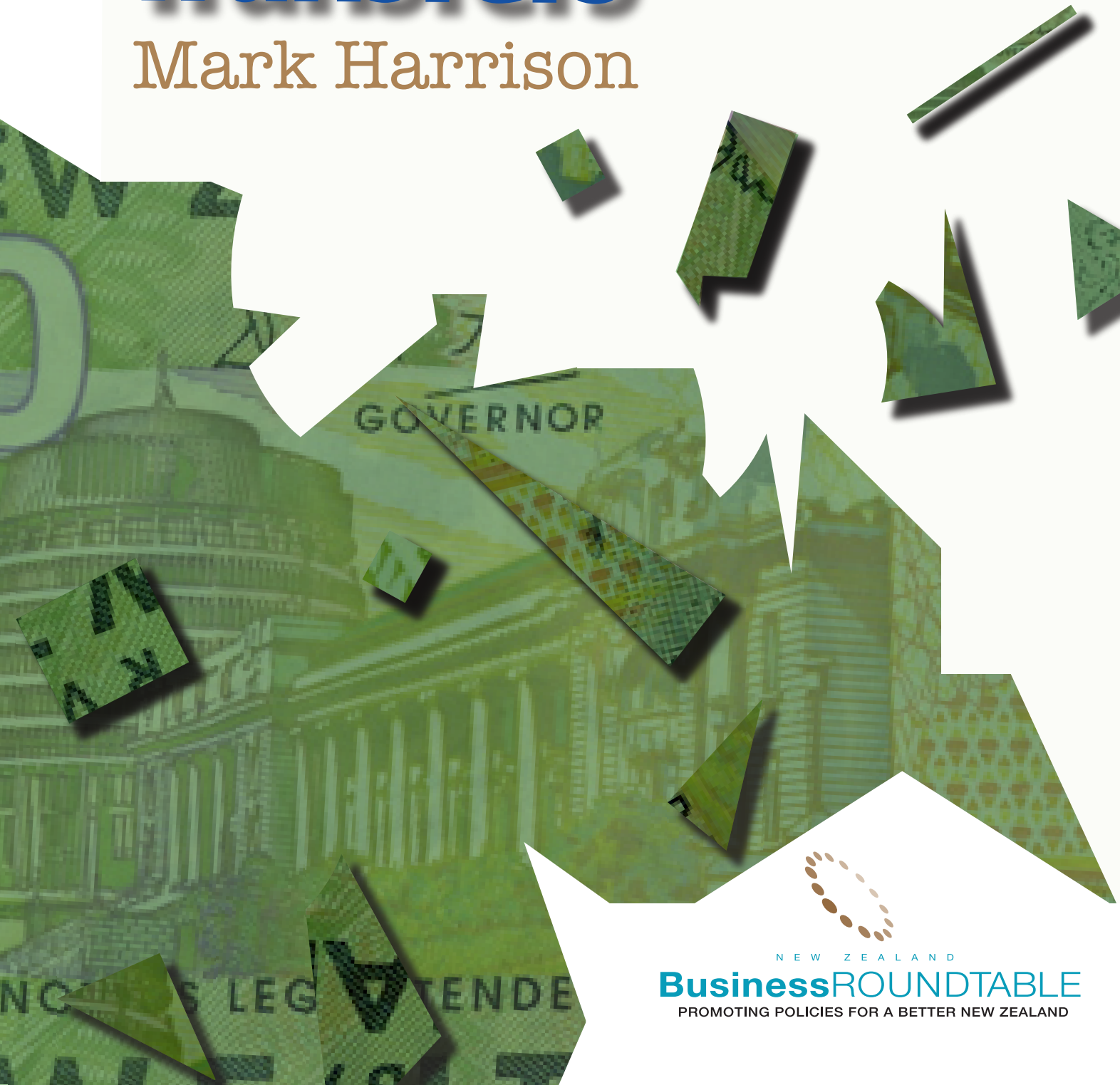
The Outcomes of Income Transfers

Mark Harrison



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The Outcomes *of* Income Transfers

Mark Harrison

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ABSTRACT

Judging by the way they condemn governments when inequality rises and propose sweeping redistributions of income, some politicians, academics and welfare lobbyists appear to believe that the government can easily use income transfers to increase the share of income going to poor households significantly and eliminate poverty. The proposals to redistribute income invariably fail to specify what taxes need to be raised to finance the income transfers and ignore their effects.

I first examine the costs of extra income redistribution, taking account of the taxes needed to finance it. The costs are large. To change the distribution of income significantly requires high marginal tax rates on both recipients and payers. High tax rates reduce work incentives, decreasing income, which makes redistribution costly. Taxpayers lose more income than recipients gain.

A conservative estimate is that to transfer an extra dollar of income to households in the lowest quintile, other households would lose $3.70 of income, resulting in an efficiency cost of 90 cents for a dollar of economic benefit to the poor. A more realistic figure is that a transfer worth an extra dollar to low-income households comes with an efficiency cost of at least $2.30. The high cost of income transfers makes many proposed income redistributions undesirable, and even infeasible.

The government can have only a modest effect on poverty through income transfers. The arithmetic of alternative ways to help the poor, such as increasing their skills through government training programmes, is equally sobering.

I then examine the benefits from income redistribution, setting out the implications for welfare policy of approaches used by critics of standard economics: happiness research, status competition, behavioural economics and endogenous preferences.

These broader views of the sources of happiness, of behaviour and of preference formation undermine the case for income redistribution. Indeed, they show that welfare can be damaging to recipients and unrestricted transfers can create a so-called underclass. Those who promote these criticisms of standard economics often appear unaware of these implications. Standard economics actually understates the adverse effects of welfare programmes.

Some economists use happiness and behavioural economics research to advocate higher taxes and question economic growth as a policy objective. The advocates of higher taxes and lower growth overstate the adverse effects of status seeking and

exaggerate the benefits from their policies. They do not demonstrate that their policies would create social benefits.

These results highlight the need to be realistic about what government can do to solve poverty through income redistribution and the folly of promoting equality of incomes as an objective. They strengthen the case for focusing on growing the economy, alleviating poverty and ensuring basic needs are met. Unrestricted income transfers do not address the underlying causes of poverty and may aggravate them. To alleviate poverty requires a focus on difficult issues, such as the behaviour of the underclass. Current policy trends are moving in the wrong direction.

1
INTRODUCTION

The 'distribution of income' is an ambiguous term. Income is distributed across the population in a statistical sense – individuals differ in their incomes and we observe a distribution across the population. But some politicians and others argue that 'society' (by which they inevitably mean 'the government') should 'redistribute' its income, as if income were distributed from some central location in the first place and it is just a matter of handing it out differently.[1] They see national income as a giant pie to be sliced up to achieve social – or political – objectives.

In fact, most income is earned, not distributed, and the total amount of income is not fixed but depends crucially on how well society is organised to efficiently allocate resources. Governments redistribute income by taxing some people and using the proceeds to give income to others. Both affect the incentive to earn income in the first place, reducing the size of the pie.

To proponents of redistribution, the government can easily use income transfers to increase the share of income going to poor households significantly and eliminate poverty. They hold the government responsible for increases in inequality under its watch and assume it is the government's job to reverse it. They believe all that is needed is for the government to take more income from the rich and give it to the poor and the only roadblock is a lack of political will. Some accuse governments of worse – not a lack of will but a perverse desire to hurt the disadvantaged and help the privileged, claiming the government deliberately chooses policies to harm the poor and to help corporations and the rich.

Thus the Child Poverty Action Group alleges that child poverty figures remain "needlessly high" and "current policy deliberately leaves the poorest, most marginalised children excluded from vital government aid aimed at low income children".[2] It argues that the government could "eradicate child poverty by 2010".[3]

The calls for the government to redistribute income to achieve various objectives invariably ignore the taxes required to finance the income transfers. Section 2 of this paper examines the costs of extra income redistribution, taking account of the accompanying taxes. These costs are large. To change the distribution of income

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1 Sowell (2000), p 134.

2 Child Poverty Action Group (2005).

3 Child Poverty Action Group (2003), p 7.

significantly requires high marginal tax rates on both recipients and payers. For a given transfer of income, the effective tax rate on any group can be reduced only by increasing the rate on other people. High tax rates reduce work incentives and decrease income, making redistribution costly. Taxpayers lose more income than recipients gain.

A conservative estimate of the marginal cost of redistribution is that for an extra dollar of income transferred to households in the lowest quintile, other households would lose $3.70 of income, resulting in an efficiency cost of 90 cents for a dollar of economic benefit to the poor. A more realistic figure is that a transfer worth an extra to low-income households comes with an efficiency cost of at least $2.30. These estimates consider only the economic incentive effects of redistribution; they do not include the rent-seeking, collection, administrative, enforcement and compliance costs of raising tax revenue and giving out transfers. The high efficiency cost of income transfers makes many proposed income distributions undesirable, and limits the amount of income that can feasibly be transferred to the poor.

