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ECOLOGICAL TAX REFORM – *reducing unemployment and improving environment*[1]

by Svante Axelsson

7.1 Tax shift and its theoretical basis

The idea of reducing tax on labour in return for heavier environmental taxes has long been advocated by the environmentalist movement and certain political parties. The question gathered new speed when the former Chairman of the European Commission, Jacques Delors, presented a tax shift as an important reform for reducing environmental problems and unemployment in Europe. The incorporation of a proposal of this kind in the EU white paper on environment and employment added credibility to the tax shift idea.

Today, official inquiries on a shift of taxation are in progress in the Netherlands, Norway and Sweden. The report of the Swedish parliamentary commission favourable to a limited tax shift was published in January 1997. The idea of a tax shift is being presented by more and more experts as an important means of steering society in the direction of sustainable development, but the concept has its problems.

The idea of a tax shift is based on the assumption of different taxes generating different quantities of negative and positive side-effects. This means that a certain amount of money can be collected for the State (and local governments) with a greater or lesser degree of efficiency.

Tax collection has to be cheap and simple. This has been a golden rule of tax collectors ever since the days of Gustav Vasa in sixteenth century Sweden. Some taxes cost more than others to collect. Environment taxes and property taxes, for example, are usually cheaper and administratively easier than income taxes. Then again, income taxes afford greater scope for evasion in the form of a black economy. Historically speaking, targets for taxation have on the whole been selected according to the ease with which a source can be taxed and the size of the actual tax base. Technical progress, computers and cheap measuring instruments, etc. have now made it possible to tax things which formerly could not be done because of administration difficulties. New possibilities have been opened up, not least for environmental taxation, now that many emissions can be measured at relatively low cost.

7.2 Taxes always have side-effects

There are of course a host of different motives for introducing a tax, ranging from the funding of collective benefits, such as infrastructure, education and guarantees of basic welfare, to the achievement of a desirable distributive effect. Whatever taxation system is chosen, the aim is to levy taxation with a minimum overall disturbance, given the amount of money which is wanted for the national treasury.

One basic premise for a modern economy is that, preferably, the prices (scarcity signals) formed in the market should not be altered too much. The benefit of taxes always has to be balanced against the disturbances which they cause. The negative effect of tax on labour, for example, is that we use this resource less than we would have done otherwise, and that taxation encourages a black economy. Both effects lead to a reduction of taxation revenue. Hence a tax can cost society more than the actual rate of taxation because it can generate other, indirect, side-effects (an excess burden). Simplifying matters, different types of tax could therefore be placed in ranking order according to their degree of positive and negative side-effects.

Environment and natural resource taxes are examples of taxes with positive side-effects, because they put a price on damage to the environment for which otherwise no price would be set at all. Taxation in these cases leads to increased benefit, at the same time as revenue is generated for schools, medical care and so on. This observation explains why it is often said that environmental taxes generate 'double dividend'; they avoid distortions caused by traditional taxes while helping to price the nature properly.

7.3 Which taxes can be substituted for each other?

If environmental taxes are to be increased, which taxes are to be cut? Which of the following tax reductions, for example, can be expected to produce the best effects on the environment and employment – differentiated VAT, a reduced payroll levy, an increased basic tax deduction, a reduction of employees' social security contributions, reduced capital taxation or reduced property taxation?

A tax on labour results in a throwaway economy, because it adds to the cost of repairs of dif-

[1] This chapter is a shortened version of Report No 96/9080 by The Swedish Society for Nature Conservation by Svante Axelsson. The full report can be obtained from the Society at P.O. Box 4625, S-116 91 Stockholm, Sweden.

Table 7.1. Revenues in BSEK and percentages of total taxes.

Year	*Labour taxes*	*VAT*	*Environment taxes*	*Total taxes*
1981	114 (39%)	39 (13%)	16 (5.5%)	292 (51% of GDP)
1986	187 (37%)	66 (13%)	33 (6.6%)	501 (54% of GDP)
1991	259 (33%)	127 (16%)	44 (5.7%)	775 (53% of GDP)
1995	330 (40%)	117 (14%)	50 (6.1%)	817 (50% of GDP)

ferent kinds. Extraction of raw materials and consumption of energy also increase if repairs and recycling are expensive. Material flows go from cradle to grave instead of from cradle to rebirth.

Probably, then, there is a connection between a higher price of labour and an accelerating, hidden environmental cost. The cost of wages has more of an impact on repair jobs, because this kind of work is more labour intensive and less standardized than manufacturing industry.

For maximum job creation effect, there is much to suggest that a reduction of the payroll levy should be made to focus on low pay sectors, such as services of various kinds. According to one study from the European Commission, the biggest employment effect of a tax shift is obtained by reducing the levy (tax) for the lowest paid groups. This may suggest that supply elasticity is highest for these groups.

The conclusion drawn from this section is that a reduction of the payroll levy is probably to be preferred from both an environmental and an employment point of view.

