

Money for everyone?

An appendix to chapter 10

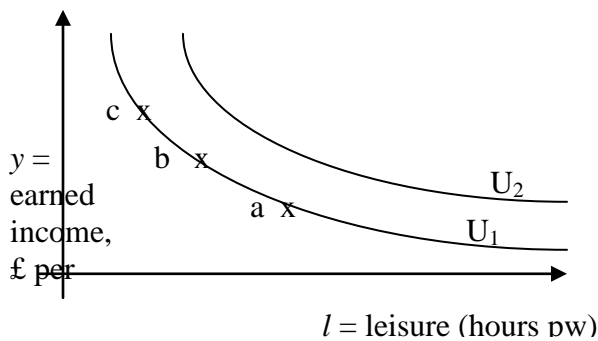
The utility - or otherwise – of being employed for a few hours a week ¹

This appendix employs the concepts of ‘utility’ or ‘indifference’ curves to evaluate a change from the current tax and benefits system to a Citizen’s Income for likely effects on employment incentives.

Utility curves ²

Hours not spent in paid employment (‘leisure’) are useful to us (they have utility), and consumer goods, and thus earned income, also have utility. Each combination of leisure and earned income will yield utility, or satisfaction, which can be pictured as a series of curves on a graph:

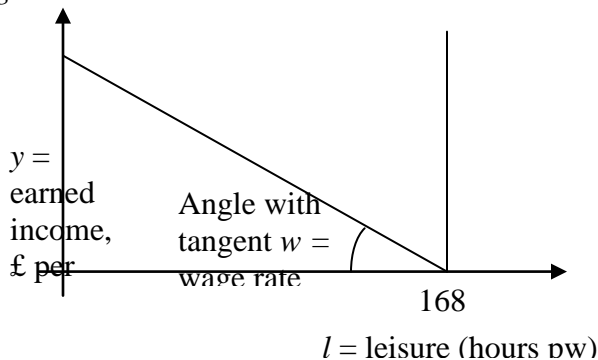
Figure 1



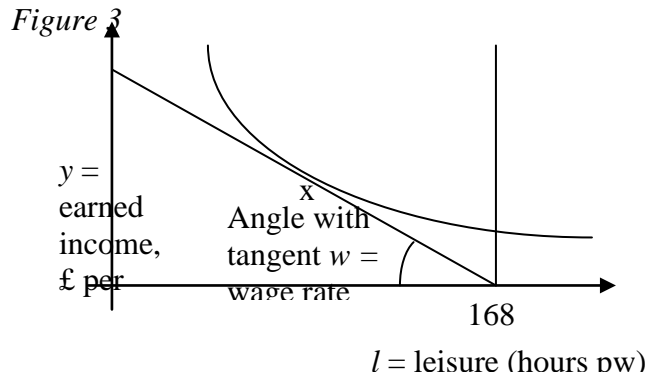
If, at the three combinations of leisure and earned income at a, b, and c, we regard ourselves as having equal levels of utility, then we can draw the ‘indifference curve’ U_1 along which our utility is constant. The curve at U_2 represents a similar series of points of equal utility, all at a higher level of utility than those on U_1 .

For a given wage rate w , we can draw a line (a ‘budget constraint’) showing what our earned income will be for each hour worked, i.e., for each hour subtracted from our leisure.

Figure 2

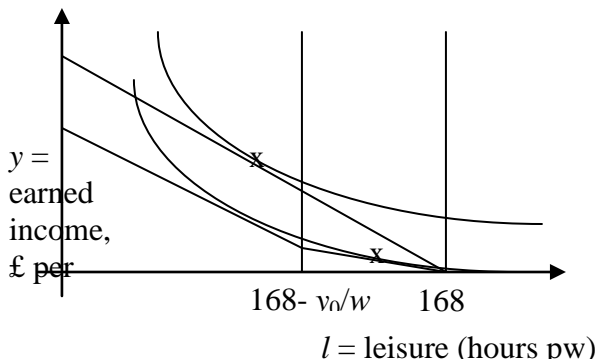


The combinations of earned income and leisure represented by points to the right of the budget line are unobtainable, so our utility will be maximized where a utility curve is at a tangent to the budget constraint (as this is the highest utility available to us under the circumstances):



