On the Economics of Subsidies with a special note on the fuel (HSD) subsidy for deepsea fishing vessels

K. Vijayakumaran
Scientist
Visakhapatnam Regional Centre of CMFRI
Andhra University P.O.
Visakhapatnam - 530 003

Subsidy is considered as negative tax in economic parlance. As tax imposed on a given product discourages (or is expected so) its production and consumption, a subsidy produces a reverse effect. Subsidy is a transfer payment. Hence it is not included in national product or income. But as far as expenditure is concerned, it becomes a part and parcel of the sources of finance to be spent on goods and services produced.

The sources of finance for subsidy, as for any other government expenditure, is mainly from the tax revenue collected from the public. Subsidy thus needs to be justified, which at the simplest level can be done by the externality criterion. A product is said to have external benefit if it gives benefit to the society in addition to the private benefit it gives its buyer. For example when a person buys a vaccination he gets immunity from a particular disease and at the same time he will not spread the disease to the other members of the Society. Figure-A explains how subsidy can bring about efficiency in the case of a product with external benefit. Obviously when a product is subsidised with external benefit, an externality is internalised.

Apart from the public goods (a pure public good is one which benefits people regardless of who pays for it) and goods with external benefits, the criterion for giving subsidies to various commodities as well as to units of certain industries is by and large determined by the socio-political environment. But it would invariably be possible to assign one or more of the broad objectives of public investment like increasing the aggregate (or per capita) consumption, improving the standard of living, redistribution of consumption, ensuring balanced growth, promoting self sufficiency etc, to most of the subsidy schemes.

When the government feels that the production and consumption of a certain commodity should be increased in the interest of the nation, it can achieve the goal by announcing a subsidy on that product. The effect of a subsidy will be by a downward shift in the supply curve (or by an equivalent upward shift in the demand curve) as shown in figure-B. The change in the magnitude of production and consumption of the product will be determined by the elasticity of the supply and demand curves and the extent of subsidy.

The government gives subsidies to certain industries in terms of its economic and social goals so that they could increase their productive activity either by establishing new units or by expanding the existing ones. For example, in our country, industries which produce agricultural inputs like fertilizer and tools get some subsidies. In addition, if certain industries are prepared to establish new units in the backward areas of the country, they would receive much larger subsidies by way of free grants, supply of water and power at concessional rates etc.

When subsidy is given on a capital good, say, plant and machinery, the burden of fixed cost on the operational economy of the manufacturing unit is reduced. This will enable the unit to break-even at a lower level of production thereby compensating for the disadvantageous position (backward area) with respect to transportation and marketing etc. The effect of subsidy on capital goods on the operational economy of such a unit is depicted in Figure-C. It may sometimes be required to subsidise a key input of production whose cost escalation might cripple the operational economy of certain units. The effect of such a subsidy is depicted in Figure -D.

SUBSIDY ON HSD OIL

Various schemes of subsidy were implemented in the fisheries sector by local and Central Government agencies at various points of time. In the marine fisheries sector MPEDA is the major agency with a large number of schemes ranging from subsidy for setting up of mini-laboratory in the processing units. If one makes an attempt to evaluate the impact of any scheme in the background of the targetted objectives, it is quite possible to locate some anomalies which might have crept into the system at different levels of implementation. The fuel subsidy scheme implemented by MPEDA termed as the cost reimbursement scheme for H.S.D. oil consumed by deep sea fishing vessels is unique in its anomalies and ambiguity of its objectives.

Firstly, diseconomies are inevitable in an unrestricted fishery or any industry exploiting a common property

natural resource. The optimum number of big trawlers required to exploit the stock of prawn fishery along Northeast coast was estimated by Rao (1988) as 104. If only somebody had analysed the marginal contribution of 100 more vessels added to the fleet thereafter, one could understand the truth of the earlier estimate. If the fuel cost reimbursement scheme helps to bring down the cost of operation and thus make some more profits available for sharing, it will attract some more units to the existing fleet, further aggravating the diseconomies. It is earnestly presumed that the 500 numbers of deep sea fishing vessel targeted for Eight plan are not meant for exploitation of the coastal shrimp stocks.

Slippery Ground : Secondly, the ground on which the fuel subsidy scheme stands is slippery and can be disputed in the present context without any statistics. It is true that fuel prices (which contribute to 40% of the operating cost) went up in the recent past catapulting the operating costs of the deep sea fishing units (and also all other machinery on land, running on fossil fuel). But did anybody attempt to weigh the increase in exchange value of rupee due to subsequent devaluation and the consequent increase in the procurement prices against the cost escalation due to hike in fuel proces? The argument that the Indian vessel operator has to pay around Rs.1600/- and more each Kl of HSD oil as against what his counterpart in SriLanka, Singapore & Japan pays is too delicate and requires review. One should not forget that Taiwanese vessels come all the way to Indian EEZ and do economically viable fishing whereas our vessels could not do the same irrespective of the proximity to the grounds. It is fair to ask whether the percentage hike in the cost of HSD (the total cost of which for the deep sea fishing units is estimated as 9% of their export earnings) is greater than the percentage increase in their export earning due to devaluation of rupee.

