its economic rents with a food insecure population.

Transfer schemes that are expensive to administer are generally to be avoided. We can also examine the cost-effectiveness of the OPK program in terms of the ratio of administrative costs to net transfer benefits and to program costs. In the first year of OPK operations, total operational costs were Rp 267 billion. If we compare this to Rp 2.9 trillion in net transfer benefits, then the operational cost ratio was just 9 per cent of the income transfer benefit to the target group. The fact that opera-

“ineligible” beneficiaries and “food insecure” beneficiaries. Community redistribution of OPK rice entitlements did expand access to large numbers of ineligible beneficiaries, the vast bulk of whom were also food insecure.

tional costs were just 10 per cent of program costs implies that BULOG was able to exploit significant network economies. That local community OPK implementation costs are also relatively small is added evidence of reasonable logistical efficiency in delivering OPK rice.²⁰

VI. OPK COST-EFFECTIVENESS VERSUS GENERAL PRICE SUBSIDIES

The OPK program replaced the general rice price subsidy program as a public policy instrument for defending food security. In terms of cost-effectiveness, what was gained by targeting?

The low-cost general rice price subsidy policy was in place from September 1997 to August 1998. The fiscal cost of rice subsidies increased from near-zero in 1996/1997 to Rp 6.8 trillion during 1997/1998. For 1998/1999—prior to the abolition of rice price controls—the general consumer rice subsidy was forecast to reach a budget cost of as much as Rp 14 trillion (BULOG 1999).

But it was not only government that was bearing the cost of heavy general rice price subsidies. By depressing rice prices, the government was implicitly taxing the farm community.

In the first half of 1998, the domestic price of rice was held at approximately 60 per cent of the equivalent import parity price of U.S.\$295 per metric ton. On average, consumers were paying Rp 2,200 per kilogram for their rice instead of an import parity price equivalent of Rp 3,500 per kilogram. Farmers were receiving approximately Rp 1,600 per kilogram for the equivalent of milled rice at the farm gate instead of Rp 2,200, or the equivalent milled rice import parity price.

If we assume that the aggregate rice supply elasticity is 0.3 and that the aggregate price elasticity of demand is 0.36 (Suryana and Sudaryanto 1997), and if we apply the 1997 rice production and consumption estimates as base values, then the total consumer surplus from a “cheap” rice policy in 1998 was equivalent to 34 trillion rupiah. The producer surplus was equivalent to –21 trillion rupiah.²¹ In other words, small farmers assumed a large share of the economic costs for providing general price subsidies to the rest of the economy.

Although food producers bore a large share of the cost of general food subsidies, this might have a positive welfare effect if, in fact, it is the poor who consume

²⁰ It also reflects the lower program coverage in the more remote provinces.

²¹ For the producer and consumer welfare calculations, we assume that the short-term supply and demand elasticities are constant over the range of the price wedge. The producer surplus, or in this instance the loss to producers, is calculated as the area under the aggregate rice supply curve between the point at which domestic rice prices were Rp 2,200 per kilogram (i.e., the general consumer subsidy price) and Rp 3,500 per kilogram (the equivalent import parity price). Similarly, the consumer surplus is calculated as the area under the linear demand curve between the general consumer subsidy price and the equivalent import parity price.

TABLE V
SHARE OF BASIC STAPLE FOOD CONSUMPTION BY INCOME GROUP
(1996 SUSENAS DATA)

Commodity	Lowest Decile ^a	Lowest 3 Deciles ^b	Upper 70 Per Cent
Rice	9.6	27.5	72.5
Wheat	4.5	18.3	81.7
Corn ^c	13.6	22.7	77.3
Soybeans	5.5	23.7	76.5
Palm oil	6.9	21.5	78.5
Poultry	0.8	3.0	97.0
Sugar	5.5	21.3	78.7

Source: BPS, *SUSENAS 1996*.

^a Refers to the bottom 12 per cent of households, as classified by total expenditures in 1996.

^b Refers to the bottom 30.1 per cent of households, as classified by total expenditures in 1996.

^c Adjusted to reflect the allocation of two-thirds of total corn availability to the feed industry in 1996.

the bulk of the food staples. The evidence, however, suggests that this was not the case.