Now suppose that on all earnings up to the amount y_0 tax is charged at rate t , then the wage rate net of tax will be $w(1-t)$ per hour between for the first y_0/w hours of employment per week (i.e., between $(168 - y_0/w)$ and 168 hours of leisure):

Figure 4



The person whose utility was previously maximized at a high number of hours of employment (a low number of hours of leisure) now has utility maximized at a lower number of hours of employment (a high number of hours of leisure, and possibly at 0 hours of employment). This is true for workers on low wages, but the reverse can be true for those on high wages, leading to a phenomenon known as the ‘the backward-bending supply curve of labour’.

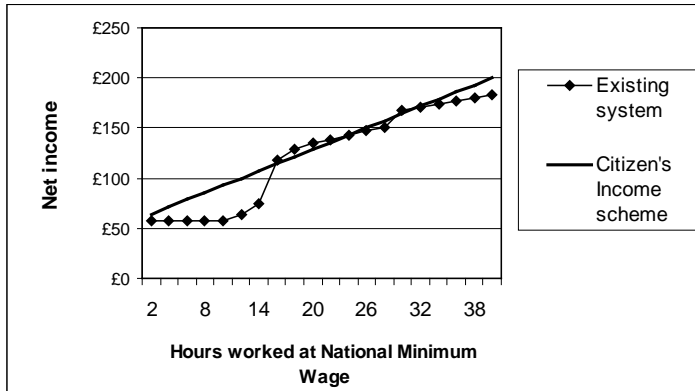
We are in the fortunate position in the UK of the Department for Work and Pensions having calculated budget constraints for different types of family in its Tax Benefit Model Tables.³

If we translate the income levels used in the tables into hours employed at the National Minimum Wage then we can create graphs showing net income against hours employed – so now the horizontal axis is reversed and labelled ‘hours worked per week’, and the budget constraint has a positive slope rather than the negative slope generated by a horizontal axis showing leisure hours (see figure 5). Notional utility curves can now be drawn – again, reversed (see figure 6):

The existing tax and benefits system

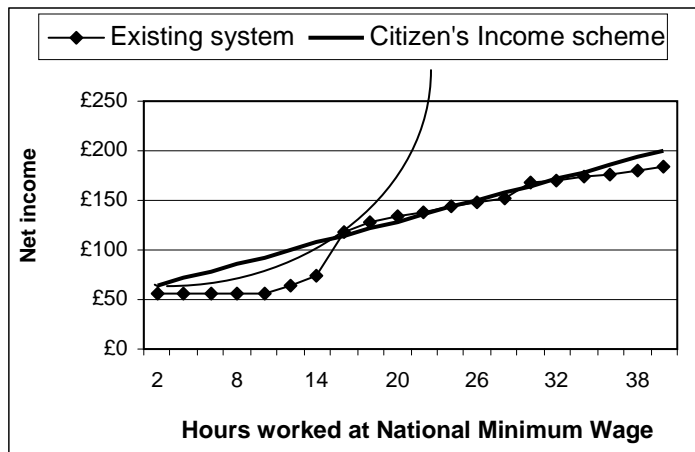
Putting housing-related benefits to one side, in 2006 the net income of a single earner aged 25 or over after income tax, national insurance contributions, Income Support/Jobseeker’s Allowance and ‘Working Tax Credits’ was as shown by the line marked ‘existing system’.

Figure 5



The chart clearly reveals a poverty trap, particularly if the person is employed for only a few hours a week. Between 0 hours and 12 hours per week earnings make almost no difference to net income. If someone has a general preference for leisure rather than for income then, as figure 6 shows, utility could be maximized at either or both 0 hours of employment and at 16 hours of employment, and isn't much less at any number of hours between 0 and 16 hours. Thus a poverty trap creates a considerable disincentive to increase the number of hours worked.

