The Economics of Demand-Side Financing

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Abstract. *Demand-side financing is a way in which the government can finance private consumption of certain goods. In contrast to supply-side financing, where the public money goes directly to suppliers, under demand-side financing consumers receive a certain amount of money for specific expenditures. In this report we discuss several instruments of demand-side financing, like vouchers, flat-rate subsidies and money and we analyze their impact on consumer surplus, supply side and the government budget. We show among others that the effect of introducing demand-side financing depends on the degree of competitiveness. In a competitive market, introducing demand–side financing leads to higher welfare and/or lowering of government expenditure, but in an uncompetitive market the effects can be opposite.*

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1 Introduction

In recent years *demand-side financing* – as an alternative to *supply-side financing* – has become more and more popular among governments in many countries. Basically the difference between demand-side financing and supply-side financing is whether the public budget (to finance certain publicly provided goods, like health-care, day-care, and education) goes to the consumers or to the suppliers. If the consumers buy these goods themselves (with money from the government) we speak of demand-side financing. If the government buys them, we speak of supply-side financing. However, the borderline between demand-side and supply-side financing is not sharp: it is often only an accounting question. For instance, the economic effects are the same whether every student receives a voucher of €5000 to be spent on higher education, or that the government pays the universities €5000 per student. For the purpose of this report, we will speak of demand-side financing when the consumer decides which institution will receive the public money. Thus, both examples described above will classify as demand-side financing.

The advantage of demand-side financing is that consumers have a direct influence on the package of services that will be supplied. The consumer may – for example – choose the supplier, the quality and/or the composition of the package. As demand-side financing forces suppliers to compete for the consumers' budgets, it may stimulate suppliers to produce/deliver goods/services that are diverse, of a high quality, and low-priced; this effect however depends on the market structure. A potential disadvantage of demand-side financing is that a number of problems can arise, such as higher (or more uncertain) costs for the government, misuse of the assigned budget (e.g. the money is spent on other ends than meant for), and money ending up in the hands of the suppliers without real quid pro quo (which is the case when the suppliers have market power). In this report we analyze to what extent, and under what circumstances, these different effects can take place.

There are many types of demand-side financing. In this report we restrict ourselves to a discussion of the following types: vouchers, subsidies, flat-rate subsidies, and money. As there is no univocal definition of these types in the literature, we will now discuss what we understand by these types. In our definition *vouchers* are grants of a pre-specified value earmarked for particular goods/services; all extra expenditures are for the consumer's own account. In economic terms: the marginal reimbursement rate (MRR) structure is 100%-0% (up to a certain amount the consumer gets 100% reimbursed, above that amount the consumer gets 0% reimbursed). If a grant has a different MRR structure (e.g. 50%-0% or 70%-50%-20%) we will speak of a *subsidy*. When the government applies a *flat-rate subsidy*, then it pays a fixed percentage of the cost of all the consumer's expenditures without limit.[1] Finally, in contrast to vouchers and (flat rate) subsidies, *money* is not earmarked for particular goods/services.

In this report we examine the (micro-) economic effects of demand-side financing. In Section 2 we discuss the main issues related to consumer behavior and welfare under demand-side financing. In Section 3 we examine some issues related to the supply-

[1] As there is no limit to the expenditures that will be compensated, a flat-rate subsidy is sometimes also called an uncapped subsidy.

side and the market effects. In Section 4 we will focus on government's budget control. In Section 5 we study two case studies: housing subsidies in the Netherlands and individual learning accounts in the United Kingdom. Section 6 summarizes the conclusions.

2 Consumer issues

In this section we discuss the main issues related to consumer behavior and welfare under demand-side financing. In Section 2.1 we present the basic economic theory that shows that, keeping the government expenditure constant,[2] the surplus of an individual consumer can be increased by replacing public provision with a voucher and a voucher with money. Moreover, we show that a voucher gives a consumer a higher surplus than a flat-rate subsidy that costs the same to the government.

Assuming that there are no market failures, and that a change of policy instrument does not lead to a change on the supply side of the market (thus production costs or market structure), maximizing the surplus of an individual consumer implies maximizing social welfare. Thus, in that case the best thing that the government can do is to give money to consumers. Later in the report, in Section 2.2 and Section 3, we show that other policy instruments may be optimal if these assumptions are not satisfied or the government pursues other goals than welfare maximization.

2.1 More choice is better: standard arguments

The basic argument in favor of demand-side financing as compared to public provision is that it increases consumers' satisfaction by giving them more freedom of choice. For the same reason, money is generally preferred to vouchers or other subsidies of restricted use. Below, we explore this argument in more detail. Using the example of housing, we compare consumer's welfare under four kinds of government policies: (i) public provision, (ii) vouchers, (iii) money transfers, and (iv) flat-rate subsidies. In (iv) we compare the consumer's satisfaction under flat-rate subsidies with that under vouchers.

