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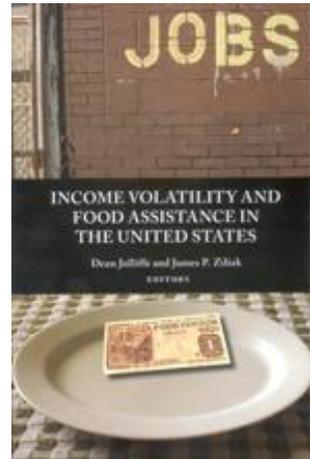
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# Design of Assistance Programs to Address Real Income Volatility

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## 8

# Design of Assistance Programs to Address Real Income Volatility

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Over the past two decades, changes in income volatility and its sources have received increasing attention (Blundell, Pistaferri, and Preston 2004; Gottschalk and Moffit 1994; Haider 2001). Increases in income volatility raise issues of public concern. What impact will greater volatility have on household consumption and welfare? More specifically, how does a change in volatility affect recipients of government assistance? Obviously the answer will depend in part on the source of the volatility. It could be due to exogenous shocks or household decisions. Furthermore, the design of assistance programs will help determine the impact of income volatility on assistance recipients. This raises the question of how assistance programs should be designed when potential recipients face income instability? Determining the principles involved in designing assistance programs for low-income persons when their income and needs are volatile is the focus of this chapter.<sup>1</sup>

Many of the issues that arise in designing assistance programs when income is stable also apply when it is volatile. Welfare and social insurance programs are typically targeted on the basis of some measures of need, such as income, assets, employment, and family circumstances. Standard approaches to program design stress both the normative issues involved in defining need and eligibility and the administrative issues involved in implementing the eligibility criteria and delivering and

distributing cash or goods. Implementation must deal with asymmetric information problems, which preclude program administrators from achieving perfect targeting. This leads to both Type I and Type II errors, resulting in (for Type I) less than full coverage of the target population and (for Type II) leakage of funds from the program. Undercoverage may also occur because eligible persons are ill-informed about their entitlements or because of the stigmatization associated with receiving welfare. Information problems include hidden actions that make it difficult to screen out ineligible persons. Households may change their behavior to become eligible or may fail to take actions that are required for eligibility, such as engaging in a job search or reapplying for benefits. Moreover, informational asymmetries enjoyed by administrators may lead to agency problems and consequently imperfect targeting of assistance. For example, only administrators may be able to observe the characteristics of welfare applicants, and if they have different preferences than the government regarding which individuals should receive assistance then there could be undercoverage of the target population. Agency problems may also arise if the effort to classify welfare applicants is costly for administrators and unobservable by the government. Again in this case, administrators may incorrectly (from the point of view of the government) classify welfare applicants.

These standard problems of welfare program design are exacerbated when the need for assistance is volatile and low-income households are unable to insure fully against the volatility. The possibility of unexpected changes in circumstances makes the eligibility requirements for assistance—including the targeting of benefits, the frequency of certification, the reporting mechanisms, and the timeliness of support—very important. An ideal program would react quickly and accurately to persons unexpectedly moving from noneligibility to eligibility, while avoiding adverse incentive effects. It would also respond quickly to those whose circumstances change in the opposite direction, though presumably with less urgency.

## **SOURCES OF REAL INCOME VOLATILITY**

Complexity in designing low-income support programs to address volatility arises mainly because volatility comes from a variety of sources. Some of these will be exogenous and beyond individual control. Others will be in part a consequence of individual actions.

### **Exogenous Sources of Volatility**

The most obvious exogenous shock that employable low-income persons might face is a change in employment income. For example, an individual might be laid off or incur a workplace injury. Real income shocks can also occur from changes in the various prices facing low-income households. They might also be the result of a partially or completely uninsured adverse event. An individual may suffer from a change in health status, either temporary or permanent, that entails sudden medical expenses and often a loss of employment income. A supporting person may suffer a similar fate, which also may affect the individual. The individual may also face a loss of community support because of a shock to the local community, such as the closure of an industry or a natural disaster. Some of these shocks can be either anticipated or observed. For others, detecting the changed circumstances of affected persons may take time, and even then may be subject to some errors in observation. That constitutes a significant problem for program design.

### **Volatility Resulting from Individual Choice**

Changes in real income might be the result of personal decisions affecting the low-income individual's employment status, living circumstances, consumption, or social capital. Changes in employment income might be in part a result of individual behavior. Workers might lose their jobs for cause, or they might voluntarily quit or reduce their hours of work. Their income can also change if they engage in nonmarket or underground activities, either to supplement or to substitute for formal work.

Real income changes can also occur if low-income individuals change their living circumstances. They may decide to cohabit or to terminate cohabitation, or to change the size of their family. Their economic well-being can also change because of consumption choices. If they overspend by borrowing, the subsequent financing of the debt may leave insufficient resources for other needs and may even force them into personal bankruptcy. Similarly, they may commit themselves to housing costs that exceed their means and that are hard to escape in the short run because of contractual obligations. Their personal behavior may even result in eviction from existing housing.

Finally, they may suffer a loss in social capital because of personal decisions. If they choose to move to a different city or neighborhood, they lose their network of friends and other social support mechanisms, at least temporarily. There is also the loss of social capital for those who have been incarcerated after being convicted of committing a crime.

The government may prefer to address the consequences of adversity arising from voluntary choices differently from those arising exogenously. However, distinguishing the two may be difficult.

### **Labor Market Rigidities as a Source of Uncertainty**

If low-income individuals could immediately find suitable work after either a voluntary or an involuntary leave from employment, then changes in employment income as a source of income volatility would greatly be reduced. Rigidities in the labor market, however, generally prevent this from happening, so even those looking for work may remain unemployed for an uncertain length of time.

Involuntary unemployment can arise from various sources. Firms may find it in their interest to offer an efficiency wage, which will generally be larger than the market-clearing wage. Structural unemployment can also arise when a portion of the labor market is unionized or when there is economic restructuring or outsourcing. Labor market rigidities induced by the government (such as a binding minimum wage and unemployment insurance) may also be a source of involuntary unemployment. There will also generally be some frictional unemployment because of business cycles and job searches.

The labor market may also entail indivisibilities that make it more difficult for some individuals to enter or remain attached to it. For

various technological and coordination reasons, many jobs require a minimum number of work hours, and this may not suit low-income individuals with other demands on their time (Saez 2002). Low hourly wage jobs may not be attractive because they do not offer long enough hours to be worth taking. Time spent on household production may be more valuable than earning a low wage in the market. Indivisibilities as a source of unemployment may be viewed as involuntary or voluntary depending on the circumstances.

## **RESPONSES TO REAL INCOME VOLATILITY**

Individual responses to volatility depend upon both market options and support programs available from government and nongovernment sources.

### **Individual Responses to Volatility**

Suppose that low-income individuals are subject to an unexpected negative shock to their real income. Some of this may be offset by previously acquired market insurance or by government support programs. It is likely, though, that some residual consequences will remain. Thus, unemployment insurance does not fully replace lost income: individuals cannot insure against shocks in their cost of living, insurance against many forms of accident are available only with a deductible or coinsurance, and so on. Government support programs will also leave individuals to bear part of the shock. Because the government cannot perfectly observe either the actions of affected individuals or the source of the shock, it will not offer full insurance. By the same token, government support programs will not respond instantaneously. It will take time for the changed circumstances of potential recipients to be registered and verified. At the very least, individuals will need to respond temporarily to real income shocks. The following list summarizes six ways in which low-income persons might respond to such shocks.

1. They might deplete their assets—including financial assets, housing and other consumer durables, and valuable objects. If

in debt, they may not be able to make interest payments and may even declare personal bankruptcy.