As a result, the government can only have a modest effect on poverty through income transfers. People who argue the government should increase the share of income going to the lowest quintile significantly or should eliminate poverty through income guarantees appear unaware of the simple arithmetic underlying income redistribution.

The arithmetic of alternative ways to help the poor, such as increasing their skills through government training programmes, is equally sobering. Even if the government could run successful training programmes, it would take an enormous increase in expenditure for investments in the human capital of the poor to have much effect on poverty.

The proponents of redistribution not only understate its costs, they often overstate the benefits of income transfers to the recipients and to the general population. The benefits of income redistribution are examined in section 3. The standard economic analysis of welfare programmes, used in section 2, is useful for examining the consequences and costs of incentive effects imposed by income redistribution. But even it overstates the benefits that result. The effects of income transfers on recipients are much broader than reducing hours worked. For example, by discouraging recipients from getting jobs and acquiring experience, many become unemployable and trapped in poverty: welfare programmes create dependency.

Section 3 also sets out the implications for welfare policy of approaches used by critics of standard economics: happiness research, status competition, behavioural economics and endogenous preferences. These broader views of the sources of happiness, of behaviour and of preference formation undermine the case for income redistribution. Indeed, they show that welfare can be damaging to recipients and can create a so-called underclass. Those who promote these criticisms of standard economics often appear unaware of these implications. Standard economics actually understates the adverse effects of welfare programmes.

Some economists use the happiness and behavioural economics research to advocate higher taxes to increase happiness. They argue that people put excessive effort into earning income because they compete for status and fail to anticipate how their preferences will adapt to higher income. To these advocates, when higher taxes reduce work effort it is a benefit rather than a cost. If so, the marginal cost of redistribution would fall substantially. Others use the same reasoning to question the pursuit of economic growth as a policy objective.

The case for higher taxes and lower growth depends crucially on particular assumptions about how status is acquired, about how income is acquired and about preferences. Competition for status is consistent with efficiency and may even be beneficial for society.

The advocates of higher taxes overstate the importance, and adverse effects of, competition for income. They do not demonstrate that higher taxes or lower growth would lead to less adaptation, more benign forms of status seeking or the direction of effort into activities with greater social benefits. When taxes are raised and the government controls a greater share of the economy, it encourages more effort to be put into the political process, which involves a great deal of rivalry and zero sum competition. The result could be to increase the cost of status competition and envy.

Tax proponents also fail to realise happiness isn't everything, that status has multiple dimensions and status competition is not necessarily a zero sum game, and that reducing growth runs the risk of reducing happiness and other benefits.

Further, the advocates of government policies to increase happiness do not consider whether the political process, as it actually works, is a better way to distribute goods when people are subject to cognitive limitations. The incentives and constraints of political decision-making could increase the costs of errors in judgment and self-control problems.

The current trend in policy is towards more income distribution, with the government spending billons of dollars on the Working for Families package, which largely redistributes income from single people and couples without dependent children to families with dependent children. A significant portion of the transfers goes to families earning more than $35,000.[4] The enormous efficiency costs from extra redistribution mean such policies are expensive. Further, their benefits are likely to be small. They have little impact on the distribution of income from a lifetime perspective and do little to satisfy the general population's desire to alleviate hardship.

The results in this paper highlight the folly of promoting equality of incomes as an objective. They strengthen the case for focusing on growing the economy, alleviating

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4 See Dwyer (2005), p ix.

poverty and ensuring basic needs are met. Current policy trends are moving in the wrong direction.

We need to be realistic about what the government can do to solve poverty and we need to set priorities. The most effective way to address poverty is to adopt superior institutions and policies that raise general economic performance and increase living standards, such as pursing sound macroeconomic policies, reducing economic distortions, establishing flexible labour markets that provide jobs for people willing to work, and providing opportunities to the poor through good education and training policies.

Welfare policies have a role, but unrestricted income transfers do not address the underlying causes of poverty and may aggravate them. Any meaningful approach needs to focus on non-monetary factors, such as encouraging self-reliance and personal responsibility, and supporting the family and marriage.

Much of the recent rise in earnings inequality in western countries has been attributed to a rising skill premium. That is, the earnings of the educated have increased faster than those of the less educated. But the increased return to skill provides a means for the poor to increase their earnings and find a way out of poverty (by acquiring skill). The challenge is to overcome the problems facing poor children and adults that prevent them from taking advantage of the higher rates of return to investments in human capital. Welfare policies need to address difficult issues, such as welfare dependency, family breakdown, inadequate education and skills, the erosion of the work ethic, substance abuse and illegitimacy. Often children simply do not acquire the attitudes or cognitive skills necessary for workplace success.

2
THE COSTS OF REDISTRIBUTION

2.1 A healthy redistribution?

A paper published recently in *Social Science and Medicine* provides a typical example of a call for massive income redistribution, backed by analysis that understates (or ignores) the costs associated with such a policy and assumes that achieving it would be feasible, even easy.[5] In the paper, Blakely and Wilson, two academics from the Wellington School of Medicine, Otago University, "estimate the likely health impacts of income redistribution".[6] They claim that household income predicts mortality risk, with extra household income decreasing an individual's chance of dying at a declining rate and that redistributing income from the rich to the poor will reduce health inequalities and reduce overall mortality. Although the rich would become more likely to die, that would be more than offset by reductions in the number of the poor that die each year.

Blakely and Wilson model the impacts of moving everybody's household income 10, 20, 30 or 40 percent towards mean household income, which they prove would reduce the Gini coefficient, a measure of income inequality, by the same percentage. According to the authors, moving everyone's income 20 percent towards the mean would reduce the Gini coefficient to the level of the early 1980s. It would take a 30 percent shift to reduce it to the level of Sweden.[7]

The authors recognise that redistribution of income may lower total income and create deadweight losses.[8] But they state the issue is "complex" and "it is also not clear what magnitude those deadweight costs would be".[9] Their solution is to use "the simplifying assumption that there is no overall change in total income".[10] That is, they assume the deadweight costs are zero.

Blakely and Wilson conclude that their redistributive policies "will probably result in a modest reduction in overall mortality rates".[11] In claiming that their estimates provide useful information for policy making, they must also believe that such policies are feasible.

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5 Blakely and Wilson (2006).

6 Blakely and Wilson (2006), p 2025.

7 Blakely and Wilson (2006), p 2031.

8 The concept of deadweight loss, or efficiency cost, is explained in section A1 in the appendix.

9 Blakely and Wilson (2006), p 2032.

10 Blakely and Wilson (2006), p 2026.

11 Blakely and Wilson (2006), p 2032.

There is a lot to criticise in Blakely and Wilson's study.[12] Here my focus is on what tax-transfer scheme would be needed to effect the redistribution the authors desire. Specifically, what would it take to redistribute *t* percent of every household's income towards the mean?

2.2 A linear income tax-transfer scheme

The answer is what is known in the economics literature as a linear income tax-transfer scheme. One way to impose it would be to put an additional tax of *t* percent on all incomes and return the revenue collected as an equal per household grant, which would be $t\bar{y}$, where $\bar{y}$ is average household income. If all household incomes are fixed (that is, there are no incentive effects and total income is fixed) then a household with an initial income y_i would receive a net transfer $t\bar{y} - ty_i$.[13] The break-even level of income, where the net transfer is zero, is average income, $\bar{y}$. Those households with below-average income gain, as the grant received exceeds their tax payments. Those with above-average income lose, as they pay more in tax than they receive from the grant. A household on average income pays the same in tax as it receives from the grant.

Adding the net transfer to initial income gives $(1-t)y_i + t\bar{y}$. The difference between this post-transfer income and mean income is $(1-t)y_i + t\bar{y} - \bar{y} = (1-t)(y_i - \bar{y})$. That is, a linear income tax-transfer scheme with a tax rate of *t* moves every household's income *t* percent towards the mean.

The scheme increases everyone's marginal tax rate by *t* percentage points. The medical academics want to shift 10, 20, 30 or 40 percent of household income towards the mean. Achieving such a shift would require the marginal rate of income tax to increase by 10, 20, 30 or 40 percentage points for everyone. It is ludicrous to assume that such increases in marginal tax rates would not affect work effort. For example, the 40 percentage point increase would raise statutory income tax rates to 59.5 percent for the earners at the bottom of the scale and 79 percent for those at the top. Effective marginal tax rates, which take account of other taxes, the low-income rebate and benefit abatement (the withdrawal of benefits as income increases), would be even higher.