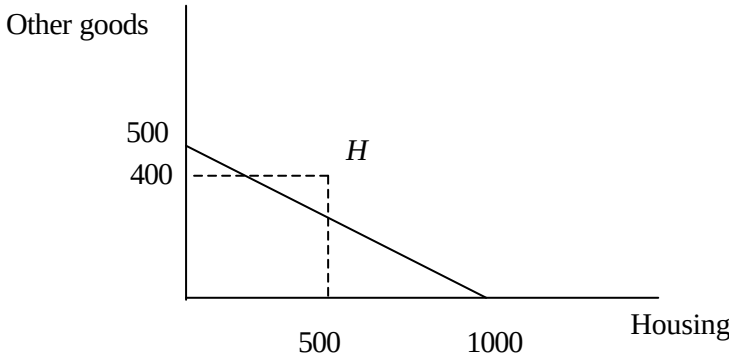
(i) Public provision

To make our point clear, we use a numerical example. Imagine that the consumer has a monthly income of €1000. Suppose also - for simplicity - that consumers can only buy two types of goods: housing and other goods, and that a unit of housing costs €1 while a unit of other goods costs €2. If the consumer does not get any support from the government, he can buy at most 1000 units of housing or 500 units of other goods, or a combination of the two that lies on the straight line connecting "500" on the vertical axis and "1000" on the horizontal axis in Figure 1 (the numbers on the *x*-axis and *y*-axis represent the amount of units of housing and other goods respectively). Since the straight line represents the maximum budget available to the consumer, it is called *the budget line*. The consumer can also choose a combination of goods that lies to the left of the budget line: in that case he does not spend all the available money.

[2] The amount of money received is kept constant to make these instruments comparable. Obviously, a consumer will probably prefer €500 in vouchers than €100 in cash, but that is not because he prefers vouchers as such, but because he prefers to get more rather than less.

Consider first a policy where the government offers the consumer a house worth €500 for €200 per month. The consumer can reject this offer, in which case his budget line is as without any government support. But he has an additional option now. He can accept the house, which allows him to buy 400 units of other goods (after paying €200 for the house). Thus, his budget line now consists of the 500-1000 line plus point *H*. The cost to the government is €300 per month if the consumer chooses to accept the offer H.

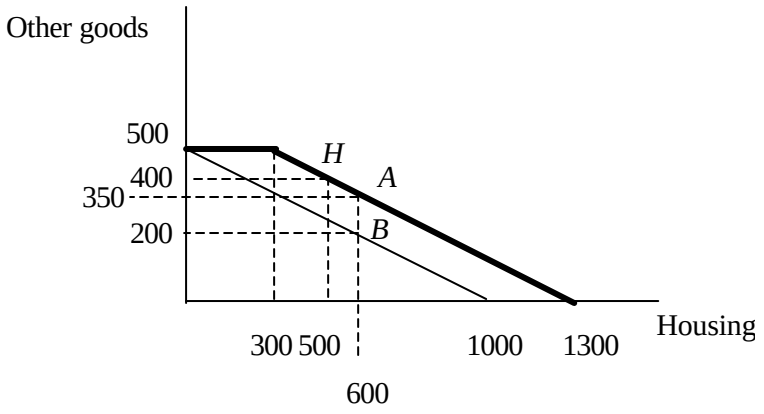
Figure 1. Public provision



(ii) Housing voucher

Consider now the next situation. Instead of offering a house, the government gives the consumer a €300 voucher that has to be spent on a house of his choice, either publicly or privately owned. In both cases the costs to the government are the same: €300. The budget line of the consumer is now represented by the bold line in Figure 3. The maximum amount of housing that he can buy now is 1300 units. The maximum amount of other goods is 500, and he can buy this amount as long as he spends no more than the value of the voucher (thus €300) on housing.

Figure 2. Vouchers



Looking at the figure we can see that all the possible choices that the consumer could make in the previous situation are still possible. In particular, combination *H* is still available, which means that it remains possible to consume 500 units of housing and

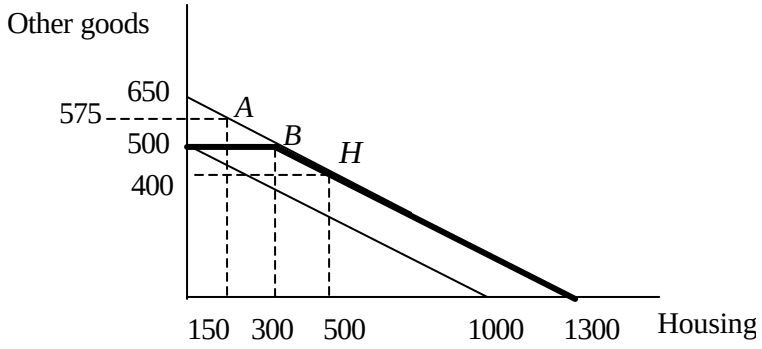
400 units of other goods. This means that the consumers who have a preference for such housing are not worse off with a voucher than with public provision. It is however possible that they are better off, because now they can choose a house which costs the same, but perhaps satisfies their needs better.

On the other hand, a voucher enables consumers to choose some other options that were not available before. That makes some consumers – those who would prefer to choose a different point on the bold line than H – better off. For instance, a consumer who would like to rent 600 units of housing can do so and still buy 350 units of other goods (point A in the figure). That was not possible under public provision: if the consumer did not accept the house offered by the government, he had to rent a house in the commercial sector and thus choosing 600 units of housing meant that only 200 units of other goods could be bought (point B). Similarly, a consumer who would prefer to live in a cheaper house but spend more on other goods is better off with a voucher. He can for example rent 400 units of housing and buy 450 units of other goods, whereas under public provision buying 450 units of other goods would require rejecting the house offered by the government and living in a house for €100.

(iii) Money transfer

Consider still another option, namely that the government gives the consumer €300 in cash and does not place any restrictions on their use. The costs to the government are exactly the same as in the previous two programs. Since now the consumer is able to buy at most 1300 units of housing and 650 units of other goods, the budget line is now the straight line connecting 650 on the "other goods" axis and 1300 on the "housing" axis.