2. The composition of consumption expenditures might change. They may spend a higher proportion of their incomes on basic necessities, such as food and shelter, while forgoing less necessary items, such as new clothing and entertainment.
3. To obtain cash quickly, they might resort to high-cost sources of borrowing, such as credit cards, cash marts, loan sharks, pawn shops, and personal acquaintances.
4. They may change the number of hours worked, seeking part-time work or changing jobs. Other family members, including children, might enter the workforce. They may obtain some earnings through self-employment or odd jobs. In extreme cases, they may participate in the underground economy or engage in illegal activities.
5. They may take advantage of sources of outside support (non-governmental). This can include members of their extended family or charities (food banks, secondhand clothing shops, public shelters, etc.).
6. Finally, they may be forced to move from their neighborhood or city and reestablish themselves elsewhere, losing social networks that they have built up.

These actions obviously have potentially serious consequences, but some caveats should be mentioned. First, some low-income persons facing income shocks will have taken precautionary measures, especially if their circumstances were uncertain *ex ante*. Others will have social support networks to help them through.

Second, these individuals may be responsible to varying degrees for their plight. The temporary shocks they face may be a consequence of their own actions. They may have overextended themselves financially or undersaved, committed themselves to expensive housing, or taken actions that brought about their own loss of income.

Third, the consequences of adverse income shocks may depend upon the preferences and circumstances of households. Persons who are more risk-averse or living close to subsistence levels will feel more urgently the need to compensate for the effect the shock has had on

their consumption. They will try to smooth their consumption, despite the costs. The consequence, as Chetty and Looney (2006) have pointed out, is that observations of relatively smooth consumption streams do not necessarily indicate that social insurance programs are of no value. On the contrary, if persons are highly risk-averse, social insurance will be valuable to them even if their consumption streams are relatively smooth in its absence. With social insurance, they will no longer have to rely on costly and inefficient mechanisms to insure themselves against income shocks. These caveats make the problem of government policy more complicated, both from the point of view of being able to obtain the relevant information on individuals and from the point of view of deciding on who deserves support.

### **Market and Policy Failures May Preclude Full Self-Protection**

Informational problems affecting insurance markets make it difficult for the market to properly assist households in protecting themselves against income uncertainty. First, moral hazard—the difficulty of observing the actions of insurees—implies that competitive insurers would not break even if they offered actuarially fair insurance contracts. For that reason, insurers will require coinsurance from buyers who, by definition, will be left with incomplete insurance. Second, adverse selection—the difficulty of observing the risk characteristics of the insurees—will give an incentive to insurers to screen insurees by offering them a menu of contracts. In one standard case, insurees who are a good risk will be offered less than full insurance to prevent bad risks from purchasing the contract destined for those insurees that represent a good risk. In the most severe case of adverse selection, insurance contracts will simply not be offered (Rothschild and Stiglitz 1976).

Informational problems also affect credit markets. Because of moral hazard, lenders may be reluctant to finance some projects and may require cofinancing from the borrowers. Obviously, for households who need to borrow quickly because of an adverse income shock, and who can only offer, as a guarantee of repayment, that they will, say, find a new job, this may mean that they will simply be unable to borrow. As for adverse selection, creditors may be unable to distinguish loans by the quality of borrowers and the chances that the loan will be repaid. This can cause higher interest rates for all individuals who want to bor-

row (Stiglitz and Weiss 1981). It may also imply that individuals with some characteristics will simply be unable to borrow because they are deemed to be too risky on average (Mankiw 1986). For these reasons, some individuals will be shut out of the credit markets. Usually the most vulnerable are those most likely to be shut out.<sup>2</sup>

The design of low-income support programs can also inadvertently preclude self-insurance. Often a condition for qualifying for support programs is that an individual cannot own more than a given amount of assets (Currie 2006). Such a restriction is equivalent to forbidding precautionary savings above some level, and it obliges recipients to find more costly ways to respond to risk.<sup>3</sup> Stores in poor neighborhoods may exploit the timing of support payments by increasing prices to extract as much surplus as possible from welfare recipients (Tanguay, Hunt, and Marceau 2005). Welfare recipients may circumvent that by storing some items, but for perishable products that is infeasible. Finally, the possibility of government support may induce risky behavior in instances where the government cannot commit to not helping out those in need; thus the government faces the Samaritan's dilemma (Bruce and Waldman 1991). If individuals understand that governments cannot resist providing help to those in need, some might reason that there is no need to save since they will nevertheless be offered welfare assistance (Ziliak 2003).

### **Limited Ability to Self-Insure**

Even when risks can be insured, low-income households may not have the financial resources to purchase insurance. The more comprehensive an insurance contract is, the more costly it should be to purchase. The relative demand for insurance is likely to be greater for low-income than for high-income persons. Ihuri and McGuire (2006) show that if preferences exhibit decreasing absolute risk aversion, which is the usual assumption, insurance will be an inferior good. Low-income households will therefore be especially affected by the costliness of insurance. For some types of insurable events, such as theft, low-income persons may face higher premiums because of living in riskier areas, or they may not own enough valuables to make the purchase of insurance worthwhile. The form of available insurance contracts may also preclude its purchase by low-income individuals. For example, individuals

without access to the formal credit market will only have cash to pay for insurance, a payment option that might not be acceptable.

Low-income individuals are also less likely to be covered by employer-sponsored insurance. This may be because they choose not to participate in an employer-sponsored insurance system, possibly because of cost or because their employer does not offer it. If skilled workers are relatively scarce in the market and workers value insurance, then firms may offer them relatively more attractive compensation packages than those offered to unskilled workers. By offering group insurance, employers can pool the risk of all of their workers and thereby face lower insurance cost per insured person than what the individual would pay on his or her own. Employer-sponsored insurance contracts may also be longer-term than those offered to individuals. Indeed, the short-term nature of individual health insurance contracts is often cited as a major source of market failure in health insurance (Cutler 2002). In addition, employer payments for health insurance often receive preferential tax treatment. Finally, such in-kind compensation could also help bind workers to firms. The potential profitability of offering in-kind compensation in lieu of wages is more likely to occur at firms employing high-wage workers, since firms employing minimum-wage workers are restricted from reducing wages. The end result is that skilled (high-income) workers may be better protected against adverse events.

Even if low-income persons have equal access to self-insurance, it might be more costly for low-income persons to self-insure than high-income ones. First, if the marginal utility of income is decreasing, then to set a given fraction of one's income aside for the eventuality of bad luck is more costly for low-income than for high-income individuals. Second, there are transaction costs in financial markets, a portion of which are fixed costs, so transacting is relatively more expensive for those who own fewer assets. Diversifying risk using financial markets is more costly for low-income individuals because they tend to own fewer assets. Third, and related to the above discussion, it may be that risk aversion is decreasing in income. Finally, assuming an individual's network is made up of similar individuals, low-income individuals will have more difficulty borrowing from family and friends than high-income ones, because the former have less discretionary income, and therefore savings, available to lend to others.

## Supply-Side Responses to Circumvent Market Failures

Because low-income individuals tend to be less educated, and because of the complexity of some government insurance and assistance programs, some private companies provide services to help potentially eligible individuals access government programs. Generally these private companies will charge the individuals for their services and thereby reduce the net assistance received by those using them.

Many alternative sources of credit for low-income persons outside of the formal credit market have also developed. Some of these are legal, such as pawn shops or cash-in-advance stores, while others are illegal. At pawn shops, individuals may leave some collateral good at the store in exchange for credit. If the loan is repaid within a certain period, the individual regains possession of the collateral good. Otherwise, the collateral good remains the possession of the store, which may sell it to other customers. Cash-in-advance stores or cash marts offer individuals advances on their pay at some fixed cost or may cash checks immediately at a fee. Pawn shops and cash-in-advance stores constitute a costly source of finance for low-income persons because of the high default rates and the associated loss of collateral goods or high service fees. In some cases, innovative institutional mechanisms have evolved to help address the failure of standard credit markets. For example, cooperative savings arrangements that provide microcredit to participants might alleviate some of the liquidity constraints faced by low-income households. Illegal credit obtained from loan sharks, gambling schemes, and the fencing of stolen goods constitutes another costly source of credit for low-income individuals. But because these are often the sole sources of finance available for such persons, they continue to exist. In addition to being costly, they can put users at personal risk of going to jail or suffering bodily harm.