One complication is that Blakely and Wilson use equivalised household income (see box 1). Determining the tax changes needed to shift *t* percent of equivalised income towards the mean would require a simulation using a complex model of the distribution of households and their income. The result would be a complex tax change that varied by the type of the household. But there is no obvious reason why the

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12 New Zealand economist and blogger Eric Crampton does so on *EconLog* at: http://econlog.econlib.org/archives/2006/07/physician_consu.html (last accessed November 2006).

13 I assume the grant is not taxed; it is a tax credit. If the grant were taxed, then the analysis would be unchanged – we would simply net out the taxes paid on the grant.

resulting tax rates should be lower than that needed to shift ordinary household income towards the mean.[14]

The next subsection examines the consequences of using a linear income tax-transfer scheme to redistribute income on the distribution of ordinary household income. The linear income tax-transfer scheme requires us to take into account the taxes needed to finance income transfers. The focus is on actual household income, because that is what is taxed and because dollar changes in the level of taxes paid by, and transfers to, a household directly translate into dollar changes in its disposable ordinary income. Further, when the incentive effects of taxes are introduced, such as changes in work effort, they directly affect household income. The likely effects on equivalised income are examined in subsection 2.9.

2.3 Income guarantees

The linear income tax-transfer scheme can be given another interpretation, more akin to a standard welfare programme. The same scheme could be introduced by paying a guaranteed minimum income of $t\bar{y}$, where $\bar{y}$ is average household income. A household with zero income receives the income guarantee. The guarantee abates at rate t. That is, for every dollar of household income, the transfer falls by t cents, and falls to zero at average household income. An extra tax of t is imposed on that part of household income above $\bar{y}$, so that households with above-average income pay $t(y_i - \bar{y})$ extra in tax. The result is a net transfer to each household of $t\bar{y} - ty_i$.

That is, the linear income tax-transfer scheme is a type of negative income tax with an income guarantee $t\bar{y}$, an abatement or benefit reduction rate t, and break-even income $\bar{y}$, and is financed by an income tax at rate t on that part of household income above $\bar{y}$. Everyone's effective tax rate has risen by t percentage points. The effective marginal tax rate measures the percentage of a one-dollar increase in private income that is lost to taxes and the abatement of income-tested government benefits. An effective marginal tax rate of 60 percent means that if a family earns an extra dollar, it is better off by 40 cents. When the transfer a household receives is reduced as income rises, the benefit reduction rate has exactly the same effect as a marginal tax applied to income.

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[14] I am assuming the authors are using total household income, rather than disposable or after-tax income, because they state, "We used total household income, equivalised for the number of children and adults in the household" (p 2027). Most researchers use disposable equivalised household income. To shift t percent of everyone's disposable income towards the mean would require a tax t on disposable income to finance a lump-sum grant to all households. If the average tax rate were a, it would take a tax of $(1 - a)t$ on gross income to lower a household's disposable income by t percent. The required tax rates to shift 10, 20, 30 or 40 percent of disposable income towards the mean are still very large. A further problem is that the measures of disposable income take account of direct taxes and transfers, but appear to take no account of indirect taxes, such as excise and GST. As those in low deciles often spend much more than their income and spend a relatively large portion of their income on goods subject to excise, a significant portion of their income is paid as indirect taxes.

Box 1: Equivalised household income

Households differ in the number and age of their members. Equivalised household income attempts to compare the standard of living among different types of household. A couple with three teenaged children, for example, cannot afford the things that a couple with a young baby and the same income can. Equivalised income adjusts household income for the composition of the household. What adjustment is appropriate is a controversial question. Using per capita household income to compare households ignores household economies of scale. It costs more for two people to achieve the same standard of living as one, but not twice as much.

Equivalised household incomes are scaled back by a household equivalence index. A couple has the value 1 (their income is left unchanged). Couples with children have their income divided by a number greater than 1, to reflect their lower standard of living than a couple with the same income. The more children they have, the greater the index number. A single-person household has its income divided by a number less than 1. The exact index numbers depend on the scale used, and the scale used affects the shape of the resulting household income distribution. Different scales make different assumptions about child–adult equivalence and household economies of scale. The appropriate adjustment for each is not clear.[15]

Statistics New Zealand has used the square root scale, where household income is divided by the square root of the number of members of the household and then normalised to give a weight of 1 to a two-person household. But it weights an adult the same as a child. Other indexes commonly used in New Zealand, such as the revised Jensen scale, recognise that children are less expensive than adults.[16] Even more sophisticated methods, such as the initial Jensen scale, vary the weights with the age of children in the household. The choice of scale matters. For example, the square root scale gives a greater index number to single-parent households than the Jensen scale, producing lower equivalised incomes and increasing measured child poverty rates.

Even if an appropriate equivalising process can be agreed upon, it is difficult to determine the tax rates necessary to effect a desired redistribution of equivalised household income. People pay tax on actual income, and the relationship between a dollar of income and a dollar of equivalised household income varies with the size and composition of the household. For example, under the Jensen scale, it would take $1.50 to raise the equivalised income of a household comprising one adult and four children by $1.00. A dollar of equivalised income does not have an absolute meaning and it is difficult to cost policies and work out required tax rates or the incentive effects of tax rates using equivalised household income.

The simple arithmetic of linear income tax-transfer schemes show that tax rates required to redistribute income significantly are very high. In the 2003/04 financial year (the most recent figures available), the average household income was $60,268 and the median $47,300. A commonly suggested poverty line is 60 percent of median income, or $28,380. Even if there were no incentive effects, so that total household income were fixed, to guarantee every household that level of income would require everyone's

15 See Easton and Carson (2002). They examine six different scales in detail.

16 The revised Jensen scale is set out in Green (2001), pp 83–84.

effective marginal tax rate to rise by 47 percentage points (as the income guarantee is 47 percent of average income). The bottom statutory rate of income tax would increase from 19.5 percent to 66.5 percent while the top rate would rise from 39 percent to 86 percent. Even a guaranteed household income of 40 percent of the median ($18,920) would require a 31 percentage point increase in the marginal tax rate, raising the bottom and top statutory rates of tax to 50.5 percent and 70 percent respectively.

2.4 A marginal increase in redistribution

The relevant question for policy is usually: should we have more or less redistribution? That is, we are asking whether the scale of redistributive programmes should be increased or decreased, not whether they should be eliminated. The focus is on the marginal effect of doing a little more or a little less.

To examine the effects of a marginal increase in redistribution on the distribution of income, we may ask: what would happen if the government imposed a linear income tax-transfer scheme that increased everyone's effective marginal tax rate by 1 percentage point?[17]

Such a scheme would transfer 1 percent of household income towards the mean and reduce the Gini coefficient by 1 percent. One way to implement it would be to increase all income tax rates by 1 percentage point and use the revenue to finance a per-household grant. In 2003/04 total household income was $90 billion. If there were no incentive effects, the tax would raise $900 million. With 1,494,500 households, that would provide a grant of just over $600 a household. Alternatively, the scheme could be implemented by providing each household an income guarantee of $602 that was reduced by 1 cent for every dollar earned, phasing out at the average income of $60,268. An extra 1 percent income tax would be paid on all income above the cut-off, which would exactly finance the payments to households below the average.

The effect of a 1 percent linear income tax-transfer scheme on the distribution of income is set out in table 1. It uses information on the distribution of household income in 2003/04 from the Household Economic Survey. The households are divided by annual gross income into deciles (that is, 10 percent of households are in each decile). The first row gives the average household income within each decile. The second row gives the change in disposable income for the average household in each decile when the linear income tax-transfer scheme is added to current arrangements, assuming no incentive effects so that total income is fixed. For example, households in the first income decile receive a grant of $603. They lose 1 percent of their income to the extra tax, or benefit reduction, averaging $94 a household. Their net gain is $508 (all the

[17] The analysis is based on: Browning (1993); Browning and Browning (1994), pp 293–301; and Browning and Johnson (1986).

numbers are rounded). Households with below-average income gain and those with above-average income lose.[18]

Multiplying the gain in disposable income per household (row 2) by the number of households in each decile (row 3) gives the total amount transferred to that decile by the scheme (row 4). The final row in the table expresses that amount as a percentage of total household income (which is $90 billion, or average household income times the total number of households). For example, the scheme raises disposable income in the first decile by $76.2 million, which is 0.08 of 1 percent of total income.

[18] I am assuming that, if introduced through a uniform tax and grant scheme, all income, including benefit income, is taxed. Benefit income is taxable in New Zealand. That is equivalent to giving out a grant that declines with income and raising taxes on above-average incomes. A benefit recipient would receive the same net grant as a non-recipient with the same income.