Using the 1996 SUSENAS data, we can examine the distribution of food consumption by the very poor (the bottom 10 per cent of the households), the poor and near-poor (the bottom 30 per cent of the households), and the middle- and upper-income groups. For the lower-income groups, rice is a major part of the diet and accounts for nearly 40 per cent of their total expenditures.

But only about 28 per cent of all of the rice consumed in Indonesia is accounted for by the lowest 30 per cent of the 1996 income earners. The upper 70 per cent of the income spectrum consume 72 per cent of all of the rice. For the other food commodities, the distribution of food consumption is even more skewed to the middle- and upper-income groups (Table V).

With the knowledge that some 73 per cent of the “benefits” of the low rice price policy leak to households that are not food insecure, we can calculate the cost-effectiveness of *general rice price subsidies* as a food security transfer instrument. The gain in consumer welfare of the low rice price policy was equivalent to Rp 34 trillion in 1998 but 73 per cent of these benefits accrued to consumers with incomes above the poverty line. The transfer benefits captured by the poor and near-poor population (i.e., 28 per cent of Rp 34 trillion) was equivalent to Rp 10 trillion. If we total the fiscal (Rp 14 trillion) and indirect (i.e., Rp 21 trillion in producer welfare losses) cost from the low rice price policy, then the total economic costs of the “cheap rice policy” was Rp 35 trillion.

For a general rice price subsidy, the economy (i.e., producers and government) would incur costs of Rp 35 trillion to convey a transfer benefit of Rp 10 trillion to food insecure households. In other words, the cost-effectiveness of a “cheap” rice price policy as a way to protect the food security of the poor was just 29 per cent.

Compared to the targeted OPK rice ration program, the transfer efficiency of the “low consumer rice policy” was very poor indeed.

VII. ECONOMY-WIDE IMPACT OF THE OPK PROGRAM

The direct economic effect of the OPK program is the indirect transfer of income to those who access the program. For the first year of the program, the net transfer benefit to target beneficiaries was calculated at Rp 2.9 trillion, and the total transfer benefit (including unintended beneficiaries) was Rp 3.4 trillion.

From a macroeconomic point of view, the OPK program is simply an autonomous income transfer effort. Poor families receive a subsidy-in-kind. This, in turn, allows them to increase their consumption, both of rice and of other goods and services. The beneficiary families receive a “transfer benefit” or income subsidy (in kind) by participating in the program.

In addition to the direct OPK income transfer, there is also an indirect stimulus to aggregate demand that arises when the purchasing power of OPK beneficiaries is augmented. The “indirect” (or multiplier) effect of the income transfer results from the effect that the augmented expenditures of the poor have on goods and services produced throughout the economy. Higher expenditures, both directly as a result of the OPK income transfer, and indirectly, due to multiplier effects, will in turn generate more employment. Part of the macroeconomic rationale for income transfers to the poor and food insecure is that this, in a demand-constrained environment, can contribute to restoring full-employment output and growth.

The short-term indirect impact of an expansionary fiscal transfer program can be estimated using a simple fiscal impulse multiplier (Blanchard 1999) model. Imagine that the real economy behaves according to the following set of equations:

$$Y = C + I + G + X, \quad \text{(national income)} \quad (1)$$

$$C = \alpha + cYd, \quad \text{(consumption)} \quad (2)$$

$$X = \beta - mY, \quad \text{(net export)} \quad (3)$$

$$Yd = Y - (Tx + tY - Tr), \quad \text{(disposable income)} \quad (4)$$

$$I = \delta - ki, \quad \text{(gross capital formation)} \quad (5)$$

$$G = G^*, \quad \text{(public expenditures)} \quad (6)$$

where C is private consumption, I is investment, G is government expenditure, and X is net exports. Equation (2) is the consumption function in which α refers to autonomous consumption in the base year, c to the marginal propensity to consume, and Yd to disposable income. Disposable income (in equation 4) is equal to national income (Y) less lump-sum taxes (Tx) less direct taxes (t is the effective direct tax rate)²² plus transfers to households (Tr). Equation (3) is the net export