Low-income households facing an adverse income shock may not be able to afford products in the formal or regulated sector and may turn to the informal sector. They might live in dwellings not up to building codes, use unlicensed repair persons, or leave their children in unlicensed home day-cares. Consumption of these unregulated services may put the individuals and their families at risk for injury or other health problems. These households may also be tempted to work in the black market. This is risky since they might be detected by the authorities,

resulting not only in termination of the employment relationship but also in the possibility of criminal punishment. Furthermore, employees in the black market have no insurance coverage, be it public or private, and no recourse against their employer in the event of a conflict.

Finally, private charities have developed to assist those in need who have no insurance or access to credit, and for whom government help is insufficient. Then there are some individuals who simply refuse government assistance. For all of these cases, charities offer a wide range of programs and services. Some, such as food banks, shelters, and community outreach programs, provide services specifically for individuals with immediate needs. Charities might also offer services to help individuals gain access to government resources as well as help provide medical services to uninsured individuals and legal services for low-income persons. While these charities provide useful assistance, those who use them have no guarantee they will obtain help in the future. Because of the discretion of private charities in the way they distribute aid and uncertainty about their ongoing budgets, low-income individuals using them face the risk of eventually being without help (Allard, forthcoming). This is a significant risk and may explain why public assistance is far more developed than private charities.

## **GOVERNMENT OBJECTIVES**

The design of support programs depends on the government's objectives. From a normative perspective, there are many possible objectives for low-income support programs. Policy intervention could be motivated by equity, social insurance, equality of opportunity, or paternalism. Each of these might prescribe a different type of program.

### **Welfaristic Objectives**

The standard analysis of redistribution supposes that governments judge policy outcomes according to how they affect the welfare of individuals in the economy. A major issue, then, is how to aggregate individual welfare levels into a social ordering. Conceptually, there are two approaches to addressing this issue. One is to suppose that redistribution

to the poor is motivated by the altruism of the nonpoor (Hochman and Rodgers 1969). According to this view, redistribution can be efficiency-enhancing, but because of a free-riding problem associated with altruistic transfers to the poor, the government must step in on behalf of the nonpoor. This altruism approach essentially sidesteps normative issues of equity by putting all the weight on the preferences of the nonpoor.

An alternative approach is to suppose that there is a social welfare function that aggregates the utilities of all persons in the economy based on some ethical precepts. The problem is that it is not clear how such a social welfare function is agreed upon. A common approach is to suppose that persons will have social preferences that are distinct from their individual preferences based on self-interest (Arrow 1951). They might, for example, imagine themselves before they learn the characteristics that they will be endowed with—that is, behind the “veil of ignorance” (Rawls 1971). Even here, there is unlikely to be full agreement on the social welfare function, given that it embodies important value judgments about the measurement and aggregation of individual utilities. Nonetheless, the social welfare function approach is useful as a methodological device since it allows one to consider the consequences of various initial value judgments.

A useful way to proceed is to consider a social welfare function exhibiting constant aversion to inequality in individual real incomes. Formally, it may be written as

$$W(y_1, y_2, \dots, y_n) = \sum_{i=1}^n \frac{y_i^{1-\rho}}{1-\rho} ,$$

where  $y_i$  is the real income of household  $i$  with  $i = 1, \dots, n$ . The advantage of using this function is that it captures the weight put on equity in the economy in a single parameter,  $\rho$ .<sup>4</sup> Assuming that the aversion to inequality is nonnegative,  $\rho$  can take values between zero (the utilitarian case) and infinity (the maximin or Rawlsian case). The greater the aversion to inequality, the more redistribution will be called for in the sense that the more equal will be the final outcomes.

The single-parameter social welfare function approach seems reasonable when households vary according to only one characteristic, but difficult issues arise in more general settings. If households have different preferences, comparing welfare across households becomes conceptually problematic. There is no well-defined comparable mea-

sure of real income across households when individual preference orderings are heterogeneous. How then should welfare comparisons be made among persons with different preferences? One approach, following Roemer (1998) and Fleurbaey and Maniquet (forthcoming), is to argue that circumstances that are the consequence of personal choice should not affect redistribution; only differences in well-being that result from exogenous characteristics over which households have no influence should. Thus, if preferences are regarded as a matter of personal choice—and that is not entirely obvious—they are the responsibility of individuals and should not affect redistribution. Redistribution should only compensate persons for things over which they have no control, such as their innate ability. Applying these principles of compensation and responsibility in practice is not easy, although some attempts have been made (Roemer 1998). In a world with full information and lump-sum taxes, it is impossible to satisfy both principles simultaneously. Without full information, matters are even more problematic because it is difficult to tell whether low income is due to a preference for leisure or to low innate ability. This will be important for low-income support programs since there are many dimensions along which both preferences and characteristics may differ.

Difficulties also arise when persons have more than one characteristic. For one thing, multidimensional screening problems can occur if households differ by two or more characteristics, such as productivity and riskiness, and this makes program design difficult (Besley and Coate 1995). For another, policy prescriptions can become unclear when persons differ in ways other than productivity.<sup>5</sup>

### **Nonwelfaristic Objectives**

The social welfare function approach ranks social outcomes solely according to how they affect individual utilities. Policymakers may also attach weight to objectives that do not reflect individual preferences (Sen 1970). Indeed, altruistic approaches may also take account of non-welfare consequences of policies. There are several examples of this that are relevant for considering low-income support programs. One widespread objective is equality of opportunity. Equality of opportunity can be taken to mean many things, but broadly it refers to the idea of persons being put on an equal footing with respect to their options

to participate in society. Thus, equality of opportunity can include resources devoted to improving the skills of low-income persons, or more generally the assets they require to prosper in the market (Sen 1999). It can also involve improving their physical or mental fitness. Equality of opportunity can be seen as a form of *ex ante* redistribution as opposed to equalizing *ex post* market outcomes through the tax transfer system.

Another nonwelfaristic objective is poverty alleviation, where the objective may be to remove as many people as possible from below some poverty line in consumption or income (Kanbur, Keen, and Tuomala 1995). Since poverty alleviation typically ignores the value of leisure to those in poverty, it is nonwelfaristic.

There may be other nonwelfaristic objectives taken into account by policymakers, such as social cohesion, crime reduction, various freedoms, nondiscrimination, the fostering of family and social values, and so on. In the literature on redistribution, fairness or absence of envy has been investigated as a property of redistribution programs (Nishimura 2003). As well, the sanctity of property rights has been emphasized by some, either as an objective or as a constraint on redistribution (Nozick 1974).

The government might also be concerned with the cost of a given assistance program, program take-up, the social stigma associated with the program, and how the program will affect the assistance that recipients receive from private sources. It may put more weight on Type I errors (incomplete coverage of the target population) than on Type II errors (leakages to the undeserving). Targeting programs to a subset of the population may be less costly since assistance is only given to a group of individuals. On the other hand, obtaining the information needed to identify the target group might make the program more costly. Targeted programs might also generate greater stigma since only some individuals are receiving assistance (Atkinson 1995). Such design issues are discussed further below.

### **Paternalistic Objectives**

Finally, governments may take a quasiwelfaristic approach in the sense of giving weight to the well-being of persons yet evaluating that well-being not according to the preferences revealed by individuals themselves but according to preferences chosen by the government.

These paternalistic preferences may be justified from an altruistic perspective as reflecting the weights that the nonpoor put on the consumption patterns of the poor. Thus, nonpoor taxpayers may put relatively high weight on the consumption of some products, such as food, shelter, and clothing, and relatively low weight on others, such as alcohol, cigarettes, and even leisure. While this paternalistic approach to redistribution may offend those who adopt a normative perspective, it is a consequence of the altruistic view of redistribution.