Table 1: The effect of a 1 percent linear income tax-transfer scheme on the distribution of household income

	Annual household income (2003/04 dollars)										
	Under $15,900	*$15,900 to $22,999*	*$23,000 to $28,799*	*$28,800 to $37,899*	*$37,900 to $47,299*	*$47,300 to $58,899*	*$58,900 to $71,299*	*$71,300 to $87,599*	*$87,600 to $119,999*	*$120,000 and over*	*All income groups*
Average annual household income	9,438	19,152	25,397	33,114	42,380	53,118	65,010	78,619	100,630	175,021	60,268
Gain in average disposable household income	508	411	349	272	179	72	–47	–184	–404	–1,148	0
Number of households (000s)	150.0	149.5	147.3	150.8	148.8	149.6	149.8	149.6	148.4	150.7	1,494.5
Increase in disposable income $m	76.2	61.5	51.4	40.9	26.6	10.7	–7.1	–27.5	–59.9	–172.9	0
Increase in disposable income as a share of total income (percent)	0.085	0.068	0.057	0.045	0.030	0.012	–0.008	–0.030	–0.067	–0.192	0

Source: Household Economic Survey 2003/04 standard tables, table 17.

Even with no incentive effects, a linear income tax-transfer scheme that raised marginal tax rates by 1 percentage point would transfer $267.3 million or 0.3 of 1 percent (3/1000s) of household income from the top two quintiles to the bottom three quintiles (each quintile contains 20 percent of households). The bottom quintile gains $137.7 million or 0.15 of 1 percent of household income. To the extent the extra transfers crowd out private charity, the net increase in income redistribution would be even smaller.

Redistributive programmes involve increasing marginal tax rates on taxpayers and on recipients and require greater increases in the marginal tax rates needed to finance them than other expenditure programmes. Raising everyone's marginal tax rate by 1 percentage point would finance spending of 1 percent more of household income on defence, for example. But to redistribute 1 percent of household income requires a tax increase of much more than 1 percentage point.

The linear income tax transfers income from all households with above-average income to all households with below-average income and raises everyone's effective marginal tax rate by the same amount. To collect 1 percent of household income in taxes from households with above-average income requires a tax rate greater than 1 percent, because their total income is only a portion of total household income (in 2003/04, it was less than 70 percent). Further, only the portion of their income in excess of the average is taxed, raising the rate further (in 2003/04, it was less than half of their income).[19] Based on the 2003/04 figures, it would take a rate of 3.4 percent to transfer 1 percent of household income from the top two quintiles to the bottom three, even with no incentive effects. It would take a rate of 6.5 percent to transfer 1 percent of household income to the bottom quintile (and 1.9 percent to the bottom three).

The bottom quintile receives 5 percent of household income, so transferring an extra 1 percent of household income, or $900 million, to the households in this decile would increase their incomes by 20 percent. That would do little to reduce measured poverty. There are almost 300,000 households in the bottom quintile and they would each receive an average grant of $3,000, raising their average income from $14,286 to 17,286, below the bottom of the second quintile.

2.5 Different benefit reduction rates

One objection to the linear income tax-transfer scheme is that it imposes a uniform increase in effective tax rates across all households, which requires the benefit reduction rate to be equal to the tax rate levied on higher incomes to finance it, making break-even income (where the net transfer falls to zero) equal to average income. As average income puts a household in the seventh decile, over 60 percent of households receive a transfer. A higher benefit reduction rate reduces break-even income, more tightly targeting income transfers. With a more targeted transfer, the income guarantee

[19] This explanation is from Browning and Johnson (1986), p 90.

can be raised and more is transferred to the lower deciles, and less to the other deciles, for the same cost. The tax rate needed to finance the programme falls – as those paying the taxes to finance the programme are now a larger portion of households and the tax applies to a greater portion of their household income.

But such a measure only reshuffles the effective tax rates. Targeting more of the transfer at poorer households requires the transfer to be reduced more quickly as income rises, which increases the effective marginal tax rate on recipients. For a given transfer, lowering effective tax rates on some households implies raising them on others so that the revenue raised covers the cost of the programme. There is no way to avoid the sharp increases in effective marginal tax rates that must accompany an increase in income redistribution.

The trend in policy (for example, in the Working for Families package) has been in the opposite direction, towards lowering effective marginal tax rates on low-income households – which must increase the tax rates on households further up the income ladder and also increases the proportion of the population receiving a subsidy. For example, the common practice of not abating benefits until some threshold is reached reduces the effective marginal tax rate on households below the threshold, but must increase the rates for those above it. Earnings subsidies for low-income households (such as the earned income tax credit in the United States) have the same effect, reducing the marginal tax rates for low-income households (sometimes making them negative), but raising them for higher-income households (as the subsidy phases out and to finance it).

To understand the relationship between benefit reduction rates and the taxes needed to finance transfers, consider the increments in marginal tax rates needed to redistribute 1 percent of household income from households above break-even income to households below it, for different levels of break-even income, assuming no incentive effects of taxes.[20]

The results are set out in table 2. The break-even incomes are chosen at different deciles of the household income distribution. Targeting transfers more tightly at the lower deciles does reduce the tax needed to finance a redistribution of 1 percent of total income. The linear income tax-transfer scheme requires a rate of 3.4 percent. Limiting the transfer to the bottom quintile more than halves that rate to 1.5 percent. But this comes at the expense of a dramatic increase, to 34.5 percent, in the effective tax rate the scheme imposes on recipients.

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20 This analysis follows Browning (1993), pp 12–15.

Table 2: Effective marginal tax rates to redistribute 1 percent of income with different break-even incomes

Break-even income	*$23,000*	*$28,800*	*$37,900*	*$47,300*	*$60,268*
As a proportion of average income (percent)	38.2	47.8	62.9	78.5	100.0
As a proportion of median income (percent)	48.6	60.9	80.1	100.0	127.4
Proportion of households below break-even income (percent)	20.0	30.0	40.0	50.0	
Recipients' share of income	4.8	8.9	14.4	21.4	
Increase in effective marginal tax rate for recipients	34.5	18.4	9.3	5.6	3.4
Increase in effective marginal tax rate for those above break-even income	1.5	1.7	2.1	2.5	3.4
Income guarantee	$7,938	$5,302	$3,540	$2,658	$2,029

When there are n_L households below the break-even level of income, y_B, and n_H with higher income, the transfer received by a low-income household with income y_i is $t_L(y_B - y_i)$, where t_L is the increment in the effective marginal tax rate facing recipients from the programme. The total transfer received by those below y_B is $t_L(n_L y_B - \sum y_L)$, where $\sum y_L$ is the total income of the n_L low-income households. Table 2 shows the increase in the effective marginal tax rate when the transfer is 1 percent of household income. The income guarantee equals $t_L y_B$.

The effective tax rate on recipients can be interpreted in a number of ways. For example, if the break-even income were $23,000, then financing a transfer of 1 percent of household income from earners above to those below $23,000 (the bottom quintile) would require a 1.5 percentage point increase in income tax rates on household income above $23,000. The income guarantee would be abated at 34.5 percent. Alternatively, if the income tax rate were raised by 1.5 percentage points at all income levels, then the income guarantee would be abated at 33 percent, giving recipients a total effective tax rate increase of 34.5 percentage points.

The taxes needed to finance the transfer must be collected from the n_H households with income above the break-even level. The net tax paid by a household with income y_i is $t_H(y_i - y_B)$, where t_H is the increment in the marginal tax rate. The total tax paid by those above break-even income (set equal to 1 percent of household income here) is $t_H(\sum y_H - n_H y_B)$, where $\sum y_H$ is total income of the n_H low-income households.

2.6 The marginal cost of redistribution

The reason that high marginal tax rates are important is that they affect incentives, making redistribution costly. For example, they discourage work effort, reducing total income. As a result, taxpayers lose more income from redistribution than recipients

gain. The reduction in total income reduces the amount transferred from a given increase in tax rates or raises the tax rate needed to finance a given income transfer. It may limit the amount that can be transferred because at some point higher taxes will reduce revenue raised.

How much does redistribution reduce income and what is its cost? We examine the effects of an incremental increase in redistribution – adding a linear income tax-transfer scheme with a tax rate of 1 percent – and estimate the marginal cost of redistribution: the cost to the non-poor for an extra dollar of economic benefit to the poor.[21]

How would increasing everyone's effective marginal tax rate by 1 percentage point affect household income? It would lower the after-tax wage received by households and discourage work effort. For example, households tend to work fewer hours at the lower wage. The amount of that decrease depends on each household's effective marginal tax rate and the responsiveness of labour supply to changes in the marginal after-tax wage rate.

The elasticity of labour supply summarises how total hours worked respond to changes in the after-tax wage. If the elasticity of labour supply is η, then a 1 percent fall in the after-tax wage would reduce hours worked by η percent.

