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by

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1 Introduction

The purpose of this paper is to analyze the design of assistance programs for low-income persons when their income and other needs are volatile. Welfare and social insurance programs are typically targeted on the basis of some measures of need, such as income, assets, employment circumstances, and family circumstances. Standard approaches to the design of such programs stress both the normative issues involved in defining need and therefore eligibility, and the administrative issues involved in implementing the eligibility criteria and delivering and distributing cash and goods. Implementation must deal with asymmetric information problems that preclude program administrators from perfect targeting. One source of information problem is the inability to observe the characteristics of households that determine need. Imperfect targeting leads to both Type I and Type II errors, resulting in less than full coverage of the target population and leakage of funds from the program, respectively. Under-coverage may also occur because of eligible persons being ill-informed about their entitlements or because of stigmatization that might be associated with becoming a welfare recipient. Information problems include hidden actions that make it difficult to screen out ineligible persons. Households may change their behavior in order to become eligible, or they may fail to take actions that are required for eligibility, such as engaging in a job search. Moreover, informational advantages enjoyed by administrators may lead to agency problems if the latter have different preferences than the government.

These standard problems of welfare program design are exacerbated when the need for assistance is volatile, and low-income households are unable to insure against the volatility. The possibility of unexpected changes in circumstances makes the timeliness of support very important. An ideal program would react quickly and accurately to persons unexpectedly moving from non-eligibility to eligibility, while avoiding adverse incentive effects. It would also respond in a timely way to those whose circumstances change in the opposite direction, though the urgency may be less in this case.

The paper proceeds as follows. The next section outlines the characteristics of persons to whom income support programs are targeted. These persons can differ by their preferences, by their personal traits and by their attachment to the labor force. Section 3 then considers the sources of real income volatility the target population faces and their responses to that volatility. Then, the role of the private market both in generating volatility and responding to it is discussed in Section 4. Section 5 turns to the role of government.

The diversity of government objectives is outlined and the informational constraints that limit the government's ability to achieve those objectives. The multitude of possible policy responses to real income volatility are also considered and their application in the US safety net system summarized. Finally, in Section 6 implications for policy design and reform are discussed, albeit speculatively.

2 Characteristics of the Target Population

One source of complexity in designing support programs to address real income volatility of low-income households is the enormous heterogeneity of the target population. This heterogeneity implies that support programs must be multi-faceted. Equally important, the government is faced with a variety of problems. First, what is the appropriate set of objectives that should guide policy design? This is unlikely to be one-dimensional, and will involve value judgments that will not command universal consensus. Second, what are the empirical consequences of support programs? How will they affect personal decisions, including those that influence the outcomes obtained by households? This is the classic equity-efficiency trade-off, albeit in a complicated setting in which there are many margins of decision-making. In some circumstances, there may be no trade-off, depending on the equity objective and the behavioral response. Third, how should the government deal with the fact that it cannot observe various personal characteristics of potential recipient households so that it cannot target support programs perfectly to those most in need or deserving? Problems of eliciting information about potential recipients are especially relevant for low-income support programs, given that their economic status is affected by a variety of personal circumstances as well as by different dimensions of behavior. Finally, and perhaps most troubling, how, if at all, should government support programs take account of the possibility that some of those eligible for support might be prone to making decisions that are deemed not to be in their own self-interest? This possibility has been emphasized in the recent literature on behavioral economics, and leads one to ask whether paternalism is a reasonable policy response in some circumstances.

To appreciate the importance of these complexities, and to set the stage for subsequent discussion of policy responses, we begin with a consideration of three key classes of characteristics that are relevant for low-income persons and their households. The first class involves individual preferences. The second involves personal characteristics with which individuals may be endowed. The third, which is related to the other two, involves

the extent and nature of household attachment to the labor market. All three classes of circumstances can vary widely among persons, can contribute to low-income status, and can involve information that is private to the person involved.

2.1 Individual Preferences

Dealing with differences in preferences poses challenging policy problems that only recently have come to the fore in the public economics literature. In the standard approach to redistribution formalized by Mirrlees (1971), all individuals have the same utility functions, and these could be aggregated into a social welfare function. Although the form of the preferences have an effect on the progressivity of the tax-transfer system, no additional complexities are involved. When households differ in preferences, some difficult conceptual problems arise. How should welfare comparisons be made among persons with different preferences? One approach, following Roemer (1998) and Fleurbaey and Maniquet (2007), 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 inherent ability. It turns out not to be easy to put that into practice. This problem is particularly relevant for low-income persons since there are many dimensions along which their preferences may differ. The following are of some important sources of preference heterogeneity.

Preferences for leisure

Individuals may differ in their preferences for leisure or more generally their willingness to provide work effort. Given that this can affect real incomes, it is immediately relevant for support programs. Apart from the difficulties posed by differences in preferences for leisure for welfare comparisons, the government will have difficulty 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, at least as long as the government cannot observe ability either (Cuff, 2000; Boadway et al., 2002).

Preferences for goods

Individuals may also differ in their relative preferences for various goods. This may have less relevance than differences in preference for leisure, but there are circumstances in which

governments may want to take it into account. Persons 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, for example, 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 can affect both the number of income support recipients and the manner in which support should be financed.

Risk aversion

The extent of 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, forthcoming). 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 degrees of persuasion. That is, they may have different propensities to commit crime, an assumption often found in the law and economics literature (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 analog would be with tax avoidance as a way of reducing one's tax burden. The design of most government programs relies to a degree on the willingness of persons to comply voluntarily with the programs' purpose and requirements. The possibility that households will exploit programs by withholding goodwill 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

Recent work in behavioral economics has stressed the fact that persons may systematically over-discount future outcomes and behave in a myopic way, subsequently regretting their choices (Rabin, 1998); Bernheim and Rangel, forthcoming). They may overspend in the aggregate and on particular goods, adopt an unhealthy lifestyle, and in the limit 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 US and other OECD countries, has suggested that persons may hold differing beliefs about the relative importance of hard work versus luck in generating personal success (Benabou 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 policy-makers themselves believe that effort is a more important determinant of success, they may be inclined to offer less generous redistribution programs.

2.2 Personal Characteristics

The standard literature on redistribution emphasized endowed characteristics as being the main determinants of differences in well-being, and focused especially on those that were correlated with earning power (Mirrlees, 1971; Stiglitz, 1982). However, the scope of characteristics can be much broader than that, especially for those persons in lower income groups. The following summarizes some of the more important exogenous characteristics affecting individual welfare.

Skills

Households may differ in their skills. These may be innate, as in the traditional approach, or 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, multi-tasking 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 (Rowe and Woolley, 1999; Boadway and Pestieau, forthcoming). These differences can reflect their physical or health status, leading to medical expenses or disability expenses. Differences in the need for income can also reflect their living circumstances, such as whether they live alone or cohabit, 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. For example, someone in poor health might never obtain the same level of well-being as a healthy individual regardless of the money they are given.

Risk of illness

Individuals may differ systematically in their risk of becoming ill. Not only will high-risk

persons face a greater chance of an adverse shock to their well-being, they may find it more difficult to insure depending on whether insurance companies can observe their risk class (Boadway et al., 2006). Illness is clearly 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 have 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 typically plays a role in eligibility for income support programs. Indeed, a common complaint of welfare recipients is the rule that limits their asset holdings. This prevents them both from saving and from consuming some durable goods. 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).¹ 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 their parents were on welfare, creating a dependency cycle. Or, they may drop out of school because that is what friends or role models are doing (Akerlof, 1997).

These lists of preference differences and personal characteristics emphasize the complexity of the problems confronted in designing support programs for low-income persons facing volatile circumstances. Not only are there many dimensions along which persons may differ, but also such differences can lie along a continuum blurring the distinction between the needy and the non-needy. 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 need to have multiple components. They will typically include

¹ The idea that social capital can help poor people insure their consumption against adverse shock is controversial. In a recent paper, Gertler et al. (2006) find, using Indonesian data, that families hit by a health shock suffer a decline in consumption which 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 with the previous literature on the subject, surveyed in Gertler et al. (2006), and which had found that social capital can play the role of an insurance policy against adverse consumption shock.

different means of targeting to ensure that resources go to those most in need. Targeting can include instruments of self-selection that screen out unintended recipients (Blackorby and Donaldson, 1988). They may also include pro-active measures to elicit information, such as tagging or monitoring (Parsons, 1996; Boadway and Cuff, 1999). And, perhaps most important for dealing with volatility, responses to changes in need should be timely.

2.3 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 along a number of dimensions. It is useful to distinguish three classes of labor market attachment: employable persons in the labor market, unemployables, and persons voluntarily out of the labor market. This classification is not clear-cut since, with the increasing variety of labor contracts, the expansion of part-time work and the ability to find some kind of useful work for even seriously disabled persons, there is virtually a continuum of degrees of attachment. Nonetheless, the three-way classification is useful and relevant for designing support programs, and programs typically distinguish among these three classes of labor market status.

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. 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 due to illness, injury or family responsibilities such as parental leave or caring for a ill dependent. Employable persons might also be temporarily unemployed, having been laid off or 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 in long-term unemployment. Their skills may be too low for potential employers, given their location or the existence 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 non-market work or even black market work. Presumably, which of the above states employables are in will be affected by their innate characteristics, their education, their health, as well as their preference for leisure.

Unemployables

Persons may be deemed to be unemployable and therefore not able to hold a job. Unemployability may be due to disability or health, or because of a very low skill level. In fact, defining the status of unemployability is fraught with difficulties. The distinction between being employable and 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 potential employers. Indeed, the government and firms may have different ideas as to what this cutoff should be. Moreover, strictly speaking, almost all persons could be employed doing some kind of work. Even persons who are mentally or physically disabled can be put to work doing some kind of tasks, even if fairly menial. But, 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 persons who choose not to enter the labor market. One such group are the retired, who have worked and now draw pension and capital incomes. They may also draw support from family or charitable organizations. Even for these persons, withdrawal from the labor force may only be partial. Another main group are persons who opt out of the labor market to be home-makers or to raise children. These persons are typically dependent on their spouses or partners for support, but they may also rely on other family members, such as their parents. Finally, there are the young who, apart from the very young, are in educational institutions.

As in the cases of personal characteristics and preferences, the government may be unable to distinguish fully among persons of different labor market attachment. Special measures may have to be taken to sort out unemployables from employables who are not working, or employables who are voluntarily as opposed to involuntarily unemployed. Individuals who are so inclined may attempt to exploit the system by taking advantage of these imperfections of information.