Figure 3. Money transfer



Note that all the options available to consumer in the voucher system – thus all points lying on the bold line – are still available when the consumer receives money. That is because the additional income can still be spent on housing. Thus, no consumer is worse off with money than with a voucher. However, a money transfer makes some additional possibilities available, namely the combinations lying on the new budget line between B and 650. These additional options make the consumers who would prefer to buy less housing than the voucher allows, but more other goods, better off. For example, a consumer who would like to buy 150 units of housing and 575 units of other goods can do so if he receives money, but not when he gets a voucher: in that case he can buy at most 500 units of other goods. Thus, under the voucher system he

will have to choose a combination that is not optimal for him: 300 on housing and 500 units of other goods.

Note that those consumers who would like to spend more than €300 on housing even if the money that they get can be spent freely (thus those that choose points to the right of 300 units of housing), do not care whether they receive money or a voucher. They choose exactly the same combination of housing and other goods in both systems. We say in this case that a voucher is *cash equivalent.* A voucher is cash equivalent if its value is small compared to what people would like to spend on housing anyway. In these cases a voucher does not encourage people to live in better houses more than a pure money transfer. In extreme cases, if people spend all additional money on other goods, a voucher has no effect at all on people's housing conditions. The only thing that happens is that the voucher is used to pay for the house, and the money that would be spent on that goal otherwise is now shifted towards other expenses.

(iv) Flat-rate subsidy

Let us now briefly consider still another government policy, namely a flat-rate subsidy that reimburses a given percentage of housing costs. Such a subsidy gives a consumer less utility than a voucher that costs the same to the government. We demonstrate this with a numerical example. Suppose that initially the consumer has an income of €1000 and receives 75% reimbursement of housing costs. Suppose also that in this situation he chooses to live in a house for €400. Then, the government will pay €300 subsidy, the consumer will pay €100 from his own pocket for the house and keep €900 for other goods. Now suppose that the government changes its policy and instead of paying a percentage of housing costs, it gives the consumer a housing voucher of €300. The government is indifferent between these two kinds of subsidies, because in both cases it pays €300, but how about the consumer? Note first that with a voucher he can always reproduce the same situation as with the flat-rate subsidy, by renting a house for €400 and paying additional €100 for it. Thus, no consumer is worse off with a voucher. However, some consumers may be better off. Under the flat-rate subsidy, the consumer has to spend €100 of his own money on housing to get the subsidy of €300. In the voucher system, there is no such requirement, and therefore the consumer is more free to choose the combination of housing and other goods that fits his needs best.[3]

A voucher and a flat-rate subsidy have also different implications for the distribution of welfare. As a result of a constant reimbursement rate, the richer consumers get a higher subsidy than the poorer ones. For instance, with a 75% reimbursement a rich consumer who is ready to spend €200 of his own money for a house, gets in addition €600 from the government, while a consumer who is ready to spend €100, gets in addition only €300.

[3] The more precise argument goes as follows (see Friedman, 2002, Ch. 7). Suppose that with a flat-rate subsidy the consumer chooses a house for €400 and €900-worth of other goods. Suppose also that with a voucher system he chooses a house for €350 and €950-worth of other goods. This last combination is not available under a flat-rate subsidy, but it may be preferred by the consumer. If it is so, he is better off with a voucher even though in both cases he gets €300 from the government.

Does our analysis imply that the government could reduce spending and still keep the same level of consumer satisfaction thanks to a different instrument? The answer is yes and no. What we have shown is that if public provision is replaced with a voucher of the same value, then some consumers will have the same, and some a higher surplus than before. Thus, the total consumer surplus will increase. That means that by introducing vouchers the government can spend somewhat less and achieve the same total surplus. However, some consumers will lose then, namely those who are indifferent between a voucher and a publicly provided good of the same value.[4] Also producers will lose, because less money will be spent on their products. However, the loss of producers will be less than the government's gain.[5]

2.2 Reasons for government intervention

In some situations the optimal decisions by individual consumers do not lead to the socially optimal outcomes, or outcomes desired by the government. In those cases the government may want to influence consumer choices, for instance by subsidizing certain types of consumption or providing certain goods directly. Below we discuss the four main reasons for government intervention: market failures, paternalism, distribution concerns and the cost advantages of the government.

(i) Market failures.

Due to market failures, policy instruments that are preferred by individual consumers do not necessarily lead to the highest social welfare. Below we discuss the most relevant types of market failures.

Positive externalities.[6] Some types of consumption benefit not only the consumer, but also others. Schooling often serves as an example, because better-educated individuals are less likely to be unemployed and make use of welfare programs. If this is the case, people will follow too little education from the social point of view if they have to fully pay for it themselves.

Asymmetric information. Consumers may not have sufficient information about the quality of goods and services offered in the market. Due to this they may be unwilling to pay much for these goods, which in turn discourages the suppliers to offer good quality. This may lead to low overall quality and may cause the underdevelopment of the market as such.[7] The government can help to solve this problem by public provision or making information about quality available, under the condition that it can gather information at a lower cost than individual consumers. For instance, it may be more efficient to have the government controlling the quality of health care and then spreading the information rather than each consumer collecting this information separately.

[4] If the government spends less in case it applies the voucher system, then point H in Figure 2 (which corresponds with public provision) cannot be reached anymore.