Paternalism may also emerge in an otherwise welfaristic framework if one adopts recent findings from the behavioral economics literature. That literature has stressed various ways in which individual behavior does not conform to the rational, well-informed, farsighted, self-interested view of standard economic theory (Bernheim and Rangel 2007; Rabin 1998). Of particular relevance for redistribution is the suggestion that persons may sometimes take decisions that are not in their own self-interest. This may reflect bounded rationality, whereby they do not understand fully the options available to them. For example, many people do not understand the various types of financial instruments or the risks associated with the choices they have to make. Some government policies seem to be influenced by these shortcomings in consumer knowledge and perceptions, such as rules governing the disclosure of product information, regulations on interest rates that can be charged on credit card debt, safety regulations, seat belt rules, and even mandatory savings in managed financial accounts.

As well, households may exhibit shortsightedness and impatience in various contexts. This has been modeled using the concept of time-inconsistent intertemporal preferences (Laibson 1997; Strotz 1956). The idea, based on experimental research, is that persons systematically discount the next period's consumption relative to consumption today at a higher rate than consumption between two periods in the future. As time goes on, this bias in favor of today's consumption persists so that, effectively, preferences change over time. This leads to a tendency to overconsume (undersave) in the sense that if households could choose at some time before  $t$  their consumption stream for periods  $t$  onwards, they would consume less at time  $t$  and more later on. This kind of impatience can have other consequences than simply undersaving. It might cause persons to discount future adverse consequences of current behavior, leading to problems of addiction, risky behavior, procrastina-

tion, obesity, lack of exercise, underexertion in education, and perhaps even criminal behavior. Given that people typically come to regret the shortsighted decisions that they have taken, there may be grounds for government policies to offset these tendencies by regulation, in-kind transfers, or taxation and subsidization. One might expect the incidence of impatience to be higher among low-income persons, if only because the actions themselves tend to reduce income-generating activities.

The argument for government intervention in the face of impatience in individual behavior is controversial. Some might object to government paternalism on principle and argue that people ought to bear the consequences of their own actions. Others might argue that the findings of behavioral economics have yet to be established with sufficient certainty. A further line of argument is that people should be able to recognize that their preferences lead to time-inconsistent behavior. These relatively more sophisticated persons should be able to take actions that precommit themselves to avoiding the full consequences that happen to those who are simply myopic. However, even these farsighted persons are not likely to overcome the problem completely.

## **GOVERNMENT CONSTRAINTS**

One source of complexity in designing support programs to address real income volatility of low-income households is the enormous heterogeneity of potential recipients. In a first-best world (i.e., one in which the government has full information and access to any policy instrument), the government could perfectly insure low-income individuals against real income volatility. This first-best outcome is not attainable when individual characteristics and circumstances are not perfectly observable by the government.

### **Characteristics of Potential Recipients**

We begin with a consideration of three key classes of characteristics that can vary widely among persons, can contribute to low-income status, and can involve private information: individual preferences, endowed personal characteristics, and attachment to the labor market.

### **Individual preferences**

Dealing with differences in preferences poses challenging policy problems that only recently have come to the fore in the public economics literature, as discussed above. The following are some important sources of preference heterogeneity.

**Preferences for leisure.** Individuals may differ in their preferences for leisure or, more generally, in their willingness to provide work effort that will affect their real incomes. Apart from the difficulties that differences in preferences for leisure pose for welfare comparisons, the government will have difficulty in distinguishing recipients on the basis of their preferences for leisure. The consequence of such differences will be observationally equivalent to differences in the ability to earn income if the government cannot observe ability either (Cuff 2000; Boadway et al. 2002).

**Preferences for goods.** Individuals may also differ in their preferences for various goods. They may devote differing proportions of their income to cigarettes, alcohol, and gambling, as well as to expensive cars, large houses and other consumer durables. This will have consequences for the design of support programs to the extent that they involve in-kind transfers. It can also affect cash transfer programs—for example, if there are limits to asset ownership in the welfare system. And, it may also have implications for dealing with real income volatility, such as would be the case if some persons have incurred contractual obligations for consumer durable purchases. Another important issue is the preference for immediate over future consumption. Those who want to consume heavily when young, when their wages are low, tend to have low income in the future because they are less willing to forgo income in order to invest in schooling. On the contrary, those who are willing to accept a low consumption level when young—or who are simply more patient—will invest in schooling and earn a higher income when old. These choices affect both the number of income support recipients and the way that support should be financed.

**Risk aversion.** The extent to which a person has risk aversion is particularly important in an environment of real income volatility. It affects both the costs of risk associated with volatility as well as the

incentives to take measures to deal with it (Chetty and Looney 2006). Moreover, differences in degrees of risk aversion will affect the extent to which an individual is willing to engage in risky activities and thus be exposed to real income volatility.

**Propensity to commit crime.** Criminal behavior can be both a source and a consequence of adverse personal outcomes, and persons might be tempted into criminal behavior with varying propensities, an assumption often found in the literature on law and economics (Becker 1968). While there are no doubt various underlying causes for persons to have different propensities to engage in criminal behavior, for our purposes we can take these propensities as exogenous and imperfectly observable to the government. Criminal behavior itself can take a wide number of forms, including tax evasion, working in the underground economy, fraud with respect to support programs, dealing in illegal substances, property crime, and crime against persons. The potential interdependence of criminal behavior and income volatility is an important consideration in designing support programs.

**Propensity to exploit support programs.** Persons might also differ in their willingness to change their behavior simply to take advantage of government support programs, even if such behavior is not, strictly speaking, illegal. The analogue would be with tax avoidance as a way of reducing one's tax burden or reducing work effort to qualify for training programs (Ashenfelter 1978). The design of most government programs relies to a degree on the willingness of persons to comply voluntarily with the programs' purposes and requirements. The possibility that households will exploit programs by not acting in good faith affects both the generosity of programs and the need to build in detection and enforcement mechanisms to preclude access by those for whom the programs are not intended.

**Problems of self-control.** As mentioned, recent work in behavioral economics has stressed that persons may systematically overdiscount future outcomes and behave in a myopic way, and that they subsequently may regret their choices (Bernheim and Rangel 2007; Rabin 1998). They may overspend in the aggregate and on particular goods, adopt an unhealthy lifestyle, and make choices that can lead to future addictions

(e.g., to nicotine, alcohol, gambling, or drugs). The intensity of this type of self-control problem can vary across persons and will not be observable to the government, although some of the consequences will be.

**Stigmatization.** Support programs may depend on voluntary take-up by targeted recipients. To the extent that targeting engenders a feeling of stigma by recipients or causes other members of the population to stigmatize program recipients, the effectiveness of the program in reaching the target population may be limited (Atkinson 1995; Jacquet and Van der Linden 2006). Feelings of stigmatization likely vary in intensity among different persons.

**Beliefs in the source of success.** Finally, some recent literature theorizing about the source of differences in the generosity of social protection among countries, and especially between the United States and other countries in the Organisation for Economic Co-operation and Development (OECD), has suggested that persons may hold differing beliefs about the relative importance of hard work versus luck in generating personal success (Bénabou and Tirole 2006). Those who believe luck is more important than effort may put in less effort and the consequences will be self-enforcing. It is difficult to know the extent to which such beliefs are motivating factors. If policymakers themselves believe that effort is a more important determinant of success, they may offer less generous redistribution programs.

### **Personal characteristics**

The standard literature on redistribution has long emphasized endowed characteristics as the main determinants of differences in well-being. It has focused especially on those characteristics that were correlated with earning power (Mirrlees 1971). However, the scope of relevant characteristics can be broader than that, especially for lower-income persons. The following summarizes some of the more important exogenous characteristics affecting individual welfare.