3 Sources of, and Responses to, Real Income Volatility

As well as differing along a variety of dimensions, low-income persons are also exposed to volatility in their economic circumstances from a variety of sources. Some of these will be exogenous and beyond their control. Others will be, at least in part, a consequence of individual actions. In either case, the extent to which low-income persons respond to real income volatility depends on the existence of support programs. Assuming such programs are incomplete, there are various ways in which they may respond. We begin by outlining the sources of volatility facing households and then discuss the ways they may respond.

3.1 Exogenous Sources of Volatility

The most obvious exogenous shock that employable persons might face is a change in their employment income. This can be because of job loss, reductions in hours of work or changes in wage rates. If they are self-employed, their revenues might fluctuate. The change in income may have been unexpected; it may have been expected in the stochastic sense; or, it may have been an anticipated fluctuation in income, such as from seasonality.

Real income shocks can also occur from changes in the various prices facing low-income households. These can be costs associated with non-durable spending, such as food costs, housing rents, transportation costs, and the costs of child care. They can also be costs associated with durable or capital spending, such as interest costs affecting mortgages, personal credit or asset income.

Real income shocks may also be the result of a partially, or completely, uninsured adverse event, such as a house fire, a personal theft, or an automobile accident. An individual may suffer from a change in their health status, either temporary or permanent, which entails sudden medical expenses and often a loss of employment income. A supporting person may suffer a similar fate impacting the individual. The individual may also face a loss of community support due to 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.

3.2 Volatility Resulting from Individual Choice

Changes in real income might be the result of personal decisions affecting the 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, including to be homemakers, to seek more leisure, or to pursue educational opportunities. They may also leave one job to search for another. Their income can also change if they engage in non-market or underground activities, either to supplement or substitute for formal work.

Real income changes can also occur if individuals change their living circumstances. They may decide to cohabitate 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. Indeed, their personal behavior may result in eviction from their 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 will lose the 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. For some socio-economic groups, the incidence of this is quite high (Freeman, 1996).

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, as in the case of households who live in a flood plane. They may or may not have a choice about where they live, and the government may wish to treat those whose location is involuntary differently from those who choose to live there.

3.3 Individual Responses to Volatility

The ultimate effect of volatility on individuals' well-being depends on a variety of response mechanisms, both individually and economy-wide. Moreover, individual responses will depend upon both market options and support programs available from government and non-government sources. How they respond will depend on the nature of the shocks, on individual preferences, and on the alternatives made available by the market, the society and the government.

Suppose then that individuals are subject to an unexpected shock to their real in-

come. Some of this shock may be offset by market insurance that was previously acquired. Some might also be offset by government support programs. It is likely, though, that the individuals will be faced with some residual consequences: private and social insurance will typically be incomplete, if available at all. 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, even though in a first best, social insurance programs will be complete. Because the government cannot perfectly observe either the actions of the affected individuals or the source of the shock, it will choose not to offer full insurance. Moreover, equally important in this context, government support programs will not respond instantaneously. It will take time for changed circumstances and needs of potential recipients to be registered and verified. At the very least, individuals will need to respond temporarily to unexpected shocks to their real incomes. The following is a list of the ways in which persons might respond to such shocks.

- 1) They might deplete any assets they might have, including financial assets, housing and other consumer durables, and valuable objects. In the event that they are already in a debt position, they may not be able to make interest payments and may even declare personal bankruptcy, which will have longer-term consequences.
- 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 slightly less necessary items, like new clothing, entertainment, and transportation. For some expenditures, such changes may be difficult in the short run. Thus, their housing rents might be locked in by leasing arrangements. If they are unable to meet rent payments, they may find themselves temporarily without shelter, and perhaps with longer-term consequences for obtaining future rental housing.
- 3) The need to obtain cash quickly might require resorting to various high-cost sources of borrowing. These may be formal sources, like credit card borrowing, bank overdrafts or the use of cash marts. They may be less formal, such as loan sharks, pawn shops, or personal acquaintances. In all of these cases, there can be significant longer-term consequences from the need to obtain cash immediately, especially when there is some uncertainty about future cash flows from employment or government support

to finance the borrowing costs.

- 4) For some persons, it may be possible to change their employment income by changing the number of hours they work, seeking part-time work or changing jobs. Other family members, including children, might be able to enter the work force. They may be able to obtain some earnings through self-employment or odd jobs. In extreme cases, they may choose to participate in the black market or underground economy, or they may engage in illegal activities, despite the potential consequences of being caught.
- 5) They may be able to take advantage of sources of outside support, apart from that offered by the government. This can include members of their extended family or charities (food banks, second-hand clothing shops, public shelter, etc.). Even though these services are offered voluntarily, they may still be perceived as costly to the recipient. Personal relationships might be strained, and feelings of stigmatization can occur. More seriously, individuals might become demoralized, and that may affect their future prospects in the labor market. The mere fact that a person has been dependent on others in the past may affect their future employment opportunities.
- 6) Finally, they may be forced to move from their neighborhood or city and re-establish elsewhere. This involves not just the cost of moving, but also the fact that dislocation occurs from the social networks that they have built up.

These are obviously potentially serious consequences, but there are some caveats that should be mentioned. First, not all low-income persons facing real income shocks will bear serious consequences. Some will have taken precautionary measures in advance, especially if their circumstances were uncertain *ex ante*. Others will have good social support networks to help them through. Second, individuals may be responsible to varying degrees for their plight. The temporary shocks they face may be partly a consequence of their own actions. They may have over-extended themselves financially or under-saved. They may have committed themselves to excessively expensive housing. They may have taken actions that brought about their own loss of income. Third, the consequences and responses to 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 on their consumption. They will take more measures to smooth their consumption, despite the costs. The consequence, as Chetty and Looney (forthcoming) 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 highly 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. Moreover, persons will have different degrees of temptation to engage in underground or illegal activity. 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.

4 Private Markets

Failures in private markets can, to some extent, be responsible for the real income volatility faced by households. Rigidities in the market arising from market failures due to imperfect information or government intervention can create circumstances that may adversely affect households, sometimes generating uncertainty over the households' real incomes. These rigidities may also limit the ability of households to adequately protect themselves against such real income uncertainty. These problems are likely to affect households with different incomes differently. Even in the absence of government intervention and other market failures, the amount of income uncertainty faced by households may differ according to income, with lower income households facing greater risk. The market may respond by creating new products and services aimed at circumventing these rigidities in the market.

4.1 Market Rigidities as a Source of Uncertainty

Involuntary unemployment

Households' real incomes are significantly affected by changes in their employment income. If individuals could immediately find suitable work after a voluntary or involuntary leave from employment, then this source of income volatility would greatly be reduced. But as it is, unemployed individuals generally do not find jobs immediately, and subsequently they may remain unemployed for an uncertain length of time. Involuntary unemployment can arise in the labor market from various sources: efficiency wages, unions, economic downturns, search inefficiencies, indivisibilities and minimum wages.

Firms may find it in their interest to provide workers with an efficiency wage which, in most relevant contexts, will be larger than the market-clearing wage and so create

structural involuntary unemployment. The reasons for the existence of a binding efficiency wage can vary, but each relies on the firm being unable to verify either its workers effort or ability. A common argument for an efficiency wage is that a higher wage induces workers not to shirk because, should they be caught shirking, they lose a relatively well-paid job and fall into the pool of the involuntary unemployed (Shapiro and Stiglitz, 1984). Another argument relies on the firms being unable to verify workers' productivities. In this case, the average productivity of the pool of applicants a firm can draw from is higher when the firm pays a higher wage: more skilled workers are drawn into the relevant employment pool (Weiss, 1980). A third argument is that firms and workers are involved in 'gift exchange': firms offer higher pay and workers reciprocate by offering higher effort (Akerlof, 1982). Structural involuntary unemployment can also arise when a portion of the labor market is unionized. In such a case, those protected by unions—the insiders—tend to be paid wages above the market-clearing level, because of their bargaining power, at the expense of those who are not protected—the outsiders—who then experience lower pay and unemployment (Lindbeck and Snower, 1986).

In addition to structural involuntary unemployment, there will also generally be some frictional involuntary unemployment due to business cycles and search inefficiencies. The business cycle can cause temporary involuntary unemployment as firms lay off some workers when experiencing a downturn in their demand, and rehire them when demand rises again (Azariadis, 1975; Baily, 1974; Gordon, 1971). Search inefficiencies arise because finding a good employment match can take time. An employment relationship is similar to an 'experience good'. A worker and a firm have to try each other out to find out whether they constitute a good match. Because searching out a match takes time, and because not all matches turn out to be good ones, frictional unemployment will result (Mortensen, 1986; Pissarides, 1990).

The labor market may also entail indivisibilities which make it more difficult for some individuals to enter or remain attached to it. For diverse technological and coordination reasons, many jobs require a minimum number of work hours and this may not suit individuals who have constraints (Saez, 2002). Examples of such constraints include the time required to travel to work, the need to take care of children or other family members, or the reconciliation of work and study. Other jobs, given the low hourly wage they offer, may not be attractive because they do not offer long enough hours to be worth taking.

This will be problematic for heads of households with heavy family responsibilities who might reason that time spent on household production is more valuable than earning a low wage in the market. Thus, indivisibilities as a source of unemployment may be viewed as involuntary or voluntary depending on the circumstances.

Labor market rigidities induced by the government may also be a source of unemployment. A well-known example is a binding minimum wage which causes labor supply to exceed labor demand and thus generates involuntary unemployment. By definition, a minimum wage mainly affects low-skilled workers who would earn an even lower wage in the absence of regulation. Thus, among low-skilled individuals, a minimum wage creates *ex ante* uncertainty about landing a job. *Ex post*, some are lucky and find a job paying a better wage than that in the absence of regulation. Others are unlucky and experience unemployment. Unemployment insurance may also be a source of unemployment. The use of temporary layoffs rather than reductions in hours worked or accumulation of inventories may be attractive to firms and workers alike because of the existence of unemployment insurance that is not experience-rated (Feldstein, 1976; Burdett and Wright, 1989). As well, unemployment insurance reduces the cost of search and so increases the duration of unemployment spells. Unemployment insurance can also be counter-productive in the face of efficiency wages. By reducing the costs of unemployment, the bite of efficiency wages is reduced. Firms may respond by increasing their wages even further with the result that unemployment insurance is relatively ineffective in providing insurance to workers.