²² The effective direct tax rate is equal to the total amount of direct taxes (i.e., income and property taxes) actually collected as a share of national income.

equation with β referring to autonomous exports in the base year and m to the marginal propensity to import goods from national income. Equation (5) is the investment function in which δ refers to exogenous investment, k to the marginal propensity to invest with respect to the cost of capital, and i to the real interest rate. In equation (6), government expenditures are assumed to be policy-determined (G^*) in the short run. Substituting equations (2) through (6) into the national accounts identity (1) yields the national income equation in reduced form:

$$Y = [\alpha + \delta + G^* + c(Tr - Tx) + \beta - ki] / (1 - c + ct + m).$$

The effect of a change in autonomous transfers (Tr in the numerator) on national income will depend on the amount of the transfer and the magnitude of the fiscal multiplier ($1/[1 - c + ct + m]$) in the denominator of the reduced form national income equation.

The fiscal impulse measure is directly related to the size of the marginal propensity to consume (c) and indirectly related to the size of the marginal propensity to import (m), and the effective direct tax rate (t). Low-income households typically have higher-than-average marginal propensities to consume, and lower-than-average marginal propensities to import. Accordingly, the fiscal multiplier for transfers to a low-income group will, in general, tend to be higher than the fiscal impulse multiplier for transfers made to average or upper-income households.

The National Planning Agency (BAPPENAS 1999) economy-wide forecasting model includes behavioral parameters that can be used to set the parameters for the reduced form fiscal impact equation. In the BAPPENAS (1999) macro-forecasting model, the average marginal propensity to consume is reported as 0.63, the effective direct tax rate is 0.08, and the marginal propensity to import is 0.3. Using the parameters, the average fiscal impulse multiplier is 1.4. The BAPPENAS (1999) model also presents the elasticity of employment creation to an increase in GDP. This can be used to assess the indirect effect of OPK program transfers on employment.

Table VI presents a set of simulations of the impact of OPK program transfers on GDP and employment, using the aggregate BAPPENAS fiscal impulse measure (1.4) and the BAPPENAS employment to GDP elasticity. The first column of Table VI presents an indicative estimate of the aggregate economic growth and employment benefits arising from an autonomous in-kind fiscal transfer to all of those who received OPK subsidized rice. The second column of Table VI takes into account program leakage and presents the same computations, but only for the food insecure households.

The results indicate that the direct plus multiplier effects of an autonomous increase in income transfers to OPK recipients resulted in economy-wide benefits of between Rp 4.1 trillion and Rp 4.8 trillion in the first year of operation. Depending on whether one uses the narrow (i.e., only transfer benefits received by program

TABLE VI
IMPACT OF OPK ON INCOMES AND EMPLOYMENT: MACROECONOMIC SIMULATIONS

Indicator	Total Income Transfer Benefit	Narrow Income Transfer Benefit
OPK direct income transfer	Rp 3.4 trillion	Rp 2.9 trillion
Total GDP increase	Rp 4.8 trillion	Rp 4.1 trillion
Per cent growth in real 1999 GDP	0.4	0.3
Share of transfer benefit in 1999 forecast GDP (%)	0.4	0.3
Employment created (persons employed)	54,204	46,300
Cost per job created	Rp 626,000	Rp 734,000
Per cent employment growth	0.06	0.05

Note: The simulations are based on parameters drawn from the BAPPENAS (1999) economy-wide forecasting model, and base period GDP and aggregate employment figures presented in BPS, *Statistik Indonesia 1999*.

target recipients) or broad (i.e., all benefits received by those with access to subsidized OPK rice) definition of the transfer benefit, the total (direct and multiplier) benefit conveyed is equivalent to 0.3 to 0.4 per cent of forecast 1999 GDP.

Higher aggregate expenditures will generate an increase in labor demand. With an abundant labor supply, this higher labor demand will lead to an increase in aggregate employment. Using the BAPPENAS output-employment elasticity, the impact of the OPK program would generate demand for an additional 46,000 to 54,000 jobs, at a cost of between Rp 734,000 and Rp 626,000 per new job created.²³ It is interesting to note that these job creation costs are significantly less than the cost of creating jobs in public works schemes or even in labor-intensive industries—public works programs implemented in 1998 and 1999, for example, created new jobs at a unit cost ranging from Rp 2.5 million to Rp 4.5 million (Sumarto et al. 2000).