Crazy : The very linking of beneficiaries with 'own export' (or on account) has made the facilities of this scheme available to only the vertically integrated export units. The quality of those units showing a higher catch (by buying from outside) for their running vessels, if not for their own ones, and claiming a higher amount of subsidy cannot be ruled out. It may be mandatory for MPEDA to watch every paisa it spends with some exports. But if only there is evidence of the catches from other vessels being consumed internally, there is some logic in depriving them of the facility. It is ironical that instead of helping the weaker lot, this scheme supports the stronger ones. Should the amount allocated (out of the 400 lakhs allocated for the scheme which opened on 1st Jan 1991, 91.26 lakhs were spent till 31 March 1992, thirty six vessels belonging to 12 companies benefitted) for this scheme be enjoyed by a selected few who happened to have facilities to export what they catch is a question which requires immediate answer. When a couple of FAO experts visiting Visakhapatnam were asked about this subsidy
scheme, they said "it's crazy!". Our modesty will not permit such a remark eventhough most of us feel so.

Way to Bankruptcy : Subsidy of any type is undersirable in the long run as it propagates diseconomy in the system. It should be borne in mind that nobody can make something out of nothing and subsidies of all types should be weighed against their opportunity costs periodically so as to stop them at the earliest point of time. Subsidies should be given as emergency support to save the sick units from untimely death rather than as long term treatment plan which leads to the inevitable death of both patient and the doctor together. Agricultural subsidy's contribution to the country's fiscal deficit is well known. The gravity of the current situation can be sensed from Dr. Manmohan Singh's statement, at the annual Economic Editor's Conference recently held in New Delhi, that the country's fiscal system will "simply go bankrupt" if the government persists with the present level of agricultural subsidy.

The tendency to subsidise anything is detrimental to the country's economic health. Subsidy should not be one of the means for achieving the lofty target of 500 deep sea fishing vessels in the 8th plan. There should be financial assistance on softer terms but with stringent measures of recovery. The objectives of the investment must be clearly examined in the economic and scientific background for each additional unit so as to avoid unwanted investment leading to the diseconomies of the existing units. Unless the ground work is made for economic utilizaition of the deep sea resources, these additional fishing units introduced will not go deep, but go on getting a bite of the coastal shrimp stock. Only shortsighted planners can advocate maximisation or optimisation of organisational objectives in isolated compartments. Unless a holistic approach is adopted in formulating the long range developmental policies and objectives the industry cannot be sustained as a healthy organ of the national economy. It would be appropriate that these vital decisions are made by an apex body like the proposed National Marine Fisheries Development Board.

