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ABSTRACT

This paper aims to provide a swift tour of the economic issues presented by vouchers and thus to fill an apparent gap in the literature for a basic survey of the subject. Among the issues it considers are: factors determining a voucher's cash-equivalence; reasons (such as paternalism, externalities, and distribution) for giving beneficiaries non-cash-equivalent vouchers rather than cash; optimal tax issues involved in the design of vouchers and the choice between vouchers and other delivery mechanisms, including factors determining the optimal marginal reimbursement rate (MRR) in a voucher program, and the similarity between this question and that of determining optimal marginal tax rates (MTRs) under the income tax; the incentive effects of voucher eligibility criteria, such as income or asset tests; factors determining the allocative and price effects of vouchers, both in the short run when unexpectedly enacted and at equilibrium; and factors relevant to the choice between private and public supply that may often overlap with the decision whether to adopt a voucher program.

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THE ECONOMICS OF VOUCHERS

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I. OVERVIEW

This paper provides a swift tour of the economic issues presented by vouchers, which have been defined as "[g]rants earmarked for particular commodities, such as medical care or education, given to individuals" (Rosen 1995, 584). Among its main conclusions are the following:

1) A voucher is cash-equivalent if the allocation between commodities that the recipient chooses at her budget line is identical to that which she would have chosen if instead given cash in the amount of the voucher. In practice, vouchers may be cash-equivalent more often than is commonly believed. The greater the recipient's preference for the commodities that the voucher can be used to purchase, and the smaller the amount of the voucher relative to her other resources, the greater likelihood of cash-equivalence.

2) Since non-cash-equivalent vouchers are inferior to cash from the standpoint of a recipient with stable and well-defined preferences, replacing them with cash would be a Pareto improvement in the absence of other considerations. Among the considerations that may support using them are paternalism, externalities (including donative preferences for inducing a particular commodity choice), and the distributional aim of measuring need when it cannot be observed directly. An example related to the latter is a wage tax – in some respects a negative voucher program that conditions negative grants on the commodity choice of market goods rather than leisure.

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3) Any voucher program can be described as having a marginal reimbursement rate (MRR) structure, describing the size of the grant per dollar of earmarked expenditure as the amount of such expenditure by the consumer increases. The programs most likely to be described as involving "vouchers" are those that have an MRR structure of 100% - 0%. For example, someone who has $10 worth of Food Stamps can use them to pay 100 percent of qualifying food purchases up to $10, and 0 percent thereafter. By contrast, a food subsidy program with a flat MRR structure would pay a fixed percentage of the cost of all the consumer's qualifying food expenditures.

4) Determining appropriate MRRs presents an optimal tax problem that can be compared to that of setting marginal tax rates, or MTRs. Where a voucher responds to paternalism or externalities, Pigovian taxes provide a useful analytical tool for solving this optimal tax problem, since they similarly attempt to alter marginal incentives. Where a voucher program serves the distributional aim of measuring need that cannot be observed directly, the optimal income tax perspective pioneered by Mirrlees (1971) with respect to wage taxes may provide a better analogy. In some circumstances, either of these perspectives can suggest that vouchers' classic 100% - 0% MRR structure is inappropriate. That structure is perhaps most likely to be optimal in the Pigovian setting if at some point the extra utility from increasing recipients' choice of earmarked commodities steeply declines.

5) One rationale for vouchers' typical MRR structure of 100% - 0% that is not generally persuasive, however, is that of using the top rate of zero as a cap for "budget control" purposes. This rationale ignores the likely option of holding expenditure constant by increasing the top MRR while reducing lower-tier MRRs, and it treats a nominal accounting measure of dollars spent in a given program as normatively significant. If a terminal MRR of zero is desirable this presumably is because an underlying rationale based on paternalism or externalities has ceased to apply.

6) The incentive effects of voucher eligibility criteria, such as income or asset tests, can be important. Poor households often face effective MTRs on their earning or saving that approach or even exceed 100 percent, due to the combination of explicit income and other tax liability with multiple phaseouts of transfers under both voucher and non-voucher programs. Such MTRs, which can produce "poverty traps," may become likely even if they look unappealing when considered directly if policymakers fail to integrate their consideration of "poverty" with that of distribution generally or of specific income-conditioned transfer programs with the overall tax-transfer system.

7) Vouchers do not have uniform allocative and price effects, given variations in how they affect demand and in supply elasticity. To the extent that particular vouchers are cash-equivalent, only income effects could lead them to increase demand for earmarked commodities. The direction and magnitude of vouchers' income effects on demand are a function of the relative income and price elasticities of beneficiaries and others. In cases where a voucher increases demand, its price effects depend on supply elasticity, which tends to be greater in the long-run than the short-run.

8) In markets such as housing that are thought to have fixed short-term supply, concern about a price increase if direct grants to consumers (such as vouchers) increase demand, resulting in transition gain to suppliers if under-anticipated, may motivate the use of public supply instead of direct grants. Yet any such transition gain can be reduced without regard to the choice between public and private supply. Moreover, short-term supply may be less fixed than is commonly thought (for example, because housing is a multi-dimensioned commodity), and the prospect of transition gain may have desirable incentive effects, inducing short-term supply to increase in anticipation of the adoption of direct grants. Thus, the choice between public and private supply should depend in large part on how well each responds in a given setting to the underlying incentive and information problems posed by supply of the particular commodities at issue.

9) Both the transitional and the long-term effects of increasing demand for a commodity are easier to analyze where the suppliers are for-profit firms than otherwise. Thus, in primary education, where nonprofit firms dominate private supply, transition gain from an under-anticipated demand increase (such as from newly providing school vouchers) would be locked in to the industry by the lack of owners with a claim on residual profits. Its use in the industry would likely depend on the consumption preferences of the managers or of those with whom they had dealings, with the prestige effects of alternative uses possibly playing an important role.

10) In choosing a supply mode for a given commodity, the level of supplier competition can be important, and is distinguishable from, although potentially affected by, the choice between public and private supply. Government supply through vouchers or other mechanisms is most likely to be successful (whether or not preferable on balance to private supply) in industries where nonprofit firms have proven competitive among private suppliers.

II. DEFINING VOUCHERS AND THE REASONS FOR USING THEM

A. Basic Characteristics of Vouchers

What are vouchers? Rosen's (1995, 584) definition suggests a particular economic substance, but also implicates mere form. How relevant is it whether a given program involves issuing scrip to consumers that they hand over to suppliers for reimbursement? Can a special tax benefit for medical or educational expenses constitute a voucher, and does this depend on whether one considers the benefit a “tax expenditure”? Would a program cease to involve vouchers if recipients could (lawfully) sell their scrip for cash rather than use it to acquire for themselves the earmarked commodities?

Plainly, there are no Platonic vouchers, and no absolute distinction between voucher and other programs. Even as the term is commonly used in public policy debate, one would expect it both to have unclear boundaries and to be sufficiently sensitive to form for programs of identical economic content to be called “vouchers” or not at the

designers' discretion. For example, consider a program providing free public education with some degree of student choice among schools, and providing the schools with state funds that are conditioned on the number of qualified students who enrolled. Whether or not people called this a voucher program might depend on whether the schools nominally charged "tuition" that the students paid with state-issued scrip that the schools then submitted to receive state funds, or instead charged zero tuition and separately received identical enrollment-based compensation from the state. Yet this design choice might make no difference so far as the program's real character and effects were concerned.

Ultimately, the precise definitional boundary that one draws between "vouchers" and "non-vouchers" is of little import. What matters are programs' actual effects given their characteristics, which can vary continuously along multiple dimensions. The term "voucher" is useful, however, insofar as people actually use it in a particular fashion. One therefore can convey information by describing various programs as more or less voucher-like, even if it is not particularly useful to say which of them cross some arbitrary threshold of voucherdom. The best way to capture what a "voucher" is in public policy debate is therefore both to describe such economic substance as the term has and to explore some prominent examples that show how it is used. As to economic substance, the following four characteristics appear to be critical, if not in all cases indispensable:

1) Grant to consumers based on personal or household characteristics - the grant provided by a voucher goes directly to consumers, rather than to suppliers (or, if directly to the supplier, on behalf of a particular consumer). Moreover, this typically is not solely a matter of nominal incidence, as under the rule - generally viewed by economists as "irrelevant" (Rosen 1995, 285) - splitting nominal payroll tax liability between workers and employers. Rather, personal or household characteristics must have some bearing on who receives the grants and uses them to consume the earmarked commodities. Vouchers therefore help pay for earmarked commodities, but just for beneficiaries, not other

consumers. This voucher characteristic accordingly is not present to the extent that all of the prospective consumers of a given commodity are offered the same grant.

2) Intermediate choice - the fact that a voucher is earmarked for specific commodities suggests that consumers have what one might call an intermediate range of choice. For example, a voucher for medical care or education allows some choice within the favored category, such as between schools, doctors, and alternative expenditures that fit the definition of medical care. Given this feature, in the public education example described above, even the use of tuition and scrip probably would not suffice to create what people considered a "voucher" program if each student were mandatorily assigned to a particular school. The provision of intermediate consumer choice raises two questions: why not more choice (at the limit by providing cash), and why not less choice? Of course, for these questions to be significant the upper and lower boundaries must both be meaningful.

3) Supplier competition - typically associated with consumer choice is the allowance of competition between suppliers. (The extent to which competition actually arises may depend on the particular market.) Suppliers often are mainly or wholly private firms, with or without limitation to nonprofits. They may, however, face significant government regulation of the earmarked commodities they provide or their operations more generally.

4) Declining marginal rate of reimbursement - considered as a government co-payment for particular commodities, vouchers tend towards a declining marginal rate structure per dollar of earmarked expenditure by the consumer - at the limit, 100 percent reimbursement up to a dollar ceiling, followed by zero reimbursement. To the extent this is so, each consumer's potential reimbursement is capped. While there are no bright lines, an uncapped program, especially if it used a rising or relatively flat reimbursement rate, typically would not be described as providing vouchers. On this ground alone, an unlimited income tax deduction for, say, education expenditure probably would not be

called a voucher program even though its value gradually declines as it pushes the taxpayer into lower rate brackets and becomes zero upon the elimination of net taxable income. On the other hand, the HOPE credit (Internal Revenue Code, section 25A), which provides certain federal income taxpayers with a tax credit that is capped at $1,500 per student per year, might be considered a voucher despite not using scrip that the supplier must redeem.

B. A Look at Some Typical Voucher and Related Programs

We next consider four leading areas where “voucher” programs are or might be used. Three involve current federal programs, while the fourth is a hypothetical state government program of a sort that has been widely discussed. We start by describing the programs, and then ask what problems they are trying to address, how what were clearly non-voucher programs might address the same problems, and how one should go about evaluating the voucher versus non-voucher approaches. We do not limit our discussion to programs that fully meet the "voucher" definition, since such a limitation would impede evaluating the significance of the various strict voucher characteristics.

1. Descriptions of the Programs

a. Food Stamps

Households that satisfy a considerable list of criteria may receive Food Stamps from the federal government. These may actually be stamps, denominated in dollars, or they may take the form of a plastic electronic benefit transfer (EBT) card, like a phone card, loaded with a certain dollar total. Food stamps are an entitlement, guaranteed to any applicant household that satisfies the requirements, which include an income test, a liquid assets test, and a requirement that unemployed adults, if not exempted, register for work and stand ready to participate in certain training programs.

The amount of food stamps that a qualified household receives is determined by formula. Roughly speaking, a household receives the difference between 30 percent of “counted monthly cash income” and an amount deemed sufficient to buy an adequate low-

cost diet (given household composition). Thus, suppose a given household was deemed to need $4,500 per year to eat adequately. It would receive $4,500 in food stamps if it had no income for the year, phasing down to no food stamps as its income increased to $15,000.

Food stamps may be used at approved grocery stores to buy approved products, basically food items for home preparation. (A household living in certain remote areas of Alaska may also use food stamps to pay for equipment for procuring food by hunting and fishing.) The retailer obtains cash reimbursement or, in the case of the EBT card, a bank account credit from the federal government (Ways and Means Committee 1996, 856-879).

b. Medicare

Medicare is a nationwide federal health insurance program for the aged and certain disabled persons. Hospital insurance ("Part A coverage") is provided automatically, and covers most costs above a deductible amount, up to a temporary ceiling that has little effect in practice. Coverage for items such as physicians' and laboratory services ("Part B coverage") may be purchased at a fixed monthly premium and pays 80 percent of amounts above a deductible. Patients can purchase supplemental "Medigap" coverage that eliminates their liability to pay deductibles and coinsurance, thus reducing marginal cost to zero (the Part A coverage ceiling aside).

The monthly premium is zero for Part A coverage, and even for Part B coverage is far less than what an arm's-length insurance provider would charge. Qualifying individuals identify themselves to service providers, who are reimbursed by Medicare. Reimbursements are for fixed amounts that depend on the diagnosis for Part A coverage, and on prescribed fee schedules for Part B coverage. Any deductibles and copayments are billed by the providers to the covered individuals.

Although the individual has considerable latitude to choose the supplier of services paid for by Medicare, some forms of purchase may not be allowed due to the difficulty of adapting them to the program's basic structure. It has, for example, been difficult to

develop an option for beneficiaries to enroll in qualifying health maintenance organizations (HMOs). Moreover, holders of Medigap coverage have virtually no incentive to engage in cost-conscious shopping.

Medicare is not a "voucher" program as the term is generally defined in this book, due to the lack of a final marginal reimbursement rate (MRR) of zero. By contrast, a replacement program that made fixed payments to a managed care provider chosen by the consumer would qualify as a voucher program. We will discuss the current Medicare system, however, because it is otherwise voucher-like, helps illuminate design questions pertaining to the optimal MRR structure, and could conceivably be made a full-fledged voucher program through the enactment of reimbursement ceilings.

c. Housing

Federal subsidies to housing (other than through the income tax) come in two main forms (Weicher 1997): project-based assistance and tenant-based assistance. Only the latter provides enough consumer choice to meet our "voucher" definition, but both are worth describing briefly to illuminate comparisons between voucher and alternative programs.

Under project-based assistance, which includes but is not limited to public housing, a qualifying tenant who makes it to the top of a local jurisdiction's waiting list is offered a specific unit (or a choice of up to three). She must then either accept what is offered or return to the bottom of the waiting list. Similarly, a still-qualifying incumbent tenant who wants to leave her unit without exiting the program can only do so at the cost of returning to the bottom of the waiting list. Qualification depends on income and asset tests and family size. It is determined by the public housing authority (PHA) in the case of public housing, and by the landlord (subject to verification) in the case of privately owned projects. The qualifying tenant pays in rent 30 percent of an income measure specified for this purpose. The federal government makes up the difference between this amount and an allowable rent that is based on the estimated cost of providing the unit, with some

reference to comparable rents in the area. (No higher rent can be charged, even if the tenant would be willing to pay it, without making the unit non-qualifying.) The grant is phased out as income increases in much the same manner as under the Food Stamps program.