VIII. THE IMPACT ON PRIVATE CONSUMPTION

What would have happened to the consumption patterns of the poor if there was no OPK program? Clearly OPK program beneficiaries respond by buying less rice on

²³ Jobs are created when aggregate demand increases. This refers to all employment that is created as a result of the higher expenditures by OPK beneficiaries, both in the production and distribution of food as well as in the production and distribution of all other goods and services. The job creation cost refers to the total costs of the OPK program divided by the increase in employment demand. This analysis assumes that the implicit transfer payment would not affect the equilibrium wage prevailing in rural markets (with urban minimum wages assumed quasi-fixed by open unemployment) because of a perfectly elastic rural labor supply resulting from considerable rural underemployment. As the Indonesian economy recovers, and as the labor market “tightens,” some of the benefits of transfer payments will “leak out” of the rural economy (presuming a high degree of labor market efficiency) if the equilibrium rural wage is depressed.

the commercial market. However, since even the poorest households receive less rice than they would consume, they have to purchase additional rice. But the money they save from buying less rice on the commercial market is fungible; the beneficiaries will use it to buy rice, other food, and even non-food goods and services such as soap and school fees for their children. Expenditure elasticities can be used to estimate whether OPK beneficiaries consume more or less rice in total because of the OPK program and to predict how the expenditure patterns of the poor in 1998 would have changed if the OPK program had not been adopted and implemented.²⁴

Considerable research has been done in the last twenty years on the empirical relationships among price, income, and expenditure on food demand in Indonesia. A summary of recent work on food supply and demand is presented in Suryana and Sudaryanto (1997).²⁵ Much of the recent work on food demand is based on the 1996 SUSENAS survey, and for this reason, the assessment of the impact of no OPK program in 1998 is based upon the income distribution and expenditure patterns of the poor from that survey and the expenditure elasticities recently estimated by Suryana and Sudaryanto (1997) for Indonesia.²⁶ To adjust the 1996 expenditure data to 1998 conditions, the weighted average expenditure was scaled up from Rp 29,286 per month in 1996 to Rp 80,160 per month in 1998. This change is a combination of the effects of inflation, the effect of the OPK program, and the other factors which affected real purchasing power.

For this analysis, the average income of the poorest 2.7 million urban people and 41 million rural people was reduced by an amount equivalent the average OPK program benefit over the year. Because the program benefit is the same in absolute terms for all cohorts (Rp 6,413 per month), the change in average income of the poorest cohort is much larger in relative terms. The OPK benefit is 19 per cent of the income of the poorest cohort and just 7 per cent of those with incomes just under the poverty line. Eliminating OPK therefore means reducing the expenditure

²⁴ In this counter-factual analysis, eliminating the OPK program is treated as reducing the income of the beneficiaries by the average value of the program benefit, Rp 6,413 per month. This is the reason why some people have argued that the OPK program could be replaced by an equivalent benefit in food stamps or even a cash payment.

²⁵ These results are also broadly consistent with similar research done on other countries. Indonesia's per capita rice consumption is relatively high even compared to similar countries in the region, and consumption of other protein and vitamin-rich foods a bit lower, but these studies confirm price and expenditure elasticities that are rather similar across Asia: expenditure elasticities for the rice, other cereals, and tubers are very low, generally between 0.1 and 0.5; those for legumes are higher but still quite inelastic, generally in the 0.5 to 0.8 range; the elasticities for vegetables, fruit, meat, fish, and dairy products are generally between 0.7 and 1.5.

²⁶ The expenditure elasticities used for urban areas are 0.305, 0.389, 0.256, 0.632, 0.700, 0.540, 1.240, 0.920, 0.950, 0.775, 0.705, 0.795, and 1.495 for rice, corn, cassava, peanuts, mung beans, soybeans, fruit, vegetables, meat/fish, eggs/dairy, fats, beverage stuff, and other food, respectively. The corresponding expenditure elasticities in rural areas are 0.460, 0.389, 0.256, 0.632, 0.700, 0.540, 1.475, 1.055, 0.975, 0.970, 0.795, 0.900, and 1.730.