Involuntary homelessness

The housing market may also not work smoothly because of informational asymmetries. Market failures in the housing market will affect the real income uncertainty faced by households, in particular low-income households. When the probability of defaulting on one's rent is not observable, a situation of adverse selection arises. Landlords may find it profitable to lower the rent they charge at a level below the market clearing rent, thereby reducing the probability of default but generating excess housing demand and homelessness (Cuff and Marceau, 2006). Equilibrium excess demand and the possibility of homelessness are more likely to prevail in the lowest quality segment of the housing market in which, for financial reasons, households do not have the option of switching to a higher quality segment in the case of bad luck. Note that indivisibilities are also very much present in the housing market. If housing below some minimal quantity-quality level cannot be rented,

then some individuals with very low levels of income will be unable to afford a house.

4.2 Market and Policy Failures May Preclude Full Self-Protection

Market failures can make it difficult for the market to properly assist households in protecting themselves against real income uncertainty. This is particularly the case for insurance and credit markets. The design of government programs may also make it difficult for households to self-insure and thereby increase the real income uncertainty they face.

Insurance markets

Informational problems are known to affect insurance markets. 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 on the part of the buyers who, by definition, will be left with incomplete insurance (Shavell, 1979). Second, adverse selection—the difficulty of observing the risk characteristics of the insurees—will give an incentive to insurers to attempt to screen insurees by offering them a menu of contracts. In one standard case, the insurees who represent a good risk will be offered less than full insurance to prevent those that represent a bad risk from purchasing the contract destined to 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). Some have argued that this is why private unemployment insurance contracts are infrequently observed (Boadway and Marceau, 1994).

Credit markets

Informational problems also affect credit markets, and may make it virtually impossible for individuals to self-insure. Because of moral hazard, lenders may be reluctant to finance some projects and may require co-financing 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 translate into higher interest rates for all individuals who want to borrow (Stiglitz and Weiss, 1981; de Meza and Webb, 1987). It may also imply that individuals with some characteristics will be simply unable to borrow because they are deemed to be too risky on average (Mankiw, 1986). For these reasons, some individuals, usually the most vulnerable, are those who are the most likely to be shut out of the credit markets. In some cases,

innovative institutional mechanisms have evolved to help address the failure of standard credit markets. This is discussed further below.

Support program design

The design of low-income support programs can also inadvertently preclude self-insurance. In many jurisdictions, 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 therefore obliges recipients to find more costly ways to respond to risk. Also, local stores with market power in poor neighborhoods may exploit the timing of support payments by pricing their products differently throughout the relevant time frame to extract as much consumer surplus as possible (Hunt, Marceau, and Tanguay, 2005). Welfare recipients may circumvent that problem by storing some items, but for perishable products, that is obviously infeasible. Finally, the possibility of government support may induce risky behavior. If individuals understand that governments cannot resist providing help to those in need, some might reason that there is no need to save as they will nevertheless be offered welfare assistance if without resources when old (Bruce and Waldman, 1991; Coate, 1995). This argument—the Samaritan’s dilemma—is often invoked as a rationale for mandatory public pension systems. Forced savings imply that all individuals will have some resources when old.

4.3 Market Response and the Distribution of Risk-Bearing

There are a number of reasons why, in the absence government intervention, low-income individuals will systematically bear more risk than high-income individuals.

Uninsurable risks

As mentioned, because of moral hazard and adverse selection, some risks are uninsurable with private insurers. This is the case for involuntary unemployment which, for reasons stated above, is more likely to affect low-skilled and low-income individuals. It is also impossible to buy insurance to protect oneself from eviction by a landlord, or more extremely from homelessness, another problem which afflicts mainly those consuming housing of lower quality. As well, insurance cannot be purchased against a change in interest costs, and this may expose low-income persons who rely on short-term borrowing to high risk.

Access to insurance is easier for high-income individuals

In those cases where risks can be insured, low-income households may also be at a disadvan-

tage. They may not have the financial resources to purchase individual insurance or they may not be covered by group insurance through their employer. 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 high-income persons. Ithori and McGuire (2006) show that if preferences exhibit decreasing absolute risk aversion, which is the usual assumption, the demand for insurance will be inferior. The implication is that low-income households will prefer to insure more completely than high-income households. They will therefore be especially affected by the costliness of comprehensive insurance. For some types of insurable events, such as theft, low-income persons may face higher premiums due to 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. Thus, even though their demand for insurance is greater, low-income households may end up bearing more risk than high-income individuals.

Low-income individuals are also less likely to be covered by employer-sponsored insurance. This may be because they have refused to participate in an employer-sponsored insurance system, possibly due to cost, or their employer does not offer them insurance. If individuals with skills—all workers except the unskilled ones—are relatively scarce in the market, then firms will have to offer them relatively more attractive compensation packages than those offered to unskilled workers. If workers value insurance, then they can be compensated for lower wages by offering them insurance. Consider now the possibility of a fall in the revenue of firms. This could be translated into reducing the pay of their skilled workers or even laying them off. As it turns out, because firms can diversify risk away more easily than workers, or because firms are less risk averse than workers, they will be willing to offer contracts to their workers in which they bear all or a significant portion of the risk of a fall in their revenue. In the same vein, under some circumstances, firms find it cheaper to attract skilled workers by offering them in-kind compensation—instead of cash—in the form of group health insurance, group disability insurance, and pension benefits. Employers, by offering group insurance, pool the risk of all of their workers and thereby could face lower insurance cost per insured person than what the individual would pay on their own. Moreover, company insurance contracts may be longer-term than those offered to

individuals, whose coverage may be reduced if their health status changes. 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). As well, employer payments for health insurance often receive preferential tax treatment. 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.

Self-insurance is more costly for low-income individuals

There are several reasons why it is more costly for low-income persons to self-insure than high-income ones. First, if the marginal utility of income is decreasing, then to keep a given fraction of one's income aside for the eventuality of bad luck is more costly for low-income than 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. Thus, 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, in which case a given risk is more costly for low-income than high-income persons. Finally, assuming an individual's network is made 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.

4.4 Supply-Side Responses to Circumvent Market Failures

Because low-income persons have limited access to insurance and credit markets, alternative mechanisms, products, and services have developed that are mainly used by them.

Private companies to aid in navigating government programs

Since low-income individuals tend to be less educated—illiteracy is more prevalent among low-income than high-income individuals—and because of the complexity of some government insurance and assistance programs, private companies have developed that help potentially eligible individuals access them. Examples of these include companies that help individuals to obtain refundable income tax credits or companies who assist individuals to enroll in public assistance programs such as Medicaid. Generally these private companies will charge the individuals for their services and thereby reduce the net assistance

received by those using them. The companies might also be paid by a third-party who has a self-interest in having the individuals covered by the public program. For example, many US hospitals hire private companies to enroll eligible uninsured patients in Medicaid. The hospitals can be reimbursed retroactively for services provided to these individuals once they are enrolled (Currie, 2006). Private law firms may also accept cases, such as the denial of government benefits, on a contingency basis. In such cases, the firm shares in any benefits that are awarded and thereby reduces the amount received by the individual.

Development of alternative credit sources

There are many alternative sources of credit for low-income persons outside of the formal credit market. Some of these are legal, such as cash marts or pawn shops, while others are illegal. Cash-in-advance stores or pawn shops provide services to those with limited access to credit and other banking services. In exchange for credit, individuals may leave some collateral good at the store. 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. These stores may also offer individuals advances on their pay at some fixed cost or may cash checks immediately at a fee. Such 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 micro-credit 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 very 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 considerable personal risk.

Development of informal markets

Households facing an adverse income shock may no longer be able to afford services in the formal or regulated sector, and turn to the informal sector. For example, they might choose to live in dwellings not up to building codes because the rent is cheaper, or they may use unlicensed repair persons, or leave their children in unlicensed home day-cares. Consumption of these unregulated services may put the individuals and/or their children

at risk for injury or other health problems.

Households might also be tempted to work in the black market because of involuntary unemployment in the formal labor market, or because formal employment may not pay well enough. This, of course, is a risky choice as such a situation might be detected by the authorities, thereby not only resulting in termination of the employment relationship but also the possibility of criminal punishment. Further, employees in the black market have absolutely no insurance coverage, be it public or private, and no recourse against their employer in the event of a conflict. They therefore face a considerable amount of risk.

Development of private charities

Private charities assist those in need who have no insurance and no access to credit, and for whom government help is insufficient: some individuals simply refuse government assistance. Charities offer a wide range of programs and services. Some provide services specifically for individuals with immediate needs such as food banks, soup kitchens, shelters, and community outreach programs. They might also offer services to help individual access government resources. Private charities also help provide medical services to uninsured individuals and legal services to low-income persons.

While these charities provide useful assistance, those that use them cannot be guaranteed 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. This is a significant risk and may explain why public assistance is far more developed than private charities.

5 Government Action

Governments assistance programs can take many forms. The program types and how they are administered reflect both the objectives of the government and its informational and institutional constraints. The objectives will affect the type of assistance required, whether it be cash versus in-kind transfers, temporary versus permanent assistance, universal versus targeted assistance, and so on. As well, policies might be administered through the income tax system where eligibility depends upon income and other data reported by recipients, or they may be delivered by a dedicated agency that is responsible for determining eligibility.

Policy intervention could be motivated by equity, social insurance, equality of opportunity or paternalistic reasons. Each of these motives might prescribe a different type of assistance program. The information the government has regarding personal character-

istics and circumstances will influence both the feasibility and the implementation of an assistance program. In a first-best world, the government could perfectly insure low-income individuals against real income volatility. This first-best outcome is not attainable with imperfect information. In designing the assistance program, the government must try to elicit the relevant information regarding individuals. This could be based on self-reporting by potential recipients, on screening by agencies administering the programs, or by allowing individuals to self-select into certain programs. In the case of self-reporting, the government will need to verify that individuals have reported truthfully, typically using random monitoring techniques backed up by penalties for misreporting. The choice and design of the policy instruments used for delivering support will depend upon the means by which information is obtained, with explicit account being taken of the incentive effects created by the assistance programs. The information the government has, or is able to elicit, will also determine how responsive such programs are to real income volatility. Finally, how the assistance programs are administered may reflect institutional constraints arising from the federal structure of the government, such as which level of government is responsible for which types of programs. In this section, we consider these various dimensions of government policy intervention beginning with the government's policy objectives.

