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COMMERCIALISATION DES CEREALES
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**TARGETING CEREALS SUBSIDIES:
Case Studies of Morocco, Algeria, Egypt, and Tunisia**

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INTRODUCTION

Since 1971, the Government of Morocco (GOM) has subsidized the retail sales price of vegetable oil, granulated sugar, and basic wheat flours. Subsidized sales of these staple foods has been considered by government officials and the public to be one of the fundamental responsibilities of government. But the Moroccan economy has paid a high price for this guarantee. At their peak in 1985, the three food subsidies cost the Moroccan Treasury 3.5 billion Dirhams — roughly \$350 million and 2.9 percent of GDP. The bread wheat flour subsidy was more than half of the total, with an estimated cost per quintal of 140 Dh.¹

Reforms begun in the mid-1980s have curtailed the breadth of the three food subsidies. The only remaining wheat subsidy is one on a 'high extraction'² bread wheat flour, *farine nationale de blé tendre* (FNBT). Since 1989, the authorized level of subsidized production has been held out 10 million quintals per year, down from 16 million quintals in 1987. The reforms, which coincided with decreasing world bread wheat prices, have substantially reduced the net financial costs³ of the subsidy. Based on an estimated unit subsidy cost of 121 Dh/quintal, 1991 expenditures on the FNBT subsidy were brought down to roughly 1.2 billion Dh, or 0.5 percent of GDP.⁴ Although much postponed, full liberalization of the sugar, vegetable oil, and bread wheat markets continues to be discussed.

This study does not address the larger issues of the economic costs of the FNBT subsidy, costs that stem from the complex system of processing and marketing controls that have built up around Morocco's bread wheat market. Instead, it examines the theory of food subsidy targeting and the practice in Morocco and three neighboring countries: Algeria, Egypt, and Tunisia. Lessons and ideas culled from the analysis are presented as possible policy options for Morocco as it contemplates further reforms of its bread wheat sub-sector.

¹ In 1989, the International Monetary Fund estimated the total cost of food subsidies as 1.7 billion Dh, of which 117 million Dh, or 11.7 Dh/quintal, was for the bread wheat subsidy. This figure differs dramatically from those usually quoted and appears to be net of the tax on imports. Using this net cost figure, the IMF estimates total subsidy costs at 1.3 billion Dh in 1991, but does not show the FNBT's share.

² The extraction rate of flour is the yield rate as wheat is ground to flour. The higher the extraction (yield) rate the less refined the flour.

³ A subsidy's cost can be measured in financial terms — explicit payments by the government — or in economic terms. The economic cost is a more comprehensive measure of a subsidy's cost to the economy as a whole, and is measured in terms of artificial prices to consumers and producers and distorted marketing chains.

⁴ Calculations in the text indicate that the official figures underestimate the financial costs of the subsidy, and that its actual cost is roughly 155 - 176 Dh/quintal.

Data gaps limit the analysis in this paper. Key data needs are a profile of poverty in Morocco, up-to-date consumption information, price and income elasticities for the FNBT, and economic costs of the FNBT marketing chain. Some of these gaps will be filled over the next eighteen months, a period promising unprecedented analysis of poverty in Morocco and the role of the government. Major studies sponsored by the Government of Morocco under the aegis of its Second Structural Adjustment Program will examine (1) the impact of agricultural price and government expenditure reforms on household incomes, (2) the impact of public social expenditures on the poor, and (3) sources of vulnerability of the poor and the adequacy of social safety net programs. These studies should aid enormously in future efforts to define the nature of the demand for FNBT.

This study begins with a brief review of the literature on why and how to subsidize food, and the pros and cons of targeting a subsidy. The heart of the paper is a series of case studies. The first examines Morocco's FNBT subsidy and assesses the effectiveness and efficiency with which it reaches low income consumers. The remaining three studies examine cereals subsidy programs in Algeria, Egypt, and Tunisia. The studies assess the success with which these programs control costs and reach the poor. Recent or proposed reforms are also reviewed.

WHY SUBSIDIZE FOOD?

The motivation for subsidizing retail food prices generally is some combination of two related ideas. One is that all households — or some sub-group, such as households headed by urban workers — should be guaranteed a certain amount of a basic food commodity at a reasonable price. This is the "rationing" goal. The second goal is one of income transfer and risk reduction for vulnerable populations through lower and stable food prices or food stamps.

The income transfer effect of a consumer food subsidy depends heavily on which commodities are subsidized. Income elasticities provide a rule of thumb regarding the distribution of benefits from universal, single-commodity subsidies. Negative income elasticities for a product — indicating that consumption of a commodity rises as household income falls — suggest that the value of the subsidy will be greater to low income groups, in both relative and absolute terms. An elasticity that is positive but less than one indicates that the subsidy will provide relatively — but not absolutely — greater benefits for the poor. A positive income elasticity that is greater than one indicates that the rich will obtain greater relative and absolute benefits from the subsidy.⁵

⁵ The distribution of a subsidy's benefits is described as the subsidy's "incidence". In practice, the focus is usually on the incidence of a subsidy on consumers in the lowest income group. If a subsidy's incidence increases as incomes fall, a subsidy is said to be "progressive" and there is an income transfer to the low income consumers. A "regressive" subsidy is one in which a subsidy's incidence increases with income.

In theory, a direct cash transfer of an amount equal to the value of a subsidy could be a more efficient solution to the problem of low and unequal incomes. Recipient households would be able to allocate the additional income to food and other purchases according to their preferences. Such income transfer programs exist; the U.S. Aid for Families with Dependent Children (AFDC) program is an example. But frequently governments prefer a price subsidy or food stamps because they are less subject to abuse and, under most conditions, their effect on food consumption is larger than would be the case under a cash transfer.

There is good evidence that food subsidies are capable of both rationing key food items and redistributing income. Studies in Sri Lanka, India, Bangladesh, Egypt, and Mexico have found significant positive impacts on food consumption and nutrition levels of the poor, or other targeted populations, as a result of food subsidy programs. These cases and others are discussed in detail in *Food Subsidies in Developing Countries, Costs, Benefits, and Policy Options* (Pinstrup-Andersen, ed., 1988).

WHAT ARE THE COSTS?

The achievements of food subsidy programs come at an economic price that is only partially measured in government expenditures. Other factors include the costs of distorted commodity prices and controlled processing and marketing systems; the opportunity costs of foreign exchange and government expenditures; and the costs of rent-seeking. There is little empirical evidence on the magnitude of these costs, and they will certainly vary according to the size and nature of the subsidy program.

Price subsidies change supply and demand decisions by artificially reducing a product's price below what would have been its equilibrium level. The low price shifts consumer demand towards the subsidized product and away from something else. All else being equal, this shift is higher in products, such as wheat, with a relatively high price elasticity. A good example of this phenomenon is the shift in Moroccan consumption patterns over the past 20 years away from durum wheat products towards (subsidized) bread wheat products.

Food subsidies can also have an affect on domestic agricultural production. Unless a government actively supports domestic producer prices for the subsidized food, as is done in Morocco, those prices will tend to be depressed in line with the low sales price. This tendency will be reinforced if a government tries to reduce its expenditures on a subsidy by artificially holding down the purchase price of the domestic food product. The result of such a policy is an income transfer from farmers, who are, in effect, taxed, to consumers, who receive low cost food. This phenomenon is referred to in the literature on food subsidies as "implicit" financing of a subsidy by farmers as opposed to "explicit" financing by the government. In the long run, governments find that passing the costs of a subsidy on to

farmers is a costly policy choice. Depressed prices will motivate farmers to shift production out of the subsidized good and into something more profitable.⁶ The drop in production, combined with the increased demand for the good generated by the subsidy frequently results in increasing dependence on imports for what are often staple food items.⁷

The benefits of a subsidy can be decreased by leakage. As seen in Morocco, unless there is strict enforcement of sales prices, traders and other intermediaries will capture some part of subsidy benefits (PRCC, Groupe D). Also, there is fairly convincing evidence that the value of food subsidy programs can be diminished by an offsetting suppression of wage scales (Pinstrup-Anderson, 1988). This phenomenon is most apparent in the public sector, where the tradeoff between wage increases and food subsidies may be explicit to policy-makers. To the extent that a government postpones civil service wage increases by providing food subsidies, the positive impact on public expenditures of any subsidy reduction may be offset by new salary demands.