7.4 Today's taxes

Before proceeding to a more detailed description of proposals for new environmental taxes, some useful purpose may be served by a brief summary of the taxes in Sweden today, especially with regard to the extent of existing environmental taxation.

In 1988 the Government appointed an Environment Charges Commission, which in 1990 proposed the introduction in Sweden of taxes on carbon dioxide and sulphur and a charge on nitrogen oxides. A tax reform in 1991, totalling some BSEK 60, increased the environment-related taxes to about BSEK 18 in return for lower income taxation (a moderate tax shift).

In 1995 we find the environmental taxes generating about BSEK 50 in national government revenue, which is 6.1 per cent of total taxes and 3 per cent of GDP (this includes energy and fuel taxes). The corresponding figures for 1989 were 5.4 and 3.5 per cent respectively. The trend in the Swedish system of taxation is a slightly upward total pressure of taxation, while the tax on labour and VAT are relatively constant and environmental taxes fluctuate over time in relation to GDP (1981-1995). Seventy per cent of environmental taxes today are levied on energy and carbon dioxide and these tax bases would probably also be the foundation of an ecological tax reform.

7.5 Tax shift proposals by the Swedish Society for Nature Conservation

In the tax shift commission the Swedish Society for Nature Conservation – the largest and oldest environmental NGO in Sweden with some 180,000 members – made a concrete proposal regarding the content and structure of an ecological tax reform. The new environmental taxes proposed by the Society are estimated to augment net national government revenue by upwards of BSEK 44. The heavier taxes on energy and carbon dioxide can be prevented, by means of exceptions and transitional arrangements, from striking too hard at energy-intensive industry.

The Society's proposals for new environment and raw material taxes are summarized in Table 7.2. Those proposals are no more extensive than the 1990 tax reform and it should be possible for them to be enacted simultaneously. The various environmental taxes, on the other hand, should be raised successively over a number of years, so that industry will have a chance to adapt its production and products, developing and installing new purification technology and so on.

The new environmental taxes are estimated to increase gross national government revenue from the present day BSEK 47 to about BSEK 117, an increase of some BSEK 70. These proposals are expected to encourage new technical solutions and behavioural changes conducive to a reduction of environment impact. This in turn may cause the revenue from environmental taxes to decline relatively quickly — perhaps by more than BSEK 16. Tax rebates for energy-intensive industries and other allowances will reduce taxation revenue by a further BSEK 9 or so. Accordingly, the Society estimates net revenue after five years at about BSEK 44. Table 7.2 gives the main features of the proposed new tax shift.

7.6 What will be the effects of a tax shift?

With the tax shift proposed by the Society, the payroll levy can be reduced by 25 per cent, from the present 32.9 per cent to 24.9 percentage units. This reduction has a positive impact on employment, although there will not be any dramatic changes. On the other hand, by focusing the payroll levy reduction on certain sectors of society, the effect on employment can be made substantial. Direct employment effects argue in favour of concentrating a reduc-

Table 7.2 Environmental taxes and resulting total revenues in Sweden 1994, and calculated revenues based on 1993/94 statistics and the proposal for increased environmental taxation by the Swedish Society for Nature Conservation.

	Today			*Afterproposed change*			
Source	*Tax*	*Base*	*Revenue*	*Tax*	*Base*	*Change*	*Revenue*
CO_2	9-39 ö/kg	56 Mt	11,000	50 ö/kg	56 Mt	– 10 %	25,000
Nuclear Power	0.2 ö/kg	70 TWh	140	7 ö/kg	70 Twh	– 10 %	4,400
Electricity	0-9 ö/kWh	90 TWh	5,600	10 ö/kWh	140 Twh	– 10 %	18,200
Diesel	1.44 kr/l	3 Ml	4,300	3.48 kr/l	3 Ml	– 10 %	9,400
Petrol	3.22 kr/l	5.6 Ml	18,000	4.85 kr/l	5.6 Ml	– 10 %	24,400
NO_x	40 kr/kg	14 kt	0	40 kr/kg	65 kt	– 30 %	1,800
Sulphur (as S)	30 kr/kg	14 kt	220	60 kr/kg	47 kt	– 50 %	1,400
Air traffic			190				690
Waste	0	0	0	350/t	6.4 Mt	– 30 %	1,500
Sec waste	0	0	0	5 kr/t	41 kt	– 10 %	180
Fertil. N	1.80 kr/kg	200 kt	160	3 kr/kg	200 kt	– 15 %	510
Fertil. P	0	0	0	5 kr/kg	21 kt	– 10 %	100
Pesticides	20 kr/kg	1.3 t	20	50 kr/dose	2.9 Mdose	– 20 %	116
Water	0	0	0	2.5 kr/m^3	3.6 Gm^3	– 50 %	4,500
Nat. gravel	26 ö/t	52 Mt	14	15 kr/t	52 Mt	– 5 %	741
Total			**39,644**				**92,937**

The data are based on statistics from 1993/94.
Tax rates are given in kronor (SEK) or öre (0.01 SEK).
The tax base is given in weight, volume or energy units t (= tonnes), kt (kilo tonnes), Mt (Mega tonnes), l (litres), Ml (millions of litres) or Wh.

tion on low pay sectors, such as services of various kinds.

