NRA
An tÚdarás um Bóithre Náisiúnta
National Roads Authority

Project Appraisal Guidelines

Unit 20.5 A Note on the Shadow Cost of Public Funds

August 2010

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1.0	August 2010	New Guidance

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1 Background

1.1. The Department of Finance document "Infrastructure Investment Priorities, 2010-2016 includes a stipulation that a "shadow cost of public funds of 150 per cent should be applied to exchequer sourced finds in CBAs of capital investment proposals in the public sector, so as to account for the distortionary effects of taxation"

1.2. The same document indicated that a shadow price of labour should also be applied to CBAs.

2. Some Observations

2.1. In developing the Common Appraisal Framework for transport projects, it was recommended that public funds should not be shadow-costed as it would distort decision making in a context in which some of the benefits of transport projects were not monetised.

2.2. The 150 per cent shadow costing rate is very high and reflects a period when the Irish economy was heavily taxed. A review undertaken for Forfas recommended a lower rate of 125 per cent. [1] The same review indicated that the rule of thumb is that "the deadweight costs of taxation are roughly equivalent to the square of the marginal tax rate". If this rule is followed, then even with the recent increases in taxation to bring the marginal tax rate to c. 52per cent, a shadow costing rate of no more than 125 per cent would be justified.

3. Implementing the DOF Recommendations

3.1. The adjustment for the shadow cost of public funds should be applied to the Net Exchequer Cost (NEC) of the project as it is only this cost that gives rise to a need for taxation;

3.2. If the NEC is reduced by EU grant aid, developer contributions or road tolling, then it can be argued that the NEC should be reduced to reflect these elements before applying the 50 per cent increase. With regard to developer contributions and road tolls, this argument is based on the proposition that such levies and tolls do not themselves give rise to distortions in the market place. This is probably truer of developer contributions, as tolls could be distortive where networks are uncongested.

3.3. In contrast, shadow tolls defer but do not reduce State payments, so that the shadow costing should be applied to these payments. In theory, as these payments are in the future the shadow costing rate to be applied should reflect the future shadow cost of public funds. In practice, the only option may be to apply the 150 per cent rate.

3.4. The NEC will be reduced by the extent to which tax receipts rise as a result of the project. While projects may give rise to changes in fuel tax receipts, this effect is unlikely to be substantial for inter urban road projects, where congestion may be

[1] Forfas. The Economic Appraisal System for Projects Seeking Support from the Industrial Development Agencies. 2001.

alleviated but relatively high speeds are attained. This element may be reasonably ignored.

3.5. Another source of tax receipts are income tax and PRSI payments made by or on behalf of workers engaged in the project who would otherwise be unemployed. Also previously unemployed workers would no longer have to be paid social welfare.

3.6. A rule of thumb that is often made is that, in times of high unemployment, 20 per cent of workers come from this source. The average tax and social welfare payments would be c. 27 per cent of the wage bill. Social welfare payments could be of the same order, so that if the labour content in a project is 30 per cent, the gain to the Exchequer would be equal to Capital cost of 100x30x20x54 = c. 3.25 per cent of the project cost.

3.7. There would also be a tax gain from the profits paid by civil engineering firms engaged in the project. This might bring the 3.25 per cent up to 4 per cent. [2]

3.8. As a result of the above, there might be case for taking c. 4 per cent off the capital cost of the project to reflect these tax gains before applying the 150 per cent factor. (These figures used would have to be confirmed).

3.9. In addition, to the tax effects identified above, a further benefit to the project arises from the shadow price of labour. This is considered separate and additional to the tax/social welfare effects identified above. If, say, we had an economy where there was no unemployment but high taxation, we would still apply a shadow costing of public funds based on NEC, but would not shadow price labour. The two are measuring quite different things. Again a reasonable measure of the shadow price of labour is to assume that it applies to 20 per cent of workers so that where the labour content is 30 per cent, this gives rise to the equivalent of 100x 0.30x 0.20 = 6 per cent of project costs.

3.10. The combined effects of shadow pricing and tax benefits are equivalent to c. 10 per cent of project capital costs.

3.11. The capital cost figure used in any calculation should be the factor cost measure, as this is the cost that the Exchequer would have to raise in taxation.

3.12. A simple approach to the adjustment required would be to multiply the capital cost by a factor of 1.38 to reflect both shadow cost of public funds ((100x 0.96x1.50) = + 44 per cent) and shadow price of labour ((100x0.94) = - 6 per cent).

[2] Excluding multiplier effects.