**Skills.** Household skills may be innate, as in the traditional approach, or may be acquired through experience, training, or human capital investment. Skill differences may result in different wage rates, but they may also reflect differences in employability (Parsons 1996). Skills can

be very different in type. They can be general or specific skills. They can include communication skills, multitasking skills, intellectual skills, or physical skills. In the extreme, persons may be unemployable because of very low skills or because of a disability. Moreover, households may have acquired skills that are obsolete or inappropriate for the jobs that are available. These variations in personal skills have implications for the types of policy instruments used in support programs.

**Needs.** Individuals may differ in their ability to obtain utility from income and therefore will have different income needs to obtain the same level of well-being (Boadway and Pestieau 2006; Rowe and Woolley 1999). These differences can reflect their permanent physical condition or their current health status, leading to disability expenses on the one hand and medical expenses on the other. Differences in the need for income can also reflect their living circumstances, such as whether they live alone or cohabitate, or whether they have dependents to support. Some of these personal characteristics will be exogenous; others are a matter of choice. Many of them will be observable to the government, as will changes in them. Support programs will generally try to address the volatility in such needs. Of course, in some cases, the government may not be able to fully compensate individuals for whatever their expenditure needs are, even if the needs could be observed.

**Risk of illness.** Individuals may differ systematically in their risk of becoming ill. Not only will high-risk persons face a greater chance of suffering an adverse shock to their well-being, but they may find it more difficult to get insured, depending on whether insurance companies can observe their risk class (Boadway et al. 2006). Illness is one source of volatility in real incomes, and government intervention may involve either cash support or the provision of health care.

**Assets.** At any given time, households may vary in the assets that they acquired in the past or inherited, including financial assets, real property, and Social Security wealth. They may even be in a negative asset position, having acquired debt that has not been repaid. Moreover, their credit rating may have been adversely affected by past financial problems. The ownership of assets, including durable goods such as automobiles, typically plays a role in eligibility for income support pro-

grams. For example, to qualify for assistance under TANF the value of a household's countable assets, including savings and possibly some portion of the value of its automobile, must fall below a certain level. Such asset limits clearly restrict the asset holdings of recipient households and prevent them from saving. Along with these traditional forms of asset wealth, individuals may have access to varying degrees of social capital, including extended families or support networks of different sizes that may be drawn on in times of need (Putnam 2000).<sup>6</sup> Such social capital could also influence individuals' decisions about education, occupation, and other long-term decisions affecting their earning ability and ultimately their potential need for support programs. For example, a person is more likely to be on welfare if his or her parents were on welfare, thus creating a dependency cycle. Or, that person may drop out of school because that is what friends or role models are doing (Akerlof 1997).

### **Labor market attachment**

Labor income is an important source of volatility for some low-income persons. Its relevance depends on the extent to which individuals are attached to the labor market, and that can vary from person to person in a number of dimensions.

**Employables with some labor market attachment.** Persons who are potentially employable—that is, who have some capability of working productively—can be in a variety of states of employment. Some may be employed full time, albeit in jobs with varying degrees of earnings and security. Others might be in part-time jobs, either by choice or by necessity. These jobs may also be more or less secure. Even these employed persons might be potential candidates for income support, depending on their personal circumstances. Some of them may not be working in the short term because of illness, injury, or family responsibilities such as parental leave or caring for an ill dependent. Employable persons might also be temporarily unemployed, having been laid off or being in the process of changing jobs. Their status may reflect the riskiness or seasonal nature of their jobs, or it may reflect an economy-wide shock. Other, less fortunate persons may be employable in principle, but nonetheless they are in long-term unemployment. Their skills may be too low for potential employers, given their location or the ex-

istence of rigidities like minimum wages. Or, they may be involuntarily unemployed because of efficiency wages or search inefficiencies. These are persons who are able to work but either cannot find jobs or are not actively seeking them because of discouragement or preference. Regardless of the employment status of these employables, they may also be engaged in nonmarket work or even black market work. Presumably, which of the above conditions employables are in will be affected by their innate characteristics, their education, and their health, as well as by their preference for leisure.

**Unemployables.** Some people may be deemed to be unemployable and therefore not able to hold a job. Unemployability may stem from disability or poor health or from a very low skill level. In fact, defining the status of unemployability is fraught with difficulty. The distinction between being employable and being unemployable is bound to be somewhat arbitrary. There may be a continuum of one or more of the above personal characteristics (e.g., health status, skills) along which there is some point at which persons are deemed to be unemployable. Not only is this cutoff arbitrary, but it will be not be perfectly observable to the government or to potential employers. Indeed, government agencies and private firms may have different ideas as to what this cutoff should be. Moreover, strictly speaking, almost all persons—including those who are mentally or physically disabled—could be employed doing some kind of work, even if fairly menial. However, their productivity may be such that the private sector would not hire them without the aid of a carrot or a stick.

**Voluntarily out of the labor market.** Finally, there are groups of people who choose not to enter the labor market. One such group is the retired, who have worked and now draw pension and capital incomes, and who may also draw support from family or charitable organizations. Even for these persons, withdrawal from the labor force may only be partial. Another group consists of persons who opt out of the labor market to be homemakers or to raise children. Finally, there are the young, who are in school or college.

The informational problems regarding the individual's attachment to the labor market, his or her income, and other personal characteristics in designing low-income support programs can in part be addressed

by different screening, auditing, and tagging mechanisms. As well, self-selection mechanisms can sometimes be devised that make it unattractive for some undeserving persons to apply. The lack of information regarding individual preferences and the type of uncertainty facing households is much more difficult to address.

### **Characteristics of Program Administrators**

Another type of informational problem facing the government stems from the fact that someone has to administer the program, and the government might not have complete information about who is doing so. There may be agency problems. For example, if the effort to obtain information is costly for the social workers and unobservable by the government, then welfare applicants could be incorrectly classified (tagged) unless social workers are highly diligent. The government might then have to ensure that social workers put forth an appropriate level of effort by paying them according to results (Boadway, Marceau, and Sato 1999). It might also be the case that program workers have different objectives from the program designers. Since program workers often make decisions about the eligibility of recipients, those who end up being served by the program may differ from the group the program designers intended to target. These problems are very difficult to overcome. In the end, they may affect the extent to which discretion for program delivery is left in the hands of program administrators and how finely program benefits are targeted.

## **ASPECTS OF PROGRAM DESIGN**

There are a variety of problems in designing support programs to address real income volatility. We summarize them in this section.

### **Who Deserves Support?**

The target population, a subset of which will be deemed to deserve support, includes those whose real incomes have fallen and who are not otherwise taken care of by unemployment insurance, workers' com-

compensation, disability insurance, or ordinary pensions. Nor are they able to self-insure through savings against uncertain circumstances—unlike, say, the self-employed in seasonal industries for whom reductions in income are expected, or maybe even those in risky industries whose earnings effectively compensate for the risk. For people in this situation, a difficult issue arises concerning the next-best remedy: it may be the case that persons who ought to be covered by contributory social insurance programs are not covered because of the deficiency of existing programs. The ideal remedy would be to revise those programs rather than use low-income support programs as a device for insuring against adverse outcomes. However, if such remedies are not forthcoming, presumably low-income support programs are the second-best instruments.

Even if the government could observe the actions and the characteristics of all households whose real incomes have fallen, the policy problem would not be straightforward. An issue arises as to whether policy ought to distinguish between deserving and undeserving persons, along the lines of the principles of compensation versus responsibility. The principle of compensation states that in achieving some social objective, individuals should be compensated for inequalities in personal characteristics, but only for those characteristics for which they are not responsible. Thus, deserving persons might be those whose fate is a consequence of exogenous factors over which they have no influence. Nondeserving persons might be those whose actions have caused them to be in a needy state. The distinction between deserving and nondeserving persons is not clear, even in the absence of imperfect information. Behavioral economics emphasizes that individuals might have self-control problems that lead to overspending, addictions, etc., and that they may regret the *ex post* outcomes that their earlier choices have caused. Should these persons be regarded as being responsible for their adverse states, or should self-control problems be regarded as part of one's exogenously given preferences? (Public health care systems typically do not distinguish between those whose personal behavior has led to bad health outcomes and those who lead exemplary lives.) What about persons who acquire spending obligations because they have changed their household characteristics, such as by having a baby or separating from a partner? Perhaps a more clear-cut case concerns persons whose incomes fall because of their own pre-

meditated choices: they quit their jobs or reduced their hours of work. Should they be held responsible for their actions or should they be entitled to support? The matter is complicated not just by the ethical dilemma but also because there may be consequences to other persons. For example, other persons may depend on the income of the person in question, in which case the others suffer if support is not forthcoming. Or those suffering reductions in real income may turn to crime, which is a realistic alternative in many cases and involves various social costs.