Tenant-based assistance meets the voucher definition, although it involves the use of items called both vouchers and certificates. In each case, tenants who have been approved for the grant search for qualifying housing units, which must meet program quality standards. In the case of the certificates, rent for the unit must be less than or equal to the "fair market rent" (FMR) in the area, "based on the cost of modest, decent private housing on the local market" (Weicher 1997, 3). The voucher program makes use of an FMR computation, but permits rent to exceed the FMR.

In the case of a voucher, the landlord receives the amount by which the FMR exceeds 30 percent of the tenant's income. The tenant pays the balance of the rent, and thus bears the consequences of any difference, up or down, between it and the FMR. By contrast, under the certificate program, where the rent cannot exceed the FMR, the landlord receives the difference between 30 percent of the tenant's income and the rent charged. Thus, the fiscal benefit if the rent is below the FMR accrues to the government rather than the tenant, by reducing its outlay in that case.

In contrast to Food Stamps and Medicare, the various housing programs are not entitlements. Housing that qualifies for project-based assistance is in fixed supply at any time, and generally cannot meet the demand for it by qualified applicants. The tenant-based subsidies are subject to budget limits that likewise fall short of demand by families that meet the qualifications. The programs therefore have queues, and "[o]nly one eligible applicant in three ever receives federal housing assistance" (Hershkoff and Loffredo 1997, 229). Queuing has encouraged the use of subsidiary criteria for qualification, and made willingness to stay in a given area while one moves up the waiting list and thereafter (perhaps in an inferior housing unit) an informal prerequisite for receiving assistance. It is

worth noting, however, that some subsidiary criteria, such as requirements that one accept available work or undergo job training, may have some tendency to offset other distortive features of the voucher program, such as the effect of an income phaseout of the voucher amount on incentives to work.

d. Education

Public education through high school is generally free to all resident children in the United States (Hershkoff and Loffredo 1997, 269). It typically is financed through local property taxes, along with state and federal aid. Below the college level, government generally has provided no direct aid to assist particular private school students in paying their tuition. Recent years, however, have seen increased discussion of proposed school vouchers that could be used on private school tuition, and Wisconsin recently adopted such a program on a limited test basis (Milwaukee Parental Choice Program, Wis. Stat. Section 119.23; Rouse 1998).

Under a hypothetical school voucher program resembling the Wisconsin experiment, a qualifying family would receive from its state government a voucher for a fixed amount of money. Qualification and the amount of the voucher would depend on family attributes such as income relative to the number of school-age children. The vouchers would be usable towards paying tuition at all qualifying schools (possibly limited to those that were non-sectarian), although they would be set too low to pay it in full. The schools would be able to submit vouchers from their students to the state government for reimbursement.

2. Problems Addressed by Voucher and Related Programs

Through each of these voucher and related programs, the government intervenes in the economy with respect to a particular consumer transaction. For Food Stamps, the transaction is provision of food to people who do not have enough to eat. For Medicare, it is the provision of medical care to elderly people who are sick. For housing vouchers, it is the provision of adequate accommodations to people who either are homeless or live in

sub-standard accommodations such as the stereotypical tenement or slum. For education vouchers, it is the provision of adequate education to children.

Each program therefore seems to rest on the view that non-occurrence of the identified transaction in circumstances where the voucher is used to ensure its occurrence would be undesirable.[1] Since consumer transactions ordinarily are the province of the particular consumers and suppliers who decide whether or not to engage in them, it is worth asking what really is thought to be the problem in each of these cases. The main possibilities - apart from simply a convenient political alliance between supporters of progressive redistribution and of business subsidies[2] - are the following:

Distribution - Each of the above commodities might be thought important enough to suggest that almost anyone who was not facing a severe budget constraint would purchase it. Thus, at a minimum, non-occurrence of the consumer transactions helps to dramatize broader distributional problems. Starvation, for example, is more vivid than generalized poverty. Without more, this would suggest broadening the programs' focus to address poverty in general, without limitation to an arbitrary subset of the commodities that poor people may be unable to afford. In some cases, however, the voucher programs' focus on satisfying consumer demand for a particular commodity may advance the core requirement of distributional policy that one correctly identify the needy. Thus, if sick elderly people are needier than healthy ones who otherwise have the same resources, Medicare arguably directs its aid to the "right" group by subsidizing the medical expenditure that results from being sick. (One could argue that other programs, such as the income tax, adjust for non-health differences in elderly people's resources.) Or, if a

[1] Housing and education vouchers often are described as responding to the failures of public housing and education, rather than to under-provision of the earmarked commodities in private consumer transactions. However, an important motivation for providing the public housing and education whose quality has attracted criticism was presumably to address under-provision of these commodities in private transactions.

[2] The statutory preambles to both the Food Stamps and certain housing programs set forth legislative aims of providing aid both to particular industries and to the poor.

household's overall level of need is importantly conditioned on the educational needs of its children, then school vouchers may tend to direct aid to where the need is greater.

Externalities - A second rationale for focusing on the above consumer transactions is that they have positive externalities, not fully reflected in the incentives of consumers and suppliers who decide whether to engage in them. An example would be the possibility that schooling shapes children's tastes and abilities in a way that will benefit others when they grow up, such as by encouraging productive work relative to crime or relying on transfers. Living in adequate housing in a decent neighborhood might have similar effects. Or the externality might involve reaching inside the household to overcome parental disregard of the children's interests, such as by requiring the household to allocate a given portion of its total budget to commodities, such as education and housing, of which the children can claim a large or even exclusive share.

A distinctive kind of externality relates to the donative preferences of those who vote and pay for government transfers. Suppose that one derives utility from enabling a poor person to eat but not from enabling her to do something that she prefers (even rationally) at the margin to eating - say, purchasing alcohol or entertainment. The resulting positive externality to her food consumption can be addressed by subsidizing it (Rosen 1995, 163), such as through a voucher. Or suppose one's preference is simply that the particular funds one gives the donee be used in a specified way, such as to purchase food, without regard to the overall effect on her budget allocation between commodities. (This could reflect "voucher illusion," or a failure to understand how the recipient's other commodity choices may adjust.) Here, earmarking the transfer addresses an externality even if its marginal effect on the donee is equivalent to that from receiving cash.

Paternalism - A third rationale for focusing on the above consumer transactions is that voucher recipients who would fail to engage in them, if given unrestricted cash instead of vouchers, would be making a mistake from the standpoint of their own interests. Here, the alcoholic is required to eat rather than drink for her own good, rather

than to benefit donors, or schooling is forced on households that under-estimate its real value to them.

Paternalism is least ambiguous in cases where the recipient has stable, well-defined preferences (of the sort normally assumed in neoclassical models) that would lead inexorably to a change in budget allocation if vouchers were replaced by cash. Some voucher recipients, however, may not exhibit such preferences. Instead, framing effects or the exhortatory influence of receiving a voucher that one is told should be spent in a particular way may end up influencing consumer choices. Thus, suppose that an individual with income of $50 per week, $30 of which he spends on food, would in fact increase his weekly food expenditure to $40 if he received $10 of food stamps, but only to $35 if he received an extra $10 of cash. The decision to give him food stamps instead of cash would not be paternalistic in the sense of requiring him to depart from stable consumer preferences of the sort one could depict with an indifference map. It might still, however, be paternalistic in the sense of reflecting a judgment from the outside that a $40 food expenditure was better for him than one of $35, and thus that the government should try (through framing or exhortation) to influence his allocative choice.

Other Market Failure - Other market failures, such as monopoly, supplier bias, regulatory distortions, thin markets, or lag in adjusting to new consumer demand, may also be blamed for the nonoccurrence of desirable consumer transactions. Low-income housing, for example, might be under-supplied due to zoning restrictions or union rules in the construction industry. Or public education might be protected from private competition despite any deficiencies because it is provided free, thus potentially making extension of the subsidy to private schools efficient even if a first-best approach would eliminate all education subsidies.

3. Non-Voucher Alternatives to the Problems That Vouchers Address

A voucher program provides only one possible response to the aim of intervening with respect to the consumer transaction it identifies. At least in principle, alternatives always include at least the following:

--providing voucher recipients with cash, or amounts not conditioned on their spending decisions. Thus, Food Stamps, housing vouchers, and hypothetical school vouchers could be replaced with cash. Medicare could in principle be replaced by a program of paying cash to elderly individuals that was conditioned on an assessment of their medical needs without regard to their actual expenditures. In practice, households that receive vouchers frequently also receive cash grants, as in the case of Food Stamps households that also receive Temporary Aid to Needy Families (TANF), or Medicare recipients who also receive Social Security payments. However, the exclusive use of cash may fail to address some of the rationales for voucher programs, such as those based on externalities or paternalism.

--providing suppliers of earmarked commodities with direct subsidies, with or without reliance on the identity of their consumers. This, too, is currently done to some extent. Consider low-income housing tax credits, as well as charitable income tax deductions along with exemptions from various taxes for nonprofit suppliers in the medical and education industries. However, the incidence of such supplier subsidies may be hard or impossible to direct to transactions involving the particular consumers that voucher programs typically are intended to benefit.

--the government can itself supply earmarked commodities, rather than using vouchers to reimburse private suppliers. Public housing and education are the obvious current examples, but in principle the government could also replace Medicare with public hospitals for the elderly, and Food Stamps with public food commissaries that handed out food conditioned on people's household circumstances. Due to its similar focus on a particular consumer transaction, this option often provides the closest substitute and leading political alternative to a voucher program.

How should one choose between voucher programs and their non-voucher alternatives? Obviously, the persuasiveness of the underlying rationales for relating government grants to specific consumer transactions needs to be evaluated carefully. However, even within the framework of accepting these rationales, one faces incentive and underlying information issues on both the consumer and the supplier sides of the transactions one ends up encouraging. In the rest of this paper, we therefore look first at the consumer-side issues and then at supplier-side issues.

III. CONSUMER-SIDE ISSUES

A. Significance of Providing a Grant to Consumers Rather Than Suppliers

In general, when a tax or transfer is generated by a transaction, its economic incidence is unrelated to its nominal incidence, but depends instead on supply and demand elasticities. The standard example is the payroll tax, the economic incidence of which is thought to be unaffected by its nominal 50-50 split between workers and employers (Rosen 285). Special considerations, such as effects on transaction costs[3] or the existence of separate government programs that are conditioned on nominal (pre-tax or transfer) prices or wages, may cause nominal incidence to matter in some cases.

The significance of vouchers' providing a grant to consumers rather than suppliers does not rest on nominal incidence. Thus, in the case of a school voucher program, it might not matter whether the vouchers were given to consumers to reimburse their tuition payments, or to the schools to supplement any such payments. Likewise, in the case of Medicare, the fact that the government directly pays suppliers of medical services does not prevent the program from being viewed as consumer-directed.

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[3] See Woodbury and Spiegelman (1987), in which offering a cash bonus to unemployed workers upon securing a new job had markedly different effects than letting the workers assign such a bonus to the employer. This appears to have reflected transaction costs. Only workers selected under new pilot programs initially knew that the bonuses were available, thus making the transaction where the employer paid a high nominal wage cost and was reimbursed "more complicated" than the one where the employer paid a low nominal wage that was supplemented (516).

Rather than nominal incidence, the key feature separating a voucher from a business subsidy is differential provision of the grant for transactions involving different consumers, based on the consumers' personal or household characteristics. This feature may cause consumers to face different prices for the same commodity depending on whether they can use vouchers or not unless suppliers can price-discriminate (net of the proceeds from any vouchers) between consumers in voucher and non-voucher transactions.

As an example of such price-discrimination, suppose that a school voucher program provided $1,000 tuition vouchers to a specific group of students, but that the schools could respond by charging these students $1,000 more in tuition (net of the vouchers) than other students. If this were a stable outcome, it would convert the grant into a supplier subsidy, without permitting vouchered students to pay less out of pocket than unvouchered students. Under fully competitive markets, however, this result is impossible. After all, so long as vouchered students are worth more in revenue to the schools than unvouchered but otherwise identical students, the schools would be expected to compete for them by cutting the price, until at equilibrium the vouchered students paid $1,000 less out of pocket.

Yet noncompetitive situations where suppliers capture the benefit are not uncommon. Consider universities, which may charge less than a market-clearing tuition, using legislative subsidies or their endowments (which are locked in by nonprofit status) to pay their bills and selective admissions to choose within the queue of applicants. If the federal government enacts a voucher program (such as the HOPE credit) for selected students, the universities may respond by increasing tuition for people who meet the voucher criteria.[4]

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[4] Along these lines, upon enactment of the HOPE credit the Massachusetts Board of Higher Education scaled back a proposal to eliminate certain community college tuition, proposing instead to charge students whose income made them likely candidates for the credit a tuition roughly in the amount that was HOPE-creditable (Chacon 1997, A-1). The net effect, compared to giving such students free tuition, would be to transfer revenue from the Federal Treasury to Massachusetts in the amount of the HOPE

Or consider cases where suppliers have some degree of local monopoly power that they use to price-discriminate based on their assessment of different customers' reservation prices. (A standard example would be car dealers if some or all of their customers have significant search costs.) In such cases, the fact that a consumer either must communicate bearing a voucher, or has observable characteristics from which this can be inferred, may lead to price-discrimination that effectively converts the voucher into a business subsidy. Medicare might provide an example in markets where competition is limited or searching for health care is costly, but for the system's use of prescribed fee schedules.

B. Vouchers' Effect on the Degree of Consumer Choice

1. Extent to Which Vouchers Are Cash Equivalents

It is natural to think of vouchers as inherently non-cash-equivalent from the recipient's standpoint, because they can only be used to purchase earmarked commodities. In fact, however, a voucher is equivalent to a cash grant unless the earmarking alters the recipient's overall budget allocation between commodities. Cash-equivalence may be common, and depends on both the consumer's preference for earmarked relative to other commodities and the voucher's size relative to the consumer's other spendable resources. (On the actual cash-equivalence of Food Stamps, see the chapter by Moffitt in this volume.)

The point can be illustrated through a hypothetical in which there are only two commodities, food and nonfood. Suppose that, prior to the adoption of the voucher program, Alice has a weekly income of $50. She thus can spend $50 on food and nothing on nonfood, $50 on nonfood and nothing on food, or any intermediate combination that does not cost more than $50, as shown by line AA' in Figure 1.