5.1 Policy Objectives

The design of income support programs depends on the objectives the government adopts. From a normative perspective, there are many objectives that low-income support programs—or redistributive programs more generally—might address. We classify them into three types: welfaristic, non-welfaristic and paternalistic. Welfaristic objectives are those based on the welfare levels of persons in the economy somehow aggregated. Non-welfaristic objectives are those based on criteria other than personal welfare. Paternalistic objectives are those based on the government's perception of what enhances individual welfare rather than individuals' own preferences. Our discussion focuses on these normative criteria, given our interest in characterizing optimal programs. The various criteria will typically give rise to different policy prescriptions, which will complicate policy design.

Political economy considerations might suggest that governments do not behave entirely in a normative manner. They may put more weight on certain individuals than others, perhaps for political or ideological reasons. Those in decision-making positions may even engage in behavior that is self-serving in the sense that it enhances their own

self-interest or generates perks of office (Persson and Tabellini, 2002). This may tempt one to condition normative policy prescriptions by considerations of political feasibility. Our view is that such an approach compromises the integrity of policy design by ruling out a priori options that may satisfy normative objectives. Moreover, it is not at all clear either in theory or in practice how one would constrain normative objectives by political feasibility. A typical outcome of introducing political constraints into the analysis of support programs is that politics would fully determine the outcome, leaving little scope for policy choice, a situation found in much of the political economy literature. Instead, we prefer to set out the normative options, leaving it to the political process to choose among them.

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 is then 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 non-poor (Hochman and Rodgers, 1969; Thurow, 1971). According to this view, redistribution can be efficiency enhancing, but because of a free-riding problem associated with the non-poor consummating their altruism through transfers to the poor, the government must step in on behalf of the non-poor. This altruism approach essentially sidesteps normative issues of equity by putting all the weight on the preferences of the non-poor.

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; Sen, 1970a). They might, for example, imagine themselves being in an ‘original position’, not knowing what characteristics they will be endowed with (Harsanyi, 1955; Rawls, 1971). Even here, there is not likely 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. The hope is that there is enough consensus in the society about basic redistributive judgments to allow

the social welfare function approach to be fruitful.

A useful and common way to proceed is to adopt a set of seemingly reasonable axioms about social preferences so that the problem of redistribution can be parameterized in a simple way. One way to do so is as follows. Suppose there is agreement that social preferences should respect individual preferences, and that the Pareto principle should apply. Suppose also that social preferences are anonymous and symmetric. That is, the utility of all persons enters into social preferences in the same way, roughly speaking. A social welfare function that satisfies these properties is one that exhibits 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, ρ .² Assuming that the aversion to inequality is non-negative, ρ can take values between zero and infinity. Thus, $\rho = 0$ corresponds with the utilitarian case where social welfare is simply the sum of real incomes, and $\rho = \infty$ corresponds with the maximin or Rawlsian case where social welfare equals the welfare of the least well-off person. 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 social welfare function approach differs from the altruism approach in that it gives all persons equal weight, so places no premium on initial or laissez-faire endowments. This is clearly seen in the standard optimal redistribution problem with full information, first stated by Mirrlees (1974). His analysis implies that when persons differ only in their productivity and the government redistributes using lump-sum taxes, high-productivity persons will be worse off than low-productivity persons in the social optimum whenever the aversion to inequality is finite. This is despite the fact that in the laissez-faire, the reverse is the case. This will presumably not occur with social orderings based on altruism. Nor will

² This social welfare function with constant relative aversion to inequality can be derived from further 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).

this reversal of rankings occur in the social welfare function approach when governments face reasonable information constraints, as the optimal income tax literature has shown. Utility must be increasing in productivity in those models, as well as in the settings that apply to the cases relevant for us.

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. In terms of the above social welfare function, there is no well-defined comparable measure of real income across households when individual preference orderings are heterogeneous. We have already mentioned one conceptual way of approaching this problem. If one supposes that persons are responsible for their own preferences, while they are not responsible for their productivity, the principles of compensation and responsibility suggest that they should be compensated for differences in their productivity, but should be neither penalized nor rewarded for differences in their preferences (Fleurbaey and Maniquet, 2007). Applying these principles in practice is not easy, although some attempts have been made (Roemer, 1998 and 2002). In a world with full information and lump-sum taxes, it is impossible to satisfy both principles simultaneously. Without full information, matters become even more problematic because it is difficult, if not impossible, to distinguish when low income is due to a preference for leisure as opposed to low innate ability. This will be important for low-income support programs.

Difficulties also arise when persons have more than one characteristic. For one thing, multi-dimensional screening problems can arise 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. To use an example cited by Sen (1973), suppose two persons of equal productivity differ in the amount of utility they obtain from a given amount of income. Some are more ‘efficient’ at generating utility from income than others. If aversion to inequality is high, one would want to redistribute from those who are more efficient utility-generators to those who are less. On the other hand, if aversion to inequality is low, so what matters is the sum of utilities rather than its distribution, one might want to redistribute from those who are less efficient at generating utility to the more efficient ones. The analog would be with education or health expenditures (Ar-

row, 1971). Should educational resources be concentrated on those who are most able to use them? Or should they be allocated so that difficult learners are favored? Similarly, how should health expenditures be allocated among persons with afflictions are more easy versus more difficult to treat?

Non-welfaristic objectives

The social welfare function approach ranks social outcomes solely according to how they affect individual utilities. Policy-makers may also attach weight to objectives that do not reflect individual preferences (Sen, 1970b). 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, an objective that is sometimes embodied in a nation's constitution. 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 the economy. Thus, equality of opportunity can include resources devoted to improving 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 non-welfaristic 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 necessarily non-welfaristic.

There may be other non-welfaristic objectives taken into account by policy-makers as well. Examples include social cohesion, the reduction of crime, freedoms of various types, non-discrimination, the fostering of family and social values, and so on. In the scholarly 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 particular aspects of a given assistance program. For example, it might care about the cost of the program, program take-up, the social stigma associated with the program, and how the program will affect assistance re-

cipients receive from private sources. It may put more weight on Type I errors (incomplete coverage of the target population) than Type II errors (leakages to the non-deserving). To what extent the government cares about these aspects of the program will effect how the program should be designed. Targeting programs to a subset of the population may be less costly since assistance is only given to a group of individuals, yet obtaining the information needed to identify the target group might make the program more costly. At the same time, targeted programs might 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 quasi-welfaristic approach in the sense of giving weight to the well-being of persons, but judging 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 non-poor put on the consumption patterns of the poor. Thus, the non-poor taxpayers may put relatively high weight on the consumption of some products, such as food, shelter and clothing, and relatively low weight on others, like 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 in the behavioral economics literature. That literature has stressed various ways in which individual behavior does not conform with the rational, well-informed, far-sighted, self-interested view of standard economic theory (Rabin, 1998; Bernheim and Rangel, forthcoming). Of particular relevance for redistribution analysis is the suggestion that persons may sometimes take decisions that are not in their own self-interest. To some extent this may reflect bounded rationality considerations whereby they do not understand fully the options available to them. For example, many people do not fully understand the various financial instruments available to them 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 regulation, seat-belt rules, and even mandatory savings in managed financial accounts.

As well, households may exhibit shortsightedness and impatience in various contexts.

Formally, this has been modeled using the concept of time-inconsistent intertemporal preferences (Strotz, 1956; Laibson, 1997). The idea, based on experimental research, is that persons systematically discount 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: effectively, preferences change over time. A typical set of preferences that exhibits this phenomenon is as follows:

$$U_t(c_t, c_{t+1}, \dots, c_T) = u(c_t) + \beta \left[\frac{u(c_{t+1})}{1 + \rho} + \frac{u(c_{t+2})}{(1 + \rho)^2} + \dots + \frac{u(c_T)}{(1 + \rho)^{T-1}} \right]$$

where $U_t(\cdot)$ is utility at any time t as a function of the future consumption stream, and β and ρ are discount factors whose values are less than unity. As can be seen, the discount rate between periods t and $t + 1$ is higher than between, say $t + 2$ and $t + 3$: $(1 + \rho)/\beta > 1(1 + \rho)$. This leads to a tendency to over-consume (under-save) 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. More generally, this kind of impatience can have other consequences than simply under-saving. It might cause persons to discount future adverse consequences of current behavior, leading to problems of addiction, risky behavior, procrastination, obesity, lack of exercise, under-exertion in education, and perhaps even criminal behavior. Given that people typically come to regret the short-sighted 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 that 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 from first principles, 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. Such 'sophisticated' persons who fully understand that their preferences are time-inconsistent should be able to take actions that pre-commit themselves to avoiding the full consequences of those who are simply myopic. But, even these far-sighted persons are not likely to overcome the problem completely.

5.2 Information Problems Facing Government

There are many information problems the government faces in designing and implementing assistance programs. These problems arise because the assistance recipients and the administrators of the assistance programs have private information about their characteristics or their behavior.

Characteristics of Potential Recipients

As discussed, low-income individuals can differ along various dimensions. Their individual characteristics and circumstances, however, are generally not known perfectly by the government. Even if the government is able to determine that the individual has a low income, it may not necessarily know why he or she is in that low-income state. Determining if and why a person requires assistance is a main feature of public assistance programs.

Individuals may require assistance because they are unable to work and support themselves. Some might have been born with a disability preventing their participation in the labor market. Others might have been injured on the job or developed poor health while working. Since, for incentive and other reasons, the generosity of support programs may be contingent on the employability of individuals, the government must verify whether an individual is able to work. Some individuals might not be able to work for medical reasons. Medical conditions can often be determined through assessment by medical professionals, although such assessment 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 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 might not be able to read or may lack basic communication skills to make them employable by most employers. The government can use observable characteristics which 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 young child. Again, the government can use available observable information to verify the individual's personal circumstances. Individuals would have to be re-assessed on a regular basis if the circumstances preventing them from work can change, for example, if dependent children are cared for by another individual or enter public school.