If a householder currently faces an effective marginal tax rate of t percent, then a 1 percentage point increase in the tax rate would reduce the marginal after-tax wage by $0.01/(1-t)$ percent and labour supply by $0.01\eta/(1-t)$ percent. For example, if the initial tax wedge was 35 percent and the elasticity of labour supply 0.5, a 1 percentage point rise in the tax rate would reduce labour supply and before-tax income by 0.01*0.5/0.65 = 0.0077, or about three-quarters of one percent. Even such seemingly small changes can have large efficiency consequences.

The higher the initial effective tax rate and the greater the elasticity of labour supply, the more the new linear income tax-transfer scheme reduces household income. At some point the so-called Laffer curve kicks in: a rise in the tax rate would actually reduce revenue.

The initial effective marginal tax rate and labour supply elasticity determine the costs of redistribution, yet the estimates of the size of these parameters can be imprecise, and in any event they differ from household to household. The object of this exercise is not to come up with exact estimates of the efficiency cost of redistribution to society. The information to do that is simply not available. Instead, what follows is an indicative example, which assumes the same parameters for all households. It uses realistic and conservative estimates, with some sensitivity testing, which illustrate the likely costs of redistribution. Even with conservative assumptions, the costs of redistribution are large.[22]

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21 The analysis follows Browning (1993).

22 Section A7 in the appendix considers the relevance of accounting for general equilibrium effects.

The effect of a 1 percent linear income tax-transfer scheme without incentive effects was examined in table 1, using 2003/04 household income data. It transfers 0.153 percent of household income, or $137.7 million, from the top four quintiles to the bottom quintile.

To illustrate the impact of incentive effects, it is assumed the initial tax wedge is 35 percent (the current share of tax revenue in gross domestic product, GDP). This is a conservative assumption.[23] For example, the income tax and goods and services tax (GST) alone impose effective marginal tax rates of between 26 and 46 percent on all workers. Excises would raise tax paid even further.

The abatement of tax credits and welfare benefits (generally at rates between 20 and 70 percent) has exactly the same effect as a marginal tax rate applied to income, raising the effective marginal tax rates of benefit recipients substantially higher.

The appendix explains why the relevant elasticity to work out the efficiency and revenue effects of a tax increase is the compensated elasticity of taxable income.[24] It is higher than the standard elasticity of labour supply, which measures the change in hours worked when higher taxes reduce the after-tax wage. The effect of higher income taxes on household income and behaviour is much broader than reducing hours worked. Higher income taxes also distort work effort, choice of occupation, conditions of work, forms of compensation, patterns of consumption, and the level of tax avoidance and evasion.

Together, these effects substantially raise the deadweight loss from income taxation. To determine the full efficiency effect of the tax, we add all the reductions in taxable income from all the distortions. The loss in income from a reduction in hours worked is only one component of this calculation.

An income tax of t percent means a person will be willing to give up a dollar of taxable income to undertake an untaxed activity (more leisure, less effort, consumption of tax-preferred items, tax avoidance and evasion) that increases well-being by $\$(1 - t)$. These activities will be pushed to that point, so that an increase in an activity that reduces taxable income by a dollar would increase deadweight loss by the forgone tax revenue, t cents. A rise in the tax rate increases the incentive to engage in these activities, increasing the deadweight loss by t percent of the reduction in taxable income. The extent to which higher taxes reduce taxable income is summarised by the elasticity of taxable income with respect to one minus the marginal tax rate, a larger number than the standard elasticity of labour supply.[25]

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23 See section A2 in the appendix.

24 See sections A1, A3 and A4 in the appendix.

25 See Feldstein (2006). See also Usher (1986); Giertz (2004).

The calculations are done for three different values of labour supply elasticity: 0.25, 0.5 and 1. A range of elasticities is used because of a broad range of empirical estimates and lack of consensus about the appropriate level. Estimates of the effect of wage changes on hours worked alone would justify a level of 0.25, but 0.5 is more realistic and some authors have estimated values of 1 or higher.[26] Even the conservative low value of 0.25 gives a high cost of redistribution. Further, this paper only examines the incentive effects of redistribution. But the collection, administrative, enforcement and compliance costs of raising tax revenue and giving out transfers add to the high cost of redistribution. Also contributing to that cost is rent-seeking: resources put into political battles over who bears the taxes to finance redistribution and who benefits from government spending on redistribution.

The relevant elasticity applies to the response of non-benefit income to changes in tax rates. The estimates of efficiency costs assume that benefit income does not respond to changes in tax rates. When work effort changes, any abatement of benefit income is reflected in the net tax revenue figures.

The appendix sets out the effect of a 1 percent linear income tax-transfer scheme on each decile of households when there are incentive effects.[27] The summary here focuses on transfers to the bottom quintile by looking at the effects on the average household in the bottom quintile and the average in the top four quintiles. Table 3 summarises their income details, and how a 1 percent linear income tax-transfer scheme changes their income when there are no incentive effects.

Table 3: Income details for average households (2003/04 $)

$	*Bottom quintile*	*Top 4 quintiles*	*Total*
All sources	14,287	71,796	60,268
Non-benefit income	2,794	65,718	53,102
Benefit income	11,493	6,078	7,166
No of households	299,500	1,195,000	1,494,500
Tax paid under 1 percent linear tax-transfer scheme	143	718	603
Net change in disposable income under the scheme	460	–115	0

26 See sections A3 and A4 in the appendix for details.

27 See section A5 in the appendix.

With an initial effective tax rate of 35 percent, adding a 1 percent linear income tax-transfer scheme lowers the after-tax wage by 0.01/(1 – 0.35) = 0.0154, or 1.54 percent. This amount multiplied by the elasticity of taxable income gives the fall in before-tax non-benefit income from the fall in hours worked and other responses.[28] The first column in table 4 sets out the fall in non-benefit income with various elasticities. The higher marginal tax rate reduces non-benefit income for all households.

The fall in non-benefit income reduces the extra revenue raised from the tax increase. In 2003/04 total household income was $90 billion. Without incentive effects, a 1 percentage point increase in income tax rates would raise $900 million. With 1,494,500 households, that would provide a grant of $603 a household, 1 percent of average household income. But when household income falls, the extra tax revenue raised by the 1 percent increase in income tax rates falls because the tax is on a lower base and, more importantly, revenue from existing taxes falls. The amount available to increase transfers is less than 1 percent of income, and revenue per household is set out in column 2 of table 4 for different elasticities.

Table 4: Effect of a 1 percentage point rise in all income tax rates

Elasticity	*Reduction in non-benefit income (percent)*	*Revenue per household ($) (2003/04 household income data)*
0	0.00	603
0.25	0.38	529
0.5	0.77	456
1	1.54	309

Table 5 summarises the transfers to the bottom quintile of households from others when the elasticity of taxable income is 0.5 (the realistic case). Table A3 in the appendix sets out the transfers for households in each income decile.

The extra tax reduces the non-benefit income of all households by 0.77 of 1 percent, as set out in the first column of table 5. The new level of income is in column 2. Column 3 shows the extra tax revenue raised by the 1 percent increase in marginal tax rates. It is 1 percent of the new level of household income less the revenue forgone from the fall in income (assuming an initial tax rate of 35 percent).

[28] I am assuming linearity, which is accurate for infinitesimal changes and reasonable for a small, 1 percent change in tax rates. I assume the elasticity is a point elasticity. The arc elasticity for discrete changes would be different, as the elasticity varies along a linear, inelastic supply curve.

Table 5: Effect of a 1 percent linear income tax-transfer scheme per household

$	*Fall in income*	*New income*	*Net tax revenue*	*Net change in disposable income*	*Value of increased leisure*	*Net change in utility*
Bottom quintile	21	14,265	135	299	14	313
Top 4 quintiles	506	71,291	536	–586	329	–257
Average	408	59,860	456	–408	266	–143

The redistribution scheme causes a substitution into leisure and other untaxed activities, which have value. When the effective marginal tax rate is 35 percent, extra leisure that reduces pre-tax income by one dollar would be valued at 65 cents. The fifth column in table 5 gives the value of extra leisure per household for the bottom quintile of households and the four quintiles above it. Taking account of the value of extra leisure increases the gain to the bottom quintile and reduces the loss to the top four quintiles.

The final column adds the value of extra leisure to the gain in disposable income to get the gain in real income, or the transfer needed to keep utility constant. It shows the efficiency effects of the change.

The redistribution causes inefficiency. The grant balances extra taxes paid for the average household, but the average household loses $408 in income (the fall in pre-tax income), only partly offset by the $266 value of extra leisure. The loss in income to the top four quintiles exceeds the gain to the bottom (remembering that there are four times as many households in the top four quintiles as in the one bottom quintile).