All of this is not to diminish the significance of explicit costs, which can be extremely high. In a review of food subsidy schemes in Brazil, China, Colombia, Egypt, Mexico, Morocco, Pakistan, Sri Lanka, the Sudan, Thailand, and Tunisia, the World Bank found that budgetary costs for the programs ranged from 1 percent of public expenditure in Colombia to 10 - 17 percent in Egypt (World Bank 1990).

HOW TO SUBSIDIZE FOOD

There are two broad approaches used to subsidize food costs:

- **Price subsidies** for one or more basic staples. Governments fix the consumer price of the products and reimburse marketing intermediaries for the difference between market prices and subsidized prices.
- **Direct income transfers.** These transfers are usually in the form of food stamps, although direct cash transfers (welfare programs) also exist. Because a food stamp program requires an administrative system, it can classify recipients and achieve fairly precise targeting. Programs can be designed to permit purchase of any food item, or they can be restricted to purchases of a certain list of goods.

⁶ The impact of a one-product subsidy will spread into the markets for substitute goods. These products may also experience some producer price 'compression' (see von Braun and de Haen, 1983).

⁷ In Egypt, the government's procurement price of wheat varied from 29 percent to 58 percent of the world price between 1970 and 1980. Over that period, imports rose from 63 percent to 76 percent of consumption, while government procurement fell from 4 percent to less than 2 percent of consumption.

PRICE SUBSIDIES

Price subsidies on food commodities are most often either **universal** — everyone qualifies — and **unrationed** — purchases are unlimited, or **targeted** — only a "targeted" group qualifies — and **rationed** — there is some limit on purchases. Rationing is usually on the consumption side; each qualifying consumer is allowed to purchase up to a pre-determined amount of the subsidized good. Morocco's FNBT subsidy is the only example the author found of a subsidy that is universal and rationed on the supply side. In this case, the supply is fixed, but there is no guarantee of individual allotments.

Structure

Price subsidy systems vary tremendously in practice. Quantities may or may not be limited. In the case of rationing, governments must establish some mechanism for identifying qualifying households, and distributing and renewing ration cards periodically.

Commodities may be sold freely, or only through a network of ration shops, such as those found in India and Pakistan. In India, 280,000 "fair price shops" served 660 million ration card holders in 1981. Here, as elsewhere, the effectiveness of the shops was found to depend upon their proximity to the target population, their procurement and distribution policies, and their ability to survive both periods of food surplus and food deficit (George, 1988). Due to the lower population density of rural areas, ration shop systems tend to have an urban bias.

Pakistan's ration shops are privately operated, but publicly licensed and regulated. Licensing is an important source of political patronage. Shop owners are free to order inventory according to demand and storage costs. Ration cards are available to all citizens with a fixed address, and users register with a ration shop in their neighborhood. The ration consists of whole wheat flour (an inferior food) and sugar. To lower the incentive for farmers to sell their wheat and buy the cheaper flour, rural areas that are judged self-sufficient in wheat do not receive a flour ration (Rogers, 1988).

Costs and benefits

Price subsidy systems differ from cash transfer systems in two ways. First, the artificially fixed price influences supply and demand decisions in the food market. In addition, the government bears the risk of a price subsidy program by guaranteeing a fixed price for a commodity with an international price that can fluctuate widely. Such fluctuations wreak havoc on budget projections. In Egypt, while domestic sugar prices remained fixed in nominal terms, they varied from 22 percent of international prices in 1974, to 144 percent in 1978, and down to 29 percent in 1980 (von Braun and de Haen, 1983).

The income transfer aspects of a price subsidy are generally most valuable to benefiting low income households. Subsidy benefits will often represent a relatively higher portion of expenditures of the poor than of the rich. But, one finds that typically — unless a subsidy is well-targeted — the benefits received by the rich have a greater absolute value than those received by the poor. This leakage of benefits to wealthier consumers lowers the social returns of a subsidy, but, as discussed below, may ensure its political sustainability.

DIRECT INCOME TRANSFERS

Although direct cash transfer programs targeted towards low income or other groups do exist, they are relatively rare. This report discusses only food stamp programs, under which households or individuals regularly receive stamps with a fixed cash value that can be used to purchase food.

Structure

Again, the actual systems vary. Generally, some sort of income measure is used to identify qualifying households or individuals. In some countries, food stamps can only be redeemed in certain shops. In others, redemption is universal and retailers are reimbursed by the government for the face value of the stamps. Finally, there are systems in which the resale or banking of unused stamps is permitted, making the stamps equivalent to a cash transfer.

Stamps are usually valid only for the purchase of particular food items. Of the cases reviewed — Sri Lanka, Mexico, Jamaica, a proposed program in Algeria, and the United States — only the U.S. did not limit stamp validity to basic food commodities.

In many countries — the United States and Sri Lanka included — administration of the food stamp program is decentralized to local governments, while financing remains at the national level.

Costs and benefits

The biggest benefit of food stamp programs as compared to food price subsidies is that they do not directly distort prices⁸. But the systems are administratively heavy. To work well, they require systems for identifying and monitoring qualifying households; updating stamp values as prices rise; minimizing tampering; and reimbursing retailers.

With food stamps, price risk is transferred to qualifying households. Sri Lanka and Mexico are examples of countries in which the poor have been hurt under a food stamps

⁸ Food stamps may shift demand towards authorized goods with some secondary impact on food prices.

program due to government delays in updating stamp value eroded by inflation (Pinstrup-Andersen (1988), Kingsbury (1992)).

SUBSIDY TARGETING: PROS AND CONS

The most common official rationale for a food subsidy is to protect the purchasing power of consumers, and, in particular, that of low income consumers. But, unless it is targeted, a subsidy is an awfully blunt social policy instrument — missing some of the most vulnerable households and benefiting others that are not in need. Most assessments find that wealthier groups gain a larger absolute value of a universal subsidy, but that the subsidy plays a larger relative part in the expenditures of lower income groups. To maximize the social returns of a subsidy, targeting is essential. Better targeting also typically allows some reduction in costs, important when demands on government resources are high.

Although the income transfer rationale is clear -- and many government leaders wholeheartedly agree with it -- governments generally start out wrong when they establish a food subsidy program. The tendency everywhere is to create a universal system. Once established, targeting such a system means eliminating beneficiaries, a process altogether different from creating a targeted system from scratch. Taking away a benefit, even if it is not a necessary one, is not something that any government relishes. For that reason, most do not get serious about targeting their subsidy programs until the fiscal costs of universal programs become untenable. Any analysis of food subsidy targeting has to take into account, first, the fact that governments may see a benefit in providing low cost basic foods to their entire populations, and second, the fact that those groups that stand to lose under an improved targeting approach tend to be more influential than those who gain. Proponents of subsidy targeting must consider the political environment, and how willing a government is to risk taking away a benefit that it once could offer.

Once the political decision to improve targeting has been made, there is more work to be done. Policy makers must identify techniques to target a program so that non-needy beneficiaries are reduced, needy beneficiaries are not reduced, and costs are rendered more manageable.

Whatever targeting approach is selected must be cost-efficient. The costs of targeting depend on the type of system to be established. As a rule of thumb, the marginal costs of increasing targeting precision will rise faster than the marginal rate of increase in precision.

It is precisely to reduce targeting costs that variations on the idea of **self-targeting** are frequently chosen by governments. As its name implies, self-targeting avoids a costly administrative solution by encouraging self-selection. Among the techniques for self-targeting are subsidization of an "inferior" food — that is one for which income elasticity is

negative — or distribution of subsidized foods in low income areas. Factors such as waiting time to receive subsidized goods can also narrow the recipient population.

Self-targeting can reduce a subsidy's cost, but leakage tends to be high. To reduce leakage, a government can choose a more directed targeting plan — one involving ration shops or food stamps — but it will need a system to administer it. At a minimum, these systems require data to identify poor or vulnerable households and personnel to implement the system. Identification of qualifying households is frequently a challenge due to non-standard income and asset records, in-kind income, extended households and intra-family income transfers, and income seasonality. In Sri Lanka, because household income data were not available, its food stamp program was initially based on self-declared income. The reluctance of the wealthiest households to register for food stamps resulted in relatively good targeting of the program. A similar approach has also been successful in Jamaica. In general, the additional delivery costs of an administered system need to be weighed carefully against the projected cost savings of better targeting.