In each of these cases, the identification of individuals as unemployable is bound

to be imperfect, at least as long as the government has limited or costly resources to monitor the unemployed to determine the reason for their status. Mechanisms available for tagging persons as disabled or temporarily incapacitated are bound to lead to errors of classification. These tagging errors can be of two types, statistically speaking. Type I errors of tagging occur when some unemployable persons are mistakenly deemed to be employable, while Type II errors entail some employable persons being tagged as unemployable when they are able to work. Type II errors increase the cost of the program by using up resources on those who are deemed not to 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 II errors may also be affected by individuals' behavior. Deserving persons might simply not apply 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 point, potential applicants might be deterred from applying because of uncertainty about whether they will be deemed eligible. At the same time, Type II errors might be reduced if program conditions make it more costly for employable persons to apply. If the nature of the support is relatively unattractive to those who are otherwise able to apply, such as the provision of public housing or the provision of food stamps limited to basic foodstuffs, employable persons may self-select out of the program. Some seemingly unattractive features of program support may then turn out to be efficient as a way of targeting recipients. Even if tagging were fairly precise, there is still considerable judgment involved in establishing the cutoff point between fitness for work and unemployability given that these can vary along a continuum.

Even individuals who are able to work might still require assistance because they are unemployed. The form of assistance may depend on why they are unemployed. To assess that, the government must have some idea about the individual's employment opportunities. This relates not just to their ability but also to where they live and to current economic conditions. What type of employment are they qualified to obtain and what sorts of jobs are there actually available for them? To answer this precisely, the government needs information about the productive ability of the individual, which is generally unobservable. Again, the government can use information on observable characteristics that might be correlated with ability, such as education or previous work experience. The

government will also require information about the state of the local labor market. If the local employment opportunities are good, they might choose not to work rather than being involuntarily unemployed. To distinguish if an individual is voluntarily or involuntarily unemployed, the government will need to know not only the individual's employment opportunities but also why the individual became unemployed (e.g, layoff, quit, firing, etc.) and whether he or she is looking for work. 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 their job search in many ways that would be virtually impossible to detect. Moreover, even if they are detected, penalizing them for their behavior might be difficult. With imperfect monitoring, the ability to design transfers that treat the involuntarily unemployed more generously than the voluntarily unemployed will be impeded (Boadway et al., 2003).

Unemployed individuals, even those deemed involuntarily unemployed, can also differ in their need for assistance. Some may be receiving income outside of the formal labor market. They might be receiving support from other family members or friends, or they may be employed in the informal sector or working in other illegal markets. Not all of these reasons, however, would necessarily make them ineligible for public assistance, often because it is so difficult to verify these other sources of income. Governments would have to conduct audits on the individuals such as taking stock of their assets, looking at bank records, house visits, etc., to determine if they are obtaining income from other sources. The need to obtain such information also depends on the type of assistance. Insurance-motivated assistance such as unemployment insurance would generally be given regardless of non-employment income. Unemployed individuals could also differ in their assets, expenditure needs, skill or health status which 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 non-needy from the needy.

The informational problems regarding the individual's attachment to the labor market, their income, and other personal characteristics 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 non-deserving persons to apply. The

lack of information regarding individual preferences and the type of uncertainty facing households is much more difficult to address.

How effective an assistance program will be in helping those individuals facing real income volatility will in part be determined by how readily the program can respond to changes in an individual's circumstances. This in turn will depend on quickly the program administrators can obtain, and verify, the information regarding these circumstances. Clearly, 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 the responsiveness of support to changes in need, it may be useful to consider mechanisms that do not necessarily require ex ante monitoring to determine eligibility. For example, 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 limited access to outside social support networks.

Characteristics of Program Administrators

The final type of informational problem facing the government relates to the fact that someone has to administer the program, and the government might not have complete information about these persons. There may be agency problems and the government might have to elicit effort on the part of assistance program workers (Boadway et al., 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.

5.3 Aspects of Program Design

Assistance programs are often designed with the above information problems in mind. Three aspects of program design are affected by information considerations. First, mechanisms must be designed to determine the eligibility of program applicants. Second, policy instruments must be chosen. Finally, related to this, due account must be taken of the incentive effects of assistance programs when the behavior of recipients is not observable.

Eligibility mechanisms

Broadly speaking, eligibility might 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 such that it is attractive only for intended recipients. Thus, public housing, public daycare or food stamps may be valued relatively more by needy families than by the non-needy. Self-selection mechanisms are likely to be relatively crude means of targeting, so to avoid Type I errors, they may have to be fairly generous and universal. Their advantage is that they do not 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, whose magnitude depends on income tax information provided by recipients. Another example might be unemployment insurance benefits to the extent that they apply once 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. 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. For example, eligibility for unemployment insurance or welfare may be contingent on recipients engaging in some employment search or training activity. There are advantages and disadvantages to each type of screening. *Ex ante* screening is more flexible and will more easily and more quickly respond to changes in circumstances, but it will likely be more costly than *ex post* screening since every applicant must be screened. Both types of screening are subject to Type I and Type II errors, but the size of the errors may differ. In the case of *ex post* screening, some Type II errors are detected *ex post*, by which time overpayments may be difficult to correct. Recipients may simply not have the ability to repay. The government must then decide how to deal with such situations. Also, take-up rates may be lower with *ex ante* screening, due to stigmatization, information problems, and/or cost of applying.

Choice of policy instrument

The choice of policy instrument may be influenced by the potential information problems

faced by the government. There may be a universal versus targeted programs. Universality of a program has less informational requirements but is generally more expensive. 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. A targeted program might have greater value when uncertainty of needs is an issue.

The use of in-kind transfers, such as food and housing, rather than cash may be justified on informational grounds. By offering lower quality goods rather than cash, the government might be able to 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 such subsidies like housing or education vouchers. Other policy instruments might also act as screening tools to help separate the deserving from the non-deserving such as workfare, employment assistance services, or training programs.

Incentive effects

Various incentive effects are created by assistance programs. 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 locale. Often programs are designed with such incentive effects in mind, although unintended effects might arise.

5.4 Public Responses to Volatility

There are many different types of public programs that exist to assist low-income individuals. Some of these deal principally with volatility, while others have other objectives in mind. The programs differ in design, which affects how they can respond to changes in individual circumstances as well as the ease with which targeted individuals are able to participate in the program. We discuss the various types of actual assistance programs used in the US in this sub-section.

Income transfer programs

There are two main ways income is transferred to low-income individuals. The first is through refundable tax credits and the second is via targeted cash programs such as welfare and social security.

Refundable tax credits are administered using the income tax system with eligibility monitored using ex post auditing. Refundability implies that individuals receive the value

of their tax credit irrespective of whether they have a positive, zero, or negative tax liability. This is in contrast to a non-refundable credit in which the value of the credit can only be used to reduce the amount of tax owing. Generally, refundable tax credits are targeted to specific groups. For example, the Earned Income Tax Credit (EITC) is only available to working taxpayers with the size of the EITC depending on reported family income and number of dependents. Refundable tax credits are used to help alleviate other adverse circumstances such as high energy prices or transportation cost, for example, energy rebates targeted to low-income home-owners.

The advantages of refundable credits are that they use an existing administration system and have the potential for high take-up rates. As well, there is virtually no stigma involved in applying for them. At the same time, this might be a disadvantage since individuals have to file their income taxes to be eligible for the credit, whether or not they have any income to report. Filing might be onerous and difficult to do for some individuals. There are, however, commercial tax filers who are familiar with the system and may offer their services at a fee to those groups who are potentially eligible for the credits. With refundable credits, there can be misreporting, either intentionally or unintentionally. Another disadvantage is that the credits are administered on an ex post basis. Income taxes are filed annually, and both taxes payable and tax credits are calculated using the previous year's income or expenditure. The value of the credits will not be very sensitive to the household's current needs, nor will the tax credits be responsive to income volatility occurring during the year. Two households could earn the same amount of income in a given year but experience very different income streams.

The second vehicle for transferring income to individuals consists of targeted programs administered outside of the income tax system. These include the welfare system and the public pension or social security programs. Both types of programs assist low-income households, but they differ in their goals and program designs.

The objective of the US welfare system is to give financial assistance to poor families with dependent children. Applicants are screened ex ante and must meet both income and asset requirements to be eligible for assistance. The eligibility requirements depend on the applicant's state of residency. Personal circumstances such as disability, cohabitation, number of dependents, and/or employment situation is also verified during the application process. The information obtained is used to determine how much monthly support the

person is entitled to. This initial eligibility verification process takes time. Recipients are also re-assessed on a regular basis to ensure that they continue to be eligible for the monthly payments that they are receiving. The time to apply and to be assessed may discourage those who do not really need cash assistance from applying.

A criticism of targeted cash transfer programs like welfare is that they can induce very high marginal effective tax rates and may discourage individuals from working. Eligibility for cash payments often entitles the household or individual to other public in-kind transfer programs such as food, housing and medical insurance. Therefore, when the household's income goes up not only do they lose their cash payments on a one-for-one basis, but they might also lose these other in-kind benefits.

Welfare payments might also be conditioned on work requirements or participation in job training or education programs. Under the Temporary Aid to Needy Families (TANF) program, welfare recipients must participate in work activities as soon as they are deemed able to work. These work requirements vary across the state-run welfare programs, but can include training and education activities, community services, and subsidized or unsubsidized employment. Benefits can be terminated for nonparticipation. Work requirements could be a deterrent for those who do not really need the welfare payments, or more importantly for those who find working to be very onerous. They might also increase the likelihood that individuals find employment which enables them to leave the welfare rolls permanently.

Welfare payments might also have time limits attached to them. These limits could either restrict the length of time someone can be on welfare and/or the total amount of payments they can receive. Under the TANF program, eligible families can receive cash payments for a maximum of five years, although states have the option of extending this time, under some conditions. With time limits, eligible individuals might choose not to apply for welfare when they need it. They might resort to some other form of support as a means of effectively banking their potential welfare payments.

The other major US income transfer program is the social security system. The goal of social security is to protect workers against the loss of income due to their retirement. If all workers saved enough for their own retirement, there would be no need for social security. But, as it is, not all workers do so for various reasons, such as myopia or anticipation of future state support. The social security system is financed by contributions from both

workers and their employers, and is basically unfunded. Unlike welfare programs, social security does not necessarily target poor individuals. Eligibility is based on the individuals past work experience and their contributions to the public system. Monthly payments are calculated using the retired worker's age and some measure of the worker's lifetime earnings. Generally those who have earned more over their lifetime will receive greater benefits although there are maximum monthly amounts. Benefits will also be taxed at a higher rate if the retired worker has other income.