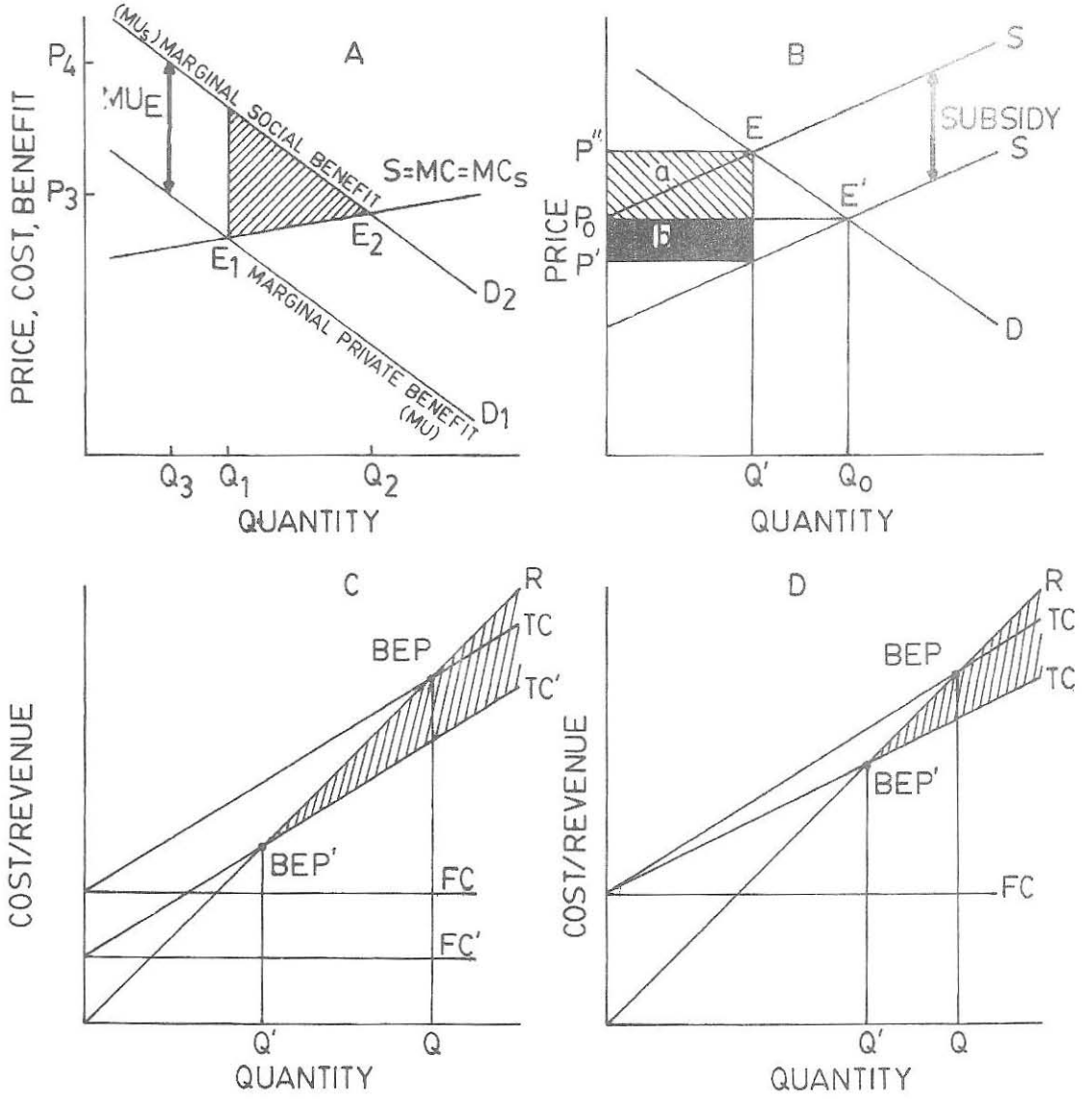
(The views expressed in this article are the author's personal views and it does not necessarily reflect the views of the organisation he serves.)

EXPLANATION OF FIGURES

Figure A

External Benefit, Efficiency & Subsidy

When a product with external benefit (say, vaccination) exists in a free market, the quantity Q_1 produced and sold will be determined by the equilibrium E_1, the point of intersection of the marginal private benefit line and the cost curve. But as there exists a marginal external benefit (MU_E) indicated by the thick arrow, there is an



efficiency loss, indicated by the shade region, at E_1. If efficiency is required, equilibrium must shift to E_2, the point of intersection of the marginal social benefit (MU_S) line with the cost curve, and the quantity produced and sold must be Q_2. All units between Q_1 and Q_2 have a benefit - the height of D_2 that exceeds the cost line S, and producing them would result in a net benefit and not producing would result in a net loss.

A subsidy equal to the external benefit arrow will shift the demand curve from D_1 to D_2 (individuals prepared to pay only P_3 for Q_3 units will now be prepared to pay P_4 - that is original P_3 plus the subsidy provided by the Government). Thus the shift in equilibrium from E_1 to E_2 will result in a net efficiency gain equal to the shaded area.

Figure B

Effect of a Specific Subsidy on a Product

A specific subsidy indicated by the thick arrow, results in shifting of the supply curve of the product from S to S'. (Alternatively this can be represented as an upward shift in the demand curve.) Thus the equilibrium E, where, units were sold at price P'', shifts to E', where Q_o

units are sold at P_0. The subsidy, is equal to P' P'', lowers the price paid by the consumers (by P_0P'') and increases the quantity produced and sold. How the benefits of a given subsidy are divided between buyer (shaded area 'a') and seller (shaded area 'b') depends upon the elasticity of demand and supply curves of the product.

Figure C

Effect of Subsidy on Capital Goods

A fifty percent subsidy on the cost of plant and machinery given to a manufacturing unit will bring down its fixed cost curve from FC to FC', with a consequent fall in the total cost line from TC to TC'. The break-even point (BEP) earlier achieved at a production level which may compensate for the disadvantages which necessitated the subsidy.

Figure D

Effect of Subsidy on a Variable Input.

Effect of subsidy on one of the inputs of production (say, fuel) brings down the variable cost curve to a lower gradient. Thus the total cost curve shifts from TC to TC'. Like in figure C, here also the break-even point (BEP') is brought down with a similar shift in the profit area.