One type of cost that is difficult to measure but has proven to be determinant in a number of cases is the political cost of eliminating subsidy beneficiaries. There are two important political arguments for not targeting a subsidy too well. The first is that better targeting can undercut support for a subsidy, to the ultimate detriment of the target group. That happened to Mexico's Tortibono program, a food stamp program established in 1987 to offset the income loss to low income consumers when universal food subsidies were abolished. The stamps could be used to purchase up to 2 kilograms of tortillas per person per day at a reduced price. The government succeeded in targeting this program to the poor with the result that it grew politically isolated, labeled as a poor person's program. This isolation reduced the risk to the government of not linking the value of the food stamps to real tortilla costs. Subsequent inflation dramatically eroded stamp value (Kingsbury, 1992). Similar scenarios have been described in Colombia and Sri Lanka, where the beneficiaries of a program were too marginalized politically to defend their interests during periods of inflation or fiscal cutbacks. Although this risk should not be exaggerated, clearly there are benefits to subsidy leakage.

The second political argument is the one most often perceived by governments themselves: this is the tradeoff between better targeting and the increased risk of civil unrest or demands for wage increases. Morocco has first-hand experience of the magnitude and violence of popular opposition that can accompany major price increases of subsidized foods. The food riots that Morocco experienced in 1981 and 1984 have also occurred under similar conditions in Egypt, Venezuela, Tunisia, Liberia, the Dominican Republic, the Sudan, and Zambia, to name a few.

The violence of these events has tended to overshadow the instances in which major price increases have been accepted calmly. Bienen and Gersovitz (1986) examined more

than a dozen reform efforts⁹, some of which resulted in violent demonstrations and the reversal of the proposed reforms, and others that were accepted peacefully. They identify some factors that appear to play a role in successful reform efforts: (1) careful and widely disseminated explanations of the reasons for the price increases; (2) high government legitimacy and unified government support for the reforms; (3) temporary disarray in the political opposition; (4) donor assistance; and (5) a relatively buoyant economy.

MOROCCO'S FNBT SUBSIDY

The Government of Morocco has attempted to reduce its subsidy expenditures and to encourage self-targeting of beneficiaries by cutting back its cereals sector subsidies to just one product, *farine nationale de blé tendre* (FNBT), a high extraction bread wheat flour.¹⁰ The Government of Morocco allocates quotas authorizing production of 10 million quintals of flour per year (equivalent to 12.5 million quintals of wheat). The flour is substantially less expensive than other processed cereals on the market. Its high extraction rate — 80 percent — and generally low quality make it less preferred, helping to target it towards lower income groups.

The FNBT subsidy exhibits some aspects of both of the food subsidy goals of rationing and of income transfer. But because regional quotas offer no guarantee of a per-household ration, the FNBT subsidy is better examined as an income transfer from the government to consumers at large.

BACKGROUND

Morocco's bread wheat marketing system is at the heart of what has become an exceedingly complex cereals marketing control system. As the cereals sector has gradually been liberalized, the bread wheat marketing system has become the last home of the numerous public and private interests that have benefitted from state cereals market control.

Fundamental reforms in 1988 liberalized marketing for all cereals products except the FNBT. At the same time, the quantity of FNBT authorized for production was reduced from 16 million quintals to 13 million, the extraction rate was increased from 78 to 80 percent, and the flour's price was increased by 14 percent. In 1989, the production ceiling was

⁹ Countries reviewed included the Dominican Republic, Egypt, Liberia, Morocco, Peru, the Sudan, Tunisia, Colombia, Costa Rica, Ecuador, Guatemala, India, Jamaica, Sri Lanka, and Zimbabwe.

¹⁰ The pervasiveness of import controls and marketing margins (for *farine de luxe de blé tendre*) in other cereals markets makes it difficult to judge whether or not there is some "implicit" subsidization of the products.

brought down further, to 10 million quintals -- roughly one-fifth of national annual cereals consumption.

However, the 1988 "liberalization" of the non-FNBT bread wheat market was only a first step towards a free cereals sector. Millers and bakers remain subject to *accords de modération* limiting the sales price of *farine de luxe* and of bread. Price ceilings are fixed according to government estimates of average costs of milling and baking. Those millers and bakers with above-average costs are, in effect, taxed under the current system. The continuing controls on retail prices and marketing margins have muted responses to the new market structure.

In recent years, farmers have been effectively insulated from the costs of the bread wheat flour subsidy. The GOM guarantees a floor price on bread wheat, one that is now at roughly twice the world price. Large farmers have shifted into bread wheat production to take advantage of the cereal's relatively high and stable producer price.

MARKET STRUCTURE FOR FNBT

The (partial) liberalization of non-FNBT bread wheat flours and the increase in the extraction rate of the FNBT are measures designed to promote the introduction of new flours and packaging, meeting more specialized market niches, and to encourage self-targeting of upper income consumers away from the FNBT. By all reports, these shifts have begun, but hesitantly.

FNBT is produced and marketed through a system of quotas. The cereals marketing board, ONICL, allocates quotas to individual mills, based on their location and the quantity of subsidized flour they produced prior to the quota. Provincial quotas are the sum of a province's mill's quotas. Provincial authorities are responsible for the allocation of quotas to local wholesalers, bread bakeries, and major administrations (for example, military bases, schools, and hospitals). Commercialization of FNBT is, in principle, controlled to prohibit inter-regional transfers, and limit the number of intermediaries through which the flour passes on its way to consumers.

A rapid survey of the FNBT market undertaken during Phase I of the PRCC (Group D report) confirmed anecdotal reports that **regional quotas do not correspond with regional need**. The survey cited the cases of two low-income, cereals-deficit regions -- Al Hoceima and Ouarzazate. Milling capacity is low in the areas, reflecting local cereals production. Ouarzazate, a province of 800,000 residents, thus receives a monthly quota of 14,750 quintals, whereas Sidi Kacem, a much wealthier area in the middle of Morocco's cereals belt, receives a monthly quota of 15,000 quintals for a population of 650,000.

Partially as a result of the misallocation of the regional quotas, there is a thriving secondary market in FNBT, where one region's excess is sold to consumers in a deficit area,

for a premium. Wholesale quota shares reportedly sell for about 20 Dh/quintal. **FNBT, with an official retail price of 200 Dh/quintal, routinely sells for 230 - 270 Dh/quintal. The difference is captured by intermediaries.**

Although FNBT is intended primarily for direct consumption by households, some bakeries are quotataires. These bakeries are supposed to use the FNBT to produce a low cost FNBT bread. The PRCC *Rapport de Synthèse* (Phase I) estimates that while it has declined sharply since the introduction of greater controls in 1988 and 1989, **industrial consumption of FNBT was 355,000 quintals in 1989.**

COSTS

The financial costs of the subsidy are high. As of October 1992, millers purchase wheat at 247 Dh/quintal. ONICL calculates the subsidy as the difference between the average total cost of production of the FNBT and the price at which it leaves the mill. It fixes a milling margin that is meant to correspond to the milling costs of an average industrial mill. In 1992, a subsidy of 132.6 Dh/quintal allows the mills to sell the FNBT at 182 Dh/quintal.

133 Dh/quintal is the figure most often heard in discussions of the costs of the FNBT subsidy. But there are other explicit costs to the government, connected to the marketing of FNBT. Among these are ONICL's upstream costs to transport and store the grain. The estimated average cost of transportation and storage is 32 Dh/quintal.¹¹ In addition, there is a subsidy on credit that amounts to 2 Dh/quintal (PRCC, Groupe B). Another recent estimate of the costs of the FNBT production and marketing system found that storage and transport costs averaged 33.4 Dh/quintal in 1991, and charges on imports and "other charges" were an additional expense totaling 21.6 Dh/quintal.¹² Thus, a more thorough estimate of the unit costs paid by the government for the FNBT subsidy falls in the range of 167 - 188 Dh/quintal, a figure roughly one-third higher than the usual quotation. There are no estimates available of the implicit costs of the distortions in the bread wheat marketing chain — for example, the costs of official oversight and control of FNBT production and sale and the costs of losses stemming from inefficient allocation of FNBT milling quotas.

