A PRACTICAL PROPOSAL FOR PRIVATIZING THE HIGHWAYS — AND OTHER "NATURAL MONOPOLIES"

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1. Introduction

Let us suppose that our national highway system is a "natural monopoly", as economists use the phrase. How could it be privatized? In particular, how could it be privatized in a way which would:

(a) create private enterprises' usual incentives to keep prices and costs low and quality high;

(b) create incentives for innovation;

(c) keep the low transactions costs of free public provision;

(d) eliminate any need for continued regulation typical of "contracting-out" schemes;

(e) be simple enough to win public support?

2. An Overly Simple Proposal

The simplest answer would be to simply give every adult citizen in the country a share of stock in the road system, and then let the Privatized Road Corporation do whatever it likes. It could charge a flat fee, per-mile charges, tolls, or any other combination. Naturally, the Corporation would earn massive monopoly profits, but if everyone in the country were receiving a share of them, why should we care? In fact, if we push the logic far enough, we will note that if the consumers and the stockholders are the same people, then trying to extract monopoly profits would be completely futile.

But on second thought, we should note the strong assumption underlying this idea: it assumes that everyone in the country would use the roads to the same extent, and that everyone in the country would hold an equal number of shares. The latter condition would *initially* hold by assumption; but in all likelihood, some people would sell their shares to others, and the largest shareholders would, as usual, hold the positions of power in the corporation. Similarly, executives would probably receive much of their compensation in stock benefits. The result would be that the people making the pricing and other decisions of the Privatized Road Corporation would make a great deal more money from higher stock earnings than they would lose from paying high road prices. Indeed, this is the typical corporate situation in any industry: because an oil executive buys only a small amount of oil, but receives much of his pay in stock options, the fact that he is one of the consumers who will pay high prices is trivial for him.

Of course, if the Privatized Road Corporation will be able to earn massive monopoly profits, this will be reflected in the stock price; if everyone in the country starts with a share, the real recipients of the monopoly profits would be all of us. The distributional issue would be irrelevent. But what *would* matter would be the so-called "deadweight loss of monopoly". If a road firm charges $5,000 a year to drive on its roads, but the marginal cost of another driver is only $1,000, then consumers who were willing to pay $5,000 merely *transfer* some wealth to the road firm; but all of the benefit of consumers willing to be $4,999 to $1,000 is needlessly lost. A system of equal initial distribution of shares renders the transfer from consumer to road company completely neutral; but it does nothing to negate deadweight losses.

Admittedly, some pricing regimes (known as multi-part tariffs) can theoretically eliminate deadweight loss. One common sort of multi-part tariff is to charge a high flat per-person fee and a low per-unit fee. If a convenient multi-part tariff existed, then the simple proposal to distribute shares and let the Privatized Road Corporation do as it pleases would be sound. But normally it is difficult to implement a fully efficient multi-part tariff system; in particular, doing so might involve very high transactions costs which would themselves constitute a deadweight loss.

Let us then see how this first proposal measures up by the standards we set at the outset:

(a) The competitive checks on pricing are extremely weak. While monopoly profits would be shared equally be everyone, the deadweight losses of monopoly pricing would be captured by no one. There would, at least, be a normal incentive to maintain quality and keep costs down which is notably absent in state monopolies.

(b) The incentives for innovation would be distinctively improved. What incentive does a state monopoly have to improve its product or lower costs? In contrast, a private monopoly has every incentive to exploit all possible cost savings and to introduce new and improved products. It may charge an arm and a leg for them, but it will certainly want to introduce them.

(c) It definitely seems like a private road system could have very high transactions cost. In a best-case scenario, it would just charge a (high) flat fee; this would be a definite improvement over the current morass of registration fees, gasoline taxes, tire taxes, and tolls used to pay for the existing highway system.

In a second-best scenario, the monopoly privatized firm would charge per-use fees, but would at least have an incentive to adopt new, cheap technology for collecting its tolls (for example, a device similar to the supermarket price scanner). Government monopolies can't directly reap the gains of cheaper toll-collecting technology; in fact, adopting such technology could seriously impede the *political* profits of existing toll collection services, especially the sinecures that toll-collection agencies can bestow on powerful public-sector unions and their members.