Figure 6



A Citizen's Income

The graph line marked 'Citizen's Income scheme' in figure 5 shows the effect of the following Citizen's Income:

Table 1

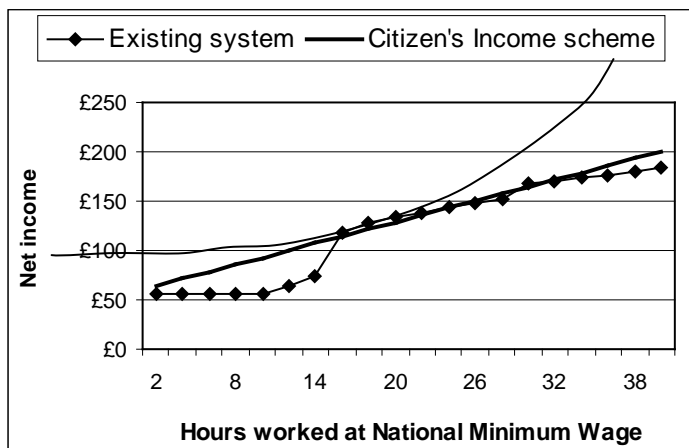
Age	Weekly CI	2006-07 rates:
0 to 18	£34	Income Support for 16-17 year olds
19 to 24	£45	Income Support for 18-24 year olds
25 to 64	£57	Income Support for 25-59 year olds
65 and over	£114	Pensions Credit rate

(This scheme assumes a flat rate of tax on earned income of 33% (22% income tax plus 11% employee's national insurance contributions), with a higher rate as at present on higher earnings. For further details of the scheme see *Citizen's Income: a brief introduction*, Citizen's Income Trust, 2007).

With a Citizen's Income, the person employed for only a few hours a week experiences increasing net income as the number of hours worked increases. This suggests that there will be an incentive first of all to accept employment of a few hours per week and also to seek to increase the number of hours of employment: unlike under the present scheme where employment for a few hours a week is unlikely to be attractive, and only increasing hours of employment to more than 16 hours per week will make much difference to net income.

As figure 8 shows, whatever the shape of someone's utility curve, they will be able to find an employment level which will match their preference; and someone with a higher preference for leisure will be able to work for a few hours per week at a higher utility than if they were working 0 hours – something impossible under the existing system.

Figure 8



Only the Citizen's Income net income line allows people with *any* shape of utility curve to experience incentives to seek employment of any given number of hours.

¹ Malcolm Torry, 'Research note: The utility – or otherwise – of being employed for a few hours a week', *Citizen's Income Newsletter*, issue 1, 2008, Citizen's Income Trust, London, 2008, pp.14-16.

² A.B. Atkinson and J.S. Flemming, 'Unemployment, social security and incentives', *Midland Bank Review*, Autumn 1978, pp.6-16; C.V. Brown and E. Levin, 'The effects of income taxation on overtime: the results of a national survey', *Economic Journal*, vol.84, 1974, pp.833-48; Angus Deaton and John Muellbauer, *Economics and Consumer Behaviour*, Cambridge University Press, Cambridge, 1980, p.282; Angus Deaton, *Understanding Consumption*, Clarendon Press, Oxford, 1992, p.193; Ronald Shone, *Applications in Intermediate Microeconomics*, Martin Robertson, Oxford, 1981, pp.1-24. For a treatment of demand theory and its lessons for Citizen's Income, see Anne Miller, 'Poverty and adequacy', *BIRG Bulletin*, no.6, Autumn 1986, pp.13-16

³ The figures used in this appendix are from 2007, and the tax benefit model tables for that year can be found at www.dwp.gov.uk/asd/asd1/TBMT_2007.pdf.