The heterogeneity of potential recipients reinforces the complexity of the problems confronted in designing support programs for real income volatility. Not only may persons differ in many dimensions, but also such differences can lie along a continuum, blurring the distinction between the needy and the nonneedy.

### **How to Elicit Information from Potential Recipients?**

To complicate matters further, the government is likely to be imperfectly informed about the circumstances faced by given persons. The implication is that policies will typically need to have multiple components and will include different means of targeting to ensure that resources go to those most in need. Targeting can include instruments of self-selection that ensure unintended recipients do not receive assistance (Blackorby and Donaldson 1988). Targeting may also include proactive measures to elicit information, such as tagging or monitoring (Boadway and Cuff 1999; Parsons 1996).

Broadly speaking, eligibility for assistance may be based on self-selection or it may be determined by screening applicants for eligibility. In the case of self-selection mechanisms, recipients freely choose whether to take up the benefits of the program with limited constraints, such as income or asset restrictions. Targeting is effectively achieved by designing the terms of the program in such a way that it is attractive only for intended recipients. Thus, public housing, public day care, or food stamps may be valued relatively more by needy families than by the nonneedy. Self-selection mechanisms are likely to be relatively crude means of targeting, so to avoid Type I errors such mechanisms may have to be fairly generous and universal. Their advantage is that they require minimal discretionary monitoring by administrative agencies.

Screening mechanisms to determine eligibility can involve either *ex post* or *ex ante* monitoring. *Ex post* screening involves self-reporting of eligibility criteria by recipients and subsequent random auditing. An example of this would be transfers or refundable tax credits delivered through the tax system, the magnitude of which depends on income tax information provided by recipients. Governments would then conduct audits on the individuals by means such as taking stock of their assets, looking at bank records, making visits to the home, etc., to determine whether they had made accurate reports. Another example might be unemployment insurance benefits if they apply as soon as an individual becomes unemployed.

*Ex ante* screening, or tagging, involves determining eligibility on the basis of information made available at the time of application. Welfare and disability programs are typically of this sort. To determine the employability of individuals, the government must verify whether an individual is medically able to work. Medical conditions can often be determined through assessment by medical professionals, although such assessments may vary from professional to professional. Changes in the employability of an individual for medical reasons will also require some continued monitoring of the individual's condition, such as in the case of an injury or a curable disease, when the inability to work may only be temporary. Other individuals might find it difficult to obtain work because of very low skill levels. They may not be able to read or may lack basic communication skills that most employers require to make them employable. The government can use observable characteristics that are correlated with the ability to work—such as literacy, education, and employment history—to tag an individual as employable. Finally, individuals might not be able to work because they are caring for dependents, such as an elderly parent or a young child. Again, the government can use available, observable information to verify the individual's personal circumstances. Even if individuals are deemed employable, the government must try to determine whether the individual is voluntarily or involuntarily unemployed. To do this, the government will need to know not only the individual's employment opportunities but also why the individual became unemployed (e.g., was laid off, quit, was fired, etc.) and whether he or she is looking for work. Unemployed individuals could also differ in their assets, expenditure needs, skills, or health status, characteristics that may or may not

be observable but would also affect their need for assistance. Again, the government could gather information on observable characteristics to try to determine the actual need of the individual, or it could design the assistance program to try to screen out the nonneedy from the needy.

Both ex post and ex ante screening may involve continual subsequent ex post monitoring to ensure that recipients abide by the terms of the support. Individuals would have to be reassessed on a regular basis if the circumstances preventing them from working were subject to change—for example, if dependent children are cared for by another individual or enter public school. Likewise, some form of monitoring for job search activities and quits will be required, and to be effective the monitoring should apply to the various phases of job search, from application to job acceptance (Boadway and Cuff 1999). This form of monitoring might be difficult to do since an individual could impede his or her job search in many ways that would be virtually impossible to detect. With imperfect monitoring, the ability to design transfers that treat the involuntarily unemployed more generously than the voluntarily unemployed will be impeded (Boadway, Cuff, and Marceau 2003).

There are advantages and disadvantages to each type of screening. Ex ante screening is more flexible and can readily respond to changes in circumstances, but it will be more costly than ex post screening, since every applicant must be screened. Both types of screening are bound to lead to errors of classification and will result in both Type I and Type II errors. Type II errors increase the cost of the program by using up resources on those who should not be eligible for full support. Type I errors, on the other hand, compromise the integrity of support programs because deserving individuals are not receiving the support to which they are entitled. The incidence of Type I and Type II errors may be affected by the type of screening. In the case of ex post screening, some Type II errors are detected ex post, by which time overpayments may be difficult to correct. With ex ante screening, the incidence of Type I errors may be affected by individuals' behavior. Deserving persons might simply not apply, whether because they are not fully informed about their eligibility, because it is costly to apply, or because they feel stigmatized by the process. As well, given the uncertainty of the eligibility cutoff, potential applicants might not apply because of uncertainty about whether they will be deemed eligible.

## Universal or Targeted Support Programs?

Program design must take into account the fact that the government is not fully informed about the circumstances of households or the reasons for them. The program will be prone to having Type I and Type II errors, and, depending on the weight it puts on those errors, the generosity and design of the program will be affected. Type I errors are primarily a concern because they imply that some deserving persons are not obtaining support. The more averse to inequality the government is, the more it will try to avoid Type I errors. Type II errors represent leakages of funds to undeserving persons and are more of a concern for program costs. The government may have a limited budget to devote to support programs. The greater the Type II errors are, the less will be the level of assistance than can be afforded for the target population. The extent of Type I and Type II errors will depend both on the design of the program and on the extent of monitoring. Universal programs requiring less information regarding potential recipients will limit Type I errors to those who choose not to take up the program but will have large Type II errors, which are costly. An extreme form of universal program is the proposed basic income grant (Murray 2006; Wright 2006), in which all individuals, regardless of circumstance, receive a set amount of money. The rationale is to provide everyone with a basic income without stigmatization so that they can participate more fully in society. It is not designed to address problems of volatility, so presumably it would need to be supplemented by targeted support programs.

Type II errors can be reduced by targeting. Programs can be targeted along several different dimensions: they may be means-tested, asset-tested, targeted to a specific demographic group, to a specific population such as pregnant women, or to a population in a specific region. The downside of a more targeted program is that Type I errors may be increased because of imperfect targeting. A targeted program might, however, have greater value when uncertainty of needs is an issue. It will be possible—indeed, necessary—for the government to improve its information by monitoring. But since monitoring is costly, both the form and the magnitude of monitoring will have to be traded off against the improvement of accuracy.