So, how much does it really cost to produce a quintal of FNBT? The cost depends mostly on the import price of bread wheat. Import taxes now raise that cost to 240 Dh/quintal, the official price paid to domestic producers. ONICL estimates that at that

¹¹ The estimate assumes transportation of 150 kilometers and three months of storage.

¹² Low world prices for soft wheat meant that ONICL more than covered those expenditures through the tax on soft wheat imports. Source: Note on soft wheat subsidy costs, 1976-1991, prepared by Saad Belghazi, INSEA, and transmitted to the author.

purchase price, the mill-door cost of FNBT averages 315 Dh/quintal. That figure seems about right; the lowest cost estimate quoted comes from one local miller who has estimated that he could bring FNBT to market for 290-300 Dh/quintal, by producing both FNBT and *farine de luxe* and reselling the bran.

At the current world price for bread wheat — 135 Dh/quintal (c.i.f. price, Casablanca) — consumers pay a tax of roughly 100 Dh/quintal on wheat purchases. If the wheat were imported freely, FNBT could be produced and sold without a subsidy for as little as 233 Dh/quintal. The FNBT subsidy could be entirely eliminated with little or no impact on market prices.

Preliminary estimates fix the net economic cost of the FNBT subsidy at at least 1.64 billion Dh, or 0.75 percent of GDP. If the revenue from the tax on bread wheat imports is deducted from the costs, they rise quickly to 3.64 billion Dh, or 364 Dh/quintal (Salinger 1992).

EQUITY OF THE FNBT SUBSIDY

If we put cost considerations aside, two key questions remain:

- Does the FNBT subsidy provide a significant benefit to low income households?
- To what extent is the subsidy self-targeting?

To answer those questions, this report reviews data on expenditures, the size of the target population, and food expenditure patterns, before turning to the incidence of the FNBT subsidy.

Expenditure Data

There have been three fairly recent national surveys of household expenditures and/or consumption, conducted in 1970/71, 1984/85, and 1990/91. The 1984/85 study had by far the largest sample size — 14,520 households, compared to 6,459 in 1970/71 and 3,360 in 1990/91 — and examined both consumption and expenditures. The 1990/91 Living Standards Measurement Survey examined only expenditures, and because of the complexity of its questions on food expenditures, reduced the sample size for that component to just 840 households. That sample size is too small for statistically valid analyses below the national level (PRCC, Group D).

There are other drawbacks to the 1990/91 survey including that expenditure data are self-reported estimates of the value of purchases, gifts, and payment in kind, and that consumption of own production and purchases are not distinguished. The available summary

'data from the survey are published by expenditure quintiles, rather than deciles, making it impossible to isolate expenditures by the poorest households. In addition, 1990/91 was a year of record harvests following three years of good agricultural performance. 1992, a drought year, may show some marked changes.

Despite its deficiencies, the 1991/92 survey is the focus of the following analysis because its data are recent, and because it is the only national survey in which FNBT, as presently defined, existed. The analysis also uses the 1984/85 data for consumption analysis, and to help put the 1990/91 findings in context. The 1984/85 data have their failings; the most significant being that the survey was conducted during the last of several seasons of poor rains. There are too many differences in methodologies of the two surveys for all but the most general of comparisons.

The 1990/91 study establishes national expenditure quintiles. The lowest income quintile contains households with annual expenditures below 16,278 Dh. The top quintile is for households with annual expenditure levels above 54,318 Dh. These classifications are a national aggregate. The lowest expenditure quintile contains 31 percent of all rural households and just 10 percent of urban households.

Poverty and Income Distribution

There is no consensus on how many poor there are in Morocco, chiefly due to a lack of data, but also because of the multiple definitions of poverty that are in use. The Living Standards Measurement Survey has adopted what it calls the "World Bank" definition¹³ of the "ultra-poor" to define absolute poverty. Analysts reportedly estimated the cost of a minimum nutritionally adequate consumption basket, the components of which were defined in 1970. The basket provides 2,307 calories per adult per day¹⁴ and assumes that food expenditures are 73.4 percent of total expenditures in urban areas and 83.5 percent in rural areas. In 1990/91 dirhams, the annual cost of that basket was 2,557 Dh in urban areas and 1,827 Dh in rural areas. The survey found only 4.1 percent of the population below that poverty line, a dramatic decline from the estimated 15.7 percent estimate of 1984/85. Again, 1990/91 was a year of record harvests, while 1984/85 was the end of a drought period. The survey found that absolute poverty is predominantly an urban phenomenon; while just 48 percent of total population is urban, roughly 66 percent the absolute poor are found in cities.

¹³ No definition is provided in the summary report.

¹⁴ The composition of the basket does not reflect subsequent shifts in average dietary habits. These shifts include an increase in meat consumption, greater consumption of soft wheat at the expense of other cereals, and greater purchase of flours rather than grains. The net effect of these changes is not clear. The choice of adult equivalency conversion factors — to convert children's daily caloric requirements into some fraction of the adult total — will also have important impact on the analysis.

The moderate poverty line is roughly one-third higher than the absolute line. The survey found nearly 4 million Moroccans — 15.4 percent of the population — living in moderate poverty. Rural households predominate here, representing 60 percent of the total. This estimate of households in poverty is half that made in 1984/85.

The nutritional status of the population, in particular its pre-school children, indicates some need for nutritional interventions. In 1989, roughly 12 percent of children were underweight, and 25 percent were under height.¹⁵ Rural children are more likely than urban to be malnourished. Roughly 75 percent of malnourished children are rural, concentrated in the regions of Tensift, Sud, and Centre-Sud.

Donor-sponsored targeted feeding programs are being reduced or phased out in 1992. These programs, discussed in greater detail in Steedman and Benabderazzik (1992), are generally judged to have been successful in reaching large numbers of needy households. The impact of the reduction of these programs on the nutritional status of affected households is not known.

Food Expenditures

The 1990/91 Living Standards Measurement Survey found that food expenditures averaged 45 percent of total expenditures nationwide. The difference between rural and urban consumers was pronounced: food was 40.3 percent of urban household expenditures, and 54.5 percent of rural. The lowest income quintile shows the highest food expenditure share, averaging some 60 percent. These figures show some continuation of the decline in the relative importance of food expenditures documented over the past 30 years. This decline is linked to economic growth and the increasing costs of expenditures on other items, such as transport, housing, and education.

With a 21.9 percent share, cereals are the largest single item in the average food basket and are the most important source of calories in the Moroccan diet. This share is higher in rural areas, 27.3 percent, dropping to just 17.8 percent in urban areas. There is also significant variation by income. Households in the lowest income quintile spend, on average, 30.3 percent of their food budget on cereals. That share drops to 16 percent for the highest income quintile. National per capita cereals consumption is estimated at 210 - 230 kilograms, and is higher for low income consumers.

Earlier studies have shown that the overall level of per capita cereals consumption has remained fairly steady, but that the composition of that consumption has shifted sharply away from the traditional cereals — durum wheat and barley — in favor of bread wheat. In 1969,

¹⁵ "Underweight" means that weight for age is more than two standard deviations below the international norms. "Under height" means that a child's height for age is more than two standard deviations from the norm. Data from World Bank (Morocco, 1989).

durum wheat represented 40 percent of cereals consumption, bread wheat 20 percent, barley 30 percent, and corn 10 percent. But in 1985, after 12 years of subsidization of bread wheat, the same grains had shares of 20 percent, 58 percent, 18 percent, and 4 percent, respectively. Another striking shift in consumption patterns — motivated by a combination of subsidized flour, urbanization, and greater female labor force participation — has occurred from grains to flours.

Subsidized Foods

An analysis of the 1984/85 household survey data set found that subsidized goods — sugar, vegetable oil, and bread wheat flour — accounted for 55 percent of calories consumed in urban areas, 35 percent in rural areas (World Bank, 1989). Another study using that data set found that as a share of total expenditures, these foods represented 20.5 percent of rural low income household expenditures and 17.5 percent of urban low income household expenditures. This study estimated that a 50 percent increase in the cost of all subsidized foods would reduce real household revenue for the lowest income decile by 7 percent (Laraki 1989). A recent estimate of the impact of elimination of the FNBT subsidy on households in the lowest expenditure quintile indicates a net reduction in real expenditures of 1.4 percent (Stryker 1992).