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credits claimed.

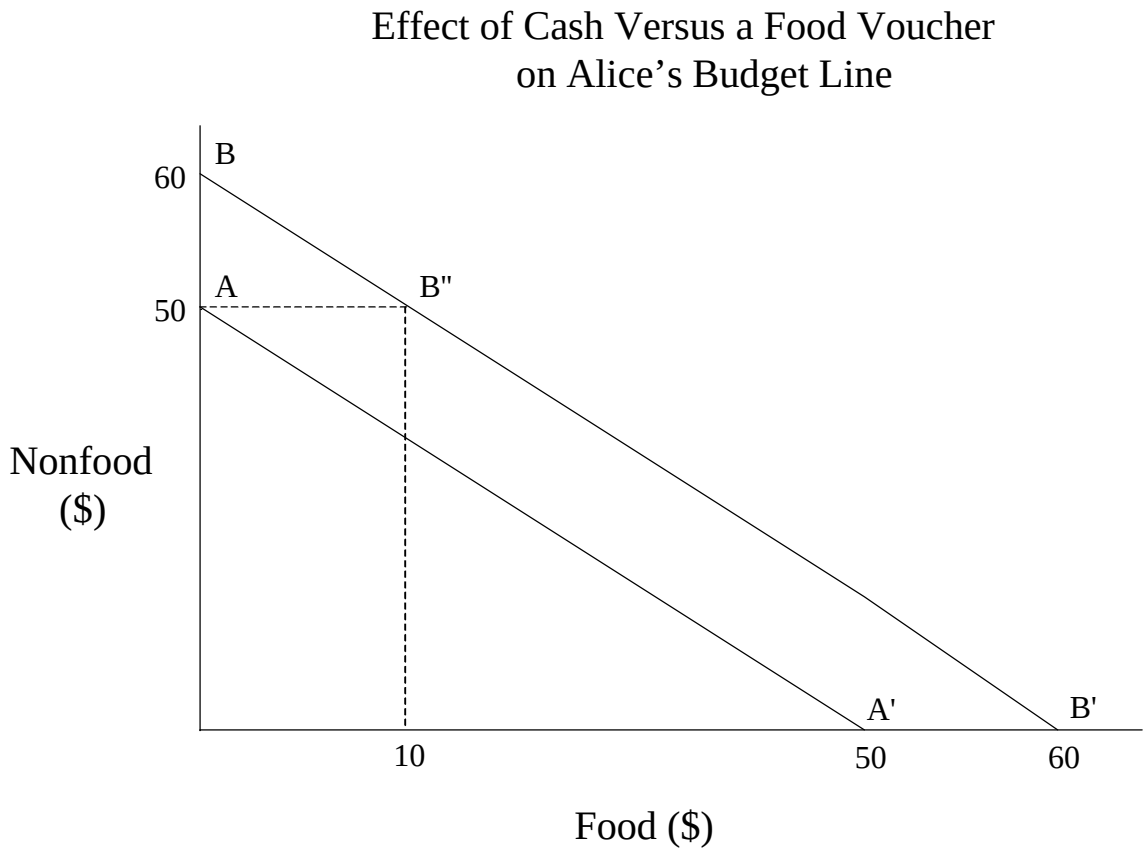

Figure 1

Now suppose a new voucher program is enacted, under which Alice receives $10 per week in food stamps in addition to her other income. Had she instead been given an extra $10 of cash per week, her budget line would have shifted outwards to embrace combinations from $60 on food and no nonfood, to no food and $60 on nonfood, as shown by line BB'. However, given the requirement that the food stamps be spent on food - assuming this cannot be circumvented, such as by selling them for cash - the attainable combinations must include at least $10 of food. Thus, she still cannot afford more than $50 of nonfood. Her actual new budget line therefore differs from BB' by the subtraction from it of the triangle ABB". Yet it remains at all points above AA', since any affordable quantity of nonfood can now be combined with $10 more food than previously.

To what extent is Alice made better off by the food stamp program? This depends on how her preferences for food and nonfood lead her to value alternative combinations of

the two. This can be shown by superimposing indifference curves on her new budget line. In Figure 2, we see an outcome where the voucher program happens to permit her to select the same new combination - involving increases in both food and nonfood consumption - that she would have chosen if offered cash. In either case, she moves to B'" whether she receives cash or the voucher. Thus, in this case giving her $10 of food stamps leads to the same budget allocation as giving her $10 of cash, and increases her utility by the same amount (from A'").

Example Where Alice's Food Voucher's Are Equivalent to Cash

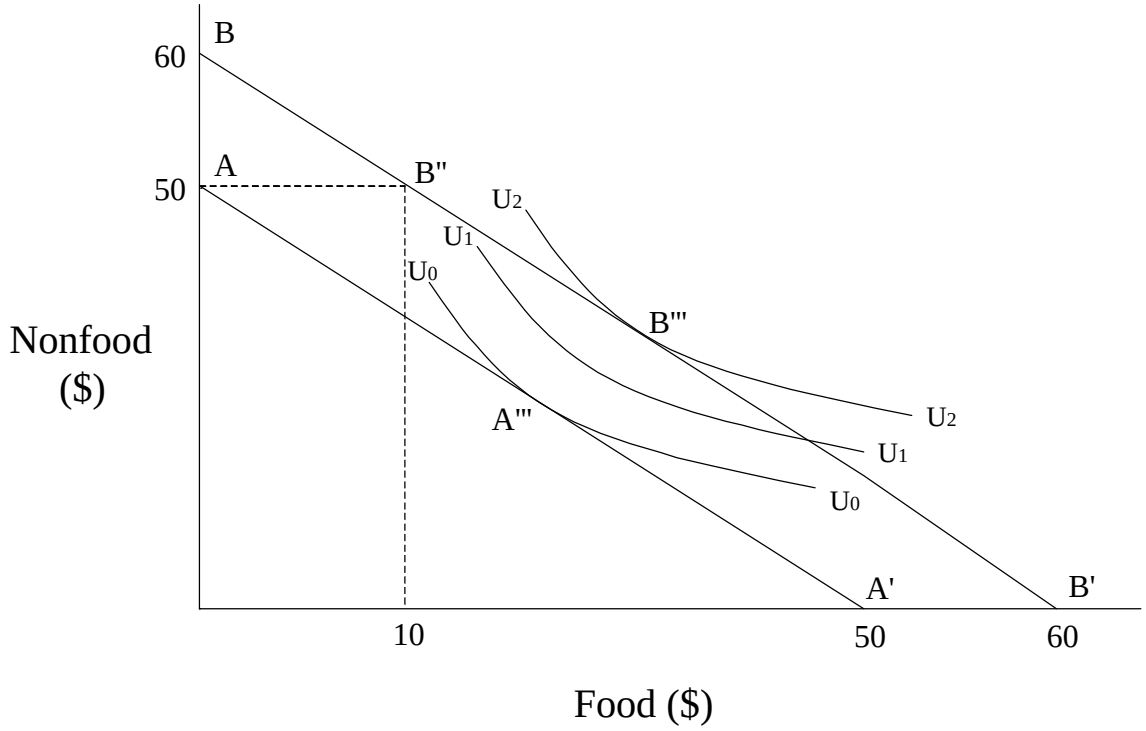

Figure 2

More generally, the voucher program gives Alice the same benefit as cash whenever B'" - the point of tangency of line BB' with the highest indifference curve that touches it (U_2) - lies to the right of B", which is the point where the amount of the earmarked commodity that she purchases equals the amount of her vouchers. In Figure 2, the constraint requiring Alice to spend at least $10 out of her $60 budget on food is no

constraint at all, since she meets it of her own volition. Replacing the voucher with a $10 cash grant would therefore make no difference. Indeed, replacing it with a $10 nonfood voucher would likewise make no difference, since B'" is shown as being above $10 on the vertical (nonfood) axis. Under any of these alternatives, Alice uses the extra $10 to move from A'" to B'", increasing both her food and her nonfood consumption in proportions that depend purely on the preferences that underlie her indifference curves, as distinct from how (if at all) the $10 grant is earmarked.

Now suppose instead that B'" lay to the left of B". Holding everything else on Figure 2 the same, this would require some combination of (i) shifting curve U_2 to the left to reflect Alice's having a greater taste for nonfood relative to food consumption at that utility level, and/or (ii) shifting B" to the right by increasing the portion of Alice's budget line that was earmarked for food expenditure. Now, if Alice were allowed to spend $60 however she liked, she would buy less food than the amount of her food vouchers. Under this condition, the vouchers are worth less to her than cash in the same amount, because they leave her on an indifference curve that lies below U_2. This is shown in Figure 3, in which her relevant indifference curves lie further to the left (towards nonfood) and the composition of her $60 budget has changed to consist of $20 of food vouchers and only $40 of other goods. Here, the result of earmarking the food vouchers is that her utility increases only from U_0 to U_1, rather than to U_2.

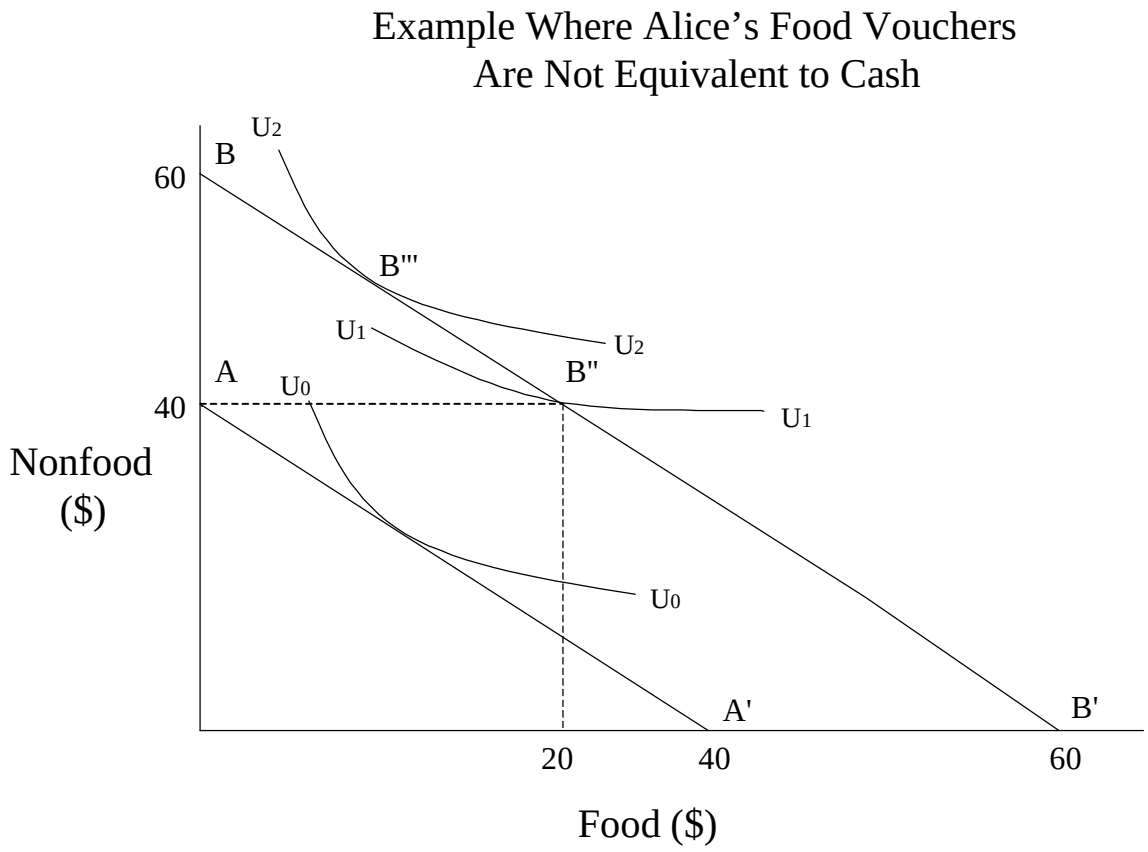

Figure 3

At the limit, if Alice placed no value on any food, food vouchers would be worthless to her. Although they would permit her to add food in the vouchered amount to her otherwise exclusive nonfood consumption, they would keep her on the same indifference curve (a horizontal line in which only the quantity of nonfood mattered). Even short of that extreme, however, whenever B'" lies to the left of B", replacing the voucher with a cash grant would make her subjectively better off at no added budgetary cost to the government. Accordingly, absent externalities or grounds for paternalism, this would be a Pareto improvement, making her better off and no-one worse off.

What determines whether one has the cash-equivalence case depicted in Figure 2, or instead the non-cash-equivalence case depicted in Figure 3? This depends on two things. The first is the consumer's relative preference for the earmarked commodity at the relevant budget level. Consumers with different preferences will have different income-

expansion paths. In the standard textbook picture, an income-expansion path is a smooth, northeast-inclined curve that shows the combination of, in this case, food and nonfood (in dollars spent) chosen by the household at various budget levels, given prices. The typical shape is that of the segments OG"X and OI"X' in the Figure 4. OI"X' belongs to a consumer with a strong taste for nonfood (an alcoholic, for example), relative to the consumer with expansion path OG"X. The voucher program gives rise to a kinked shape for the income-expansion paths, so that MI"X' describes the income expansion path of the alcoholic, and MG"X, that of the ordinary consumer. The portions of the paths sloping up to the northwest (MI" and MG") constitute the choices made when the requirement that the vouchers be used on food is binding on the consumer in question. That constraint cuts in at a higher pre-program income (H instead of F) for the alcoholic, the consumer with the lesser relative preference for food.