TABLE VII
EFFECT OF ELIMINATING THE OPK PROGRAM ON EXPENDITURE PATTERNS OF THE POOR
(ESTIMATED 1998 EFFECTS)

A. By Commodity

(%)

Expenditure Category	Urban Poor		Rural Poor	
	Poorest Decile	Those below the 1998 Poverty Line	Poorest Decile	Those below the 1998 Poverty Line
Rice	-6.3	-2.6	-10.8	-5.1
Corn	-8.0	-3.9	-9.2	-4.9
Cassava	-5.3	-2.2	-6.1	-3.0
Peanuts	n.a.	-4.9	-14.5	-7.0
Mung beans	n.a.	-5.5	-15.9	-7.7
Soybeans	-10.9	-4.5	-2.5	-5.9
Fruit	n.a.	-9.7	-30.6	-15.3
Vegetables	-17.8	-7.4	-23.0	-11.3
Meat and fish	-18.3	-7.5	-21.5	-10.4
Eggs/dairy	n.a.	-6.1	-21.4	-10.2
Fats	-13.9	-5.7	-17.9	-8.7
Sugar/condiments	-15.6	-6.4	-20.0	-9.8
Other foods	-27.3	-11.5	-34.9	-17.8
Non-food	-54.5	-11.7	-32.7	-14.0

B. By Calories and Protein

(%)

Expenditure Category	Urban Poor		Rural Poor	
	Poorest Decile	Those below the 1998 Poverty Line	Poorest Decile	Those below the 1998 Poverty Line
Total	-19.2	-8.1	-21.9	-10.8
Calories	-8.2	-4.3	-15.6	-7.4
Protein	-9.0	-4.6	-14.9	-8.2

Source: Authors' estimates based on BPS, *SUSENAS 1996*.

of the very poor by a much larger amount in relative terms. This means that expenditure on food and other components of the bundle drop by much larger amounts as shown in Table VII. In this sense, the OPK expenditure program is “progressive” rather than “regressive” because its impact is greater the poorer the program beneficiary.

If there was not an OPK program, rice expenditure of the poor drops by 2.6 per cent in urban areas and 5.1 per cent in rural areas.²⁷ The changes in other foods,

²⁷ The effects are generally much stronger in rural areas because the base expenditure level of the rural poor is much lower than that of the urban poor.

such as fruit, vegetables, fish, meat, and eggs and dairy products are larger in relative terms because the income elasticities for these commodities are higher than those for rice. In the absence of the OPK program, the quality of the diet of poor household's would have deteriorated significantly (Table VII). Calorie and protein consumption of the rural poor would have been lower by 7 per cent and 8 per cent respectively. The reduction in calorie and protein consumption levels for the bottom 10 per cent of the rural income earners would have been as much as 16 per cent and 15 per cent.²⁸ The reductions in calories and protein consumption are very significant for these people because they are already consuming significantly less than the recommended amounts.

There are also strong linkages between food and social sector spending. Indonesia's poor can only afford to spend a very small share of their income on health and education services. For poor households, expenditures on education and healthcare account for about 2 per cent of total household outlays, compared to 60–70 per cent of total outlays allocated to food. While there has been a modest decline in secondary school participation rates, there is no evidence of a massive withdrawal of poor students from either primary or secondary schools as a result of the crisis (Oey-Gardiner 1999). According to the results of the December 1998 SUSENAS survey, poor households (including those participating in the OPK program) have coped with the crisis primarily by reducing the quality of their diet, cutting back on clothing and transport expenditures, and reducing household leisure. Most poor households have “protected” spending on education and healthcare by degrading their diet, even with OPK assistance.