Published 1990/91 survey data are not sufficiently disaggregated by product for a precise analysis of subsidy incidence. Table 1 shows an estimate of the share of FNBT, vegetable oil, and sugar in expenditures, but these figures include purchase of non-subsidized vegetable oil and sugar products. These three product groups accounted for fully 22.8 percent of household food expenditures in the lowest income quintile.¹⁶ The estimate is just 8 percent in the top quintile. The data indicate that the overall distribution of subsidy benefits is regressive. They show that purchases by the poorest 20 percent of households represent just 15.6 percent of the total, while those by the wealthiest totalled 24 percent.

¹⁶ The estimated share of subsidized food in total food expenditures is roughly the same as those made on the basis of the 1984/85 consumption study (see Laraki 1989).

Table 1

MOROCCO

EXPENDITURES ON SUBSIDIZED FOODS

EXPENDITURE QUINTILE:	NATIONWIDE					URBAN					RURAL				
	I	II	III	IV	V	I	II	III	IV	V	I	II	III	IV	V
Value (Dh):															
FNBT	122	128	118	96	72	104	92	82	77	68	127	142	146	129	94
vegetable oil	63	82	116	139	190	69	87	120	142	192	62	80	112	133	180
sugar (all forms)	114	143	153	182	202	104	116	142	158	182	117	153	179	221	286
Sub-Total	299	353	396	417	464	276	294	345	377	442	305	374	437	484	560
Share of Food Expenditures															
FNBT	9.3%	6.4%	4.4%	2.7%	1.2%	8.5%	5.0%	3.1%	2.3%	1.2%	9.5%	6.9%	5.2%	3.3%	1.6%
vegetable oil	4.8%	4.1%	4.3%	3.8%	3.3%	5.7%	4.7%	4.6%	4.2%	3.3%	4.6%	3.9%	4.0%	3.4%	3.1%
sugar (all forms)	8.7%	7.2%	6.0%	5.3%	3.5%	8.6%	6.3%	5.4%	4.7%	3.1%	8.7%	7.4%	6.4%	5.6%	5.0%
Subsidized Foods/ Total Food Expenditure	22.8%	17.7%	14.6%	11.6%	8.0%	22.7%	16.0%	13.2%	11.1%	7.6%	22.8%	18.2%	15.7%	12.2%	9.7%
Total Food Expenditures (Dh)	1,311	2,001	2,710	3,608	5,818	1,215	1,832	2,614	3,398	5,829	1,337	2,060	2,785	3,958	5,770

Source: Direction de la Statistique, Ministère du Plan. "Enquête nationale sur les Niveaux de Vie, 1990/91, Résultats définitifs", mars 1992.

Farine Nationale de Blé Tendre (FNBT)

The 1990/91 data indicate that the subsidy on FNBT is a progressive policy. Overall, it appears that the incidence of expenditures on the flour is progressive both absolutely — per capita expenditures by the lowest income quintile exceed those of the highest income quintile by roughly 70 percent -- and relatively (Table 2). An analysis of incidence by region, by household characteristics, and by income would help to nuance this assessment.

Table 2

EXPENDITURES ON FNBT
national averages by expenditure quintile
(lowest to highest)

Quintile	I	II	III	IV	V
Value of FNBT expenditures (Dh)	121.9	128.4	118.1	96.4	72.4
Quintile's share of total FNBT purchases	23.6%	22.8%	22.0%	18.0%	13.6%
FNBT's share of quintile's total food expenditures	9.3%	6.4%	4.4%	2.7%	1.2%

Source: Royaume du Maroc. *Enquête Nationale sur les Niveaux de Vie*, 1992.

Progressiveness appears to be particularly strong in urban areas. The average annual expenditure on FNBT by the poorest 10 percent of urban consumers was 104 Dh/capita, compared to 68 Dh/capita on average for the wealthiest 35 percent of the population.

In rural areas, FNBT expenditures are greater, on average, and the subsidy's progressiveness erodes, due to the greater homogeneity of consumption patterns in these areas. Expenditures on FNBT by the poorest 31 percent of rural households average 127 Dh/capita (9.5 percent of food expenditures), dropping only to 94 Dh/capita for the wealthiest 7 percent of the population (1.6 percent of food expenditures). The middle 60 percent of the rural population is the most important consumer of FNBT nationally; its average annual expenditures are roughly 140 Dh/capita (roughly 5 percent of total food expenditures). Survey data indicate that rural households mix the FNBT with other, preferred flours (frequently farine de luxe, or else durum wheat flour), as an extender for use in baking (PRCC, Group D).

Aside from the 1990/91 Living Standards Measurement Survey, the most comprehensive look at FNBT consumption is the 1990 INSEA/ONICL study of the artisanal milling sector. Part of this study was a survey of flour consumption habits among the

clientele of artisanal mills. The study found that households that use artisanal mills account for a disproportionate share of total FNBT purchases (see Table 3).¹⁷ No consumer income data were collected. But professional data were, and nearly 80 percent of rural users and almost 50 percent of urban were farmers. If farmers, on average, have a lower than average income then there is some (weak) additional evidence of the relative progressiveness of the subsidy.

Table 3

CONSUMPTION OF FNBT BY PATRONS OF ARTISANAL MILLS

	URBAN PATRONS	RURAL PATRONS	TOTAL
Percent of households nationwide	5.4%	42.2%	100.0%
Share of FNBT purchases nationwide	6.5%	59.5%	100.0%
per capita consumption of FNBT (kg)	349	412	292

Source: PRCC, Groupe D Report, February 1992.

Bread

Bakery bread is not explicitly subsidized. Rather, its price is fixed by the *accords de modération* signed by bakers and the GOM. The accords reflect marketing and transformation margins derived from average costs in the sector, so some millers and bakers pay an implicit subsidy to consumers by providing bread at the official price.

On income transfer grounds, there is little justification for controlling the sales price of bakery bread. Table 4 shows the distribution of expenditures found in the 1990/91 Living Standards Measurement Survey.

¹⁷ This analysis assumes that total production of FNBT was 10 million quintals.

Table 4

EXPENDITURES ON WHEAT BREAD
national averages by expenditure quintile
(lowest to highest)

Quintile	I	II	III	IV	V
Value (Dh)	8.5	15.6	29.8	43.1	97.1
Quintile's share of bread purchases	4.5%	7.6%	15.3%	22.2%	50.4%
Bread's share of household expenditures	0.6%	0.8%	1.1%	1.2%	1.7%

Source: Royaume du Maroc. *Enquête Nationale sur les Niveaux de Vie*. mars, 1992.

The vast majority of lower income households bake their own bread. Nationally, bakery bread purchases represented just 0.6 percent of total expenditures in the lowest income quintile. In urban areas, where access to bakery bread is much higher, the share is 2.0 percent.

Although total purchases of bakery bread are limited for low income households, low cost bread does serve as a stop-gap for certain very low income households. There are indications that bakery bread is a short-term substitute for FNBT among very poor households unable to find or to finance a purchase of the flour (see McDermott 1992). And bakery bread is known to be an important element in the diet of low income urban workers unable to go home for meals.

But purchases of bread are much greater in the upper expenditure brackets. For the wealthiest quintile, bread's share of expenditures rises to 1.7 percent nationally, 1.9 percent in urban areas. The 1990/91 survey found that more than 50 percent of bread expenditures were made by the wealthiest quintile, and the lowest income quintile accounted for just 4.5 percent.

Complete liberalization of the bread marketing chain would have little impact on the incomes or the nutrition levels of low income households.

OTHER COUNTRY EXPERIENCE

Morocco is not alone in subsidizing wheat flour. This section looks at the cereals subsidy programs in Algeria, Egypt, and Tunisia, three countries in which wheat products are a staple food. Although the programs were not selected for their size, each is broader and costlier than Morocco's.¹³ Each government is scrutinizing its program to identify ways to improve targeting and to reduce costs. Table 5 presents recent data on the size of the sample countries' cereals subsidy programs. Egypt's program is the largest measured in absolute and per capita volume of subsidized cereals, while Algeria's (through 1991) was the largest when measured in terms of share of GDP.