The social security system does some additional targeting of cash benefits to low income individuals. The federal Supplemental Security Income (SSI) program provides monthly income to people who are over 64 and have very limited financial resources. The SSI cash benefits are intended to help these individuals meet their basic needs for food, clothing and shelter. To qualify, applicants must meet with an administrator and have the value of their financial resources, excluding their homes and personal effects, and their living arrangements assessed. Qualified individuals are generally also eligible for additional social services such as medical insurance, meals and transportation. As in the welfare system, recipients of SSI are required to report any changes in their circumstances including their living arrangements which could affect their SSI payment. Regular re-assessment of SSI recipients is also done and any over-payments must be repaid. Individuals who misreport their situation can be fined or even face imprisonment.

In-kind transfers and targeted subsidies

Eligibility within the cash transfer programs—welfare and social security—often also determines eligibility for various in-kind transfer programs. These include assistance with food and nutrition, child care, housing, education, training and transportation. Transfers can either be in-kind, meaning the government provides the good or service directly, or they can be targeted subsidies, meaning the government gives individuals money that can be used only to purchase specific goods or services.

The eligibility requirements for these in-kind programs may be weaker than those of the cash transfer programs. For example, persons may be eligible for the Food Stamp Program (FSP) but not eligible for TANF benefits (e.g., single males). The FSP requires both an asset and income test for the household. Eligibility is determined by ex ante monitoring. Program applicants meet with a food stamp worker to determine whether their assets (excluding the value of home, but possibly including some value of their automobile)

and monthly household income are under the required limits for their household size. During their interview, applications must provide documentation of this personal information. FSP participants may also be required to meet some work requirements and failure to do so could result in the termination of food benefits. There are also severe time limits for those individuals who do not have any dependent children, and do not work or participate in job training or education programs.

Eligible households receive an Electronic Benefits Transfer (EBT) card within a month from the date of their application. Households with extremely low incomes can apply for expedited benefits which, if they qualify, will be received within a week. The EBT card works as a debit card with each household receiving a personal identification number needed to use the benefits on the card. Each month a fixed amount is put on the households card. The monthly benefits depend on the household's size and the household's monthly income. Unused benefits can be carried over to the next month but all benefits will be removed if the card is not used for an extended period of time (between 9 and 12 months). The EBT card can be used only at participating stores to purchase basic food items and cannot be used to purchase any non-food item such as alcohol, tobacco, vitamins, medicines, or any food prepared for immediate consumption.

The use of electronic cards versus the earlier FSP system which used food coupons may help to avoid any secondary market for food stamps (although, there is still the possibility that households simply sell the food purchased using their benefits). Credit constrained households could also collude with store owners and sell their benefits at a discount to the stores who then receive the full value of the benefits from the government. These households might then have to purchase food later in the month. Currie (2006) argues that this selling and then re-purchasing of food might be precluded by reducing the interval over which benefits are issued, say, to a week.

The FSP undertakes several activities to ensure that only eligible households are receiving benefits. The local food stamp offices utilize an Income Eligibility Verification System which allows the food stamp administrators to access different databases to match and verify the household income. It is the responsibility of the household to report changes in its circumstances such as a death or incarceration of a household member. Household caught making a false claim or selling their food benefits are disqualified from the FSP for a year for their first offense and for a greater period of time for subsequent offenses.

Information about disqualified individuals are maintained in a central database. In 2004, about 60% of eligible persons participated in the FSP. Participation rates were higher for eligible children and individuals receiving other government benefits such as TANF, and lower for eligible elderly persons and adults without dependents (Barrett and Poikolainen, 2006).

Food subsidies are also targeted to particular groups of low-income persons. For example, the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) is a categorical program for women who are either pregnant or have just had a baby, and children under the age of 5. Individuals meeting these categorical requirements must also meet an income test to be eligible for WIC. The maximum allowable income can range up to 185 percent of the federally determined poverty income level. Applications must be assessed by a health professional, possibly provided by the WIC free of charge, to determine if they have any conditions, either medical or dietary as outlined by the WIC program, which put them at nutrition risk. Not everyone who qualifies for WIC benefits will receive them, though: the WIC program might not have enough funds to serve everyone who is eligible. In this case, eligible individuals are put on a waiting list, and those at greater health risk are served first. The WIC program either provides participants with food or with vouchers that can be redeemed for specific foods. WIC benefits are transferable within and across states but the individual runs the risk that the WIC office where they are moving to will not have the funds to pay for their benefits. The length of time a person is eligible to receive targeted subsidies, referred to as the certification period, will depend on the type of program. The WIC is specifically designed to be a short-term program. Pregnant and postpartum women are generally certified for 6 to 12 months and children for 1 year.

The government also offers in-kind transfers of food, such the National School Lunch Program (NSLP). The NSLP offers free or low-cost lunches and snacks to children in the public school and non-profit private school systems. Children can receive these meals for free or at a highly subsidized rate depending on their family income. Application for the NSLP is done before the start of the school year and the certification period lasts the year, although families must report changes in eligibility. All families must apply for the program to be able to participate in it. Children who are receiving FSP or TANF benefits are automatically eligible for free meals. Eligibility for children who do not meet this

categorical criteria is determined by their household income. Concern over low-take up rates or Type I errors in the program have prompted the recent mandatory use of direct certification by which children meeting the categorical criteria do not have to apply to the program to receive meal benefits (Currie, 2006).

In addition to food assistance, the government also offers help with child care and housing. Eligible families can apply through state agencies for child-care subsidies. The states set both the type of subsidies available and the eligibility criteria. There are also federal early childhood development programs, such as Head Start, which target children from low-income families. Eligibility is based on family income in relation to the federal poverty line. Like the WIC program, these are not entitlement programs so participation by eligible families is not guaranteed and will depend on funding and program availability. The government also offers non-refundable tax credits for child and dependent expenses, but since the credit is non-refundable it generally benefits only those with higher incomes.

Housing assistance takes many forms. First, the government subsidizes the private construction of affordable housing for low-income tenants. For example, the Low Income Housing Tax Credit is given for the development of rental housing which provides some minimum number of rental units to low-income families at fixed rental rates. Second, the government provides housing directly to low-income families. And third, the government offers families vouchers which they can use to help pay their rent or mortgage.

Eligibility for government housing assistance depends on several factors: the type of family (individual, elderly, disabled, and so on), the family income, citizenship or immigration status, and whether any family member has been evicted from any public or subsidized housing or previous housing. Applicants must provide detailed information about family members, previous landlords, the family's anticipated income and sources of that income, as well as family employment and banking details to the housing authority. The housing authority may also visit applicants in their current dwelling to assess their suitability as a tenant. Housing assistance is also not an entitlement program. Often, the demand for housing assistance can exceed its supply and eligible applicants are placed on a waiting list. Once housing assistance becomes available the applicant must sign a lease. The rent they pay is based on their anticipated net annual income where deductions are given for dependents and elderly or disabled family members. Eligibility of public housing tenants is re-assessed at least once a year. Tenants can stay in public housing as long as they

do not violate the conditions of their lease and meet the income eligibility requirements. The eligibility criteria for housing choice vouchers are similar except families can use these vouchers to lease privately-owned rental housing or, under some voucher programs, purchase a home.

As mentioned earlier, there are other in-kind transfers available to social program recipients such as training programs and employment services. There may also be transportation subsidies. In addition, the federal government helps fund the Legal Services Corporation (LSC) which provides free civil legal aid services to low income persons with some conditions on the type of legal services provided. For example, federally funded programs are not allowed to engage in any class action suits, legal challenges to welfare reform, or legal representation of individuals evicted from public housing due to drug use.

Subsidies to employers

Another way the government gives assistance is by financing employment subsidies targeted to low-income workers. An employment subsidy reduces the cost of hiring a low-income worker and can increase demand for their labor. This potentially increases the likelihood that they will find employment if they look for work. Both the Federal Work Opportunity Tax Credit and the Welfare-to-Work Tax Credit provide employers with tax credits for every welfare recipient that they hire. Welfare recipients are likely to have lower skills than other workers and the subsidy can offset the cost of hiring these lower skilled workers. The government may also subsidize any training or retraining programs that employers offered to their employees. The potential benefit to the employees of the training program is an increase in their skills and possibly higher future wages.

Social insurance

Public social insurance programs offer individuals insurance against adverse events such as unemployment, injuries, disabilities, other health problems and death of a supporting person. Spousal benefits and disability benefits are administered through the social security program. The other two major US public insurance programs are the unemployment system and public medical insurance programs.

The unemployment insurance program provides temporary financial assistance to workers who have involuntarily lost their jobs. The program is administered by state governments who follow the guidelines set out by the federal government. Unemployment benefits are financed, for the most part, by payroll taxes on employers. As such, the pro-

gram can give employers incentives to utilize temporary layoffs. Eligible workers can collect the unemployment benefits and the employer can save on the payroll taxes. To be eligible for unemployment benefits, workers must meet the wage earnings and/or hours worked for a given period of time before the claim is made. In addition, the program administrators must determine that the worker's action did not result in dismissal. Claimants must provide information regarding their previous employer and reason for job separation. Claims can be made in person, by phone, or over the internet. There is generally a waiting period before the unemployed worker qualifies for benefits, and benefits might not actually be paid out until a few weeks later. To ensure that the unemployed worker is searching for work, they must file claims by mail or phone on a regular basis and answer various questions concerning their weekly earnings and any job offers or refusals. In addition, benefit recipients may be required to register at an employment service office. The employment service office may assist the individual in finding suitable employment or in referring them to various training programs. Eligible workers receive a fixed percentage of the earnings they made in the last year up to a maximum amount. These unemployment benefits are generally considered taxable income although they may not be subject to state income taxes in some states. Workers can receive benefits for a maximum of 26 weeks, although extended benefits might be awarded under specific conditions, like periods of high unemployment. Only a fraction of the workforce, however, is covered by unemployment insurance. Those in part-time employment, temporary jobs, or the self-employed are generally not covered although they might be if they lost their employment due to a natural disaster.

Public medical insurance programs vary in the persons they cover and the medical services they offer. There are three main public medical insurance programs: Medicaid, State Children's Health Insurance Program, and Medicare.