[5] That is because the producers still have to bear the production costs. For instance, if the government spends €1000 on certain goods, the producers get €1000 minus the production costs of these goods.

[6] Also negative externalities can be a reason of government intervention. However, in that case demand-side financing is not a suitable instrument since the government wants to *discourage* instead of *encourage* consumption.

[7] This insight comes from Akerlof (1970).

Imperfect competition. Imperfect competition generally leads to a socially suboptimal level of production. The relationship between competition and demand-side financing are further discussed in Section 3.

(ii) Paternalism.

The government may think that if people decide about the consumption themselves, they will spend less on certain goods, for instance housing or health care, than is good for them. This motive may also be seen as an externality arising from the consumption of certain basic goods: for instance, the taxpayers may derive satisfaction from knowing that others have adequate housing or enough health care, but not from knowing that others drive an expensive car. This can provide a rationale for directing consumption towards these basic goods. An alternative explanation is that parents may not take the needs of their children sufficiently into account; for instance, they will spend the money on clothes for themselves rather than providing better housing for their children.

(iii) Distribution.

In principle, as already shown, a more equal distribution of welfare can be achieved most efficiently by money transfers. However, in practice it may be difficult to identify those who are really in need (because of unregistered income, family help etc.) and thus deserve government support. Supporting the consumption of basic goods may then lead to a better targeting of the government help. For instance, willingness to make use of publicly provided low-standard housing can be a signal of poverty.

(iv) Lower production costs of the government.

In some cases the government may be able to produce goods cheaper than private suppliers, for instance due to economies of scale.[8]

Depending on the reason for intervention, different instruments of influencing demand may be optimal. For instance, if we estimate that on average the social benefit of investment in professional training is 20% of the individual benefit, independently of how much education that individual already received, it may be best to reimburse a fixed percentage of training costs to everyone. If the reason for intervention is a paternalistic assumption that everyone should live in a house of a certain minimum standard, providing a housing voucher may be best. Finally, if the problem lies in the insufficient ability of consumers to assess the quality of goods, public provision or the spreading of information may be optimal.

[8] The economies of scale can also be achieved with a private monopolist who sells its whole output to the government.

3 Supply-side issues and the impact on the market

In this section we examine some issues related to the supply-side and the market effects. In Section 3.1 we analyze different consequences of introducing demand-side financing depending on the market structure and supply elasticity for two types of initial situation: public provision and no government financing. In that section we assume that the supply-side of the market does not change when demand-side financing is introduced. In Section 3.2 we discuss the possible effect of demand-side financing on competition, product differentiation and costs.

3.1 Market structure and effects of demand-side financing

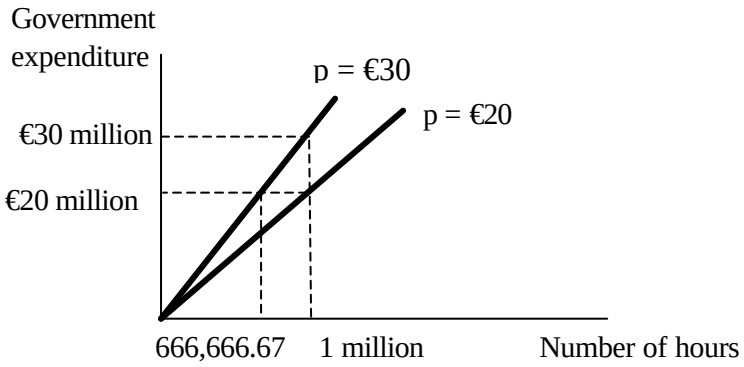
We already mentioned in Section 2.2 that market power on the suppliers' side may be a reason for government intervention in the market. We now explore this problem, showing that introducing demand-side financing may lead to undesirable effects if the market is not (made) sufficiently competitive. We do this for two types of initial situation: supply-side financing and no government intervention.

(i) Initial situation I: Supply-side financing

Consider first the situation where there is one supplier of home care services, and the government is the only buyer. This case, with one seller and one buyer, is known as a *bilateral monopoly*. In this case the price of the services is determined in negotiations, and its eventual level depends on the bargaining process. In any case, it can be said that the price will lie somewhere between the production cost of the supplier and the maximum amount that the government is willing to pay.

What if the government does not buy the services directly, but instead gives the consumers vouchers to buy home care services? Instead of a bilateral monopoly we are now in the situation of a monopolistic supplier and many buyers. Since in this situation the supplier has a much larger bargaining power, this will most likely lead to a higher price. We can illustrate this with a numerical example. Suppose for instance that the cost of providing one hour of home care is €10, and the value of this hour to the consumer is €30. Initially, the government buys 1,000,000 hours of home care for the consumers and pays a per-hour price which is somewhere between €30 and €10, let us say €20. The total cost to the government is €20,000,000. Consider what will happen if the government decides to divide this amount among 100,000 consumers. Then, each of them gets €200 in cash, which at the price €20 should allow them to buy 10 hours of care. However, when faced with 100,000 consumers, the care provider can now ask €30 for each hour of service, which is the full value of this hour to the consumers. That is because a single consumer has no bargaining power – if he refuses to buy the home care, the effect on the monopolist will be negligible since it still can sell to 99,999 other consumers. With the price €30, each consumer is only able to buy 6.67 hours of home care. Thus, if the government's expenditure remains €20,000,000, the total number of hours bought is reduced to 666,666.67. If on the other hand the government would like to secure 10 hours of service to everyone, it would have to spend €30,000,000 instead of €20,000,000. This effect of the price increase is also illustrated in Figure 4.