The marginal cost of redistribution is one way to express the inefficiency.[29] This measure sets out the ratio of the cost to others per dollar gain to a specified group. Table 6 summarises marginal cost of redistribution for different elasticities, per dollar to the bottom quintile. The money marginal cost of redistribution shows the reduction in disposable income for the top four quintiles per dollar increase to the bottom quintile. The money marginal cost of redistribution is relevant because people often judge a policy's effect on inequality by what happens to the distribution of disposable income.

When the elasticity is zero, there are no incentive effects and the marginal cost of redistribution is 1 – there is no inefficiency. In this situation, giving an extra dollar to the poor costs higher-income households a dollar.

[29] Browning (1993).

Table 6: The marginal cost of redistribution for transfers from the top four quintiles to the bottom quintile

Elasticity	*Money*	*Real*
0	1.0	1.0
0.25	3.7	1.9
0.5	7.8	3.3
1	30.5	9.6

Multiplying the gain to the average household in each group (from table 5) by the number of households in each group means that, with an elasticity of 0.5, the bottom quintile gains $90 million of disposable income and the top four quintiles lose $700 million, giving a marginal money cost of redistribution of 7.8.

The real marginal cost of distribution compares the gains in real income to the bottom quintile with the losses to others. The efficiency costs of redistribution are substantial. For example, with an elasticity of 0.5, it costs the top four quintiles $3.30 for an extra dollar of economic benefit to the bottom quintile. A transfer worth an extra dollar to low-income households comes with an efficiency cost of $2.30. These figures are for a small marginal increase in redistribution. A large increase in redistribution would require large increases in marginal tax rates, raising the cost substantially.

Even when the elasticity of taxable income is a modest 0.25, the marginal cost of redistribution is still substantial.

The incentive effects of taxation limit feasible redistribution. Even if we adopt the extremely favourable assumption of a linear labour supply curve,[30] with an initial elasticity of 0.5, I calculate that as the amount of redistribution is increased by raising the linear tax rate, the increase in income per household in the bottom quintile peaks at $5,926 when the linear tax rate is an additional 39 percent (making the average tax rate 74 percent). The costs of this policy would be enormous, with work effort (and non-benefit incomes) falling by 30 percent (as the after-tax wage falls by 60 percent). Average income in the bottom quintile is $14,286 and an increase of $5,926 would not even bring that average up to the bottom of the next quintile ($23,000, or just under half of median income, a common poverty line). Redistribution cannot solve poverty.

The cost of redistribution may be reduced through changing the pattern of effective tax rates. For example, if we made the break-even level of income $23,000, then that would

[30] As the after-tax wage falls, the supply elasticity falls to zero along an inelastic linear supply curve. At a zero wage, it implies labour supply is still positive, so even a 100 percent tax would raise some revenue. Linearity may be a good approximation for small changes, but not for large ones. In fact, it is likely that the elasticity of supply increases as the after-tax wage falls, increasing the costs of redistribution much faster than assumed in my calculation and further limiting feasible redistribution. Labour supply is likely to fall to zero at a positive wage.

reduce the tax on the top four quintiles, while imposing very high effective tax rates on the bottom quintile. That may improve efficiency, because households in the bottom quintile do not earn much non-benefit income (over 80 percent of their income comes from benefits) so the high rates do not reduce their income greatly. The change focuses lower tax rates on those who work.[31]

On the other hand, the above analysis presents a static view of the income distribution. Households move into and out of the bottom quintile. Although households within the quintile may be on benefit income, many of them may be there temporarily, only until they move into jobs and a higher-income quintile the following year. High effective tax rates could trap them in the bottom quintile.

Further, the policy trend has often moved in the opposite direction, lowering effective marginal tax rates on low-income households and increasing them on households further up the income ladder through not abating benefits until some threshold is reached. That kind of policy puts the highest rates on those with high levels of earned income and high labour supply elasticities.

The efficiency cost of redistribution increases with the elasticity of taxable income and the initial effective marginal tax rate. The higher both are, the greater the fall in taxable income when tax rates rise. An increase in the initial effective marginal tax rate also decreases the amount of revenue raised by the extra tax (as the fall in existing tax revenue is greater) and reduces the value of additional leisure time.[32] If higher-income households (with greater proportions of non-benefit income) have higher elasticities of taxable income, then assuming that all households have the same elasticity of taxable income understates the marginal cost of redistribution. Empirical estimates usually find high-income earners have the highest elasticity of taxable income.[33]

What is not so obvious is that, as demonstrated in the appendix, the more equal the initial distribution of income, the greater the marginal cost of redistribution.[34] When the distribution of income is more equal, households are much closer to average income and less is redistributed from a linear income tax-transfer scheme. For households close to the average, the offset from higher taxes compared with the per person grant is greater. The distorting effect of higher taxes is large compared with the amount redistributed, so there is a large efficiency cost for a limited amount of redistribution.

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31 Because I include negative self-employment income as part of non-benefit income, I probably understate the amount of non-benefit income in the bottom quintile that would respond to taxes.

32 Browning (1993), p.9.

33 See section A4 in the appendix.

34 See section A6 in the appendix.

2.7 A lifetime perspective

The above estimates of the marginal cost of redistribution are based on annual income. A household's consumption and well-being are more closely related to lifetime income. Whether someone is rich depends on their wealth and it is generally lifetime income that determines wealth.

The distribution of annual income gives a highly exaggerated picture of inequality. The distribution of lifetime income among all households is more equal than the distribution of their income in any one year because:

- income varies systematically with age – people in their mid-fifties earn, on average, 50 to 100 percent more per hour than they did in their mid-twenties, mainly because of greater work experience;
- investments in human capital reduce earnings when they are being made and increase earnings when they pay off – for example, doctors earn above average incomes, but they gave up many years of income to become doctors; and
- annual income fluctuates because of chance – people have good and bad years.

Much income inequality at a given point in time arises simply because of these factors, and does not reflect differences in lifetime income. A number of international studies, using panel data that follow families for a number of years, establish the importance of income mobility over time and how cross-section data on annual incomes vastly overstate inequality and poverty rates – by a factor of three or more.[35] The longer the time horizon, the more equal the distribution of household income and the higher the marginal cost of redistribution.

The top and bottom quintiles of annual income are continuously changing groups of people. Not many households spend long periods in the same income quintiles: most shift between them. Households in the top and bottom quintile are often people at different stages of their lives, not different classes of people. Barker (1996) summarises studies on income mobility in New Zealand. They show significant income mobility.

- According to one study, of those in the lowest income quintile (the bottom 20 percent) in 1980, 25 percent had moved out of it one year later, and 46 percent seven years later.
- Another study examined the bottom quintile of tax filers in 1991. One year later, 25.7 percent had moved to a higher quintile. Two years later, 31.3 percent had done so.

The longitudinal Survey of Family Income and Employment found that 13 percent of people in the bottom personal annual income quintile, and 23 percent of those in the

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[35] See Headey and Muffels (1999) and Browning and Browning (1994), p 263, for a summary of these studies and references. See also Bartlett (2000); Lillard and Willis (1978).

second, in 2002/03 had moved to the top three quintiles by 2003/04. Of those in the top three quintiles in 2002/03, one year later 12 percent were in the bottom and 24 percent were in the second bottom quintile.[36]

For many poor people, poverty is short term. Only a small portion of families are persistently in poverty. Many of those in poverty in one year rise above it over time. This tendency helps to explain how those in the bottom income decile spend more than double their income[37] – namely, they run down savings accumulated when income was higher or are borrowing against higher future income.

When the government redistributes income, the level of redistribution is much lower from a lifetime perspective than is indicated by annual data. Much redistribution simply shifts income over the taxpayer's lifecycle rather than between the rich and poor.

The estimates of the marginal cost of redistribution presented above are conservative because studies based on annual data underestimate the true marginal cost of redistribution. Although a given tax rate redistributes less when the time horizon is longer, the efficiency costs it imposes are no smaller. The annual data overstate the amount of redistribution relative to the efficiency cost.[38]

2.8 Poverty gaps

Many proponents of increased redistribution appear unaware of the simple arithmetic underlying income redistribution. For example, Blakely and Wilson model the effect of lifting the incomes of all households with an equivalised household income of less than $20,000 to the range of $20,000 to $25,000. They state that "the 'cost' of this growth in total household income was 3–4% of the total male and female household income, respectively, or equivalent to New Zealand's current rate of annual economic growth".[39] In 2003/04, however, 4 percent of household income amounted to $3.6 billion.

Blakely and Wilson's estimate is similar to estimates of the 'poverty gap'. The poverty gap adds up the amount of income needed to bring households up to a poverty threshold. For example, if the threshold is $23,000 and a household's income is $15,000, it takes $8,000 to bring them up. In 2003/04, with a poverty threshold of $23,000 (about half of median income), I calculate the poverty gap to be $2,610 million.