Expansion Paths under the Impact of a Typical Food Voucher Regime

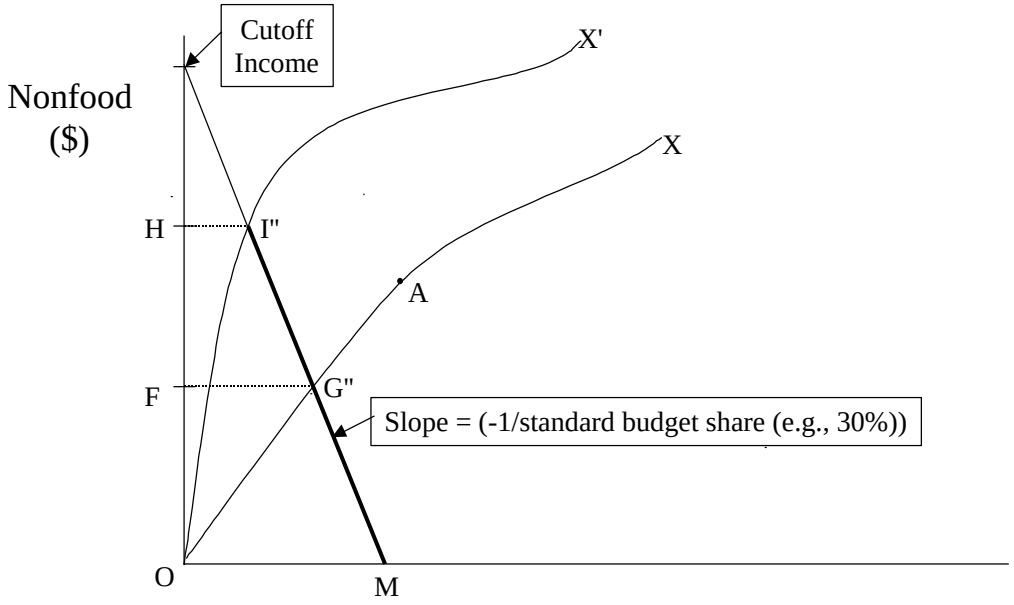

Figure 4

As the examples in Figure 4 suggest, the second determinant of the degree of cash equivalence is the amount of the voucher relative to the consumer's other resources.

Thus, consider the cash-equivalence of food stamps for two households that are identical except that their other (cash) incomes are zero and $12,000, respectively, where the allowable benefit is $4,500 minus 30 percent of income. ("Identical" thus means they have the same income-expansion paths in Figure 4, MG"X, for example.) The first household receives $4,500 of food stamps (the only resources it has) and the second $900. Here, food stamps very likely are a cash equivalent for the second household (which surely would spend at least $900 of its total $12,500 on food items for home consumption in any event), but very likely is not a cash equivalent for the first. Moreover, the less the first household's taste for spending its first few thousand dollars of resources on food, the less cash-like the benefit is. Note that the second household will spend less on food than the first household, despite being better-off overall. The situation is illustrated in Figure 4. The household with the greater income is at a point like A in the figure, whereas the household with zero cash income is at a point like M.

These results can perhaps be rationalized if an important motivation for using food vouchers is paternalism and if cash income is a proxy for the ability to make good decisions. Thus, suppose that alcoholism induces behavior contrary to self-interest but cannot be observed directly. At all income levels up to a certain point, the food voucher interferes more with alcoholics' than with non-alcoholics' exercise of consumer choice. And the intervention extends to a higher level of cash income for alcoholics than for non-alcoholics.

Externality arguments also might in some circumstances support allowing the voucher to become more cash-like as other income increases. Suppose that voters and taxpayers want the specific resources they transfer to be used for food and nothing else. Here, increasing cash equivalence as non-voucher income increases is a byproduct of satisfying this preference, and the welfare loss to the lowest-income households from having to buy extra food ought in principle to be compared to the welfare gain to third

parties from making them do this. One also might consider the reduced disincentive effect of an income-conditioned voucher on work if it is not cash-equivalent.

Now consider Medicare, where the marginal reimbursement rate remains indefinitely at 80% or 100%, rather than going to 0% once a fixed expenditure limit has been reached. The size of the grant is therefore conditioned on the amount that the consumer decides to spend. (Medicare also, unlike Medicaid, provides sufficiently generous reimbursement to avoid giving suppliers any strong financial incentive to act as gatekeepers.) Thus, in Figure 5, AA' is Bob's budget line absent a Medicare program, which he can allocate between health care and non-health care expenditure. AB is the new budget line resulting from Medicare's 80 percent reimbursement rate for his medical expenditures. (AB would be horizontal at a 100% reimbursement rate.) For any point B' that Bob picks on this budget line, we can specify a budget line CC' that Bob would have had if given an unconditional cash grant in the same amount.

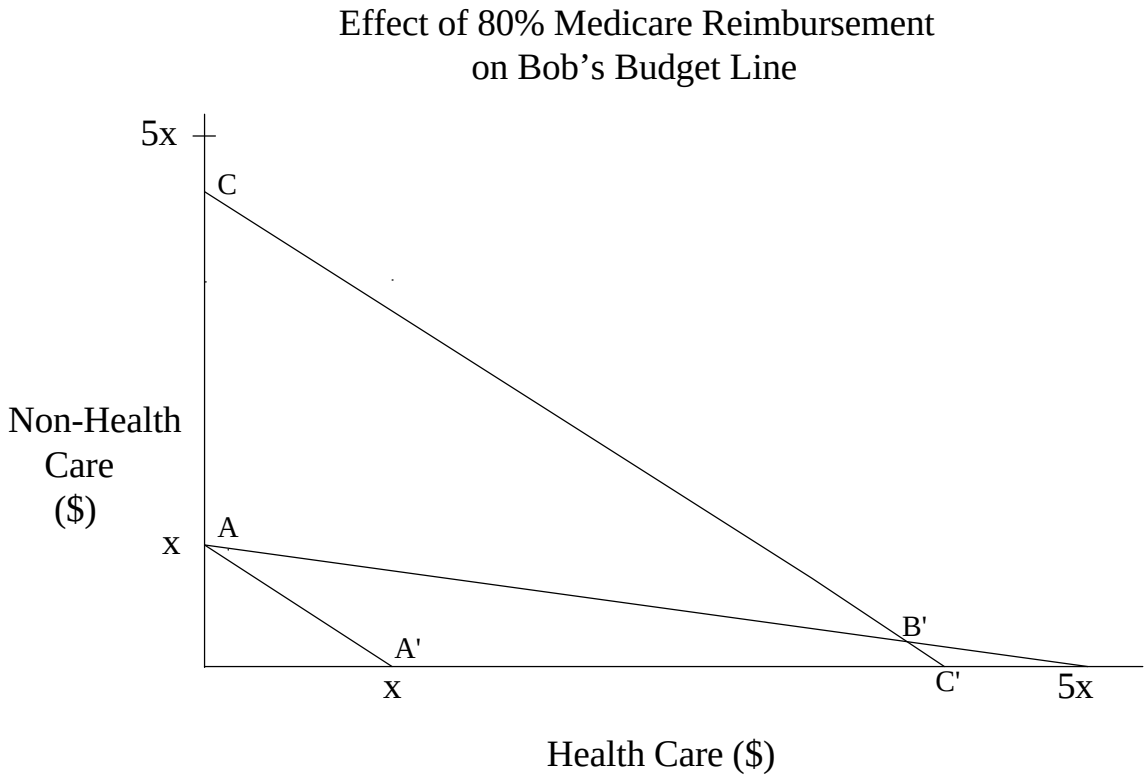

Figure 5

Medicare's extremely pronounced effect on beneficiaries' budget lines makes its historical growth pattern unsurprising. The increase in medical expenditure would probably have been even greater if not for (i) the non-cash costs of receiving health care, such as in personal time or discomfort, and (ii) the role doctors may play, even when generous payment is available, in deciding what health care to supply. Indeed, without these factors, beneficiaries whose Medigap coverage placed them on a horizontal budget line might be expected to demand all medical expenditure that conveyed even a penny of benefit, without regard to its cost.

Although we do not show indifference curves on Figure 5, the skew towards medical expenditure that even 80 percent reimbursement induces suggests a possibility that Bob could increase his utility at no extra budgetary cost to the government, if he were permitted to move to the left from B' along CC' by shifting towards non-health care

expenditure without a reduction in his grant. This would not be the case, however, for medical expenditure that was sufficiently urgent for Bob to want to allocate to it all available resources above those required for minimum subsistence.

Where Bob would prefer to move to the left along CC', this is a Figure 3-type case in which the Medicare grant is not cash-equivalent. In such a case, the argument against permitting Bob to achieve the commodity allocation he wants given his budget line probably cannot rest on paternalism. Even to the extent that increasing medical expenditure correlates with increased sickness, how plausible is it that, the sicker one is, the greater the likelihood that one will misunderstand one's own interest in allocating one's consumption to health care? Thus, the argument for non-cash-equivalent Medicare grants probably must rest either on distributional grounds (if we cannot tell whom we want to benefit without observing medical expenditure), or on an externality claim, perhaps concerning voters' and taxpayers' donative preference for having Medicare beneficiaries consume health care rather than other commodities.

2. Relative Choice Under Voucher Programs Versus Government Supply

The prior section's comparison of vouchers to cash grants still holds if one substitutes government-supplied commodities for cash grants. Thus, suppose that, in lieu of giving someone a $10,000 voucher to purchase housing or education, the government spent $10,000 to provide her with free public housing or education. One could identically analyze whether her budget allocation and utility would change if she were instead handed $10,000 in cash and permitted (but not required) to purchase the same commodity for that amount. After all, free supply is a kind of implicit voucher transaction; the government spends a sum of money on the beneficiary but specifies its use.

As we will see in section IV, some crucial differences between vouchers and free (or below-cost) government supply lie on the supplier side. Vouchers may use private rather than public suppliers, often accompanied by greater competition between suppliers, and thus affect the incentive structure of commodity supply. On the consumer side,

however, there often are important differences as well between vouchers and free government supply. Voucher programs often permit greater consumer choice than government supply programs, both of specific commodity within the earmarked category, and of supplier.

In illustration, consider programs relating to housing and schools. In housing, the tenant-based voucher and certificate programs allow beneficiaries to select the qualified housing unit of their choice, whereas project-based assistance, much of which involves public housing, offers no more than three units on a take-it-or-leave it basis. Similarly, while school choice can to some extent be accommodated in the public school structure, advocates of school voucher programs argue that choice should be greater still, going both to the particular school and to what sort of education is being purchased (for example, religious content).

We should note, however, that this distinction in consumer choice is not inherently related to whether one uses actual vouchers or merely (through free government supply) implicit ones. After all, public housing or education can be structured to offer extensive consumer choice of specific commodity or supplier, while the use of a voucher does not prevent choice from being limited. The frequent difference in practice may reflect supplier-side incentive issues of the sort that we discuss in section IV.

Why might greater consumer choice of specific commodity and supplier be desirable? Apart from its effect on supplier incentives, the main argument rests on consumer sovereignty. Even if one rejects consumer sovereignty at some margins of choice - say, between food and alcohol - based on externalities and paternalism, there may be other choices, including those within a broad category - say, a food choice between pasta and hamburgers - as to which one's reasons for limiting it do not apply.[5]

[5] Non-cash-equivalence in the case of prescribed consumption also becomes more likely as one moves to finer categories, such as types of food rather than all food. The taste for a type of food is likely to vary more between consumers than the taste for all food, since one can live without, say, meat or ice cream but not without calories.

The downside of providing greater consumer sovereignty is that, depending on how the (voucher or non-voucher) program is structured, it may ease consumer choice that is inconsistent with any externality or paternalism-based rationales. It also, depending on program structure, raises issues of consumer cost-consciousness - the degree of incentive to secure earmarked commodities at a low rather than high price - that we consider next.

C. Consumer Incentives to be Cost-Conscious

1. Marginal Reimbursement Rates as Posing an Optimal Tax Problem

Consumers have every reason to be cost-conscious when they are spending their own money. Moral hazard arises if they are spending someone else's money and their behavior cannot be perfectly observed. In the voucher setting, cost-consciousness plays a complicated role because one may want consumers to take the cost of earmarked commodities into account in some respects but not others. For example, the whole point of providing food stamps rather than cash in cases where the two are not equivalent is to induce a kind of departure by recipients from full cost-consciousness when they buy food. Yet this aim of the program would presumably be subverted if people bought food wastefully and thus remained ill-nourished - a danger that the program design helps to minimize through its incentive structure. Suppose, however, that the Food Stamps program was revised to be more like Medicare, in the sense that beneficiaries were reimbursed for whatever costs they incurred to acquire food of a given caloric content. Now the diminished incentive to be cost-conscious in buying food might begin to pose major problems for the system (for example, people could buy beluga caviar and be reimbursed), notwithstanding the aim of eliminating cost-consciousness in certain tradeoffs between food and non-food.

In general, the cost-consciousness of consumers who receive vouchers or other earmarked grants depends on the marginal rate of reimbursement (MRR) - the percentage of a dollar of extra expenditure for an earmarked commodity that the government, rather

than the consumer, would bear. Under the definition stated in section II of this paper (and generally applied throughout this volume), the classic voucher has an MRR structure of 100% - 0%, and nothing too far from that even qualifies as a voucher. Nonetheless, we examine the question of setting optimal MRRs more broadly, since policymakers can choose the MRRs they prefer without being constrained by artificial definitional boundaries.

Setting MRRs in a voucher or similar program is very similar to setting marginal tax rates (MTRs) in a tax system. At a broad level of generality, only the direction of the cash flow – from government to consumer in the voucher, and from taxpayer to government in a tax system – distinguishes the two cases. Consider a Pigovian pollution tax, which attempts to discourage the taxed activity to the extent of that activity's negative externalities. Or consider an optimal income tax (OIT) in the literature inspired by Mirrlees (1971). An OIT is in some respects a negative voucher program that taxes the commodity choice of market goods that are paid for through market work, although here the aim is distributional rather than based on considering market participation akin to pollution.

It should be clear, therefore, that setting MRRs presents an optimal tax problem, the analysis of which depends on the underlying reason for altering the relative prices of different commodities for program beneficiaries. We first discuss the case where the program responds to paternalism or externalities, and thus resembles a Pigovian tax. Second, we discuss the case where the program serves distributional purposes and thus resembles the OIT. Third, we discuss the case where the program's effects on consumer choice are undesirable in terms of the policy objectives usually adduced in welfare economics, and it ought (apart perhaps from political considerations) to be replaced by a cash grant. Finally, we discuss issues of "program cost" that are sometimes described as justifying the classic voucher's 100% - 0% MRR structure.

a. Cases where the voucher limits consumer choice pursuant to externalities or paternalism - First, suppose that choice is limited due to externalities or paternalism. Thus, alteration of consumer choice is affirmatively desirable up to a given point but not beyond - just as Pigovian taxes should be set at the right level given externalities, rather than too high or too low. One therefore wants to induce some choice of earmarked commodities that the voucher recipient would not have selected if given cash. However, the extent to which one wants to alter choices depends on the relationship between (i) the allocation that the consumer would actually choose at the budget line she would face if the vouchers were converted to cash, and (ii) the socially preferred allocation at this budget line. In effect, one faces the problem of selecting the correct Pigovian subsidy at each point.

To show how optimal MTRs depend on this relationship, suppose we start with a zero-income household that, absent paternalism or externalities relating to its food consumption, would simply receive a cash grant. To be optimal, any food vouchers component of this grant would have to be a cash-grant equivalent with a zero MTR at the household's actual decision point regarding food expenditure.