The main beneficiaries of a tax shift will probably be labour-intensive operations with little environmental impact. These include the engineering industry, social care and other services, schools, the intellectual property sector and banking and postal services. These are activities which today employ about 80 per cent of Sweden's working population. Since the activities of municipalities and county councils (local and regional authorities) are very labour intensive, these bodies will be able to reduce taxation somewhat or to increase their personnel strength without raising taxes (or else the State will be able to cut down on its grants to local and regional authorities, in which case other taxes can be further reduced).

The report of the Swedish parliamentary commission was not as radical as the proposal of the Society, but not far away. All political parties with the exception of the Conservatives were positive to a tax shift. The commission proposed a tax shift of some 30 BSEK over a period of 10-15 years. A tax increase was proposed for the transport and energy sectors, with increased taxation on petrol, diesel, carbon dioxide emissions, electricity and nuclear power. Energy intensive industry was foreseen to be excluded from this increase. A selective decrease was proposed for income taxation for low income groups and the service sector. Although the total sum of 30 BSEK is only 4 % of all taxation, it represents a 70 % increase of environmental taxation.

During 1995 and 1996 an environmental tax increase of 5 to 6 BSEK has already been introduced out of a total tax increase of 60 BSEK. Income tax decrease was marginal.

7.7 The dilemma of a diminishing tax base

How great will be the reduction of environmental problems and tax revenue?

One factor of uncertainty where environment taxes are concerned lies in calculating the speed at which different emissions decline - how quickly the environmental objectives are attained - and how much, as a result, the tax base is reduced within a given length of time. But the tax base will be stabilized relatively quickly at a lower level, the level at which the marginal cost of further emission reductions exceeds the cost of continuing to pay the tax. In Table 7.2 we have allowed for this so called elasticity of different emissions in the calculation of the total taxation revenue. Carbon dioxide tax, for example, is far more stable than sulphur tax. Eventually the environmental taxes will

stimulate behavioural changes and technical progress of such a kind that the various emissions will diminish further. Similarly, the cost of environmental taxes to enterprise will decline from its initial level.

One important factor to bear in mind is the cheapness of the available options: purification technology, changes of productions, changes of behaviour, replacement of raw materials and processes and so on. Unfortunately, there is a great lack of empirical data capable of predicting the extent to which the various tax bases will diminish; we can only make a rough estimate of which ones are elastic or inelastic. Besides, the growth rate has a crucial bearing on the changes undergone by the tax base. If growth is rapid, certain tax bases may be steady at their present level instead of diminishing as assumed in this study. In principle however, we have chosen to overestimate the steering effect, so as not to be unduly optimistic about the shift potential. Thus the estimated tax base reduction does not present any exact figures but gives very rough estimates, based on the price elasticity of different products combined with a general plausibility assessment.

7.8 Taxation, sustain-ability and economic growth

The task of creating sustainable development will demand heavy inputs of resources to elevate the acitivty of the national economy, which in turn will generate economic growth – a growth, moreover, which will help to reduce the environmental debt and unemployment.

Economic growth is not an end in itself, any more than resistance of economic growth has an intrinsic value. The objective is well-being, and not necessarily an increase in GDP. If, for example, we should prefer increased leisure in return for reduced consumption, then growth will decline but well-being will increase. There is, however, much to suggest that the necessary environmental adjustment of society will entail economic growth of enhanced qualitative content. This means that, relatively speaking, every unit of increased GDP will cause less and less environmental impact and will demand less and less utilization of natural resources. Vigorous action will, of course, be required if every unit of GDP is to be capable of *improving* the condition of the environment, as opposed to contributing less and less emissions per unit of GDP, which would still mean adding to our environmental problems.

By changing our focus from labour taxation to the taxation of the environment and natural resources, we will be more able to reduce emissions, resource and energy use per unit of production instead of, as presently, reducing labour. This will lead to a new and different basis of growth. Raw material taxes can help us to get more value out of less physical resources, more products out of small quantities of copper, steel, energy, nutrient inputs etc. This is a basic precondition for a sustainable World in the future, a World whose population at present is growing by 90 million annually, and in which many populous states have a steadily accelerating economic growth.

This development is encouraged by our beginning to tax another factor of production, with the emphasis on natural resource efficiency instead of labour productivity. The tax on labour has stimulated labour productivity, and has been one of several factors that have stimulated technological progress. Similarly, a tax on raw materials can in future lead to a growth of resource productivity. This provides better long-term signals, making it possible to develop a more resource-efficient way of life for a growing population. The probability is that, relatively soon, we can reduce our resource utilization by 75 per cent (a factor of 4). Properly constructed raw material taxes will lead to a new kind of productivity growth, uniting economic growth with environmental improvment.