Figure 4. Effects of a price change



The monopoly case just analyzed is an extreme example. As we already discussed before, introducing demand-side financing always implies introducing some degree of competition. Another extreme case is perfect competition, in which case both the government and the consumers are able to buy the services at the marginal cost. We can say in general that the less competition in the market, the higher the prices will be under demand-side financing. In that case, either the consumer surplus will be lower if the government's expenditure stays unchanged, or the government will have to spend more in order to give consumers the same amount of goods.

(ii) Initial situation II: No government intervention

In the above example we compared supply-side financing with demand-side financing. Consider now a different situation, namely one where the initial consumers do not receive any support from the government and that the goal of introducing demand-side financing is to increase the demand for a given good. One can think here of individual learning accounts in Great Britain, which did not replace any existing supply-side financing. The effects of the increase in demand in the market will also depend on the market power, and in a competitive market on the elasticity of supply. If there is market power or if the competitive supply is inelastic (because of sharply increasing costs of producing additional output), the increase in demand will lead to a large increase in price, but only a small increase in the quantity that consumers will consume. If on the other hand the market is competitive and supply is elastic, the consumers will profit more from stimulating demand. These two cases are illustrated in Figures 5*a* and 5*b*.

Figure 5*a*. Inelastic supply

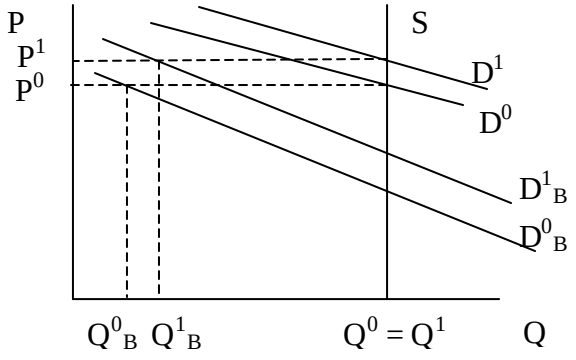
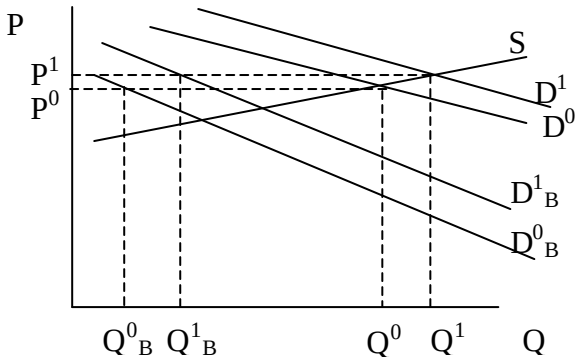


Figure 5*b*. Elastic supply



In both figures, S is the supply curve, D^0 is the total demand curve before the subsidy or voucher program is introduced, and D^0_B is the demand of the beneficiaries of the program (e.g. those who receive the housing subsidies or learning vouchers). The intersection of supply and total demand curve determines the equilibrium price P^0 and total quantity Q^0 sold in the market in the absence of government interference. At the price P^0 the beneficiaries buy quantity Q^0_B. The stimulation of the demand of beneficiaries by subsidies shifts their demand curve to D^1_B and the total demand curve to D^1. This results in a new equilibrium price P^1, the total equilibrium quantity consumed Q^1 and the quantity consumed by beneficiaries Q^1_B. It can be seen that if supply is inelastic (Figure 5*a*), the increase in demand raises the price so much that consumers in total do not buy more than when they did not receive any subsidies, and thus they are not better off. The quantity consumed by beneficiaries increases somewhat, but that happens at the expense of other consumers. If on the other hand the supply is elastic (Figure 5*b*), the higher demand does not cause the price to rise too much, and therefore the total consumption increases since non-beneficiaries do not reduce their consumption that much.

3.2 Impact of demand-side financing on the supply side

In the previous section we examined the different effects of demand-side financing in different types of markets, assuming that the supply side remains unchanged. Here we examine what kinds of changes on the supply side can be expected when demand-side financing is introduced. We focus on the impact on competition, product differentiation and costs.

(i) Competition

It is often argued that demand-side financing stimulates competition among producers, as compared to supply-side financing. Its introduction is often combined with the liberalization of the market and as a result these two policies are frequently seen as, so to say, two sides of the same medal. However, they are not as inseparable as one may think. On the one hand, it is indeed difficult to introduce demand-side financing without some degree of competition among suppliers, because consumers can have a choice only if there are at least two providers in the market. On the other hand, it is possible to introduce competition with supply-side financing. Even if the government fully determines what kind and what quantity of goods consumers will get, this does not need to say that these goods must be produced by government-owned firms. Even if only nationalized producers are present, there may still be more than one of them, competing with each other for the government financing. An example of supply-side financing combined with a relatively competitive market is the construction of roads. The location, quality and length of roads are completely determined by the government, and the only influence that the consumers can have is through the political process. On the other hand, there are many road-building companies and they are typically private. The construction companies compete for contracts by asking a low price or offering a higher quality, just as in any market where the consumers buy the goods directly. Another example may be the health insurance market: the government can buy health insurances for the citizens at publicly or privately owned insurance companies. The insurance companies can compete by asking a lower price from the government, or by offering a better

coverage of health risks. In this case, even though consumers have no influence on the insurance that they receive, the market may still be competitive.