Then suppose we adopt the paternalistic view that zero-income households under-estimate by 20 percent the benefit of eating food, while otherwise making rational choices. Or equivalently, suppose that the benefit to other people (perhaps from donative preferences) of food consumption by such households equals 20 percent of the cost of the food, without regard to the amount of food consumed. Under this view, optimal MRR analysis would suggest providing unlimited 20 percent reimbursement for the household's food purchases, and presumably reducing the cash grant.

Suppose instead, however, that the paternalistic view holds that zero-income households are being irrational if they do not spend enough on food to buy an adequate low-cost diet (assuming a cash grant of at least that amount), but that decisions whether to spend more than this minimum threshold are presumptively within consumer sovereignty.

Or, equivalently, suppose that voters and taxpayers derive substantial utility from increasing zero-income households' food consumption up to the amount needed to buy an adequate low-cost diet, but zero utility from supporting further food consumption (apart from any utility that they assign to progressive redistribution through cash grants). Now, reducing cash grants and enacting a food voucher program with a 100%-0% MRR (like that of the actual Food Stamps program), begins to look plausible. Further specification of the paternalism or externalities would be needed to explain the gradually increasing cash-grant equivalence of Food Stamps as income increases and the amount of the grant decreases.

Even under this assumption that the extra utility from the grantees' increasing their food consumption suddenly declines from significant to zero, a 100%-0% MRR is not necessarily optimal under limited information. If the exact point where this happens for given households is unknown, the aim of minimizing error costs might suggest a range of intermediate MRRs. However, the assumption of a sudden decline in extra utility would still tend to justify MRRs that swiftly went from very high to very low if the drop generally occurred in a fairly narrow and predictable expenditure range.

One might ask why the extra utility from grantees' increasing their consumption of a specific commodity should be expected to decline in so sudden a fashion. The question is well-taken, and we do not assert that in any of the cases covered by voucher programs it actually does. The assumption does, however, appear to underlie various voucher programs. Thus, in the Food Stamps setting, paternalistic claims may emphasize the case of the zero-income household headed by an alcoholic who prefers to drink his dinner, rather than uniform under-appreciation by zero-income households of the value of food. In addition, voters' and taxpayers' donative preferences may induce them to value on altruistic grounds providing the poor with enough food to forestall starvation or malnutrition, along with housing and education that meet some minimum standard, without extending these altruistic preferences either to further increases in poor people's

utility from these forms of consumption, or to other consumption (such as entertainment) that the poor value. Consider the charitable impulse that, in contrast to a welfare economics view, treats alms for the poor as somehow different in kind from progressive redistribution generally. Or consider normative views that emphasize providing specified commodities (whether material or not) that are selected by the observer rather than the consumer, on the ground that these items are "merit goods" (Musgrave 1959) or "primary goods" (Rawls 1971).

b. Cases where the program serves distributional objectives - We next consider the case where the grant program is not intended to alter consumer choices even though it may have this effect, but rather bears on commodity choice as an indirect signal of need. Suppose, for example, that Medicare subsidizes medical expenditure by the elderly as a proxy for redistributing wealth from the healthy to the sick, on the ground that the latter are worse-off but that health (as distinct from medical expenditure) is hard to observe directly. If given this interpretation, Medicare naturally brings to mind the OIT, which taxes earnings (and thus the commodity choice of market consumption over leisure) as a proxy for taxing earning ability that cannot be directly observed.

Figure 6 drives home the similarity between the OIT and Medicare (as depicted in Figure 5) by showing how the imposition of a 30 percent earnings tax affects Carol's budget line, and her commodity allocation between leisure and market consumption. Her budget line shifts from AA' (with $100x of earnings at A' where she exclusively chooses market consumption) to AB (where the same choice yields her only $70x of earnings). Her budget line continues to reach A on the vertical (leisure) axis because the tax is zero if she does not earn.

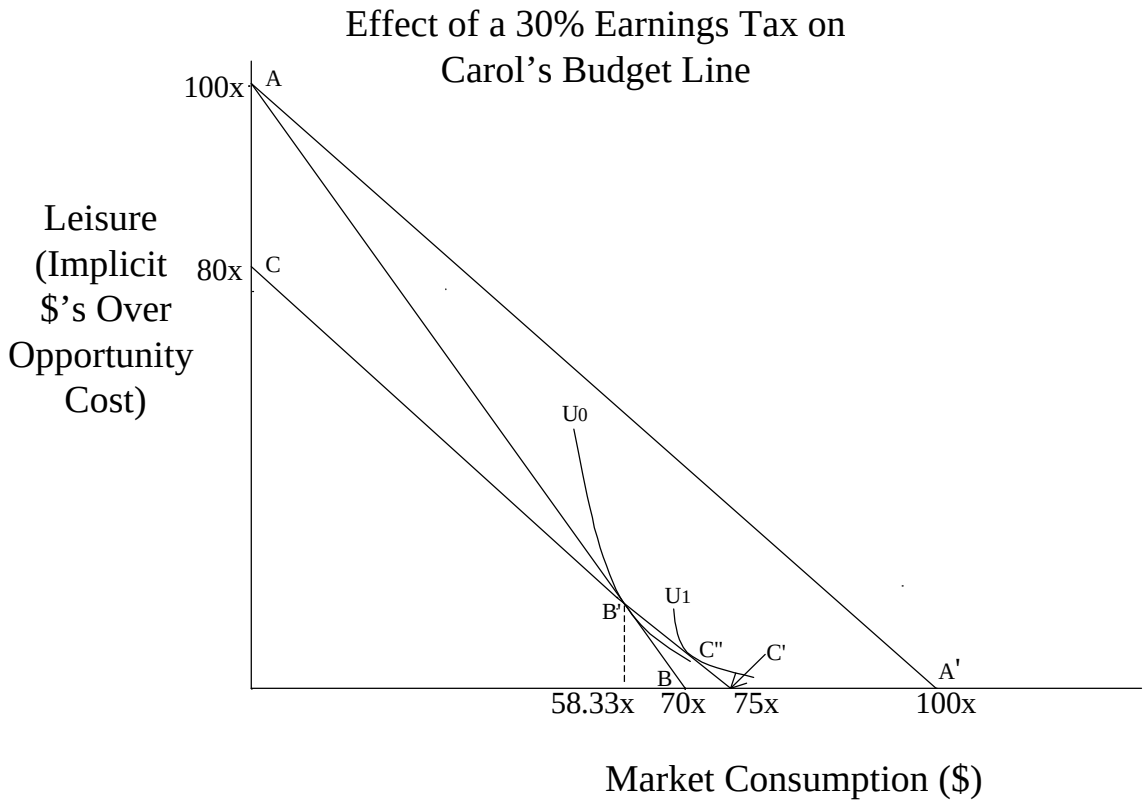

Figure 6

Suppose that Carol chooses point B' on her new budget line, where she earns $83.33x before tax and pays taxes of $25x, leaving after-tax income of $58.33x. If only policymakers had known that she would choose this point, then in principle they could have created a Pareto improvement by simply charging her a $25x lump-sum tax. This would have made her budget line CC', which is parallel to AA' but $25x lower. B' is on this budget line, but she now would be able to move from it to some point C" where she substitutes additional work for leisure and earns more than $83.33x. (The fact that B'C' lies above the budget line segment B'B that she actually faces given the earnings tax makes it likely that she would move in this direction.) She thereby would be able to increase her utility by moving from indifference level U_0 to U_1.

OIT analysis involves determining the optimal rate structure under various assumptions, by quantifying the tradeoff between (i) utility gain from transferring resources from high to low-wage rate individuals (possibly explained on the ground that

people have similar utility functions characterized by declining marginal utility), and (ii) utility loss from inducing workers to substitute away from market consumption (as from moving Carol to U_0 rather than U_1). The Medicare version would simply substitute health levels for wage rates (perhaps on the assumption that health expenditure has declining marginal utility as one grows healthier) and non-medical consumption for market consumption.

Two main findings in the OIT literature are of potential interest to the analysis of Medicare. First, no plausible estimates of labor supply elasticity produce MTRs anywhere near 100%. For optimal MRRs under Medicare to be anywhere near 100%, the relevant elasticity would have to be considerably lower and/or the relevant marginal utility curves would have to be a lot steeper.

Second, Mirrlees, while expecting to find that optimal tax rates were highly graduated, found instead that they were relatively linear or at some point even modestly declining under a variety of alternative specifications. This is now a common result in the OIT literature, which indeed finds that the marginal tax rate should in principle be zero at the very highest income level in the society, if this point can be determined (Slemrod 1990, 164).

The intuitive explanation for this result is that marginal tax rates at inframarginal income levels are in effect lump-sum and thus non-distortive. A tax rate at the very highest income level in the society is at the margin for one individual and inframarginal for no-one. As the income level drops, the tax rate becomes inframarginal for increasing numbers of individuals, although the number for whom it is at the margin may fluctuate depending on wage rates and preferences in the population. This constant increase in inframarginality as the amount of income declines provides the reason, even far below the hypothetical zero point, for lesser rate graduation than one might have thought followed from declining marginal utility.

The same general tradeoffs should apply to Medicare as to the optimal income tax, although the relevant elasticity and rate of declining marginal utility might be very different. This suggests the possibility that an approximately linear MRR structure - more like the current Medicare MRR structure (apart from its being set at 100%) than like the classic voucher MRR structure of 100-0 - might conceivably be optimal below the very highest medical expenditure level in the society.

c. Cases where the voucher ought to be cash equivalent - Suppose that we eliminate paternalism, externalities and distributional measurement as reasons for conditioning voucher amounts on earmarked expenditures, but put nothing in their place. Thus, there is no good reason for limiting the consumer's use of the grant (apart, perhaps, from increasing the program's political feasibility), and the voucher is in all cases either functionally identical to a cash grant or else inferior. Here, the optimal marginal reimbursement rate for everyone is 0%. Positive inframarginal rates, which have the Figure 2 result of leaving the recipient's budget allocation unchanged, do no harm, however.

This case is analogous to OIT in the absence of declining marginal utility, where, assuming that lump-sum taxation (the analogue to cash grants) was unavailable, one would want a sharply declining MTR structure in order to keep people's actual marginal rates as low as possible. In the MRR just like the MTR setting, the rate structure would not necessarily be 100-0 given limited information about people's marginal decision points, but it presumably would tend in that direction rather than towards linearity.

d. The Use of a 0% Top-Bracket Marginal Reimbursement Rate to Limit "Program Costs"

The prior sections showed that in different settings a variety of arguments may support decreasing the MRR to zero as consumption of the earmarked commodities increases. This is typically described as "capping" the voucher, and thus giving it a determinate or at least maximum value. We should note, however, that perhaps the most

common argument for this MRR feature - that it provides "budget control" or helps to limit "program cost" - is in two respects mistaken. First, the relationship between a final MRR of zero and advancing these goals is unclear. Second, "budget control" and "program cost" are questionable normative goals that in some cases merely reflect fiscal language, rather than economic substance.

As a simple matter of arithmetic, the budget cost of a voucher program (ignoring administrative costs) equals the dollars spent by program beneficiaries on earmarked commodities, multiplied by the average MRR per dollar spent. Hence, increasing the MRR on some of these dollars need not increase the program cost so long as it drops for other dollars. To be sure, changing the MRRs may change the dollars spent, as in the case where MRRs at consumers' marginal decision points increase and inframarginal MRRs decline. Yet the dollars spent by a given set of consumers on any particular commodities are inevitably finite. Thus, it should always be possible to pay for increasing the final MRR above zero by reducing prior MRRs. Perhaps the most one can say from a program cost perspective about a final MRR of zero, other than that lower MRRs in general are cheaper than higher MRRs, is that it may tend to reduce budgetary variance. However, pure variance in the overall budget matters little if the government is risk-neutral (Arrow and Lind 1970), and can arise as well from uncertainty about, say, the number of covered dollars that will end up being spent under voucher programs that use a 100%-0% MRR structure. Consider Food Stamps, where the performance of the economy may have a major effect on program cost given the income qualification tests.

Even insofar as a final MRR of zero reduces the absolute level or variance of program costs, however, the normative significance of its doing so is unclear. Variance is a problem for consumers with uncertain needs as well as for taxpayers with uncertain budget costs, and it is plausible that the former will often face less diversifiable risk exposure than the latter (whence the common description of various voucher and other programs that address the problems of poverty or age as "social insurance"). As to

absolute “program cost,” the term often involves a myopic focus on a particular set of rules that are best viewed as part of the total tax-transfer system.

Thus, suppose initially that food stamps are always cash-equivalent to the recipients. Increasing the size of the Food Stamps program merely means that some people receive larger net transfers than previously or pay smaller net taxes. Surely the overall tax-distributional picture is what matters, not the details of how formally distinct programs contribute to this picture (Shaviro 1997b, 463-464). Even where food stamps are not cash-equivalent and thus induce substitution by the consumer relative to the allocation she would have chosen at a cash-equivalent budget line, one who is concerned about these effects should focus directly on them, rather than on the distinct accounting question of how many dollars were nominally “spent” (i.e., transferred to consumers) under the program - a number that has no necessary relationship to the real allocative effect.

This overall budgetary perspective is worth keeping in mind even though real-world policymakers typically face more limited or marginal decisions. Suppose, for example, that one is concerned about the “size of government” or the amount of “new government spending” that is being authorized. From any plausible underlying motivation for such a view, one should not view transfers (i.e., negative taxes) as akin to, say, building new bridges or naval bases, or comprehensively regulating a given industry.

The income tax equivalent of the “program cost” argument for a final MRR of zero would hold that potential income tax liability should be capped, through a final MTR of zero, not for OIT-type reasons but to provide “revenue control,” ensuring that the income tax will not raise too much overall revenue. This argument (as distinct from one for lowering tax rates generally) is little heard despite its similarity to the “program cost” argument described above.[6]

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[6] While the income tax differs from a voucher program that responds to paternalism or externalities in not being deliberately aimed at altering people's marginal decisions, the "program cost" argument seems to rest on the idea that such alteration is desirable only up to a point and not beyond.

3. Cash Reimbursement If One Spends Less Than the Voucher on the Earmarked Commodity

So far, we have assumed that, whatever the MRR, no portion of a voucher can be traded in for increasing spending other than on earmarked commodities. However, a voucher can be designed to provide cash reimbursement if one buys what is deemed enough of the earmarked item without spending the entire voucher. Thus, the tenant-based housing voucher program permits beneficiaries to keep the cost saving from paying less than the applicable FMR for a qualified housing unit.