### **How Much Support to Provide?**

A key issue is the extent to which reductions in real income should be replaced by government support. Even among the deserving target population, persons will face a variety of circumstances. They will have different real incomes, different numbers of dependents, and different expenditure needs. The question of how much support to award to each type of person will involve making comparisons of persons in heterogeneous circumstances. Even among persons who differ only in income, the extent to which those differences should be compensated involves a judgment about equity based on the decision maker's aversion to inequality. In a world of perfect information, one might argue that full social insurance would be optimal. Applying this in practice is not straightforward, particularly in the case of reductions in employment income. For one thing, the amount of ideal income replacement of a full insurance scheme will not generally be 100 percent; it will only be so if household preferences take a particular form (e.g., additively separable in consumption and leisure). Perhaps more important, full income insurance will almost never be incentive-compatible in a world of imperfect information. That is because, unless consumption and leisure are perfect substitutes, persons will typically be better off receiving support than working, since in the latter case they forgo leisure and the utility that it yields. The extent of income insurance will be limited because of the incentive that it gives for potential recipients to become eligible for support and to stay on support as long as possible: the generosity of the program cannot lead to an expected outcome from obtaining support that exceeds the expected outcome from being in the workforce. Monitoring then becomes important as a device for relaxing that incentive constraint. Ex ante monitoring can detect some persons whose income falls because they voluntarily reduce their income by quitting work or reducing their hours; it can also detect those who misreport their incomes. Ex post monitoring can detect some persons who prolong their stay on support programs by not searching for employment or accepting job offers. From this point of view, more intensive monitoring essentially allows insurance to be more complete by relaxing the incentive constraint (Boadway and Cuff 1999).

### **How Feasible Are Monetary Sanctions?**

A further problem facing the government concerns the sanctions that can be imposed on persons who are found to have misrepresented their circumstances (e.g., their income or their living arrangements) or who fail to abide by the requirements of receiving support (e.g., by quitting or by not engaging in job searches). By imposing a very large penalty, full conformity with program objectives should result, even if monitoring is very limited (Becker 1968). However, in the context of low-income support programs, there will be a limit to which sanctions can be relied on to reduce exploitation by the undeserving. Those who have been detected exploiting the system will typically have limited resources, so there will be a problem of limited liability (Polinsky and Shavell 1991). Even if they are able to pay, a monetary sanction would be onerous. (This has been a problem with refundable tax credit programs targeted at low-income persons, where recovering overpayments has been difficult.) An alternative to monetary sanctions is to restrict future eligibility, but that might also be problematic given that the persons involved already have low incomes. On top of this, there may be errors associated with monitoring. The implication is that there is a limit to the ability to rely on sanctions, which puts more pressure on monitoring to preclude Type II errors.

### **What Form Should Government Support Take?**

The form that support should take is judgmental even with perfect information. The classic view, based on a welfaristic objective function, would be that cash transfers are desirable since they lead to the highest level of welfare of the recipients. However, the welfaristic approach is not necessarily the one that an optimizing government would choose. If the government's redistribution goals are motivated by the perceived altruism of taxpayers, and if that altruism is based on paternalistic preferences, efficient redistribution may involve in-kind transfers, depending on the form that paternalism takes. If taxpayers value the consumption of all goods and services of low-income recipients but not their leisure, cash transfers are desirable. However, if their altruistic preferences include only a narrower set of goods, then transfers or subsidies of those goods may be more efficient. Behavioral considerations might also jus-

tify support that is contingent on the consumption of particular goods, such as those that favor food and shelter over alcohol and tobacco. Finally, cash transfers might be insufficient if markets are missing or imperfect. If the market for medical insurance is incomplete, it may be more efficient for support based on medical needs to take the form of direct provision of medical care.

There are serious problems with operationalizing paternalism, whatever the argument for it. The altruistic preferences of taxpayers are likely to be heterogenous, implying that even if the preferences were known it would not be possible to obtain a consensus on the correct form of the transfer. Even if there were a consensus on the form of paternalistic preferences, as there might be in the case of behavioral-based paternalism, translating that consensus into a specific policy might be difficult. For example, if paternalism favored basic commodities, such as food, shelter, clothing, and other necessities, resale possibilities might make it difficult to constrain recipients from using the in-kind transfer in ways not intended. It may, however, be possible to use electronic payment mechanisms, such as those used for food stamps, to restrict retrading.

The choice of transfer instrument may also be affected by stigmatization, although this might be expected to work in favor of cash transfers (at least in the absence of administrative arguments). The use of in-kind transfers like food stamps typically requires that recipients identify themselves. To the extent that this induces feelings of stigmatization in recipients, it might be regarded as a disadvantage. Cash transfers, on the other hand, have no such stigma attached to their use. There may well be stigmatization associated with both cash and in-kind transfers through the process of application, recertification, and monitoring; however, the possibility of stigma might actually be an advantage in the sense that it may induce self-selection into the program by those who are needy.

It is also conceivable that incentive effects will differ between cash and in-kind transfers. Recipients can use cash transfers as they see fit, whereas in-kind transfers will generally not be a perfect substitute for earned income. Recipients may therefore have an incentive to supplement in-kind transfers with earnings that can be spent on other goods. As a result, work effort may be discouraged less under in-kind transfers than under cash transfers, and that may constitute an important argument enhancing the paternalistic case for in-kind transfers. Of course,

the force of this argument depends on the nature of income conditions attached to the receipt of support.

Related to this is the role of in-kind transfers in deterring time-consistency or Samaritan's Dilemma consequences. Potential recipients of income support have an incentive to engage in actions that increase the chances that they will receive support in the future. The form of aid will affect a potential recipient's incentive to make these short-sighted decisions. If aid comes as cash, recipients can easily replace any lost income stemming from their poor decisions with the cash transfers. If, on the other hand, aid comes in the form of in-kind transfers of necessities, they may find these actions less attractive than taking more farsighted actions that leave them with higher incomes in the future, as the in-kind transfers cannot perfectly replace their lost income from their earlier decisions. Moreover, to preclude potential recipients from underproviding for their long-term needs, low-income persons could be provided training or other forms of forced investment rather than income support that they may squander.

The choice of policy instrument can also be influenced by the information problems faced by the government. The use of in-kind transfers rather than cash may be justified on informational grounds. By offering lower-quality goods rather than cash, the government might ensure that only those truly in need will receive assistance. Similar arguments might also be made in favor of using in-kind transfers over subsidies for the purchase of particular goods and services. There may be other economic arguments, however, in favor of implicit subsidies like housing or education vouchers. Other policy instruments might also act as screening tools to help separate the deserving from the undeserving, such as workfare, employment assistance services, or training programs.

### **What Are the Incentive Effects of Support Programs?**

Assistance programs may affect individuals' incentives to work, to save, to participate in the underground economy, to undertake training or education, to cohabitate, to have children, and to move to a different locale. Often programs are designed with such incentive effects in mind, although unintended effects might arise. As well, the fact that the government is imperfectly informed implies that it cannot observe fully the incentive effects that the program induces. This includes the incen-

tives that persons have to make themselves eligible for the program by influencing their own real incomes, as well as the incentives that they have to change their situation once their real incomes have fallen. Again, monitoring by the government will mitigate this problem. But the design of the program will also be compromised to avoid adverse incentive effects.

The level and form of support might also be affected by the possibility that private support (e.g., charity) might be crowded out. It is efficient to exploit private support as much as possible since the efficiency cost of this support is less than the cost of public funds. That is, the cost per dollar of public funds can be significantly higher than one dollar because of the incremental deadweight loss associated with raising additional revenue through the tax system (Browning 1976). Income and other support transferred voluntarily do not incur a deadweight loss. This is one reason why it is efficient to subsidize voluntary donations made by households to charitable causes (Diamond 2006).

### **How Often Should Recipients Be Recertified?**

As highlighted by Ribar and Edeloch in this volume, qualified households may fail to undertake the necessary paperwork to be recertified for program benefits. It is not entirely clear why even those who are eligible to take public benefits are not doing so. Perhaps it is difficult to understand what is needed to be recertified for the program, or perhaps recipients lack important information about recertification deadlines. The time involved to be reassessed on a continual basis might be substantial. Furthermore, the assistance program might not be an entitlement program, so even if the programs are designed well, only a fraction of eligible persons may receive benefits. As such, some individuals may choose not to bother applying. There could also be long waiting periods before benefits are actually received. A consequence of a slow certification period is that it is possible to imagine cases in which a household switches from qualifying to not qualifying as its real income fluctuates, and so is penalized by the slowness of the response of the programs to changing circumstances. There might also be an asymmetric response of the program: it may take more time to qualify than to be disqualified. Or, certification may take place at a fixed point in time, such as in the National School Lunch Program, where applications are administered

at the beginning of the school year. It is possible the program may fail to offer help to those who find themselves in need during the school year. Assistance in the form of refundable and nonrefundable tax credits is also very slow to respond to changes in household circumstances: such credits are calculated only once a year based on the previous total annual income. Households might also have to reapply every so often to the program to continue to receive benefits.