However, in some cases it may be more efficient or cheaper for the government to introduce competition together with demand-side financing. Direct consumers may sometimes be better able to assess the quality of services than civil servants.[9] In addition, purchasing goods from suppliers requires effort to compare the goods offered by different suppliers. This in turn requires many civil servants, which may be costly. And, since civil servants spend money which is not their own, they may take less effort than the direct consumers to find the supplier that offers the best price-quality combination, let alone the possibility of corruption.

(ii) Product differentiation

Demand-side financing is likely to lead to a better adjustment of supply to consumer tastes. First, consumers usually have better information about their own tastes than civil servants, and they also have more incentives to look for suppliers that provide for their tastes. Second, consumers' tastes often differ, but for the government finding out about individual tastes would be very costly. Thus, public provision leads in practice to a relatively high degree of standardization. It follows that in markets where consumers have heterogeneous tastes, demand-side financing should lead to more competition in the introduction of new products and services, and eventually a higher degree of product differentiation.

(iii) Costs

If introducing demand-side financing is combined with increased competition, the intensified competitive pressure can lead to more efficiency and lower production costs.[10] If the increase in competition is sufficient, the same government expenditure may give consumers more goods and services, or the same amount of goods and services may be bought at a lower cost for the budget. On the other hand, replacing a monopolistic public supplier with several commercial suppliers may lead to a loss of some economies of scale and thus an increase in costs. Thus, the effects on costs are uncertain and will be different in different markets.

4 Budget control

It is commonly believed that demand-side financing leads to larger budgetary problems than supply-side financing. Primarily because of this belief governments are reluctant to change from public provision to demand-side financing. In this section, we will see whether this belief is justified. We will also analyze which type of demand-side financing (vouchers, money, or flat-rate subsidies) leads to higher risks with respect to the budget.

[9] On the other hand, the government may be able to gather information at a lower cost (see also Section 2.2).

[10] It is not possible to say what will happen to supply elasticity when production costs go down (due to increased competition). One can construct examples in which a decrease in marginal costs leads to an increase in supply elasticity, but also examples where supply elasticity goes down.

When do budgetary problems arise? Of course, budgetary problems can arise with uncapped financing (such as flat-rate subsidies), which means that all expenses of eligible persons for a certain goal will be refunded, or a large proportion, without giving a limit; with supply-side financing this is equivalent to saying that everyone has a right to a certain service. Clearly, when the budget per person is unlimited (or equivalently, when persons have unlimited possibilities to consume in case of supply-side financing), then there are no incentives for consumers to limit their use of the service.

Does this mean that vouchers and (a fixed amount of) money are superior to flat-rate subsidies with regard to budget control? On the one hand, the costs do not need to be higher with the one or the other. If the government distributes vouchers or money, then the beneficiaries will usually consume these vouchers and money till the last cent. With flat-rate subsidies people always have to pay part of the consumption themselves.[11] Thus, the total costs to the government may be lower with flat-rate subsidies.

On the other hand, a flat rate may be riskier than a voucher because the government does not know in advance how much subsidy will be claimed. For instance, if the government refunds 50% of housing costs, it does not know whether an average consumer will rent a house for €400 and ask for €200 subsidy, or whether he will rent a house for €600 and ask for €300 subsidy.[12]

Another problem with flat-rate subsidies is that they may stimulate demand at higher consumption levels. With vouchers and money, consumers are not able to pass higher expenses on to the government; with flat-rate subsidies they clearly can. A voucher or a fixed amount of money stimulates the consumer to buy the services more cost-conscious. The link between paying and enjoying is strong: the consumer feels the consequences of a choice for a relatively expensive service directly. The fact that consumers will make cost-benefit analyses, and weigh prices against quality, will discipline the suppliers in controlling the costs. The larger cost-consciousness of the consumer stimulates competition between the suppliers.

Even when the budget per person will be kept fixed (as is the case with vouchers and money), budgetary problems may still arise when there is uncertainty about the number of eligible persons or about how much each of the eligible persons will claim. Again, with supply-side financing a similar problem can arise (with uncertainty, the government does not know how many people will claim the service or how much either of them will claim).

Summarizing, whether or not a flat-rate subsidy leads to higher costs one cannot say. This depends among other things on the value of the good (relative to the value of the voucher). Flat-rate subsidies may however be riskier.

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[11] Note that in our definition of a voucher, a government cannot require that a consumer spend a minimal amount of money himself. In our definition of a subsidy it is however possible.

[12] In case the government would perfectly know the preferences of the consumers (thus in case there would not be uncertainty), then the government could construct a flat-rate subsidy and a voucher that cost the same. However, as we have seen in Section 2.1, a voucher would give a consumer more utility than a flat-rate subsidy.

There are at least two ways how to solve for these potential budgetary problems:

(i) Assign a budget ceiling (fixed overall budget) per year.[13] If there are too many applicants, or they demand too many services, some rationing device must be applied. That may be a waiting list, or a screening procedure (like housing subsidies in the US). Instead of applying a rationing device, the government may also pay the consumers ex post (e.g. at the end of the year). Ex post the government exactly knows how much has been consumed by whom. The overall budget will be divided among these consumers. An advantage of this solution is that there are no waiting lists (when the budget is exhausted before the end of the year). A disadvantage is that the consumer does not know – at the moment of consumption – for how much money he or she will be compensated. If – at the end of the year – the amount of money reimbursed by the government is unexpectedly low, the consumer may feel he is cheated.