Medicaid is designed to provide basic medical care for low-income persons and families. Medicaid is administered by individual states according to some broad federally set guidelines. Eligibility and insured medical services are determined by the state. There are several broad eligible groups, including the categorically needy who are eligible for TANF and/or SSI benefits, pregnant women and young children with low family incomes, and the medically needy who exceed the income or means tests to be categorically needy but face large medical expenses. Applicants must provide information about age, possible pregnancies, disabilities, income, resources, and citizenship or immigration status. Medicaid pays

health care providers directly for services rendered by an eligible individual although small co-payments may be required in some states. Coverage may be awarded retroactively for up to three months prior to the application and is terminated at the end of the month in which the person is deemed no longer eligible.

There are still some poor persons who do not qualify for Medicaid program. A large group of these uninsured individuals are children whose family income is not high enough to purchase private insurance but too high for them to be eligible for Medicaid. States run specific health insurance programs for these children which is jointly funded by the federal government. Like Medicaid, each State determines its own eligibility requirements, benefit packages and payment levels for coverage. The health insurance is income-tested and is either offered for free or at a low-cost.

The final health insurance program is Medicare. This program is available only to persons over the age of 65, or to those under the age of 65 who have certain disabilities. Generally, program participants pay a premium for their hospital and medical insurance as well as for their prescription drug coverage. Individuals with low income or few resources may qualify for partial subsidization of their prescription drug costs. In addition, some state-run Medicaid programs will pay for the Medicare premiums for eligible individuals. There are also various worker compensation programs in the US which provide wage replacement, medical treatments, and other benefits to eligible workers or their dependents who experience work-related injury.

Regulation

The government regulates several markets affecting low-income persons, including the housing, labour and credit markets. The government intervenes in the housing market by imposing building codes and quality standards, enforcing rent control and regulating sources of housing finance such as the Federal National Mortgage Corporation (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac) who are required to meet specific affordable housing goals. The government also sets and enforces minimum wages in the labour market. Minimum wages are likely to affect the income of those individuals with low-ability or few employment opportunities. As with rent control, it is not entirely clear that only financially needy individuals benefit from minimum wages. Part-time workers, such as teenagers from middle-class families, will also benefit. The federal government also imposes safety regulations in the workplace. Finally, the federal govern-

ment regulates the credit markets and the banking industry, for example, by regulating interest charges that can be applied to credit card transactions or mortgages. Although such programs are not targeted to low-income persons, they tend to apply to them disproportionately. There might other price regulations or tax policies that affect low-income persons. For example, the exemption of necessities from state sales taxes.

Charitable support

In addition to government support, low income individuals receive assistances in a variety of forms from charities. The government fosters and encourage such charitable support through tax deductions. Persons (and corporations) are able to claim donations to registered charities (both cash and in-kind) as expenses that reduce their taxable income. Because donors do not pay full tax on the amount they donated, the actual cost of donating is reduced by their tax savings. Donations still cost money though, so donors must have some reason for giving. Perhaps they are altruistic and care about the beneficiaries of their donations or perhaps, they simple feel good for giving (Andreoni (1990) and Diamond (2006)). One rationale for offering tax relief for donations is to avoid a free-rider problem. As well as offering tax deductions for contributions to charitable organizations, the organizations themselves are tax-exempt.

5.5 Issues of Federalism

In the United States, the major social programs aimed at assisting low-income persons are funded by the federal government and administered at the state level, possibly with some state cost-sharing. Federal funding is generally conditional on state administrators adhering to some federal program guidelines. This raises several issues. First, depending on the guidelines set out by the federal government state administrators may still have a large degree of flexibility in terms of setting out the benefits, eligibility and participation requirements of the state-run program. As such, there can be great variation across states along all of these dimensions. There are also state funded programs which are administered alongside the federally funded programs adding to the variation of the type and amount of assistance available to low income persons in different states. As a result, inequities in the assistance available to low-income persons across states are likely to arise.

Second, the federal government must engage in some form of monitoring of state program administrators to ensure its program guidelines are in fact being met. For example, in the food stamp program the federal government has set up a quality control system

which attempts to assess how accurate eligibility and benefits, as set out by the federal government, are being determined by the state-run programs. States which fall below some accuracy level may lose funding and those that exceed that level may receive additional funding. Related to this informational issue are the incentive effects that may be created by the structure of the federal funding for the programs. For example, federal TANF funding is conditional on state administrators meeting certain goals, such as, having a certain percentage of program recipients participating in work activities. This requirement gives states incentive to adopt policies that foster job placement.

Fourth, the federal guidelines for eligibility often rely on federal poverty rates. Using this single measure to determine eligibility across all states ensures horizontal equity in the sense that an individual will be eligible for public assistance regardless of their state of residence. As the same time, it ignores any differences across states which might affect a household's income needs. For example, the cost-of-living might differ substantially across states (and even within states). So, two individuals with the same income will be eligible to receive the same cash transfer but may benefit very differently from the transfer depending on where they live.

Fifth, as mentioned above states often run their own assistance programs alongside the federally funded ones. In some of these programs, common eligibility requirements are adopted. This potentially reduces the administrative hoops a program applicant must go through but relies on the different program administrators sharing the information. Even if the requirements are the same, it is possible persons applying to both programs have to go through separate application processes. This holds true even for the different federally funded programs which are administrated by the state. Finally, there may be other dimensions along which the federal and state assistance programs interact. For example, the expansion of a federal program might come at the expense of a contraction of a state program or vice versa.

5.6 Gaps in Coverage of Existing Programs

From the above discussion of the actual assistance programs used in the US, it is clear that there are a great number of programs that assist low-income persons, in particular those with dependents, in the US. There is also substantial variation across these programs and in their ability to address income volatility. Because of the patchwork of available support programs and their varying ability to help those with immediate needs, some

individuals will remain unassisted. For example, there is little support for individuals without dependents. They generally qualify only for those transfer programs based on past earnings such as unemployment insurance and social security. Provided the individual is covered by unemployment insurance they will be protected from an involuntary job loss. There are, however, limits on how long the individual can receive benefits and the benefits do not change in response to the individuals current circumstances. In addition, there may be a long waiting period before benefits are actually received by the individual. If individuals without dependents happen to qualify for the other programs, then the benefits they receive are substantially less than an individual with one dependent. For example, in the Food Stamp Program such individuals face time limits to their use in the program and the maximum tax credit that they can receive under the Earned Income Tax Credit is six times smaller than the credit an individual with only one dependent can receive.

Most of the social programs involve long application processes and do not necessarily provide assistance for non-medical emergencies such as immediate needs for cash, say to avoid eviction, food or shelter. An exception is the Food Stamp Program where an applicant may become qualified for benefits within one week. 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 income fluctuates — and is being 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 become in need during the school year. Assistance in the form of refundable and non-refundable tax credits is also very slow to respond to changes in a household circumstances. Such credits are calculated only once a year based on the previous total annual income. Households might also have to re-apply every so often to the program to continue to receive benefits. For example, in the Medicaid program households have to re-apply ever six months. In principle, such programs could be improved.

Even those who are eligible to take up the public benefits are not doing so. It may be difficult to understand what is needed or what is required to apply to existing program. It could take a substantial amount of time to apply and to be re-assessed on a continual

basis. Many of the programs require applicants to meet with a program administrator to determine eligibility. There are currently on-line central registries of government programs which provide initial screening of applicants for eligibility but it is not clear if the program target groups would have access to such technology. In addition, several of the assistance programs such as WIC are not entitlement programs 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.

Finally, government regulations such as rent control and the minimum wage may potentially benefit those with low-income who are lucky enough to be covered by such policies. These policies, however, might tighten the rental or labour markets and make it more difficult for a household to find work or an affordable place to live. In expected terms such regulatory policies may be good but ex post, some households may experience difficult times. Other non-regulatory measures such as subsidies to employers could also improve the expected prospects of low-qualification workers, but again does nothing for those who do not find a job with subsidized employers.

6 Policy Options for Income Volatility

Dealing with income volatility raises issues that are different than those involved with longer-term support programs, although there is inevitably some overlap in the target populations and in the design and administration of the various policies. In this section, we focus on policy responses to address the consequences of real income volatility. As the previous discussion implies, the issues are multi-dimensional and complicated, so simple policy solutions will not achieve all the desired objectives. Moreover, given the information problems that program administrators are likely to face as well as the value judgments that are involved, there is no uniquely perfect policy.

The Target Population

The target population includes those whose real incomes have fallen, and who are not otherwise taken care of. That is, they are not eligible for unemployment insurance, workers compensation, disability insurance or ordinary pensions. Nor are they subject to variability against which they have been (or are) able to self-insure through savings (e.g., the self-employed in seasonal industries for whom reductions in income are expected, or maybe even those in risky industries who can self-insure and whose earnings effectively compensate

for the risk). A difficult second-best issue does arise in this context. It may be the case that persons who ought to be covered by contributory social insurance programs, such as unemployment insurance, are not covered because of the deficiency of existing programs. The ideal remedy would be to revise those programs rather than to use low-income support programs as a device for insuring against unemployment. However, if such remedies are not forthcoming, presumably low-income support programs are second-best instruments.

The target population we are concerned with includes primarily low-income persons. It does not include those persons who are already eligible for support because they are in a long-term state of need. They are covered by standard welfare and disability programs. Perhaps more controversially, the target population might not include those who are covered by social networks, charitable organizations, or families. They may be partially eligible for target support to the extent that their private support is less than complete, or maybe is crowded out. Our focus here is on those low-income persons for whom real income variability has created the need for intervention. These persons can face sudden reductions in real income for a variety of reasons. The most obvious is that their employment income falls due to job loss, loss of revenues from self-employment, or reductions in earnings due to fewer hours worked or lower wage rates. They could also face a loss in income from supporting persons, such as parents, children or partners. (They might suffer an unexpected reduction in capital income as well, but that is presumably not a common source of problem for low-income persons.) Real incomes can fall because of increases in prices. For low-income persons, these might include the prices of food, utilities, transportation and housing. Apart from housing, these are not likely to be a major source of sudden loss in real income. More drastically, they might face financial problems because of an inability to finance their debts, including payments for consumer durables.

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. Deserving persons might be those whose fate is a consequence of exogenous factors over which they have no influence. Non-deserving persons might be those whose actions caused them to be in a needy state. The distinction between deserving and non-deserving persons is not clear, even in the absence of imperfect information. Behavioral economics emphasizes that individuals might have self-control problems that lead to over-spending, addictions, and so on. Moreover, 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? (For example, public health care systems typically do not distinguish between those whose personal behavior has led to bad health outcomes from those who lead exemplary lives.) Along these lines, what about persons who acquire expenditure obligations because they have changed their household characteristics, such as by having a baby or separating from a partner? Perhaps a clearer-cut case concerns those persons whose incomes fall because of their own premeditated choices: they have quit their jobs or they have 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 per se (i.e., Samaritan's Dilemma), but also because there may be consequences to other persons of not providing support. For example, other persons may depend on the income of the persons 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.