Table 5

SIZE OF CEREALS SUBSIDIES IN SAMPLE COUNTRIES

	MOROCCO	ALGERIA	EGYPT	TUNISIA
Total cereals subsidized (tons)	1,250,000	3,275,000	8,060,000	1,838,000
Subsidized cereals per capita (kg)	50	131	155	243
Subsidy costs/GDP	0.7%	2.4%	2.0%	1.4%

Sources: Algeria data are for semolina and are derived from "Democratic and Popular Republic of Algeria," ...1991. Egypt data are for 1990, from Christensen, 1991. Tunisia data are for bread wheat, durum wheat, barley, and corn, and are derived from Government of Tunisia, 1991.

Table 6 presents some additional indicators for the four countries. All four are classified by the World Bank as middle income developing countries — although Egypt is on the border, sometimes shifting into the low income category. The United Nations Development Programme's (UNDP) Human Development Indicator — a composite index incorporating adult literacy, years of schooling, life expectancy, and purchasing power adjusted GDP — ranks Morocco lower than Algeria and Tunisia. All four countries, led by Egypt, show relatively high per capita calorie availability. Morocco is notably less dependent on cereal's imports than its neighbors, reflecting its successful policy of promoting domestic cereals production. Political, cultural, and economic commerce of the four countries is focused within the Mediterranean basin.

¹³ Recent reforms in Algeria may have altered this ranking.

Table 6

COMPARITIVE INDICATORS
MOROCCO, ALGERIA, TUNISIA, and EGYPT

	(1) per capita GDP in 1990 (\$)	(2) ICP per capita GDP in 1990 (\$) ¹	(3) Population mid-1990 (millions)	(4) 1991 Human Development Indicator ²	(5) Per Capita Calorie Supply 1989	(6) Cereals Self Sufficiency, avg 1985-89 (%)	(7) Population below poverty line ³ (%)
Egypt	600	3,100	52.1	0.394	2,336	53	24
MOROCCO	950	2,670	25.1	0.431	3,020	76	15
Tunisia	1,440	3,979	8.1	0.588	3,121	46	17
Algeria	2,060	4,680	25.1	0.490	2,866	28	--

Sources: Columns 1, 2, 3, and 5: World Bank. *World Development Report 1992*.
Columns 4 and 7: UNDP. *Human Development Report 1991*.
Column 6: USDA. *World Agriculture, Trends and Indicators, 1970-89, 1990*.

¹ United Nations International Comparison Program estimates for 1990. Figures reflect an adjustment for purchasing power parity.

² UNDP measure of quality of life. Measure is a composite index of life expectancy, adult literacy, mean years of schooling, and real GDP per capita. Ranges from 0 to 1, with 1 as the maximum.

³ The poverty line is defined as the income level below which a minimum nutritionally adequate diet plus essential non-food requirements cannot be afforded.

Each country examined in this section provides a universal and unrationed subsidy on retail sales of wheat flour and bread. The level of subsidy varies considerably between countries, as illustrated in Table 7.

Table 7

COMPARISON OF 1991 RETAIL PRICES OF SUBSIDIZED PRODUCTS
(in U.S. dollars/kg) /1

Product /2	Morocco	Algeria	Egypt	Tunisia
Wheat flour	0.25	0.12	0.09	0.28
Bread (large loaf) /3	0.50	0.19	0.14	0.23
Bread (small loaf) /3	0.63	0.19	0.14	0.38

Sources: Morocco data are from PRCC Groupe D, 1992. Algeria and Tunisia data are from World Bank "Democratic and Popular Republic of Algeria,"...1991. Egypt data are for 1990 and from Christensen, 1991.

/1 Exchange rates: 8 MDh = 18 DA = LE 2.61 = 0.95 TD = 1 SUS

/2 Extraction rates for the flours presented are 72 percent in Morocco (*farine de luxe*), __ percent in Algeria, 82 percent in Egypt, and 75 percent in Tunisia.

/3 Algeria and Egypt have just one loaf size. In Tunisia, the large loaf is 500 grams; in Morocco, it is 400 grams. Tunisia's small loaf is 250 grams, that of Morocco is 200 grams. Data are normalized to cost per kilogram.

ALGERIA

STRUCTURE AND COSTS OF FOOD SUBSIDY SYSTEM

Reforms in 1992 have dramatically reshaped Algeria's food subsidy program. It is too early to assess the new system, but its broad outlines are presented in the "Reforms" section, below. Until this year, the Government of Algeria has provided a generous and broad system of universal and unrationed subsidies on basic goods. The system has been successful in protecting national nutrition levels: chronic malnutrition in the country has been less than one percent of the population. Less salutary has been the extent to which Algeria's neighbors had also benefitted from the system. Cross-border price differentials for certain subsidized goods — in particular petroleum products and sugar — have been so high that a thriving and illegal re-export market has flourished with Morocco and Tunisia.¹⁹

Direct subsidies are paid at the top of the distribution chain (the mill or factory). As in Morocco, implicit subsidies may enter downstream through complex systems of ceiling prices and fixed margins on processing, distribution, and sales of essential goods and services. In 1991, the list of controlled goods and services included cereals and pulses, cereal grains and vegetable seeds, bread, semolina and flour, pasta and couscous, loose sugar, ordinary cooking oil, tomato paste, pasteurized and powdered milk, infant formula, bakers' yeast, energy products; and a host of services including housing, urban transport, irrigation water, and medical procedures. Government expenditures on all subsidies were budgeted to exceed eight percent of GDP. Because many of the subsidized goods were imported, the exchange rate realignment needed to reestablish macroeconomic equilibrium threatened to increase overall costs substantially.

The extra-budgetary Compensatory Fund (FC) has financed all direct producer and consumer subsidies. In 1991, its expenditures were projected to total some 5 percent of GDP. Ceiling prices on non-subsidized goods have lagged behind costs, introducing implicit subsidies to consumers (financed by implicit taxes on producers) in the energy products and basic services sectors.

Algeria's cereals marketing chain resembles Morocco's; wheat is sold to mills at a subsidized price, and downstream prices and margins are fixed. Hence, subsidies on bread and other processed wheat products are implicit, depending upon the final product's contents.

¹⁹ In 1991, the sales prices of granulated sugar was \$0.11/kg in Algeria and roughly \$0.40/kg in the (subsidized) Moroccan and Tunisian markets. In 1988, Algeria imported some 750 million tons of sugar, but surveys indicate household consumption was only about 470 million tons with some modest industrial consumption.

SUBSIDY INCIDENCE

In 1991, it was estimated that subsidized foods represented 21.2 percent of total per capita expenditure for the poorest 10 percent of households.²⁰ But because the subsidies were entirely untargeted, they were inefficient: households in the top income decile received more than twice the subsidy of those in the lowest decile. An estimated 60 percent of the food subsidy bill went to the top five deciles of households.

In Algeria, low income groups purchase relatively little bread and flour. Expenditures for those two subsidized products represented just 1.1 percent and 0.3 percent of the total expenditures of the two poorest deciles. Semolina is the preferred cereals product, comprising 6.8 percent and 5.4 percent of total expenditures for the 10th and 9th deciles, respectively. Unlike expenditures on bread and wheat flour, semolina expenditures do not increase much as income rises, indicating a lower income elasticity.

REFORMS

By the end of 1991, it was clear that Algeria's subsidy system required fundamental reforms. The details of the reform plan have shifted somewhat, but the plan's aim is essentially to eliminate general price subsidies on non-essential goods and services; to replace, where feasible, price subsidies on essential goods with less distorting and better targeted transfers; and to increase the transparency of the subsidy system and its financing.

An early proposal was to eliminate all subsidies in a step-wise manner over an 18-month period, concurrent with the establishment of a universal food stamp system. But subsidies have been lifted at a much quicker rate, and the food stamp proposal has been replaced by a direct cash transfer program. By July 1992 — just nine months after the reform process was launched — much of the liberalization had already occurred. The Government has stopped subsidizing all but three food staples: bread, milk, and semolina.²¹ Foods that are no longer subsidized remain subject to fixed marketing margins and price ceilings. The ceilings are set at a level significantly higher than the subsidized price level. The controlled domestic price of energy products will be gradually increased to economic cost by the end of 1993.

Instead of a food stamp system, the government has set up a system of **targeted direct cash transfers**. The cash transfer system provides roughly 14 million Algerians with an average monthly payment of 150 DA. The first payments, covering February through April, were made in April when the majority of price controls were lifted. Estimated total annual costs are DA 26 billion (\$1.2 billion), or about 60 percent of the 1991 expenditures of

²⁰ No information is available on food's share of total expenditures.