The significance of this cash rebate feature can easily be misunderstood. Its absence in, say, the tenant-based housing certificate program may seem to induce over-paying the landlord (up to the certificate amount) for a given housing unit, since one cannot capture any cost saving anyway. (This includes the possibility of collusion between the landlord and tenant in setting the rent.) However, assuming perfectly competitive low-income housing markets with zero search costs, where (ignoring differences in taste) the more one paid the more one got, one would never want to over-pay in this sense, since it would mean accepting less valuable housing than one could have demanded for the same cost. Under this assumption, providing cash reimbursement in the housing voucher program merely increases the grant's cash-equivalence by permitting the beneficiary to purchase commodities that she values more at the margin than extra housing. This is desirable under consumer sovereignty, but could conceivably conflict with externality or paternalism rationales for providing grants that are tied to housing.

The over-payment view may hold, however, to the extent of any departure from perfect competition and zero search costs. Suppose that housing units' nonfungibility and one's own distinctive taste (for example, to live near family or work) caused one to prefer a given unit to any other available unit charging up to the FMR. Only a cash refund feature would provide any incentive to bargain for a rent below the FMR. Or suppose that housing search costs discourage looking for the best value that the FMR can buy. Once

again, the voucher program's cash refund feature increases incentives to bargain, since the value of a cash refund is unlikely to be similarly limited by search costs.

D. Incentive and Distributional Effects of Rules Determining Voucher Eligibility

Eligibility to receive vouchers typically depends on personal or household characteristics apart from simply purchasing earmarked commodities. Thus, Food Stamps uses income and liquid asset tests. Various housing programs use income tests, and school voucher programs might do so as well (as does the current pilot program in Milwaukee). In addition, various housing programs require that one stay within the same jurisdiction to move up on the waiting list for rationed benefits, and may also use subsidiary criteria to allocate benefits (although, as noted previously, these may tend to offset other distortions). Since all of these various attributes are typically measured at the household level, eligibility generally depends on household composition. Finally, Medicare relies on an attribute - age - that consumers cannot directly affect, although they can affect the age at which they seek medical treatment. We next briefly examine the basic incentive and distributional effects of these various criteria for voucher eligibility.

1. Income Tests

Reliance on some measure of income to determine voucher eligibility presents the classic OIT tradeoff. While income is presumably a signal of some distributionally important underlying attribute, such as low wage rate or bad luck, an income test creates moral hazard due to the incentive effect of conditioning the grant on income when earning effort cannot be well-observed.

While income-conditioned vouchers are in no way unique in this regard, they may exacerbate the resulting incentive problems when they are layered atop of each other and other income-conditioned aspects of the overall tax-transfer system. Consider, for example, that as a low-income household's earnings increase, it may not only be phased out of Food Stamps, housing benefits, and other income-conditioned voucher programs such as Medicaid, but lose welfare benefits under TANF (Temporary Aid to Needy

Families), face phase-out of the earned income tax credit, and bear federal income and payroll taxes along with state and local income, sales, and property taxes. The combined effective marginal tax rate in some cases approaches or may even exceed 100 percent (Lyon 1995; Giannarelli and Steuerle 1995; Shaviro 1997b, Shaviro 1999). The incentive effects are likely to be particularly acute given the general rule of thumb that distortion increases with the square of the tax rate.

The MTR effects of multiple income-conditioned tax and transfer programs could be mitigated by shifting to the use of "bundled vouchers," as discussed in the chapter in this volume by Lerman and Steuerle. Or different programs' income measures could take account of changing benefits and burdens under other such programs. Although the issue extends well beyond the voucher setting, addressing it solely with vouchers might already have a significant effect. Thus, suppose a given household faced a marginal income tax rate of 15 percent, and phaseout rates of 30 percent with regard to both food stamps and housing vouchers. An extra dollar of earnings would therefore face a combined 75 percent MTR from these three programs if they took no account of each other’s benefits and burdens. However, just including the value of food stamps in income for housing voucher purposes and vice versa - without adjusting or taking any account of income tax liability - would reduce the MTR to about 61 percent.

Including program benefits and burdens in each others’ income measures can be made quite complicated by the interactions, and therefore might seem to call for a uniform, integrated measure. However, the income tests for various voucher and other income-conditioned tax and transfer programs differ in various respects. These differences may reflect distinct distributional aims in different settings, or else simply be artifacts of historically separate design. Whether the differences have good rationales or not, they increase the complexity of determining one’s status under the various programs even without regard to the problem of reciprocal inclusion.

In general, while the use of separate income tests by multiple income-conditioned programs does not make overly steep MTRs a logical necessity, it may tend in practice to encourage them. One reason is what one might call the pathology of bounded rationality. If policymakers only focus on one problem at a time, they may be prone to overlook the consequences of so pervasively using income tests in an uncoordinated fashion. A second reason for overly steep MTRs arises from the inclination to think of voucher and other transfer programs as providing distinct benefits that ought to be limited to the poor, rather than as components in an integrated tax-transfer system that is progressive across the entire income range. As soon as one concludes that, say, a four-person household with $5,000 of income is poor and thus should receive various benefits (TANF, Food Stamps, housing vouchers, Medicaid, and so forth) whereas a four-person household with income of $25,000 is not poor and hence should receive no such benefits, one is committed to MTRs that might be far in excess of what one would consider reasonable if one were asked directly about appropriate MTRs as income increases from $5,000 to $25,000. Substance may therefore be driven by framing and fiscal language.

2. Asset Tests

Liquid asset tests such as those used in the Food Stamps program distort both savings decisions (i.e. when to consume) and asset choices by savers. For example, since homes are not included in liquid assets, Food Stamps provides an incentive to own a home rather than hold liquid assets and pay rent, even though this choice has a weak relationship if any to the distributional purpose of measuring need. (Home ownership may reduce one's short-term ease of substitution between housing and food expenditure, but to condition the grant on reduced ease of substitution may have undesirable incentive effects.)

The desirability of conditioning distribution policy on savings decisions, rather than just on work decisions as under a wage tax, is a familiar topic in the public finance literature - underlying, for example, the income versus consumption tax debate and

consideration of wealth taxes and estate taxes. One distinctive feature here, however, is the steepness of the incentive effects at some margins. Food Stamps are denied to a household with counted liquid assets above $2,000, or $3,000 if the household has an elderly member (Committee on Ways and Means 1996, 865). For a household that has liquid assets below the ceiling and is considering crossing the threshold, the consequences can be quite severe. For example, suppose that, but for the asset test, one would expect to receive Food Stamp benefits of about $1,000 per year for the next five years. At a 5 percent discount rate, the present value of the lost benefits from exceeding the asset limit would be about $4,333. This might well swamp the expected benefit from increasing one's saving by a couple of thousand dollars, or else have an income effect that made continued saving impossible. Features of this sort have helped to prompt the discussion in the welfare literature of "poverty traps" that deprive work and saving of their reward to low-income households (Giannarelli and Steuerle 1995, 1).

3. Household Composition

The treatment of household status presents another classic dilemma in distribution policy. One person's income or assets may significantly increase the well-being of others in the same household, but determining tax or transfer consequences at the household level may distort decisions whether to form a household (or at least one that is observable). Often, the incentive effect is to discourage household formation, despite policy aims that may lie in the opposite direction (Steuerle forthcoming).

Transfer programs, including income-conditioned vouchers, tend to inquire into (and penalize) household status more aggressively and consistently than does, say, the federal income tax. This presumably reflects the practice of abstracting programs that benefit the poor from any integrated view of progressive tax-transfer policy, thus inducing rigorous testing at the household level of whether one is truly poor. For example, no effect on the income tax liability of Mr. and Mrs. Bill Gates by reason of their forming a

one-earner household would be likely to excite the same controversy as giving food stamps to Mrs. Gates if the program ignored household status.

Food Stamps provides a good example of the incentive issues that may arise in income-conditioned voucher and other transfer programs. Having two adults rather than one in a household with children may increase the countable income and assets or, if the second adult is unemployed, risk disqualifying the household if he or she fails to meet the work requirement. The resulting deterrence of two-adult households could be reduced without ceasing to measure income and assets at the household level, but this would require raising the income and asset thresholds for such households relative to one-adult households. The deterrence could also be eased by making the MTRs from phasing out transfers less steep.

4. Staying Within the Jurisdiction and Other Subsidiary Criteria

Other preconditions for voucher eligibility may have incentive effects that are not even discernibly related to distribution policy. Consider the effective requirement under housing programs that one remain in the same jurisdiction in order to move up on the waiting list for units, vouchers, or certificates. Other subsidiary criteria that local housing authorities apply may have incentive effects as well, although in some cases they may counteract the income and asset phaseouts by encouraging work.

The subsidiary incentive effects result from the queuing that arises once housing benefits do not go to all households that meet the formal eligibility requirements. For vouchers and certificates that are not tied to the level of public housing stock, this reflects deliberate budget limits. The decision to impose these limits and thus create queuing has distributional as well as incentive consequences. For example, it insures that households defined as equally deserving or needy end up being treated differently, notwithstanding the standard public finance norm of horizontal equity (Musgrave 1959, Rosen 1995, Auerbach and Hassett 1999) along with the related utilitarian principle that treating equals unequally

may reduce welfare, all else equal, as a consequence of declining marginal utility (Kaplow 1994).

5. Age

Age, the chief prerequisite for Medicare eligibility, stands alone among the requirements in the programs we have been examining in being outside the recipient's direct control. Its effects on medical expenditure aside, Medicare therefore chiefly raises distributional rather than incentive issues. These go to optimal life-cycle distribution to the extent that age cohorts pay for their own benefits - as generally has not been the case since the program was introduced, given the "pay-as-you-go" structure whereby current workers finance current retirees' benefits and the significant long-term financing and sustainability problems. Insofar as younger age cohorts pay for the benefits of older cohorts and cannot realistically expect similar support when they retire, the distribution of Medicare benefits is conditioned on one's year of birth and raises issues of generational distribution (Kotlikoff 1992; Shaviro 1997a).

IV. SUPPLIER INCENTIVES AND MARKET STRUCTURE

A. Incentives to Minimize Cost, Innovate, and Serve the Consumer Given Monitoring Constraints

Perhaps the most important issue at stake in the choice between vouchers and other methods of delivering earmarked commodities to specified beneficiaries is the incentives bearing on suppliers. Differences in the incentives faced by the personnel (such as landlords, teachers, and the like) in public agencies as compared to private firms are often considered the most important factor at stake in voucher debates. And the relevant incentives are not limited to satisfying static consumer demand today. Innovation and responsiveness to changing conditions, while critical as well, are not well-modeled by the textbook description of a firm deploying a known technology in the face of clearly revealed prices of inputs and outputs. Yet these factors are of the essence in the choice

between competitive market and political "command and control" mechanisms of service delivery.

The classic argument for competitive private supply, going back to Adam Smith's "invisible hand," is that the profit motive, when combined with the need to satisfy customers who have other options in order to get their business, is the best available goad to inducing both economizing behavior in production and socially valuable innovation. Government provision, under this view, suffers both from a tendency to encourage the creation of monopoly power (although competing government institutions are possible, especially at the local scale famously discussed in Tiebout 1956) and from under-powered or misdirected bureaucratic incentives. There is obviously significant ideological disagreement in our society concerning how severe these problems are, and how to assess the relative desirability of competitive private supply.

Adding to the complexity of the supplier incentive issue is that responsiveness to consumers may not be the only objective of a program providing consumer grants that are earmarked to specific commodities. If complete cash-equivalence is not intended due to paternalism or externalities, consumers have an incentive, which suppliers may share, to seek to evade the earmarking. Examples include using food stamps to buy non-food items, or school vouchers to pay for educational content that is inconsistent with the state's education policy. Consumers and suppliers may also have an incentive, depending on program structure, to pass on various costs to taxpayers.

Thus, even assuming private supply, a government agency may be required to monitor constraints on the commodities provided under the program, the reimbursable costs, and the identity and qualification of beneficiaries. In the absence of information costs, these functions could arguably be most simply served by direct provision by the same agency. However, the ubiquity of information asymmetries (how does one monitor the monitors?) suggests that there is no easy or uniform solution to the problem of designing institutions to induce economizing (and otherwise appropriate) behavior.

Ronald Coase (as compiled in Coase 1988) is generally credited with the seminal work leading to the modern theory of the firm as a web of contractual relations, driven in equilibrium by competitive forces, designed to overcome agency costs. The related contract, finance, and organizational theories have exploded in recent years. "Privatization" is the buzzword for the problem addressed by an important subset of this work, in which outsourcing a variety of functions to private firms is often a suggested solution. (For an example, see Hart, Shleifer, and Vishny 1996.)

While we cannot go far beyond noting the importance of these supplier incentive issues, two brief observations are worth making. The first is that, under a variety of incentive structures, competition may have important effects on quality. These effects are likely to be positive for consumer satisfaction, although the effects on policy goals underlying earmarking may be more ambiguous. One can have significant competition in the public as well as the private setting, as exemplified by the Tiebout model along with arguments for increasing public school choice within a school district or larger jurisdiction.

Competition between public suppliers often requires decentralization. Thus, in the Tiebout model, small jurisdictions help keep exit costs low and the number of competing local governments high. Similarly, some school reformers argue for decentralizing authority over public schools from school boards appointed at the city or county level either to school principals or else, depending on the public choice problems, to local boards elected by parents or voters generally. One could also increase competition in various other supply dimensions by, say, localizing decisions about teaching qualifications, administrative structure, and choices of supported extracurricular activities. At least to some extent, then, design choices concerning the use of competition to improve supplier incentives can be separated from design choices regarding public versus private supply.

Our second observation concerns evidence from the private sector that may shed light on when public supply can be effective. A government agency is a kind of nonprofit firm that may resemble private nonprofit firms if it is similarly subject to competitive

pressures, insulated from direct control by elected officials, and entrusted only with operational authority in running well-defined programs, as distinct from the power to make broad public policy decisions. Thus, evidence concerning the suitability of the nonprofit firm for operations in different industries may shed light on how well government suppliers can perform in the same industries.

Among private firms, there is suggestive evidence that the nonprofit form is distinctly more suitable for providing some commodities than others. Nonprofit firms (other than joint-venture organizations such as cooperatives) are common only in the provision of commodities that have "a loosely charitable, virtuous, or public-spirited halo or aura" (Shaviro 1997c, 1004) - for example, alms, education, religion, health care, and the high arts, but not housing, retail food supply, or automobile repair. This pattern predates the prominence of tax benefits that are tied to charitable status.