In a worst-case scenario, however, the Privatized Road Corporation would put all of its energies into extracting every dime of surplus possible. They might spend $1,000,000 on new detection technology in order to increase profits by $1,000,001. In essence, they would focus their energies on redistributing rather than producing wealth. While this is an extreme picture, would should not dismiss it out of hand. It is a possibility.

(d) This proposal would indeed end all regulatory involvement. This is its advantage over the more popular "contracting-out" or "contract-bidding" proposal, which involve a host of agency and enforcement problems.

(e) The simplicity of the proposal is one of its main selling points. Almost anyone could understand the basic idea, although many people might have trouble understanding the connection between the high value of their share prices and the high charges for using the roads.

3. My Solution: A Dual-Securities Approach

I have an alternative privatization scheme which I believe has the strengths of the previous proposal without its weaknesses. Its main drawback is simply that it is quite a bit more complicated than the previous one. I shall begin by outlining the basic institutions of the system, and then explain how this system would work, and why it would work well. (Which is not to say that my basic idea could not be further improved upon — I'm eager to hear suggestions!)

To start with, every adult citizen would receive not one, but *two* securities. The first would be a standard piece of common stock, which would entitle the owner to his or her share of the Privatized Road

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Corporation's profits. The second would entitle the holder to operate *one* motor vehicle on the highways in exchange for an annual fee. This annual fee should be set at around (probably slightly above) the *per capita* long-run maintainence cost of the highway system and well below the marginal willingness to pay for the right to operate an additional vehicle.

Now if you carefully re-read the last paragraph, you will notice that the system is set up so that *both* securities will have a positive price. The share of common stock will have a positive price, because the expected value of future profits is positive. But the second security, which gives the right to operate a motor vehicle, will *also* have a positive price, because the annual fee is deliberately set below the consumer's surplus of the marginal user.

Now the basic feature of the corporate charter would be that corporate officers would be required to hold *equal numbers* of both types of securities in their portfolios. Executive stock incentives would be balanced between both sorts of securities; members of the board of directors would be eligible only if their holdings of both sorts of stock were roughly equal. Corporate voting rights would be based upon one's *joint* holdings of both sorts of stock. In other words, the entire corporate charter would focus upon maximizing the value of the *sum* of the two securities.

Now why would anyone hold a large number of the second type of security? No one can drive a hundred cars, so why hold a hundred permits to hold cars? The answer is that large holders of the second sort of portfolio would *rent* their use to individual users. One easy method would be if the Privatized Road Corporation annually issued one registration sticker per type-2 security owned; then the holders of excess stickers could sell their excess annual stickers, while retaining ownership of the security itself.

What is so great about this system? The answer is that it gives very strong incentives to adopt policies which maximize profits *plus* consumers' surplus; it gives incentives to trade off profits and consumers' surplus to maximize the size of the total pie. And again, there is no issue of redistribution because by assumption we would all start off with equal numbers of both securities.

Let us consider a simple example. Suppose that the head of the corporation is pondering whether to set up a system of meters on bridges. In the plan outlined in section two, the CEO just wants to maximize profits; he would implement the plan if the cost of the metering system were less than the extra profits extracted. But in *this* plan, the CEO has a very different problem. If he sets up the meters, the value of his type-1 security goes up due to the greater expected profit stream. But the value of type-2 security will *fall!* Before, the marginal motorist was willing to pay $l000 for a sticker; but now with the toll the value of the permit is less, so the price will fall. Moreover, if the bridge is uncongested, we would expect the value of type-1 securities to rise by the extra profits from toll minus the cost of collecting toll, whereas the value of type-2 securities will fall by the extra profits from toll minus the deadweight loss. In short, the sum of the two securities will fall if the costs of collecting toll plus the deadweight loss is positive; or in other words, if the proposed change is not Kaldor-Hicks efficient. The only case where the CEO would now want to add a toll is if doing so would reduce congestion, cut down on wear-and-tear, or otherwise improve the quality of service or reduce the costs of production by more than the costs of toll collection.

