CHOICE BETWEEN PUBLIC AND PRIVATE PROVISION OF GOODS, DIFFERENT ABILITIES AND IMPERFECT INFORMATION

By

GERASIMOS T. SOLDATOS, (Ph. D.)

I. INTRODUCTION

In this paper we deal with the effects of imperfect information on the choice between public and private provision of private goods when individuals differ in ability. Although the issues of different abilities and the allocation of publicly provided private goods, and the choice between public and private provision have been examined separately under conditions of full information by Arrow (1971), Ulph (1977), and the subsequent literature, these issues have never been linked together and an explicit treatment of information is a virtually untouched research area. My purpose here is to examine goods which, to the extent that cost of supply to a person are of our concern, are quite like private goods, but can be supplied either publicly or privately to different people under conditions of asymmetry in accurately observing their abilities. That is, imperfect information is modeled as asymmetric information rather than risk, or uncertainty. Also, examples of the goods in question are either private goods which are a close substitute for public goods, e.g. security agencies vs. police, or goods such as education and health care which may not strictly have the properties of an idealized private good because of externalities.

II. THE MODEL

As it is commonplace to analyses of this type, the exposition can be made as transparent as possible by considering the simple example of education. In

what follows we concentrate only on what is socially desirable. Presumably, in a democratic society, this desirability is always accommodated.

We begin with the situation where individuals differ in ability (h), but where this ability is supplemented by education that can be provided either publicly or privately. Let us assume, without loss of generality, that h is distributed on [0, 1] with density functions $D_{PUB}(h)$ and $D_{PVT}(h)$ in the public (PUB) and private (PVT) sectors, respectively. Also, let $P_{PUB}(h)$ and $P_{PVT}(h)$ be the prices charged to individuals whose ability level is h^1. Assume that the price differential between the two sectors is invariant with respect to h. Furthermore, assume that, as seems very likely for most private schools, individuals regularly apply a discount factor (m < 1) to the prices of public education when comparing them to those of private education because of preference for private school environment, lifestyle, etc^2.

When making the choice, they compare $mP_{PUB}(h)$ to $P_{PVT}(h)$. In this manner, an individual will decide to attend a private school if $P_{PVT}(h) < mP_{PUB}(h)$. Now, we may distinguish two cases. First, the discrepancy between the two prices may be large enough to set the line $mP_{PUB}(h)$ above the line $P_{PVT}(h)$. Figure 1 depicts this situation. In this case, all individuals will choose private education in the presence of full information. Alternatively, if the discrepancy between the two prices is small, the $mP_{PUB}(h)$ line will lie below the $PPVT(h)$ line. In this case, as depicted in Figure 2, under full information all individuals will choose public education.

Let us now consider the impact of asymmetric information on the choice between public and private education in each of the above cases. The impact may be shown to crucially depend on whether it is the public or the private school system that pays more attention to individual needs and abilities.

First consider what happens when public schools are unable to observe the person h. In this situation, public education authorities will charge each person the average cost of public schools. Denoting this prive by $P_{PUB}(h)$, it is apparent

1. The relationship between h and P is assumed to be inverse thus exemplifying the fact that low ability students need more education than others and consequently, they pay more. Ananalogy with health services is that people who are more ill than others, receive more health care and for that matter, they pay higher medical bills.

2. The discount factor m is a means of generalizing the model to involve particular prefe rences for private versus public education. As far as health care is concerned, private medical facilities may be preferred to public provision of health because of superior services, etc. Walk-in clinics versus city hospital emergency rooms is a case in point. Nevertheless, the qualitative results of the model are robust with respect to the value of m.
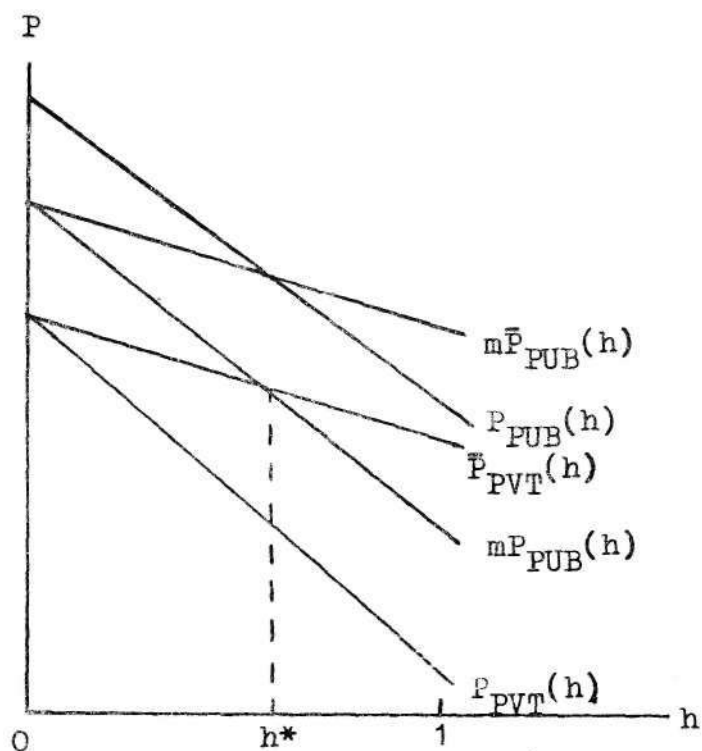
Figure 1