IX. CONCLUSIONS: BACK TO THE SUPPLY SIDE, OR IS THERE A FUTURE ROLE FOR RICE SUBSIDIES?

A targeted food subsidy program should become the cornerstone of any effort aimed at providing social protection for Indonesia's food insecure households. Although the OPK program was launched in wake of the El Niño drought and during the first year of the monetary crisis, it should not be considered as an anti-crisis program per se. Rather, it should be seen as the main “food security” pillar of an evolving social protection system that is constantly improved to help ensure that the poor can afford to meet minimal nutrition norms.

The OPK program should certainly not be the “only” pillar of a national food security system. Broad-based rural development, food supplementation for underweight children, nutrition education, vitamin and micro-nutrient supplementation,

²⁸ The poorest decile refers to the bottom 10 per cent of the households classified on the basis of average per capita expenditures as reported in the 1996 SUSENAS. The share of total staple food consumption accounted for by the bottom decile groups is provided in Table V above.

enhanced village storage, and healthy diet diversification efforts are also important components of a national food security effort.

The OPK program demonstrates that the government of Indonesia can deliver targeted food subsidies in a reasonably cost-effective fashion. That the program has been mounted as quickly as it has and is quite cost-effective reflects positively on the government's logistics capabilities. That OPK generates significant economic and nutritional benefits (relative to program costs) implies that a public investment in targeted food security has considerable economic merit.

In theory, income transfers can be provided in cash instead of in kind, and indeed some of the social safety net programs are operated on a cash transfer basis. The main advantage of using rice-based subsidies rather than some form of cash grant or food stamp schemes is: (i) rice is widely consumed by the poor, and whether there was or was not a subsidy program, food insecure households would spend a large part of their income buying rice; (ii) a rice-based income transfer leaves both a commodity-based and financial accounting trail that can be readily monitored and evaluated; (iii) eligible beneficiaries will demand provision of the commodity for which they must make a co-payment; and (iv) the OPK program's operational costs are relatively modest compared to the overall fiscal transfer. These costs would probably be in the same range as those of a food stamp type scheme, but with considerably less risk of fraud and corruption.

Anti-poverty supply- and demand-side measures are often seen as competing ways to reduce poverty. This is incorrect. Better supply-side measures are certainly needed to help poor communities work their way out of poverty. Agricultural development, community-based initiatives, and micro-enterprise activity all play an important role in combating poverty. But these supply-side measures are long-term processes. Many households will not immediately benefit from a resumption in Indonesia's growth process. In the near term, food secure children will be healthier and they will make better use of the educational opportunities available to them. Food secure parents can take greater economic risks and they are bound to be more productive. Viewed in this way, efforts made to guarantee that the poor can afford an adequate amount of rice to eat, both now and in the future, helps to ensure that the growth process does contribute to a sustainable reduction in poverty.

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APPENDIX

BKKBN CLASSIFICATION INDICATORS

A family is classified as Pra-S (*pra-sejahtera*, or pre-prosperous) if it fails to meet one of the following five criteria:

1. family members are able to adhere to the religious principles of the religion of their choice;
2. all family members are able to eat at least twice a day;
3. all family members have different sets of clothing for home, work, school, and visits;
4. the largest portion of the household floor is not made of dirt; and
5. the family is able to obtain modern medicines or family planning services when a child is sick.

A family would be classified as KS1 (*keluarga sejahtera tahap I*, or just prosperous) if it fails to meet any of the following criteria:

6. the family is able to follow religious laws and customs;
7. at least once a week, the family is able to consume meat, fish, or chicken;
8. each family member obtains at least one new pair of clothing each year;
9. there is at least eight square meters of household space for each occupant of the house;
10. all family members have been healthy within the last three months;
11. at least one family member older than 15 years has a fixed income;
12. all family members who are between 10 and 60 years of age can read and write;
13. all children who are between 7 and 15 years of age are enrolled in school;
14. if the family has two or more living children and are still of the reproductive age group, the family uses contraceptives;
15. the family has the ability to improve its religious knowledge;
16. the family is able to save part of its earnings;
17. the family is able to eat with able members together at least once per day and that opportunity is used for communication amongst family members;
18. the family normally takes part in local community activities;
19. the family undertakes recreational activities outside the home at least once every six months;
20. the family is able to obtain news from newspapers, radio, TV, or magazines; and
21. family members are able to use local transportation facilities.