What's the trick? The trick is essentially that by creating a fixed stock of type-2 securities, we create a *perfectly inelastic* supply of driving licenses. Since the incidence of monopoly power (like the incidence of taxation) will always fall *entirely* upon the holders of the inelastically-supplied good, it becomes possible to make the benefit and the burden of monopoly power fall on exactly the same people. In fact, it isn't even necessary to set a fixed flat fee for the ownership of a type-2 security; since the incidence will be borne entirely by the owners of the security rather than consumers, and since we have set up our corporate government to evenly balance the interests of both types of security-holders, we could even let the Privatized Road Corporation set the annual fee *ab libitum* without fear.

The only important consideration is to make sure that the non-negativity constraint on the market value of the two securities never binds. If it did, then assuming that share values could not fall further, the incentive for inefficient transfers from consumers to shareholders could re-emerge.

The really crucial question is how to set the initial number of shares. If we set them simply to cover marginal costs, then with increasing-returns-to-scale technology it would impossible to cover fixed costs and maintain a positive value for type-2 securities. On the other hand, if we set the number too low, then a growing population would not enjoy the full potential benefits of the national highway system.

To put the first problem in perspective: the current road system *already* inefficiently excludes many low-value users. In most states there is a registration fee, a gasoline tax, a tire tax, and a myriad of other costs which keep low-end drivers off the road. There would be no need for the Privatized Road System to suffer any greater inefficiency on this count. In fact, when we consider the fact that the value of the type-2 securities will discount their expected net earnings into an infinite future, the number of low-end users who would need to be excluded from the highways in order to maintain a positive share value could be quite small.

The second problem — of the number of type-2 securities becoming progressively less adequate to serve a growing population — could be handled in two ways. First, in the corporate charter it might be specified that the Privatized Road Corporation is obliged to issue a number of shares each year equal to e.g. the growth in the population. But this would probably not be necessary. The firm would always be free to offer deals to non-security holders. In doing so, it would exercise some monopoly power, but this monopoly power would be constrained by the availability of the fixed stock of type-2 securities. (Like the existence of used cars constrains the pricing of new automobiles.)

In fact, we could get rid of the non-negativity constraint entirely if we combined the type-1 and type-2 securities so that they could not be sold separately. Security holders could "rent" the right to use the roads, and the expected sum of rental values plus the expected sum of profits would determine the value of the combined security. While this would be theoretically preferable, I think that the dispersion of renter and shareholder interests created by my dual-security system is desirable on public choice grounds (in particular, I think it makes abrogation or alteration of the corporate charter vastly more difficult), and this gain is worth the slight efficiency created by the non-negativity constraints.

Turning finally to points (a) to (e), we find that:

(a) The dual-security system adds powerful incentives for efficient, competitive pricing, while sharing the incentives for quality and cost-control of the first proposal.

(b) The incentives for innovation are again quite vigorous.

(c) On transactions costs grounds, the dual-security system is clearly superior to the first proposal. The way that the securities are designed ensures that the firm will only incur transactions costs when the *total surplus* gain exceeds the transactions costs; whereas in the first proposal, there was an incentive to incur any transactions costs which were less than the extra profits they brought it.

(d) As before, there would be no need for continued public regulation. It would merely be necessary for the corporation to live up to its own corporate charter; and as I noted, the dual-securities approach makes it quite difficult for large shareholders to alter the charter to their own advantage.

(e) Unfortunately, my proposal is quite complicated. This makes it difficult to explain it to and win support for it from the general public. While this is a serious problem, and one that worries me, the general approach seems promising enough to make it worth further exploration. In particular, we should note that the principles outlined here could be adapted to the seemingly intractable problem of how to privatize *any* existing state-owned natural monopoly.

4. Conclusion

I haven't been nearly as rigorous as I would eventually like to be on this topic. There are several points where I avoided discussing some of the thornier theoretical issues. I'm not sure if my proposed system could meet any of the strict technical standards for Pareto-optimality. However, I do think that I have proposed a surprisingly workable method of privatization for a whole range of state monopolies which economists usually don't even consider trying to privatize.