²¹ Semolina, flour, and milk represented roughly 40 percent of direct consumer subsidies in 1991.

the Compensatory Fund (FC). The FC's role has evolved with the new program. It now oversees the remaining three food subsidies, as well as the cash transfer system.

Three groups of households qualify for the direct cash transfers: salaried workers, pensioners, and heads of households without incomes. Salaried workers are by far the largest group of recipients, and are receiving the highest average transfer. Payments to this group are a function of family size and household income, and are fixed and paid by the National Social Security system which is then reimbursed by the FC. Monthly payments average 180 DA per beneficiary.

The program for pensioners is administered by the social security system, the National Pension Fund, or war pension funds. Pensioners with incomes below a cut-off point receive an allocation for themselves and their dependents. Payments average 120 DA per beneficiary.

The program most oriented towards the poor is that targeted towards heads of households without incomes. Households declaring themselves without income are entitled to a transfer payment to each member. Any household later found to have made a false declaration is subject to judicial penalty. The program is administered by local offices of the Ministry of Social Affairs. Payments are made directly by the FC through the postal system. Recipient lists are to be updated quarterly. The program has already registered 4 million persons, with an average monthly payment of 120 DA per beneficiary. The value of monthly payments should fully compensate low income households for purchasing power lost through the price increases.

The cash transfer system is new and it is not known how well it is reaching the poor, particularly the rural poor. Assuming that all poor households can be registered in the program, the important issue will be whether payments keep up with inflation. The system is regressive, with greater transfers going to employed members of the formal sector than to the unemployed and members of the informal sector. But the experience of other countries indicates that this approach may ensure the acceptance and the sustainability of the reform program. Public officials are reportedly satisfied with the system and its coverage.

EGYPT

STRUCTURE OF FOOD SUBSIDY SYSTEM

Egypt's food subsidies are part of a comprehensive social welfare system created under Nasser. The system — encompassing rent control, low cost clothing, free education and health care, as well as food subsidies — is the most ambitious, and expensive, of those considered in this report. Before a major reform effort was launched in the mid-1980s, the

cost of food subsidies alone had mounted to 17 percent of total government expenditure, roughly 8 percent of GDP.

An estimated 93 percent of Egyptians carry ration cards entitling them to purchase a fixed monthly allotment of sugar, tea, vegetable oil, rice, and soap at a government-guaranteed reduced price.²² Rations, distributed through state-administered shops, are generally less than monthly consumption needs. Consumers shop on the open market for the residual. State-owned cooperatives provide products — including macaroni, eggs, cheese, oil, sugar, tea, and, until recently, frozen chicken — at below market prices. Geographic coverage as well as product availability are spotty.

The cornerstone of the program is a universal subsidy on wheat flour and bread. The subsidy is by far the most expensive component of the system. In 1989, the subsidy per loaf was 8 piastres, while the price per loaf was 5 piastres. Bread wheat is the lowest cost cereal on the Egyptian market, and consumption per capita has risen from 105 kilograms/year in 1973 to 155 kilograms in 1990. Most of the increase has been met through (concessional) imports.

The impact of this extensive system has been quite positive nutritionally — people in the lowest expenditure quartile consume more than 2,300 calories/day on average. But food wastage is common and costs have been extremely high, measured in terms of government expenditures, agricultural imports, and depressed agricultural productivity. In the 1970s, the government suppressed producer prices to contain the costs of the subsidy program. Production stagnated. Since the 1980s, producer prices have been boosted and cereals production growth has started to outpace the rate of population growth. Wheat imports have fallen from 82 percent of consumption in 1985 to 64 percent in 1990. But total cereals imports continue to climb: from 8.7 million tons in 1982 to 9.8 million tons in 1990.

MARKET STRUCTURE FOR WHEAT FLOUR AND BREAD

Two grades of flour are controlled, one with an extraction rate of 72 percent, the other, of 82 percent. The latter flour is baked into a 130 gram loaf called the *balady* loaf, which is the staple food for urban Egyptians. Average per capita consumption in urban areas is three loaves per day.

Rural Egyptians purchase less bread and more flour, much of it subsidized flour brought in by traders and resold in small quantities with a mark-up. The high extraction rate of the *balady* grade flour does not satisfy rural consumers, nearly all of whom bake their

²² A survey of a sample of 40 households conducted by Catholic Relief Services in 1987 found that it was typically the most poor households that did not have a ration cards. Many of these families were illiterate, and found the application steps overwhelming (World Bank 1991).

bread. Most go through a laborious practice of sifting and cleaning to remove the bran before using the flour in baking.

INCIDENCE OF FOOD SUBSIDIES

The most recent nationwide household budget survey was conducted in 1981/82. That survey found that food expenditures represented 48 percent of total expenditures in urban households and 57 percent in rural households. These figures were 63 percent and 68 percent for households in the lowest income quartiles of each region. The share of food expenditure purchased through government channels was 16 percent in urban areas and 10 percent in rural areas, again rising sharply among the lowest income quartile — to 26 percent and 18 percent respectively.

The same survey found that subsidized products made up the lion's share of calories consumed. Flour and bread are the principal source of calories and protein for all income groups. In both rural and urban areas, consumers in the lowest income quartile obtained 48 - 49 percent of their calories, and 58 percent of their protein from subsidized wheat flour and bread alone. FAO data indicate no major shift in the structure of consumption since then (Christensen, 1991).

Wheat flour has not always been so central to low income diets. Prior to the sustained shift in relative prices introduced with the wheat subsidy, corn bread was preferred.

Subsequent reforms have significantly increased the prices of subsidized foods. The impact on consumption, in particular of the lowest income groups, is not known, but is feared to have been negative due to the sharpness and rapidity of the increases. The Cairo food and beverage consumer price index for the lowest income households increased by 51.7 percent over the first nine months of 1989, the period of the most dramatic reforms in the food pricing regime. A 1989 study by Catholic Relief Services found that low income groups were responding to higher prices by reducing consumption.

REFORMS

Reforms have been incremental in an effort to avoid a replay of the rioting touched off in 1977 by the announcement of an increase in the price of bread. But, by introducing cost-containment measures, the government has sharply reduced subsidy expenditures. The projected cost of the 1989/90 fiscal year program was roughly one-quarter of that in 1984/85 in real terms. The government slashed costs by raising prices, eliminating some products from the list of rationed or subsidized goods, and limiting the quantity of goods rationed.

Despite concerns over the possible negative public reaction, the government approved two major increases in bread prices in the 1980s. In 1982, the price of the *balady* loaf was doubled, its weight decreased, and its quality increased. A similar reform took place in 1989, when the price of the *balady* loaf was increased by 150 percent and its weight reduced from 160 grams to 130 grams.²³

The 1989 increase basically compensated for inflation. That inflation continues, eroding the impact of the price increase. Prices of other cereals remain above that of wheat, so bread remains the cheapest staple. Little progress has been made since 1989 in further targeting Egypt's subsidy program, while the country's worsening economic condition makes further reform a high priority.

TUNISIA

STRUCTURE OF FOOD SUBSIDY SYSTEM

The Government of Tunisia subsidizes basic food commodities — cereals, vegetable oil, sugar, and milk — as well as some fertilizers. All subsidies are universal and unrationed. Although the program provides an important benefit to low income groups, its benefits are diluted. Evaluations have shown the subsidy program to be regressive, urban-biased, and expensive. And the program's impact on nutrition does not appear to have been as positive as that seen in the other countries reviewed. Chronic malnutrition was estimated at 8 - 9 percent of total population in 1985; higher in urban areas.

Prior to recent reforms, total costs to the government of the subsidy program were as high as 4.1 percent of GDP, averaging around 3.2 percent through the 1980s. Subsidies on cereals — bread wheat, durum wheat, barley, and corn — account for about 60 percent of subsidy costs. A complex system of controls affects the entire market system: storage, milling, baking, industrial transformation, wholesale distribution, and feed grains. The cereals marketing board operates like Morocco's ONICL, with a monopoly on the collect and import of cereals, and responsibility for providing wheat to the mills at a fixed and subsidized price. Industrial users of flour (primarily bakers) also receive a subsidy payment to cover transformation costs.