The implication of poverty gap measures is that poverty can be solved for a relatively small amount (such as one year's growth). Yet that is simply not true. First, the gap is only closed for one year. Presumably, billions must be spent each year to keep people's

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36 Table 4, available at: http://www2.stats.govt.nz/domino/external/pasfull/pasfull.nsf/7cf46ae26dcb6800cc256a62000a2248/4c2567ef00247c6acc2570de007630f4?OpenDocument (last accessed 16 February 2007).

37 Household Economic Survey 2003/04 standard tables, table 1.

38 Browning (1993), pp 10–11; Browning (2002), p 520.

39 Blakely and Wilson (2006), p 2027.

income above the poverty line. Second, the estimated cost is understated substantially because it fails to account for the effects of increased effective marginal tax rates from the redistribution.

As usual, the proponents of redistribution ignore the effects of the taxes needed to finance their schemes. With reference to the first column of table 2, when $900 million is transferred to households with income below $23,000, then even without incentive effects, the marginal tax rate for others must rise by 1.5 percentage points. For a $2,610 million transfer it must rise by 4.35 percentage points. With incentive effects, this rise in tax rates would substantially reduce household income, increasing the cost of the programme.

Worse, the proponents of filling in the poverty gap ignore the effect on work incentives of the transfers. The scheme imposes high effective tax rates on recipients. A policy that tops up to $23,000 the income of any household with income below $23,000 would impose enormous effective marginal tax rates over a substantial income range, diminishing work incentives for a large number of households.

All households would face an effective marginal tax rate of 100 percent for the first $23,000 of household income. Households below the poverty line would receive $23,000 no matter how much they earned themselves, destroying their incentive to work.

The transfer policy would also affect households above the poverty line, encouraging them to go on the programme. For example, a household earning $25,000 could cease work altogether and still get $23,000 from the government. In effect, the transfer payments impose a tax rate of 92 percent on their earned income. When they earn $25,000, their income has only increased by $2,000 – or even less once other taxes are taken into account (including the extra tax needed to finance the programme) – and the time spent working would not be available for leisure.

Many households would be affected. For example, 20 percent of households earn between $23,000 and $37,900. A household earning $37,900 only has $14,900 more income than if they did no work at all. In effect the transfer scheme taxes their income (if they work) at 60 percent (in addition to other taxes). Filling the poverty gap would encourage many households to give up work and go on the programme, increasing its cost and raising the taxes needed to finance it, thus reducing work incentives even further. Usually increasing the effective tax rate on some households allows lower tax rates on others. But the so-called Laffer curve effect applies; at some point a higher tax rate actually reduces the revenue raised. A 100 percent marginal tax rate is past that point. Filling the poverty gap implies benefit reduction rates so high that they increase the cost of the programme and require higher tax rates on others. Taking account of incentive effects, the net cost of filling in the poverty gap would be much greater than $2,610 million.

Ironically, even if the poverty gap were magically filled in with no incentive effects (as modelled by Blakely and Wilson), some measures of poverty used in New Zealand

would actually increase. For example, Easton suggests indexing the poverty line to average income.[40] But if everyone below the poverty line suddenly had their incomes increased to the poverty line, average income would increase, raising the poverty line. All those on the old poverty line would still be measured as in poverty, and so would those between the old and new lines.

2.9 Problems with using the household income distribution

The above analysis looks at what is required to redistribute from high-income to low-income households. It demonstrates that redistributing income is costly. Redistribution involves high effective tax rates and high efficiency costs, even with moderate elasticities of taxable income.

The idea is to illustrate the costs of redistribution that would be present whenever the government transfers income between households, not to endorse a focus on income and income-based poverty lines. A better measure of living standards is spending, which is more closely related to lifetime income or wealth.[41] Annual income is not necessarily a good indicator of either need or wealth and is less equally distributed than lifetime income.

In 2003/04, to be in the top quintile, the so-called rich, required a household income of $87,600 a year. The average household size in the top quintile is 3.4, so that could be a family with two workers earning $44,000 each, hardly enough to buy a luxury yacht – especially if the high earnings come only after years of working up the promotions ladder.[42] In fact, there was an average of 2.3 employees per household in the top quintile, which contained more than one-third of workers, six times as many as in the bottom quintile.[43]

Nor is low income necessarily a sign of poverty. For example, retired couples who own their own home and live off their savings may have a low income but a high standard of living.

A further problem with income measures is the amount of unreported income, such as earnings from the black economy.

Redistributing between households creates other efficiency costs not considered here. People can choose whether to set up a household. If the basis for receiving a subsidy were simply having a low household income, people would have a huge incentive to form separate households. Teenagers and university students would set up as

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40 See Easton (1999): "There is a case for indexing the poverty line for changes in mean incomes in the long run."

41 See Green (2001), pp 28–43; Green (1996), pp 47–50. See also subsection 2.7 above.

42 Based on Sowell (2000), pp 136–137.

43 Household Economic Survey standard tables, table 17.

independent households and claim the subsidy. Marital dissolution would be encouraged.

The incentive to set up a household to claim payments would be ameliorated by making the transfer depend on the household size and composition. It would be reduced further by categorical assistance, where grants are targeted at particular groups of people (the disabled, families, unemployed, etc).

All transfer programmes involve three related variables: the transfer size, abatement rates, and taxes needed to finance the programme. Categorical programmes are just variants of the linear income tax-transfer scheme restricted to a particular group. Efficiency costs may be reduced when transfers are made to groups with low labour supply elasticities (such as the disabled). On the other hand, the recent trend has been to expand income transfers to families with children, a group likely to have large labour supply elasticities (for example, there may be much flexibility in how many hours the mother works).

Further, it may also be difficult to determine whether someone fits into a category, encouraging growth in the subsidised category. For example, it is often difficult to determine whether someone should be entitled to benefits for the disabled.

The preceding analysis uses household income because income is a meaningful and measurable concept and it is actual income that is taxed, making it easier to cost policies, work out required tax rates, and calculate the incentive effects of taxes. As an empirical measure, it is better defined than family income. However, transfers within households, usually between family members, mean family income is a better guide to the welfare of individuals and children than is their individual income. Household income, conversely, may overstate the resources available to some individuals who share households with unrelated people. Further, it ignores transfers between households (for example, from parents to students living away from home).

It is unfair to compare the incomes of these households or to base income transfers purely on household income. The higher the income decile, the larger the average household size. Higher-income households simply have more people in them. Households in the top quintile are more than twice as large as those in the bottom; over one million people live in households in the top income quintile compared with 466,400 in the bottom quintile.[44] Almost two-thirds of households in the lowest quintile are single-person households, whereas more than two-thirds of households in the highest quintile contain three or more people.[45] It is not clear whether a small household with a lower income is really poorer than a large household with a higher income.

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44 Household Economic Survey 2003/04 standard tables, table 17.

45 Household Economic Survey 2003/04 standard tables, table 18.

This problem could be overcome by adjusting the amount of net transfers according to the size and composition of the household. That is done in practice, with welfare and family tax payments depending on family size and composition. But for a given transfer of income, the tax needed to finance it and efficiency costs would remain unchanged. Only the resulting income distribution would be different.

It would certainly be possible to come up with a pattern of transfers that lowers measured poverty by more than giving out per-household grants does. Poverty lines have an element of arbitrariness about them; the measured poverty rate is highly sensitive to the particular equivalence scale, poverty line and unit of analysis.[46]

The effect of income transfers on the distribution of income and poverty is usually judged by using equivalised household income.[47] Most researchers do not take account of the effects of the taxes needed to finance the transfers or indirect taxes. Working out the marginal cost of distribution from redistributing equivalised household income would take a computer simulation with data that are not freely available. For example, changes in equivalised household income must be translated into dollar amounts to determine the programme cost in dollars, and the tax rates required to finance it. Then the effects of the taxes would need to be converted into changes in equivalised income.

Using equivalised income would not change the result that redistribution involves high efficiency costs. The equivalised income distribution involves shrinking the income of households with more than two members and inflating the incomes of single-person households, making income more equally distributed,[48] which raises the marginal cost of redistribution.

2.10 Greater equality through human capital investment

The arithmetic of alternative ways to help the poor is equally sobering. For example, some suggest the government should help the poor by increasing their skills through government training programmes.

If the rate of return to a human capital investment is 10 percent, it would cost $10,000 to raise an individual's earnings by $1,000 a year. In 2003/04, the difference in average wage and salary income between a household in the bottom quintile and one in the quintile immediately above it was around $10,000. Lifting one household from the average of the bottom quintile to the average of the next would take an expenditure of $100,000, provided human capital investments with a 10 percent return could be found.