The most prominent economic theory explaining nonprofit firms comes from Henry Hansmann (1980), who argues that they address "contract failure" where supplier performance is so hard to monitor that the profit motive reduces, rather than increases, consumer (including donor and employee) trust. As an example, if a major research university became privately owned, with shareholders who had a right to residual profits, not only donors but students and faculty might become suspicious of its commitment to maximizing teaching and research quality in decisions that were hard to observe.

The main problem with Hansmann's theory is that it fails to explain the observed association between the nonprofit form and the provision of broadly "charitable" commodities. Why should monitoring problems that give rise to contract failure be so concentrated in this realm? For example, is it really more difficult, as Hansmann (868-872) suggests, to monitor the handful of prominent nonprofit firms, such as the United Way, that provide foreign famine relief (in effect posting reputational bonds), than the many small-scale automobile repair firms that tell suspicious but ill-informed customers what repair services are needed?

The answer may lie in the black box nature of the nonprofit constraint, which gives critical importance to the preferences and incentives that guide behavior in a nonprofit firm (and are relied on by others as a substitute for direct monitoring). Thus, in the case of higher education, both the worker preferences that make a university career attractive and the structure of the particular "market" for prestige may have a sufficient correlation, even if imperfect, with the aims of various consumers (such as students and donors) to present a better solution to the basic information problems than a for-profit firm can offer. In the case of health care, where the industry is mixed, the for-profit and nonprofit solutions may be comparably good. In the case of automobile repair, one would be hard-pressed to find either workers with consumption motives akin to those in the classic nonprofit setting, or customers who would expect any such motives to improve service quality, rather than simply leaving the a nonprofit supplier with the under-powered incentives that may be familiar from one's dealings with, say, the Department of Motor Vehicles (Shaviro 1997c, 1003).

The implication we would draw for public supply is that it is most likely to be successful where evidence from private firms suggests that the nonprofit form is feasible - say, schooling and health care, as distinct from housing or retail food supply. In areas where the functioning of private nonprofit firms suggests that public supply may be feasible, the question whether to select it may turn on such considerations as those of public choice, or how best to maximize beneficial competition, or how regulatory goals external to the basic consumer transaction are best determined and served.

The decision whether to use vouchers is affected by these considerations because they are typically associated with the decision to use private supply. They can, however, conceivably be adapted to circumstances of mixed public and private supply (as with schools) or even solely public supply so long as prices are being charged at least to some consumers.

B. Supply and Demand Effects in Competitive Markets

1. Allocative and Price Effects Generally

The allocative and distributional consequences of voucher programs depend on how they affect equilibrium quantities and prices for the earmarked and other commodities. In Figure 7, the market demand curve in the absence of a voucher program for a good, X, is shown as curve D^0D^0; market supply is SS, with equilibrium price p^0 and equilibrium quantity OB. The curve $D^0_BD^0_B$ represents the amount demanded by the beneficiaries of the voucher program; the demand by everyone else constitutes the remainder of the horizontal difference to D^0D^0. Under the impact of the voucher program (even if it is cash-equivalent), beneficiary demand shifts out to $D^1_BD^1_B$. Yet the net impact of the program in the market for X depends as well on how it affects nonbeneficiary demand. For example, if the program simply transfers income in a lump-sum fashion from the one group to the other, its influence on the market demand curve will depend purely on the income elasticities of the two groups. If the marginal effect of a dollar of income is the same for both groups, the program will have no effect on the market demand. Assuming that the program has no impact on suppliers, there will accordingly be no change in equilibrium price or the total quantity demanded, but instead simply a shift in the composition of the consumption between the two groups of demanders. In Figure 7, the net effect is a shift in the consumption of X, with the consumption by the beneficiary group increasing by AA^1 to OA^1, and the consumption by the remainder of the demanders decreasing by AA^1, from AB to A^1B.

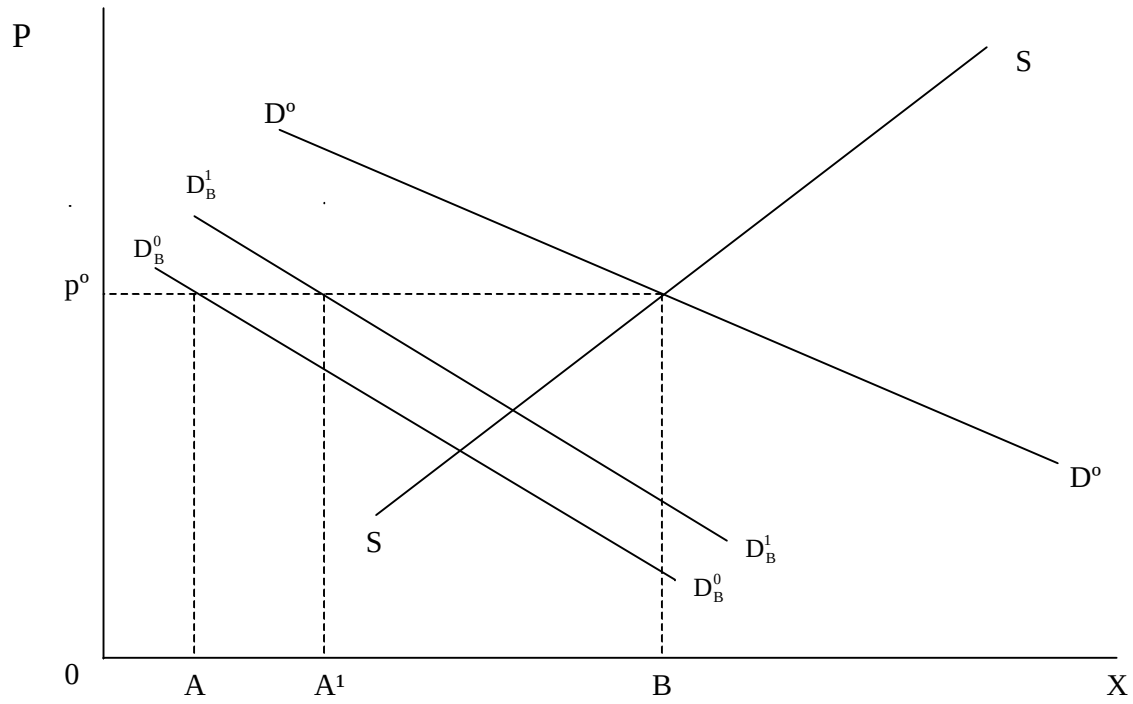

Figure 7

If the inward shift of the demand curve by the group financing the program is less than the outward shift in demand by the beneficiaries (owing to differences in the marginal effect of income on demand, for example, or to the fact that the voucher program incorporates some price incentives for beneficiaries), some of the program's impact will be translated into an increase in the equilibrium price.[7] Figure 8 illustrates such a case, in which the net effect of the program is an outward shift of the market demand curve from D^0D^0 to D^1D^1 and no shift in the supply curve. In this case, the equilibrium price increases from p^o to p^1. The increase in consumption by the beneficiary group is therefore diminished, from AA^1 to AA^2. At the higher price, nonbeneficiaries consume less than they otherwise would, although there remains an overall increase, from OB to OB^1, in X consumed in equilibrium. Part of the program's effect is to increase the surplus of suppliers. However, this need not translate into a net gain by suppliers since, like

[7] At least in principle, the opposite result is also possible: a decline in demand for the earmarked commodity due to the income effect of the transfer.

everybody else, they experience the full range of effects in all markets and in the tax-transfer system.

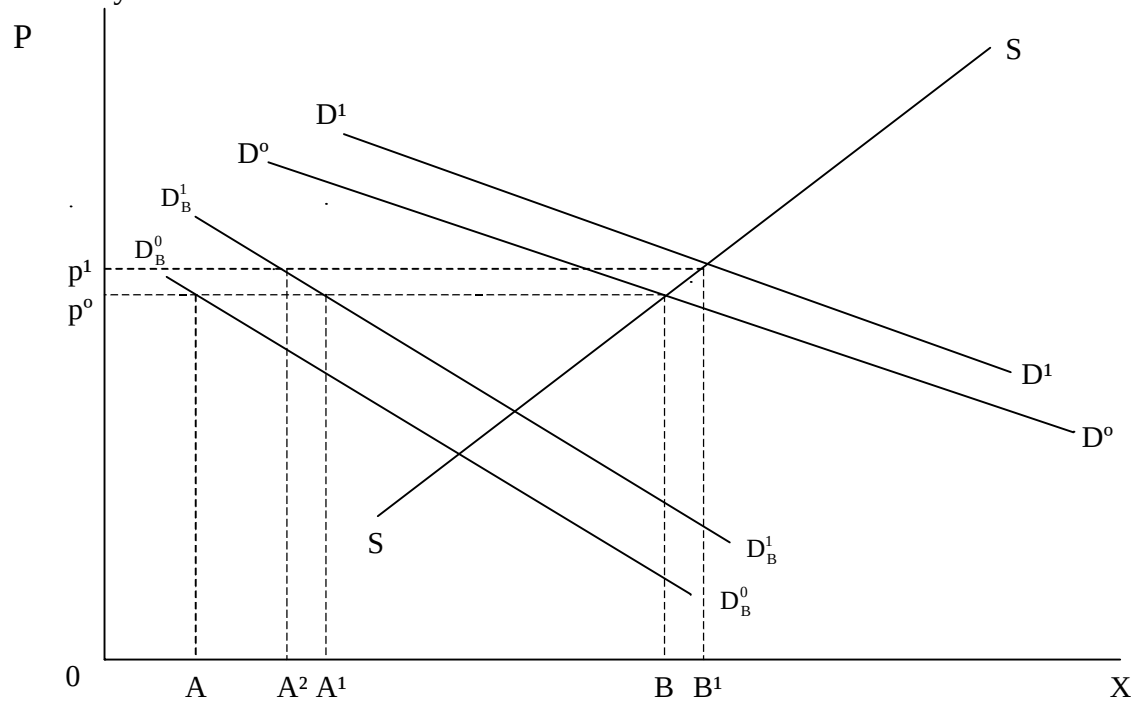

Figure 8

Focusing just on the market for X, the effect of the program depends on the income and price elasticities of demand by beneficiaries and nonbeneficiaries, as well as on the price (and perhaps income) elasticity of supply. In the special case of a horizontal supply curve, there will be no change in the equilibrium price. Price and income elasticities of demand will figure in the determination of the overall effect of the program on the total amount consumed and the distribution of that consumption between beneficiaries and others.

2. Transition Effects of Demand Changes and the Choice Between Voucher Programs and Public Supply

Analysis of supply and demand curves also has an important time element. As a general rule, short-run price elasticities are lower (in absolute value) than long-run price elasticities. In some settings, policy may be influenced by the belief that short-run supply

price elasticities, in particular, are low. In housing, for example, the adjustments in stock may be very slow, so that the immediate impact of an outward shift in demand may be no change in the equilibrium quantity. Figure 9 illustrates this view for the two competing assumptions about overall demand shift that might accompany an outward shift in the demand by beneficiaries from $D^0_BD^0_B$ to $D^1_BD^1_B$. Supply is here assumed fixed at OB. With no outward shift in the market demand, the outcome is the same as in Figure 7. Increased consumption by beneficiaries is matched by decreased consumption by nonbeneficiaries, with no change in the equilibrium price. With an outward shift in demand, by assumption there still is no change in the total amount consumed in equilibrium. The suppliers enjoy a price increase to p^2, which is greater than p^1, at the expense of consumers (beneficiaries and nonbeneficiaries alike), and of the fisc. Beneficiaries' consumption increases by AA^3, which is less than in the previous case (because the price increase is greater); nonbeneficiary consumption is still reduced.

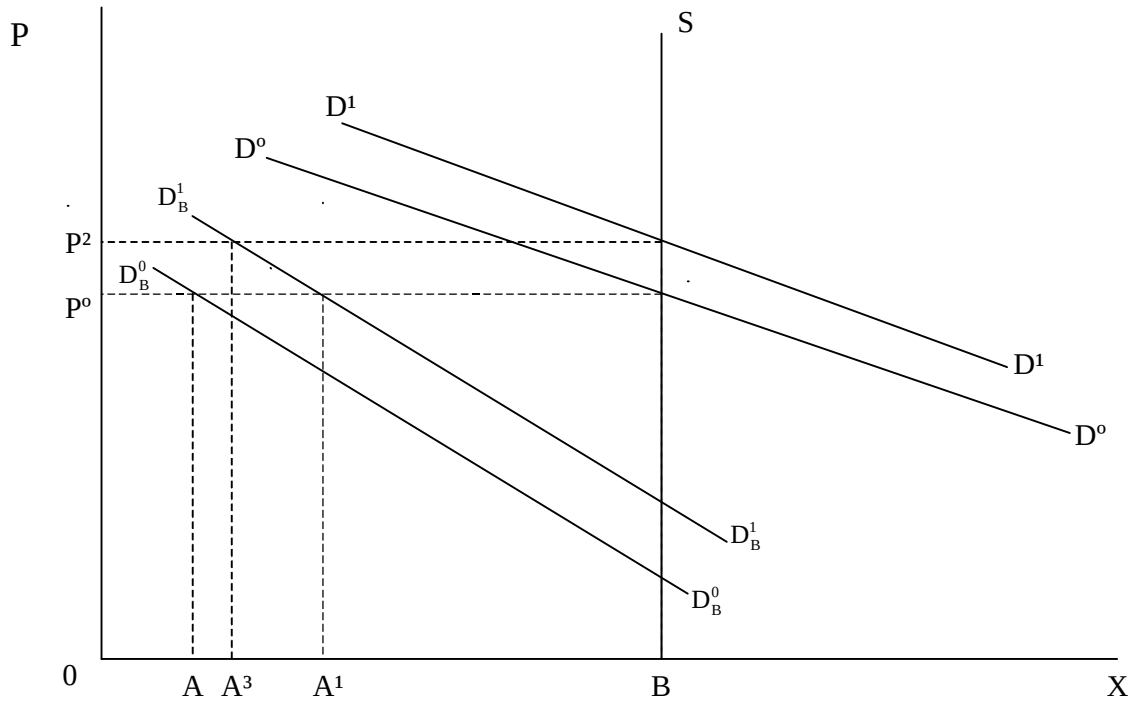

Figure 9

Beliefs of this sort about short-term supply conditions may influence the choice of methods of delivering services to beneficiaries. Food Stamps, like housing, may induce a net increase in demand for the earmarked commodities, or at least food of certain types. However, supply conditions may be roughly approximated by an infinitely elastic supply curve (taking into account the possibility of substitution among qualities of food), so that the spillover of effects through prices onto nonbeneficiary consumers and onto suppliers is likely to be small. This supply elasticity may be particularly clear to voters at the retail level (even if it holds equally throughout the production chain). Thus, the lack of consumer political demand that the government enter the food supply business upon enacting or expanding Food Stamps, in order to avoid handing retailers a transition gain at their expense, is unsurprising. (Farmers, who provide important political support to the Food Stamps program, might not object to such a demand so long as the government purchased its retail supply from them.)