that $\overline{P}_{PUB}(0) = P_{PUB}(0)$ while when $h > o$ $\overline{P}_{PUB}(h) > \overline{P}_{PUB}(h)$. Consequently, the $mP_{PUB}(h)$ lines is as drawn in Figure 1. It is easily seen from this figure that again, all individuals will choose private education. If, however, it is the public schools that have the better information, a private school will charge each individual the average cost of the school. According to the same line of reasoning as above, this mean price line, $\overline{P}_{PVT}(h)$ is as depicted in Figure 1. For this reason, although under full information all individuals will wish to attend private schools, as soon as asymmetric information gets involved into the model, only the less able individuals in the [0, h*] interval will chose to do so.

Next, we turn to the second case which, as depicted in Figure 2, is analyzed in a similar fashion. The outcome are the lines $m\overline{P}_{PUB}(h)$ m $\overline{P}_{PVT}(h)$ corresponding to ignorance on the part of public and private schools, respectively. The diagram shows clearly, for that reason, that in this case, the choices under information asymmetry will be such that it the lack of information is in the
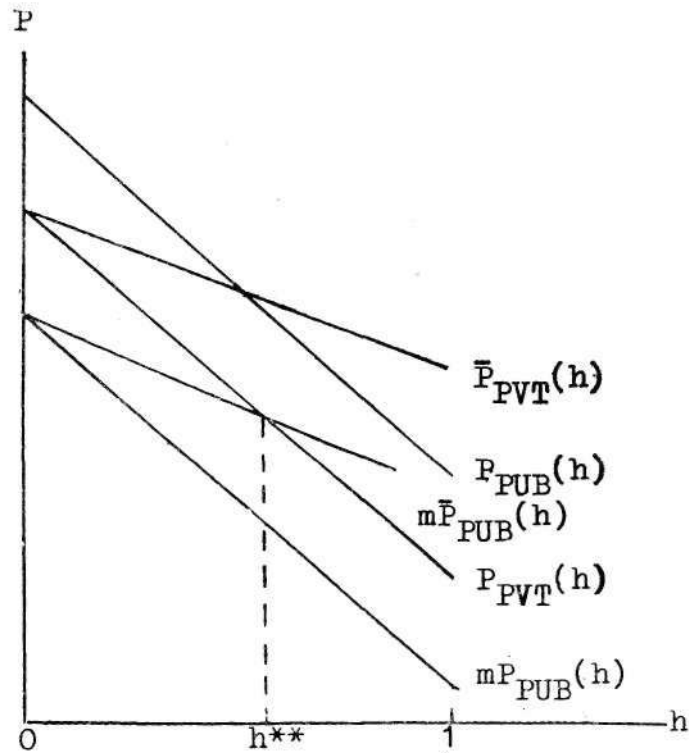
106

Figure 2

private schools, all individuals will attend public schools, and if it is in public schools, the more able individuals in the [h**, 1] interval will choose private schooling.

III. CONCLUSIONS AND FINAL REMARKS

The essence of our results is in the asymmetry of information regarding individual abilities. Provided that in a democratic state, social desirabilities are always satisfied, if the information is with private sector, asymmetric information will, if it has any impact, tend to encourage private provision of private goods to the more able members of the society and public provision to the rest. If, on the other hand, the information is with public sector, asymmetric information may cause private provision of private goods to the less able individuals and pu-

blic provision to the others. Removing the assumption of the constancy of the price differential, our results will be amplified or modified depending on whether the differential increases or decreases with h.

REFERENCES

Arrow, K. J., «Equality in Public Expenditure», Quarterly Journal of Economics, 1971, 85, 409-415.
Ulph, D. T., «On Labor Supply and the Measurement of Inequality», Mimeo.