(ii) Use a more cautious MRR structure (e.g. 65%-0% instead of 100%-0%)[14] *or lower the limit of expenses that get (partly) compensated.*[15] Note that the government can still make losses in a particular year. Even if this is the case, then these losses will be much lower than without adjustment. Moreover, the government can adjust the MRR structure in the subsequent year(s).

We have seen above that some types of demand-side financing (vouchers, money) will discipline the suppliers in controlling the costs, which is not necessarily the case with public provision. The common belief that demand-side financing leads to higher costs than public provision is thus not always true. One may however think of situations in which it is true. Let's for example compare vouchers with public provision. It can well be that more people will like to make use of vouchers than to make use of the offered services. That is precisely because vouchers give a higher utility than public services (there may be some additional costs of using a service, like transport cost or time, and therefore not everyone may make use of the offered service even if its price is zero). Another example in which a type of demand-side financing may lead to higher costs is described at the beginning of Section 3.1. In that section a situation is considered where demand can be estimated well, but the market is imperfectly competitive. With supply-side financing the government might be able to buy the services at the cost price, with demand-side financing and suppliers having some market power, the price of the good will probably go up. If the government wants to guarantee the same level of services, it has to pay more.

Let us finally answer the question if introduction of demand-side financing could also reduce the government expenditure while keeping the consumer satisfaction unchanged. There are basically two ways in which that can happen. First, we have seen in Section 2.1 that keeping the total consumer surplus constant, the government can reduce its expenditures when it replaces public provision with a flat-rate subsidy, a flat-rate subsidy with a voucher, or a voucher with money. However, when the total budget is reduced, some consumers are likely to be worse off. Second, as explained in

[13] Note that this solution is equally valid for supply-side financing.

[14] Recall that MRR is the Marginal Reimbursement Rate (see p.1). If the MRR structure is 65%-0% then up to a certain limit, a consumer get 65% paid of his expenses.

[15] Suppose the MRR structure is 65%-0% and suppose that the limit is €600. Then the government can save money if it lowers the limit to €300 say.

Section 3, if the introduction of demand-side financing is coupled with intensification of competition, the production costs may go down. This in turn may allow the government to buy the same amount of goods and services with less money.

5 Case studies

5.1 Housing subsidies in the Netherlands

Rental housing in the Netherlands is subsidized by allowances that decrease with household income and one's wealth, and increase with the rent level and the size of the household. With housing subsidies households with a low income can rent an apartment that fits their situation. Since July 1, 1997 the housing subsidy is based on the "Huursubsidiewet". This law is evaluated in 2000. In this evaluation one can read that the money spent on housing subsidies increased significantly since the introduction of the new law: an annual increase of 10.9% in 96/97, 20.5% in 97/98 and 5.7% in 98/99, while the average rent increase within the housing subsidy population was about 3%. Part of this increase was calculated in (the government wanted to lower the net rent quota for low income groups, i.e. the share of the net income that is spent on the net rent expenses), another part was not. This latter part may be explained by the fact that the design of the subsidy was such (within limits a higher rent is fully paid by the government) that it elicited additional demand: not only the average rent increased per household but also the number of households that asked for subsidies increased.[16] The housing subsidy scheme may thus have led to overconsumption. Clearly, with government housing provision demand (and the danger of overconsumption) would have been lower because (a) public housing is usually rationed, while subsidies – at least the ones in the present case – are not, and (b) a housing subsidy has a larger value (households have more freedom of choice). The explanation for the increased costs after the introduction of housing subsidies may also be found in the difficult entry to the housing market:[17] the inelastic supply conditions of the housing market may increase the price of renting a house.[18]

Did the government run real budgetary risks? Not really. The government had chosen for a capped subsidy (with a 100%-75%-0% MRR structure) and because it knew the number of low-income households and the respective incomes it was able to calculate a worst-case scenario.

Would another type of demand-side financing have led to better results? The answer to this question depends on the goal(s) the government wants to achieve. Suppose the government wants to achieve a more equal distribution of welfare (see Section 2.2). A voucher with a fixed amount of money (having the same expected expenditures as the percentage subsidy) would then have been a better choice.[19] The households that have

[16] The landlords may also be partly responsible for this additional demand for subsidies because for them it was much easier to put low-income groups in more expensive houses.

[17] See Baljé et al, 2003, Appendix 3, for the observation that entry costs for building complexes of rented houses might have been high.

[18] These inelastic supply conditions are primarily due to restrictive government spatial policies, which limit the supply of land allocated to housing. In the extreme case, if the supply is totally inelastic, consumers are not better off at all with subsidies (see Section 3.1).

[19] It can easily be checked that the fixed amount would have been somewhere between the amounts that correspond with the 75% and 0% border of the MRR structure.

chosen for a cheap house with the current subsidy would clearly be better off (with a voucher they are able to live in a more expensive house for the same amount of money); the households that have chosen for a more expensive would be worse off (either they have to pay more for the same house or they have to live in a less expensive house for the same amount of money). A change to a voucher scheme with a fixed amount thus has distribution effects in favor of the poor.