By contrast, it is generally taken for granted that the supply of housing is relatively fixed in the short run. This may be a reason why policymakers in the past tended to favor direct provision of housing to beneficiaries, via public housing or publicly subsidized private projects. Government entry into the housing business may have been rationalized as a way to prevent transition gain to landlords at the expense of consumers upon the expansion of demand for housing (with builders being indifferent since they would construct the extra housing either way).

Figure 10 sketches the analysis of why public provision might be thought for this reason a preferable alternative to the voucher solution described in Figure 9. The effect of providing some amount of public housing directly to the beneficiary population is to induce a leftward shift of their demand curve on the private market, indicated as the shift from $D^0_BD^0_B$ to $D^2_BD^2_B$. For simplicity, we represent the decline in demand as equal to the amount of publicly provided housing, represented by A^4A^5. If financing the program induces some reduction in demand for housing by nonbeneficiaries, then the leftward shift in demand on the private market will be greater than A^4A^5, to D^2D^2. The consequence is a reduction in the price on the private market, from p^0 to p^3, inducing an increase in demand on the private market by the residual beneficiary population from OA^4 to OA^5. Owing to the drop in the market price, the amount of housing consumed by the nonbeneficiary population is increased by A^5A^1. (The latter result is a consequence of the residual beneficiary demand curve being steeper than the market demand curve.)

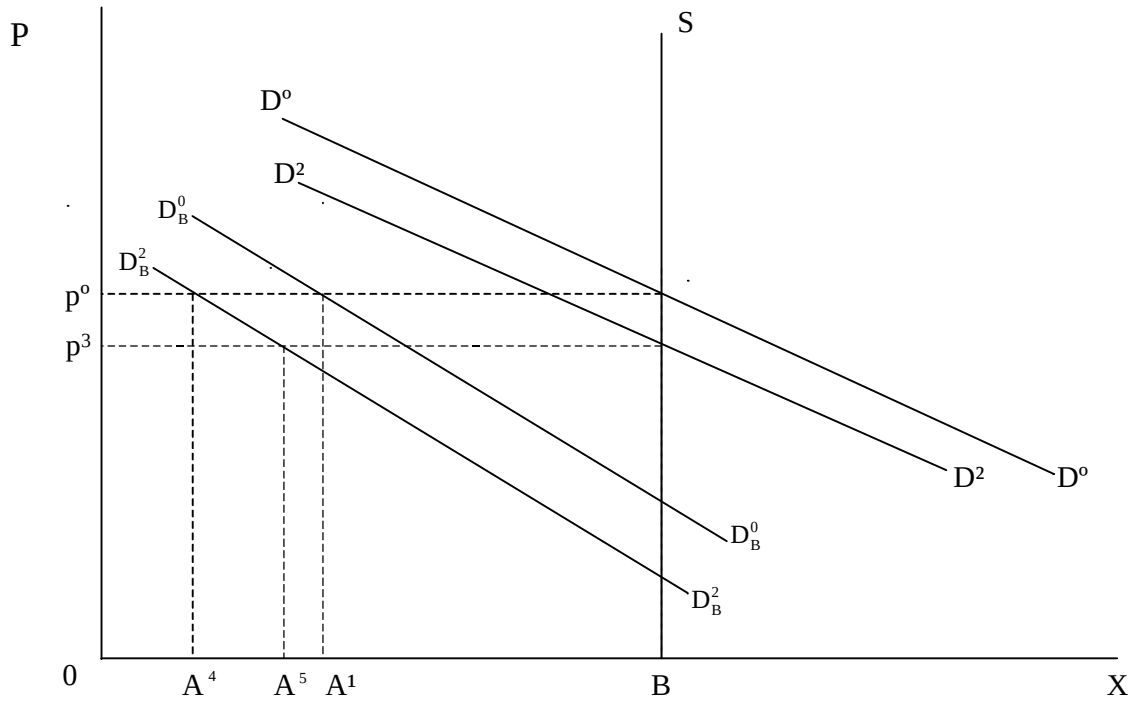

Figure 10

We should reemphasize that, if the view that Figures 9 and 10 illustrate is accurate at all, it pertains purely to the short run, since this is the only period over which it is plausible to treat the housing supply as fixed (regulatory restrictions such as through zoning codes and rent control aside). However, the view can be challenged even on its own terms as a description of the short run, and even if the government program in fact increases demand for housing. For one thing, the construction of public, like private, housing, is not instantaneous. If it is acceptable to await the completion of public housing construction before program beneficiaries actually begin to receive aid, then it is unclear why the delay involved in deferring the effective date of the voucher program until supply has been able to adjust should be unacceptable.

In addition, in evaluating the extent to which short-term supply is fixed, one should keep in mind the complexity of a "commodity" such as housing. While it is helpful in clarifying ideas to think of housing as a single-dimensioned good, managing its many physical, service, and neighborhood dimensions has been central to the policy problem.

One consequence of these multiple dimensions is that the inelasticity of supply suggested by the longevity and rigidity of structures may be misleading. Quality changes, upgrading a kitchen or bath, landscaping, security provision, and so on, as well as changes in the other direction through deterioration, can potentially respond quickly to prices, and probably on a roughly constant-cost basis. The horizontal supply curve may therefore be a decent approximation to reality even in the short run.

Finally, even if short-term supply is fixed, it presumably reflects beliefs about prices in the long run. Landlords might be expected to take into account the possibility of government interventions that would affect the spot price of housing. Thus, only if a given intervention was unexpected would it offer them anything but a normal return, and each surprise might have reputation effects on what they expected the next time. Given these effects, a decision to build public housing that reduced demand for private housing, rather than supplying vouchers that increased such demand, might lead landlords to reduce rather than increase supply if they expected new housing programs for the poor to be adopted shortly. (For a discussion of such transition phenomena in the income tax and other contexts, see Shaviro 2000.)

Suppose that the long-run supply of housing is horizontal at the price p^0, and that the long run arrives fairly soon (whether due to advance anticipation or otherwise). Then the long-run effect of providing public housing is to reduce the equilibrium quantity on the private market by the sum of the amount of the public supply and reduced demand by the nonbeneficiary population, with no change in price either to the nonbeneficiary population or to the portion of the beneficiary population that remains in private market housing. Under these conditions, the main significance of the spot response of building public housing is that now an increased portion of housing supply is in public rather than private hands. The consequences depend on public versus private supplier incentives of the sort that we discuss in section III.C. below. In some cases, however, public housing may have been built without focusing primarily on this question of relative incentives.

C. Noncompetitive and Nonprofit Markets

The analysis in section A assumed competitive markets with conventional for-profit firms. Relaxing either of these assumptions may change the analysis. For example, if suppliers possess significant monopoly power (say, in small local markets), the case for direct government supply is strengthened, along with that for standard anti-monopoly policies such as regulation or antitrust enforcement. (For a market-power example that may be comparable, consider the labor market to hire nurses, in which various studies have concluded that small-town hospitals act as monopsonists, Sullivan 1989).

The implications of a substantial nonprofit presence in an industry are more complicated, as a discussion of primary schooling (education below the college level) may help show. Primary schooling, like housing, is a complex service with multiple dimensions, but one with a considerably different supply structure. In the United States, such schooling is provided by public agencies at the local level and by private, typically nonprofit charitable entities, which are subject to licensing or other forms of government supervision. Public schools do not ordinarily charge tuition (although there may be exceptions for nonresident students); instead, residence in the sponsoring jurisidiction constitutes the price of admission. They are typically financed by local property taxes, along with state and federal government aid. Private schools generally charge tuition, although they may rely as well on charitable contributions (mainly from alumni and parents), subsidiary fundraising activities, and whatever state and federal tax benefits are afforded to charitable institutions generally.

Both sorts of organizations compete in some degree for "customers," based on price and quality. For public schools, the competition is effected largely through the mechanism of "voting with your feet," the analogy of which to ordinary competitive processes was first emphasized in the literature by Charles Tiebout (1956). Sometimes parents may choose among schools in a public school district, and sometimes particular schools limit enrollment on the basis of selective admission. (This is an aspect of product

quality, essentially a network externality that takes into account the importance for education of interaction with other customers.) Private schools may emphasize particular philosophical or religious perspectives, in addition to being selective. In addition, where better-financed than the public schools with which they compete, they permit parents with sufficient resources to select a more capital-intensive education for their children.

Given these market features, school voucher programs raise two complications that were absent in our discussion of housing. First, they newly extend direct aid to consumers who use private suppliers, in a setting where these consumers may be more distinct (for example, in income or taste) from consumers who use public suppliers than one would expect in the case of low-income housing. Second, the fact that most or all of the private suppliers are nonprofits may complicate the analysis. Even in highly competitive markets, nonprofit firms are harder to model than for-profit firms. Nonprofit status is something of a black box, since it is not clear what is being maximized once one eliminates conventional owners with a demand for residual profits. Plainly, tastes in consumption play an important role. Consider not only a donor whose donative preferences help shape what the nonprofit firm does, but the employee of a nonprofit firm who foregoes the higher salary she could have earned elsewhere in order to "spend" some of her implicit wage on doing this work rather than, say, purchasing restaurant meals or ski vacations (Shaviro 1997c). Eliminating residual owners may also give important scope to managerial compensation in the form of seeking prestige - inherently a hard thing to model from parsimonious assumptions. University officials in 1998, for example, may attach greater prestige value to attracting qualified minority students than their predecessors did in 1948.

Against this background, consider a hypothetical school voucher program, adopted by a state government, with the following characteristics. Each voucher is good for a fixed amount (conditioned on the beneficiary's household income and jurisdiction) that can be used at either a public school or a qualifying private school. Public schools continue

not to charge tuition, but can turn in their students' vouchers to the state government and receive the face amount. The program is financed by increasing the state's income or sales tax.

An alternative program that increased the state's education spending exclusively through public supply would have involved giving grants solely to the public schools. Adopting the voucher program instead changes the characteristics of the average beneficiary if public and private school students differ systematically in any way. It also increases the size of the benefited population, by extending aid to private as well as public school students, thus requiring either a costlier program or a smaller grant per student (assuming no cost savings from resulting student transfers).

An initial question that the adoption of either program would present concerns the effect on public schools of receiving additional state financing. To a first approximation, it is plausible that all of the new public school funds would end up being restored to local taxpayers. On average, taking into account the need to pay for the new state spending, local taxpayers face the same tradeoffs as previously in the local school political process. That is, they pay more in state sales and income taxes than previously, but benefit from additional state spending on their public schools. Thus, the new state program places them in roughly the same position on average that they could have reached on their own by taxing themselves at a higher rate to increase local school spending. Reducing their own public school spending and property taxes by the amount of the new funds their schools received from the state would roughly restore them to the average position they had previously selected. Thus, it is plausible that the local public schools would end up on average exactly where they started, although inter-jurisdictional effects, along with those between taxpayers in a given jurisdiction, might affect political outcomes.

Extending the analysis to consider the consequences of the voucher program's newly extending direct aid to private school students, a full incidence analysis, working primarily through the value of local real estate, would be quite complex. (See Bogart,

Bradford, and Williams 1992, for an incidence analysis of a similar program). Such an analysis would be necessary to specify the program's income effects on the school sector even assuming that different groups' income elasticities for education spending were known. It is plausible, however, that demand for private schooling would increase given the income and substitution effects on voucher recipients, notwithstanding the income effect on other taxpayers. (See Bradford and Oates 1971 for an attempt to model a somewhat similar situation.)

To the extent that this increase in demand for private schooling was under-anticipated and assuming adjustment costs, private schools would have a one-time surplus that, as nonprofit firms, they could not distribute to owners. With the transition gain locked-in to the industry (or at least the nonprofit sector), the schools would have to choose among such disparate uses for it as increasing salaries, providing greater financial aid, reducing tuition across-the-board, expanding special educational programs, or increasing physical plant. The choice among these alternatives would depend on the preferences of school administrators and those with whom they had dealings (such as students' households, employees, and donors). In addition, assuming the importance of a taste for acquiring prestige in the education industry, the choice might depend on the prestige value of different alternatives at the time that the surplus arose.

Whether or not the increased demand for private schooling from providing school vouchers was anticipated, at equilibrium it would result in a larger private school sector than otherwise. One likely effect would be a net shift of students from public to private schools. However, other likely effects on the mix and character of the services provided by private (and public) schools are hard to determine without further specification of the various actors' preferences.

V. CONCLUSION

This paper's tour of the basic economic issues presented by voucher-like government programs has found a number of consumer-side and supplier-side issues. On

the consumer side, perhaps the central issue is the extent to which a voucher or similar grant is, and given the program objectives should be, cash-equivalent. One's perspective on this issue may have implications for determining the optimal marginal reimbursement rate (MRR) as earmarked expenditures by the consumer increase. A further issue goes to income-conditioned programs' effect on people's incentives relating to work, saving, and household formation. Poorly integrated multiple income-conditioned voucher and other programs can result in the perhaps accidental imposition of punitive effective marginal tax rates on members of low-income households who are considering increasing their labor market participation.

On the supplier side, perhaps the core questions go to choosing between private and public supply, and establishing the level of supplier competition. Vouchers are often associated with the decision to make greater use of competitive private supply, whether involving for-profit or nonprofit firms. Issues of how to optimize supplier incentives and establish the desired degree of competition may therefore be crucial to voucher debates, although hard to capture in standard economic models and not strictly related to the issues of voucher design that this paper has emphasized.

Voucher and related programs can also have at times surprising allocative and price effects. An example that may be quite unusual, but helps dramatize the complexity of the underlying causation, is that vouchering a given commodity may actually reduce its equilibrium quantity if recipients' income elasticities of demand for the commodity generally lie below those of the individuals who pay for the program.

By focusing only on the economics of vouchers, as distinct from their politics, this paper ignores an important element of why they are used, and why one might reasonably decide to advocate them in lieu of programs that one prefers but that have worse political prospects. We leave political issues to the chapter in this volume by Loomis. However, even though the economics and politics ultimately need to be integrated, focusing on the

economics alone is useful as a stage in one's thinking. One cannot make good political choices without understanding what different alternatives would accomplish.

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