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The Macro-Economic Effects of Raising Revenue through Different Taxes

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All taxes have negative effects on the economy, but some taxes have particularly harmful effects on employment and GNP. A recently published article¹ considers the impact on the economy of raising revenue through three different tax instruments: a carbon tax, a lump sum tax (similar to a flat property tax) and taxes on income.² In the article each of the three taxes were increased by a similar amount, so as to reduce government borrowing, ex ante, by around 0.5 per cent of GDP. This means that the macro-economic effects of each tax change can be directly compared. The article then analysed the medium-term macro-economic effects of these three different tax changes using the ESRI's *HERMES* model of the Irish economy. In each case the results of the tax increase is compared to a "no policy change" scenario.

The key factor affecting differences in the macro-economic effects of the taxes was how they affected the labour market. With a very elastic supply of labour – a distinctive aspect of the Irish labour market – a tax on income tends to be passed on as higher wages in the medium term as labour supply is reduced. For example, spouses of many current employees face high marginal tax rates, which may discourage some of them from working; young workers may be attracted to other labour markets with lower taxes.

Because the manufacturing sector is a price taker on the world market, an increase in labour costs adversely affects its international competitiveness and it is likely to result in a significant reduction in employment. At times of high unemployment, such as today, the pass through of taxes to higher wages may be attenuated, but in the medium term employees, many of whom are mobile, will continue to bargain in terms of real after tax wages. The results in the article suggest that, in the medium term, the rise in taxes on income would reduce GNP by nearly 0.4 per cent and employment by 0.6 per cent (Table 1).

In the case of a lump sum tax (flat property tax) there is no direct change in work incentives. For example, the benefits of paid employment for spouses are unaffected by the tax. All of the initial impact of the tax is on personal income so that there are negative effects on consumption. However, as shown in the Table,

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the effects on employment are more moderate than for a tax on income (-0.1 per cent) and, hence, the negative impact on GNP is also lower at -0.2 per cent.

In the case of a carbon tax the bulk of the incidence falls on capital, not labour and it has much more limited negative effects on employment than a tax on income. While there is some loss of output, it is more concentrated in energy intensive than in employment intensive sectors. As well as having less negative effects on GNP and employment than taxes on income, a carbon tax would result in a significant reduction in emissions of greenhouse gases (Table 1). A carbon tax has a more limited impact on consumption than a lump sum tax and, as a result, it has a less damaging effect on economic activity. Whatever the full economic impact of a carbon tax in the long run, it is still the cheapest way to reduce emissions. Other policy instruments may achieve similar or larger emission reductions, but necessarily at a higher cost.

The analysis in the article is valid for changes in taxation of the kind undertaken during the current episode of fiscal adjustment. However, if the increase in the carbon tax were very large, the negative competitiveness effects could be magnified. This is particularly the case if the price of carbon in Ireland were to be significantly different from that in neighbouring countries.

This article found that a key channel through which tax changes affect the economy is through changes in the international competitiveness of manufacturing and services. In the article it was suggested that if a carbon tax was increased and the revenue used to reduce taxes on income there would be a real “double dividend” for Ireland – higher growth (and employment) and lower greenhouse gas emissions. While there is, today, no scope for reducing any taxes, these results do suggest how the tax system of the future could be made more employment friendly.

TABLE 1 Medium-Term Effects of Tax Changes, Percentage Change from Baseline

	Carbon Tax	Income Tax	Lump Sum
GDP, volume	-0.21	-0.60	-0.27
GNP, volume	0.07	-0.37	-0.20
Output			
Market services, volume	-0.24	-0.76	-0.35
Manufacturing, gross volume	-0.34	-0.61	0.03
Employment	-0.07	-0.59	-0.10
Wage rate, non-agriculture	0.20	1.06	-0.06
Consumption, constant prices	-0.26	-0.88	-0.93
Balance of payments, % of GNP	0.35	-0.33	0.41
CO ₂ excl. electricity & aviation	-2.02	-0.50	-0.35
Tax incidence, %			
Capital, domestic	39	23	20
Capital, foreign	38	14	1
Labour	12	46	5
Other personal income	12	16	74

¹ Conefrey, T., J. FitzGerald, L. Malaguzzi Valeri, R. S J. Tol, 2012. “The Impact of a Carbon Tax on Economic Growth and Carbon Dioxide Emissions in Ireland”, *Journal of Environmental Planning and Management*, pp 1-19.
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² Similar details of the macro-economic effects for other public finance public finance measures are given in: Bergin, A., T. Conefrey, J. FitzGerald and I. Kearney, 2010, “The Behaviour of the Irish Economy: Insights from the HERMES Macro-Economic Model”, ESRI Working Paper 287, Dublin: Economic and Social Research Institute.