5.2 Individual Learning Accounts in the United Kingdom

In September 2000, the United Kingdom launched the Individual Learning Account (ILA) program to widen participation in learning (for learners as well as providers) and to help individuals (particularly those who lack skills and qualifications) overcome financial barriers to learning. The ILA program, which subsidized the costs of appropriate courses, was far more popular than expected by the Department for Education and Skills, with some 2.6 million accounts being opened (against an expected number of accounts of 1 million) and expenditure amounting to some £273 million (against a budget of £199 million). Some 9,000 organizations were registered as learning providers. After serious allegations of potential fraud and theft involving ILAs (in particular, that the ILA database was improperly trawled for unused accounts by a few providers) and concerns over the quality of some courses, it was decided on 23 November 2001 to shut down the program.

The ILA program is a clear case of a project where the government was not able to control the budget. What went wrong? The National Audit Office (2002) report comes to the conclusion that the program was implemented too quickly and inadequately planned. There were weaknesses in security arrangements (providers could easily abuse their legitimate access to the ILA database) and the Department for Education and Skills failed to monitor closely enough the escalating demand for accounts – with over a quarter of the learners not participating in the courses for which they were registered.

The Department for Education and Skills could have known in advance that control was needed to keep the money spent within ex ante determined limits. The reason is simple. Consumers who do not want to spend the voucher on training but on different goods/services (thus consumers who have different preferences than the government) will invent ways to go around the voucher restrictions.[20] This "leaking of money" may cause budget problems, because more eligible people (than estimated) will use the voucher.

In Section 4 we have seen that governments run budgetary risks (even with capped subsidies) when there is high uncertainty about the number of eligible persons and/or about the consumption per eligible person. As both uncertainties were present in the present case,[21] the UK government should have chosen one of the solutions discussed in the previous section to go around the budgetary problem.

[20] Learners may for example collude with providers. Learners and providers are able to collect the subsidy from the government just by doing as if they are following and providing a course respectively.
[21] Because anyone aged over 19 could open an account, the number of people that would make use of the accounts was difficult to estimate in advance.

The appearance of bad quality suppliers on the market should also not come as a surprise. The Department omitted to introduce a quality assurance system, which is needed to prevent that bad quality providers will drive out good quality providers.[22]

The problem with the ILA was in its design, not in its being a form of demand-side financing. The ILA program was faced with much greater demand than estimated (in itself positive) and new learning providers innovated the learning market (see van Ballegoyen et al., 2002). When the providers would have been subject to a form of quality assurance, the government could have prevented low quality providers from entering the market.

6 Conclusions

From this report a number of conclusions can be drawn. In this section we will summarize them point-by-point.

Conclusions from the theoretical analysis:

(i) In the absence of market failures, keeping the government expenditure constant, and assuming that a change of policy instrument does not lead to a change on the supply side of the market (thus production costs or market structure), social welfare can be increased by replacing public provision with vouchers, vouchers with money, and flat-rate subsidies with vouchers. This implies that by introducing demand-side financing the government can reduce its expenditure and keep the total consumer surplus unchanged. However, some consumers and producers will then be worse off.

(ii) Demand-side financing may lead to undesirable effects if the market is not (made) sufficiently competitive. The less competition in the market, the higher the prices and the lower the consumer surplus will be under demand-side financing for a given government budget. If in this situation the government wants to give consumers the same amount of goods and services, it has to spend more.

Conclusions *(i)* and *(ii)* can be summarized in the following matrix.[23]

Table 1. Effects of demand-side financing

	GB constant				CS constant			
	CS	PS	GB	TW	CS	PS	GB	TW
Competitive market	+	0	0	+	0	-	++	+
Uncompetitive market	-	+	0	?	0	+	-	?

[22] See the discussion of asymmetric information in Section 2.2.

[23] CS - consumer surplus, PS - producer surplus, GB - government budget, TW - total welfare (CS+PS+GB).

(iii) When using vouchers, one has to bear in mind that if the vouchers' value is small compared to what consumers are willing to spend on the subsidized good anyway, its effect on the consumption of the good in question may be none or small.

(iv) Market failures (such as externalities, asymmetric information, and imperfect competition), paternalism, distribution concerns, and efficiency considerations may make government interference with individual consumption pattern optimal. Depending on the type of problem that the government wants to solve, different instruments will be most desirable.

(v) The government may be unsuccessful in stimulating consumption by subsidies if there is market power or if the competitive supply is inelastic.

(vi) Demand-side financing leads to a better adjustment of supply to individual demand than public provision.

(vii) Demand-side financing *per se* does not lead to a more competitive market. Introducing demand-side financing is also not necessary for increasing competition, although in some markets it may facilitate it.

(viii) If demand-side financing is introduced together with more competition, the production costs may fall which may allow the government to lower its expenditure while buying the same amount of goods. However, this is more an effect of increased competition rather than of demand-side financing per se.

(ix) In general, demand-side financing does not necessarily lead to higher or lower costs than supply-side financing; this depends on the design of the instrument and the market situation.

(x) Flat-rate (uncapped) subsidies lead to higher budgetary risks than other demand-side financing instruments (vouchers, money).

(xi) Potential budgetary problems can be mitigated by assigning a fixed overall budget per year, or by introducing a more cautious MRR structure.

Conclusions from the case studies:

(i) The increased budgetary costs after the introduction of the Housing Subsidies in the Netherlands may have been due to the increased demand and the inelastic supply conditions in the housing market. The Dutch government could have mitigated its budgetary problem if it had chosen for a subsidy with a different design. Households should not have had the possibility to pass the extra costs of a higher rent entirely on to the government.

(ii) The problem with the Individual Learning Account program in the UK was in its design (which elicited fraud), not in its being a form of demand-side financing. It would have been better if the UK government had introduced a budget ceiling.

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