Problems Facing the Government

Even if the government were fully informed and could observe the actions and the characteristics of all households whose real incomes have fallen, the policy problem would not be straightforward. As mentioned, a decision would have to be made as to which persons were deserving and which were not, given that they may have differing degrees of responsibility for their situations. 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. How much support to award to each type of person will involve making comparisons of persons in heterogeneous circumstances. Indeed, even among persons who differ only in income, the extent to which those differences should be compensated involves a judgment about equity which necessarily rests on the decision-maker's degree of aversion to inequality.

Moreover, the form that the compensation should take is itself judgmental in a world of perfect information. The classic view based a welfaristic objective function would be that cash transfers are desirable since they would 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 and social insurance

goals are motivated by the perceived altruism of taxpayers, and if that altruism is based on paternalistic preferences, efficient redistribution may or may not involve in-kind transfers depending on the form that paternalism takes. For example, 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 (assuming such in-kind transfers could not be readily turned into cash). Behavioral considerations might also justify 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. Thus, if a deserving person has medical needs and if the market for medical insurance is incomplete, it may be more efficient for support to take the form of direct provision of medical care.

In fact, the government is not likely to be fully informed. It will not be able to observe perfectly well the circumstances of households or the reasons for those circumstances, and it will have to design its program recognizing that its information is imperfect. The program will be prone to having both 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 is the government, the more it will try to avoid Type I errors to the extent possible. Type II represent leakages of funds from the program as undeserving persons are obtaining aid and are more of a concern from a cost point of view. The more weight the government puts on program costs, the more concerned it will be with Type II errors. Alternatively, the government may have a limited budget to devote to support programs. The greater are Type II errors, 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 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. Type II errors can be reduced by targeting, but at the expense of increasing Type I errors due to imperfect targeting. 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 obtained.

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 incentives 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 income has 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.

A key issue is the extent to which reductions in real income should be replaced by government support. 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 be so if household preferences take a particular form (e.g., additively separable in consumption and leisure), but generally not otherwise. 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 and earning their previous incomes, since in the latter case they forgo leisure and the utility that it yields. In these circumstances, full income insurance will generally not be possible because of the incentive that it gives for potential recipients to become eligible for support and to stay on support as long as possible. Incentive compatibility entails that the generosity of the program cannot lead to expected outcomes from obtaining support that exceed the expected outcome from being in the workforce. The role of 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 might also detect persons who misreport their incomes to become eligible. Ex post monitoring can detect some persons who prolong their stay on support programs by not searching for employment or accepting job offers that come along. From this point of view, more intensive monitoring essentially allows insurance to be more complete by relaxing the incentive constraint (Boadway and Cuff, 1999).

The level and form of support might also be affected by the possibility that private support (e.g., charity) might be crowded out. In a sense, 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 does 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).

A further problem facing the government concerns the sanctions that can be imposed on persons who have been found to have misrepresented their circumstances (e.g., their income or their living arrangements) or fail to abide by the requirements of receiving support (e.g., by quitting or not engaging in job search). As is well-known from the literature on law and economics, there are various combinations of monitoring and sanctions that can lead to a given level of conformity with the law. And, since sanctions are less costly than monitoring, one might think that government programs will be more effective the higher the level of sanctions. In the extreme, imposing a very large penalty should result in full conformity, even if monitoring is very limited (Becker, 1968). However, in the context of low-income support programs, there will be a limit to the extent to which sanctions can be relied on to reduce exploitation by the non-deserving (Type II errors). The main problem is that those who have been found to have exploited the system will typically have limited resources, i.e. there will be a problem of limited liability (Polinsky and Shavell, 1991). Imposing a monetary sanction would be onerous for them even if they are able to pay. (This has proven to be a problem with refundable tax credit programs targeted to 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, and given the difficulties of distinguishing deserving from undeserving persons, even honest mistakes can lead to errors of classification. The implication is that there is a limit to the extent to which sanctions can be used. This puts more pressure on the use of monitoring to preclude Type II errors in the first place.

Finally, a particular problem that arises in the case of responding to volatility of real income is the need for rapid response. Those in the relevant target population will typically have limited resources to fall back on, so the need for a timely provision of support is paramount. This will have implications for the type of support as well as the administration of the program and its eligibility requirements. For example, one might

want to implement eligibility schemes that make entry into the program relatively easy, but monitor more carefully for continuation.

Policy Options

There are several policy instruments available for providing assistance to low-income persons whose real incomes decline. The most obvious is an unconditional cash transfer that the recipient can spend as he or she sees fit to suit the situation. The amount of cash could be based on the personal circumstances of the household, especially the number of dependents that must be supported. The cash transfer may be made more restrictive by attaching conditions either to its receipt or to its use. Thus, eligibility for a transfer may depend on the recipient participating in some work or training program, or engaging in some job search activities. Or, there may be restrictions on the use of the cash, such as to purchase necessary consumption goods or to meet contractual obligations (rent or consumer credit). Instead of giving cash, support can take the form of in-kind transfers, such as food, or payment of rent, utilities or transportation. These in-kind transfers could also take the form of subsidies covering only part of the cost.

The form that support takes depends both on the objectives of the government and on the feasibility of the support instruments, given the information available to the government. Although the distinction between these two may not be clearcut, it is useful to consider separately how these two sorts of considerations influence the choice of instrument, beginning with the policy objectives of the government. Subsequently, we consider how informational constraints condition the form of transfers.

A reasonable way to approach the issue of policy choice is to pose the question of why the government might want to depart from unconditional cash transfers, given the classic argument that cash transfers can be used in the way most preferred by the recipient. We have already mentioned these arguments earlier, so we can recount them fairly quickly here. Setting aside for the moment the role of non-cash transfers in overcoming informational issues, there are various arguments that might be relevant in the choice between cash and other forms of support. The first two are based on paternalism. For one, if the support is regarded by the government as reflecting the altruistic preferences of the taxpayers who are financing the transfer, the ideal transfer could vary from cash if the altruism were paternalistic in form (Archibald and Donaldson, 1976). For another, paternalism might be justified on the basis of behavioral arguments if it is thought that potential recipients

would not have the self-control to use the support to purchase necessities for themselves and their families if that would be in their own best long-run interest. This too could call for in-kind transfers based on the provision of necessary goods rather than cash.

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 to using the in-kind transfer as intended. It may be possible to use electronic payment mechanisms such as those used for food stamps to restrict retrading, but that would entail bringing in a large number of retail outlets into the system. In any case, these paternalistic arguments would not call for in-kind transfers of food alone, but would generally include other necessities.

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 self-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 and monitoring. 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, something which we return to below.

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 by 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 are the effects that in-kind transfers might have 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. Thus, they might (rationally) overspend, incur too much debt, under-invest in skills or assets, or take undue risks if they correctly anticipate that society will come to their aid when they face adversity. The form of aid will affect the potential recipients incentive to make these short-sighted decisions. If aid comes in the form of cash, then they can easily replace any lost income due to their poor decisions with the cash transfers. If, on the other hand, aid comes in the form of in-kind transfers of necessities, then they may find these actions less attractive than taking more far-sighted actions that leave them with higher incomes in the future as the in-kind transfers cannot perfectly replace their lost income due to their earlier decisions. Moreover, to preclude potential recipients from under-providing 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 be induced to squander (Coate, 1995).

Information problems add other arguments for in-kind rather than cash transfers. In practice, government agencies cannot observe accurately who is in need (or deserving) and who is not, and the government will want to design its programs to mitigate these information problems. One aspect of program design consists of the administrative machinery design to sort out needy from non-needy applicants and to ensure that recipients abide by the terms and conditions of the support program. These administrative issues are discussed in the next sub-section. However, the nature of support can also affect the take-up rate of the needy versus the non-needy, that is, to induce some beneficial self-selection into the program. Self-selection will be improved to the extent that the support is relatively more attractive to the target population. Thus, in-kind transfers such as food stamps might induce better self-selection than cash transfers. Food may be relatively more valuable to the needy than to the non-needy so that the former are more likely to be willing to bear the cost of applying. The cost of applying itself might serve as a self-selection mechanism, even if it seemingly increases the cost to recipients. If it takes time to apply, those whose time is less valuable will be more likely to apply. Those may be the needy to the extent that they are not busy earning income. Moreover, although stigma increases the cost of

applying, the stigma may be even larger for the non-needy than for the needy. If there are conditions attached to eligibility, such as training or job search requirements, that may also screen out some non-needy persons and reduce the size of Type II errors (and as a result allow the program to be more generous).

A final issue of program design involves how to harmonize support for income variability with longer-term support for those in chronic need. Some arguments can be used to 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 so will not be prepared to adjust to a decline in real income. They may have made some 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. This may simply reflect the fact that it takes time to sort out persons according to their need. Moreover, incentive effects may well be less in the short run than in the long run since it could take time to adjust one's earnings from employment or self-employment. These arguments might suggest that support should be more generous and eligibility less restrictive for temporary than for long-run support.

Administrative considerations complement these policy considerations. As mentioned earlier, eligibility for support can be determined by ex ante monitoring, by ex post monitoring (self-reporting combined with ex post random audits) and by self-selection. 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 forms of 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 readily 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 must apply and be subject to an initial screening. The mechanisms are already in place 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 well 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 kinds of in-kind transfers, such as rent subsidies, might be more costly to implement in a short time frame.

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Federal Home Loan Mortgage Corporation, www.freddiemac.com

Federal National Mortgage Corporation, www.fanniemae.com

Legal Service Corporation, www.lsc.gov

United States Department of Agriculture, Food and Nutrition Service, www.fns.usda.gov

United States Department of Health and Human Services, Administration for Children and Families, www.acf.hhs.gov

United States Department of Health and Human Services, Centers for Medicare and Medicaid Services, www.cms.hhs.gov

United States Department of Housing and Urban Development, Homes and Communities, www.hud.gov

United States Department of Labor, www.dol.gov

United States Department of the Treasury, Internal Revenue Service, www.irs.gov

United States Social Security Administration, www.ssa.gov