### **How Responsive Is the Support Program?**

Finally, how effective an assistance program will be in helping those facing real income volatility will in part be determined by how readily the program can respond to changes in an individual's circumstances. Those in the relevant target population will typically have limited resources to fall back on, so the need for timely provision of support is paramount. The responsiveness of support programs will depend on how quickly the program administrators can obtain and verify information regarding changes in an individual's circumstances. Along some dimensions the government may be able to respond more quickly than others. For example, verifying the termination of an individual's employment may be easier than verifying changes in family support. From the point of view of responsiveness to changes in need, it may be useful to consider mechanisms that do not require *ex ante* monitoring to determine eligibility. Temporary support might be granted on the basis of limited *ex ante* screening, with more permanent support being awarded only with further monitoring of an individual's circumstances. This might be prudent, given that some persons have very limited ability to self-insure against sudden misfortune and they also have limited access to outside social support networks.

An issue of program design is how to harmonize support for income variability with longer-term support for those in chronic need. Some arguments support the notion that the short-term response to income variability should differ from long-term support. One could argue that erring on the generous side makes sense in the context of variability of income for low-income persons. These persons are likely to find it difficult to self-insure, which means they cannot easily adjust to a decline in real income. They may have commitments that are difficult to undo in the short run, such as housing rental contracts. Type II errors may

be more tolerable and Type I errors less tolerable in the short run than in the long run, given that it takes time to sort out persons according to their need. Incentive effects may be limited in the short run since it takes time to adjust one's earnings from employment or self-employment. These arguments suggest that support should be more generous and eligibility less restrictive for temporary than for long-run support. Administrative considerations complement these policy considerations. In the case of policies to respond to reductions in real income, the key consideration is timeliness—that is, determining eligibility as quickly as possible. That precludes delivering support through the income tax system, such as by refundable tax credits, since this is not responsive to sudden changes in circumstances. Other mechanisms with ex post monitoring might be feasible, such as allowing individuals to report their own eligibility, subject to ex post auditing for verification accompanied by appropriate penalties. The fear is that this would lead to excessive Type II errors, which could not be corrected by ex post monitoring because sanctions might be difficult to enforce.

It seems more reasonable to determine eligibility using an ex ante monitoring approach where persons apply and are subject to initial screening. The mechanisms already exist to do this. Given the special urgency that might be attached to the need for assistance in this case, as well as the time it takes to screen fully, one might argue for reasonably lenient screening initially, followed by more detailed screening subsequently for continuing eligibility. Lenient screening will minimize Type I errors initially, although it may well invite Type II errors. Perhaps the possibility of Type II errors can be reduced by using the past history of applicants as a source of information. For example, repeat users could be discouraged. Leniency for first-time applicants might also increase the take-up rate for persons who might be deterred from applying for fear of being turned down.

The timeliness issue might also have implications for the form of the transfer. Support that can be processed rapidly would be preferred. Cash certainly fits this criterion. Food transfers might as well, given that mechanisms are already in place for administering them, although presumably there is some time delay in setting up recipients with food-stamp electronic cards initially. Other types of in-kind transfers, such as rent subsidies, might be more costly to implement in a short time frame.

## CONCLUSION

Our purpose in this chapter has been to explore the issues involved in designing and implementing income support programs to deal with real income volatility. Many of the same issues arise with these types of programs as arise with support programs designed to respond to needs of a more persistent nature. These issues include the identification of those deserving of support, the quantification of needs, the choice of cash versus subsidies versus in-kind transfers, the availability of other forms of support, the incentive effects created by programs that are either too generous or not generous enough, the type of targeting to employ, and the role of monitoring or auditing to ensure compliance. Resolving these issues is difficult because of the unavoidability of making value judgments and because of that fact that the government faces informational constraints. It is not surprising that low-income support programs rely on a multitude of instruments and approaches involving combinations of cash transfers, in-kind transfers (such as food), subsidies, work and training programs, and social services of various types.

Support programs to deal with the consequences of volatility face additional problems. Most important is the need for timeliness in identifying and assisting those whose real incomes have fallen unexpectedly. Low-income persons will typically have difficulty insuring against adverse shocks, and to the extent that they can insure it will be very costly and sometimes carry long-term consequences. Moreover, incentive effects may well be less severe in the short run than in the long. This suggests that the response to short-term volatility should be more generous than for more persistent need, and that the issue of Type II errors should be given less weight. At the same time, the need to distinguish between short-term need and long-term need implies reasonably short recertification periods as well as other measures, such as monitoring and auditing, that facilitate compliance.

Despite the long list of difficulties associated with designing support programs to deal with real income volatility, it is important to stress that the downside of not offering adequate support for low income volatility should not be underestimated. The options for those needing assistance are often more costly to society in the long run than providing the assistance when needed.

## Notes

We are grateful for comments by the editors, Dean Jolliffe and Jim Ziliak; the discussant, Luigi Pistaferri; and participants in the conference “Income Volatility and Implications for Food Assistance Programs II,” November 16–17, 2006, sponsored by the University of Michigan’s National Poverty Center and by the USDA’s Economic Research Service.

1. For the reader interested in details about actual low-income support programs, Currie (2006) provides an excellent overview of current U.S. assistance programs.
2. Information problems can also affect access to housing for low-income households. Adverse selection can arise when the probability of defaulting on one’s rent is not observable. Landlords may find it profitable to lower the rent they charge to a level below the market-clearing rent, thereby reducing the average probability of default but generating excess housing demand and homelessness (Cuff and Marceau 2007).
3. Whether or not these asset limits actually constrain low-income individuals is unclear. Recent empirical papers have examined the effect of such limits on the assets of households with high probabilities of welfare receipt. Increases in asset limits appear to have had no impact on the liquid assets held by these households but some positive effect on vehicle assets (Hurst and Ziliak 2006; Sullivan 2006).
4. This social welfare function with constant relative aversion to inequality can be derived from underlying axioms about social preferences. Such a form is possible under the assumption that individual utility functions are comparable and measurable up to a ratio scale. That is, proportional changes in utility are comparable across individuals. See Boadway and Bruce (1984), Chapter 5. Another single-parameter social welfare function is one where the absolute aversion to inequality is constant. The social choice foundations for this are discussed in Bossert and Weymark (2004).
5. To use an example cited by Sen (1973), suppose two persons of equal productivity differ in the utility they obtain from a given amount of income. If society’s aversion to inequality is high, one would want to redistribute from those who are more efficient utility-generators to those who are less, while if aversion to inequality is low, one might want to redistribute from those who are less efficient at generating utility to the more efficient ones. The analogue would be with education or health expenditures (Arrow 1971). Should educational resources be concentrated on those who are most able to use them? Or should those who have more difficulty learning be favored? Similarly, should health expenditures be allocated to persons with afflictions that are easier to treat, or to those with afflictions more difficult to treat?
6. The idea that social capital can help poor people insure their consumption against adverse shocks is controversial. In a recent paper, Gertler, Levine, and Moretti

(2006) find, using Indonesian data, that families hit by a health shock suffer a decline in consumption that is unrelated to the presence of a social network or a wealthy extended family. Thus, social capital seems to be of no help for those families. This is in contrast to the previous literature on the subject, surveyed in Gertler, Levine, and Moretti (2006), which finds that social capital can play the role of an insurance policy against adverse consumption shock.

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# **Income Volatility and Food Assistance in the United States**

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