Until recently, there were just two authorized types of bread wheat flour: a subsidized bread flour, with an extraction rate of 75 percent (*farine poid spécifique* or p.s.), and an unsubsidized pastry flour with an extraction rate of 68 percent (p.s.-7). Most bakers

²³ Despite the dramatic price increases, Table 7 illustrates that Egyptian consumers continue to enjoy the lowest bread prices among the four countries studied.

claim to be unable to distinguish the two flours, and will use the subsidized flour in pastry products.

Durum wheat represents over half of domestic cereals production. While it is still largely produced for own consumption, there is a trend among producers to sell their wheat and purchase the subsidized processed products on the market. Bread wheat production is growing at a faster rate than that of durum wheat.

INCIDENCE OF FOOD SUBSIDIES

The most recent nationwide data on household consumption come from a 1985 household budget survey. That survey found that food purchases averaged 39 percent of total household expenditures. That share rose to 59 percent for the poorest 13 percent of the population.

In the lowest-income households, subsidized foods represented 24 percent of food expenditures. But the importance of subsidized foods did not decline much with income; they accounted for 16 percent of the food expenditures of the wealthiest 12 percent of households. In absolute terms, the poorest 24 percent of the population obtained 16 percent of the value of the subsidies, while the wealthiest 12 percent got 17 percent. And, while 46 percent of the population, and over 60 percent of the poor live in rural areas, just 40 percent of subsidy benefits accrued there.

Cereals represented 29.5 percent of the expenditures of the poorest 13 percent of households, declining to 10.4 percent in the wealthiest 12 percent of households. As shown in Table 5, subsidized per capita cereals consumption averages 243 kilograms per year.

Household budget surveys show that low income families in both rural and urban areas purchase considerably more durum wheat than bread wheat. In 1987, the expenditure ratio approached 3 to 1 for the poorest 13 percent of households. And this ratio drops as income rises, making the subsidy on durum wheat the most progressive of those offered in Tunisia.

REFORMS

Tunisia's reform strategy is three-pronged, combining retail price increases with production and marketing cost decreases, and improved targeting. To date, progress has been steady and incremental. Even without a major restructuring, the GOT has realized significant cost savings. Total costs of the subsidy program in 1991 were estimated at 2.4 percent of GDP (Government of Tunisia, 1991).

Cost savings have been realized by reducing the number of subsidized products and by altering the characteristics of some of the remaining products to make them less appealing to higher income groups. Examples of the alterations adopted are the elimination of expensive olive oil as an ingredient in the subsidized blended cooking oil and the repackaging of subsidized milk in less expensive containers than the tetrapak previously used.

At the same time, the government is encouraging the **introduction of high quality products to provide higher income consumers with alternatives to subsidized products.** In the bread wheat sector, rather than introducing a low quality or higher-extraction rate flour, Tunisia is introducing higher quality flours, as well as distinctive packaging for the standard 75 percent extraction rate flour.²⁴

Another technique for reducing costs has been a gradual reduction in bread loaf size. In 1986, the unit weights for bread were reduced from 700 and 300 grams per loaf to 600 and 250. The 600 grams loaf was further reduced to 500 grams in 1989.

In 1992, the government expects to subsidize 7.2 million quintals of durum wheat and 7.3 quintals of bread wheat for its population of 8.1 million. The GOT has no plans to reduce its program. In fact, the volume of bread wheat subsidized is programmed to increase by 3.1 percent annually through 1996; durum wheat will increase by 3.5 percent.

SUMMARY

The 1988 and 1989 reforms of the soft wheat subsidy in Morocco have largely met their goal of controlling government expenditures on the subsidy program while providing low income groups with a significant indirect income transfer. According to the data of the 1990/91 Living Standards Measurement Survey, the lowest income quintile is receiving the largest share of subsidy benefits, measured both in absolute and in relative terms. Many countries would envy this achievement.

But the economic costs of the FNBT subsidy program are substantial. Overall, consumers pay about 3.6 billion Dh for the 'subsidy', 38 percent of which is waste, inefficiency, and leakage (rents), and the rest of which is represented by the 'tax' that consumers pay on all wheat — a tax created by the difference between domestic and world wheat prices.

²⁴ Some of the reluctance of policy makers to introduce a flour with a greater bran content as a self-targeting product stems from their belief that whole wheat flours are a superior good, much sought after by health-conscious upper-income Tunisians.

In addition, the positive assessment of the FNBT's incidence is tempered by two factors. First, the Living Standards Measurement Survey, on which this assessment rests, was conducted at the end of a period of sustained good cereals harvests and strong economic growth. Consumers enjoyed relatively high levels of incomes — stemming largely from the good harvests — combined with a good selection of products on the market. In 1992, a poor harvest and relatively depressed incomes may increase the demand for FNBT by higher income groups. Second, data from the survey summary report are too aggregated to provide detailed data on the FNBT subsidy's incidence on Morocco's most needy group, the "ultra-poor".

The brief summaries presented of the cereals subsidy programs of Algeria, Egypt, and Tunisia allow some appreciation of the approaches towards subsidizing wheat products adopted by other countries in which wheat is the staple food. Each of the countries reviewed is experimenting with approaches to reducing the costs of its subsidy programs. Algeria has replaced its subsidies with a direct cash transfer. Egypt has removed some subsidies on goods not widely consumed by the poor, raised prices on the remaining subsidized goods, and, in the case of bread, reduced the unit size of the product. Tunisia has also removed subsidies on goods not consumed by the poor and reduced unit sizes. In addition, it has taken steps to attract higher income groups away from the subsidized goods.

CONCLUSIONS AND RECOMMENDATIONS

The subsidy on FNBT provides a valuable benefit to low income consumers in Morocco. This benefit is imperfectly targeted, missing some vulnerable households while benefitting some of the wealthy. It avoids the costs, but does not bring the benefits, of a full-fledged, administered social safety net program. The need for such a program may grow more acute in the near future as donors reduce their support to food aid programs. But, while not a substitute for a well-designed social support program for the poor, the FNBT subsidy appears to provide vulnerable households with an important benefit.

This is not to say that there may not be a better food product to subsidize. Earlier assessments have concluded that a subsidy on durum wheat or barley might reach more of the poor with less leakage to upper income groups (Laraki 1989).

Finally, and perhaps crucially, at current world wheat prices, the subsidy could be eliminated with little or no impact on prices. If the supply of an FNBT-grade flour can be maintained, the impact on low income groups of full elimination of the subsidy would appear to be small.

This study brings no new information to bear on the question of commodity choice. It assumes that FNBT will continue to be the subsidized cereal, and asks how to target it

better to reach low income consumers. The recommendations that follow emerge from that perspective:

For the program to subsidize *farine nationale de blé tendre*:

- 1: Redesign regional quotas for FNBT sale to correspond to regional need, as measured by the geographic distribution of low income households.
- 2: Reduce leakage of subsidy benefits to market intermediaries. Consumers lose 30 - 50 percent of the value of the FNBT subsidy to intermediaries. Some of this leakage stems from the disjunction between quotas and demand, and would, presumably, fall if Recommendation 1 were carried out. To further reduce leakage would require greater control of sales prices, a method not recommended by this author.²⁵
- 3: Prohibit sales of FNBT to bakers. The market presence of FNBT bread is far lower than the quantity of flour allocated to the bakers, indicating some type of diversion of the flour may be occurring (Bouzri and Baudonnel, 1992). Low income urban households demand a low cost bakery bread, but their current choice is generally the bakery bread made from *farine de luxe*.

For the bread wheat flour sub-sector in general:

- 1: Remove price controls on bread. Interviews with bread bakers indicate that they would be reluctant to increase the price of bread much above the 1 Dh level due to their perception of the price elasticity of consumer demand (Bouzri..). The controls introduce a further distortion into the cereals marketing chain for a product that is little consumed by the poor.
- 2: With price liberalization, encourage product diversification in the bread wheat market — in terms of quality, variety, and packaging. There is demand for a low cost bread, but breads of higher quality and variety could pull upper income consumers away from the low price products.

²⁵ In Ouarzazate, the provincial government has established a system of 'bons', guaranteeing the bearer the right to purchase one sack of FNBT at the official price of 100 Dh per sack. The system, while laudable in intent, has led, in practice, to extended disruptions in supply on the official market as flour has been channeled into the black market. Black market prices are 135 Dh per sack.

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