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46 Creedy and Sleeman (2004). In Statistics New Zealand (1999) the government statistician concludes "that a poverty line should not be an official statistic. A poverty line tells nothing of the changes in the degree of deprivation by those below it and risks oversimplifying our understanding of poverty" (p 90).

47 See box 1 in subsection 2.2.

48 See Buchanan and Hartley (2000). This claim makes sense because richer households tend to be bigger, as noted above.

Lifting 10,000 households would cost $1 billion yet would not reduce poverty by much overall – there are 299,500 households in the bottom quintile. It would take an enormous increase in expenditure for investment in the human capital of the poor to have much effect on poverty, even assuming investments with a high return could be found. In practice, the returns are likely to fall when such large amounts are spent.

If the disadvantaged are not receiving training, public training programmes are not the answer. They tend to have disappointing returns, either because the public sector is not good at providing what employers want in a cost-effective way or because it deals with workers who are of low ability and unmotivated (especially when they participate involuntarily). If the returns are low, then money spent on training programmes is largely wasted, although it may win some political benefit as a sign of good intentions.

The consequences of training programmes have been extensively studied in the United States. LaLonde (1995) summarises 20 years' research on programmes provided for the disadvantaged (mainly low-income unemployed), unemployed dislocated workers and welfare recipients. Programmes include counselling, work experience, job search assistance, and classroom training and remedial education. He concludes that modest investments yield modest gains, too small to have a significant effect on poverty rates. Larger investments are likely to have low returns.

Programmes are ineffective for some groups. The public training programmes yield low returns for adult men. A typical estimate of the effect on earnings of public training programmes and training subsidies for unemployed men is zero. There is little evidence that unemployed men who enter the programmes do any better than comparable males who do not (regardless of whether randomised trials are used). Research suggests job-search assistance for dislocated workers shows positive returns – it is cheap and leads to small earnings gains. Women do better; studies consistently show that they make small gains in employment and wage increases greater than the cost of training.

The returns for male disadvantaged youth are low and often negative. According to the results of one experimental evaluation, for example, a major US job training programme had "a more negative impact on the earnings of male youth than participation in the army, loss of work experience or the cost of incarceration as measured by many studies".[49]

The returns to an extra year of schooling are often around 10 percent, but current investments in schooling would only affect the distribution of income in the long run, over decades rather than years. The return to extra years of schooling is not the same as the return to extra government spending on education. In fact, the evidence suggests that, given the way government schools are currently organised and run, the returns to extra government spending are small, even negative. The evidence comes from a

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[49] Heckman (1999), p 32.

variety of sources, including studies on the effects of measured school inputs on academic outcomes, time series data, international comparisons, private–public comparisons and studies of the effect of school resources on earnings. For example, the returns from decreasing class size are often low. Extra resources could fail to improve performance in government schools because inefficient practices waste them, they are used in ways that do little to improve educational outcomes, or they are offset by other changes. For example, additional funding may be spent on extra bureaucracy, increased pay for ineffective teachers, or used to finance adverse curriculum and assessment changes. The lack of a relationship between inputs and outcomes is a sign that the current education system does not work well and needs reform.[50]

Moreover, increased government spending on education does not necessarily help the poor. Much education spending goes on the top household income quintiles.[51]

Further, increased spending on education by government may not even increase the quality of education poor children receive. Governments tend to spend on public provision of education: the student must undertake the particular type and amount of education offered at public schools in order to receive the subsidy. The result is to crowd out, or displace, private expenditure. Because government schooling is difficult to supplement, this crowding out may be greater than 100 percent; the public provision crowds out superior private education, especially because those who control government schools do not have the incentive or information to provide what parents want. They also have little incentive to control costs. Cost inefficiency reduces the amount of education the government spending buys. Moreover, the taxes needed to pay for the subsidy reduce families' incomes, further reducing private education spending. As a result, public provision may reduce the quality of education received by some children.[52]

Another problem with attempts to help children through educational spending is the likelihood of compensating parental behaviour. That is, if the government increases investment in children, parents may respond by reducing their own investment. For example, if the government provides enriched preschool care, parents may spend less of their own resources (time and money) on the child and more on themselves or their other children. They may even respond by having more children. As a result, government efforts to increase investment in children may have little effect.

At the higher education level, compensating behaviour by students may limit the effect of higher spending on educational attainment. Tuition subsidies lower parental pressure for good performance and students may respond to tuition subsidies with reduced effort.[53]

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50 See Harrison (2004) pp 182–194.

51 See Cox (2001), summarised in Harrison (2004), pp 173–175.

52 Peltzman (1973). See also Harrison (2004), pp 163–165.

53 See Sahin (2004).

The unsatisfactory performance of the government school system is most detrimental to those from impoverished backgrounds. A student who does not learn academic skills in the home environment is more reliant on learning them in school; because the system tolerates failure, it harms those in failing schools – usually the disadvantaged.

The key to improving schools is to increase competition between schools and to expand choice for parents.[54] Greater competition and choice would strengthen incentives for schools to perform and to improve. Students from poor families gain the most from choice, because they often start out attending the worst public schools and have the fewest alternatives.

54 See Harrison (2004).

3
THE BENEFITS FROM REDISTRIBUTION

3.1 Problems with the standard economic analysis

The standard economic analysis is a good tool for showing the cost of changes in consumption and work behaviour in response to income transfers and accompanying taxes. Yet it does not capture other effects of welfare. The standard economic model shows how welfare affects the utility, or well-being, of recipients assuming they have simple, given preferences over goods and leisure. Yet income transfers affect far more than consumption and hours worked. The standard model does not consider other determinants of well-being, irrational behaviour or the effects of past experiences and social interactions on preferences. Consequently, it actually understates the costs, and overstates the benefits, of income transfers.

In particular, the standard approach overstates the effect of income transfers on the well-being of the poor.

3.2 Happiness research

Standard economics uses observed behaviour to determine changes in utility. Economists focus on what people do rather than what they say. Happiness research, spreading from psychology into economics, uses surveys of subjective well-being. Large numbers of people are asked how satisfied they are with their lives or how happy they are on some scale (such as one to ten, or very happy, pretty happy or not too happy).[55] There are also measures of moment-to-moment pleasure and pain (experienced utility) in laboratory settings.[56] Here I focus on life satisfaction, agreeing with Murray that "happiness is lasting and justified satisfaction with one's life as a whole".[57]

The life satisfaction scores that result from this kind of research seem to mean something. Different measures correlate well with one another, are moderately stable and sensitive to changing life circumstances. They are, however, affected by current mood and immediate context. They correlate with objective measures of physiological and medical criteria. People who are more satisfied with their lives are less likely to get sick; they recover more quickly from wounds and sickness; and they are more likely to

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55 Frey and Stutzer (2002).

56 Kahneman and Krueger (2006).

57 Murray (2006), p 87.

show greater activity in parts of the brain associated with pleasure, smile, have their friends rate them as happy, sleep better, and be more sociable. Recent positive events are associated with reported happiness, while recent negative changes (such as chronic pain or being fired) are negatively correlated with it.[58]

Researchers treat the scores as a measure of well-being and regress them on different variables to identify the determinants of happiness. If errors and biases are random, the estimation results are unbiased. Although self-reported scores are not comparable between different individuals, reporting biases may even out in average happiness scores of large groups – but not if the bias is correlated with an explanatory variable (for example, if richer people are more modest about reporting how much happier they are becoming).[59]

Happiness scores cannot rise higher than the top of the scale, placing a ceiling on reported happiness levels.[60]

3.3 Happiness and income

One of the variables investigated in happiness research is income. Within a country, at any point in time, people with high incomes are happier (on average) than people with lower incomes. More income increases happiness, but at a diminishing rate. There is some evidence that the relationship is causal: that income causes happiness and not vice versa. For example, British lottery winners and people receiving an inheritance report higher mental well-being one and two years later.[61]

Differences in income explain only a small proportion of the differences in happiness among people.[62] Non-economic factors, such as health and personality, exert strong influences. For example, materialistic people tend to be less happy, optimistic people more happy. Much of the disposition to be happy appears to be genetic.[63]

The difference in happiness between the rich and poor is relatively small, as Adam Smith recognised:

> In ease of body and peace of mind, all the different ranks of life are nearly upon a level, and the beggar, who suns himself by the side of the highway, possesses that security which kings are fighting for.[64]

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58 Frey and Stutzer (2002), p 406; Kahneman and Krueger (2006), pp 6–9; Tella and MacCulloch (2006), p 28; Donovan, Halpern and Sargeant (2002), pp 7–8; Layard (2003), Lecture 1, p 11.

59 Tella and MacCulloch (2006), pp 29–30.

60 Tella and MacCuilloch (2006), p 29.

61 Frey and Stutzer (2002), p 410; Gardner and Oswald (2006); Donovan *et al* (2002), p 17.

62 Frey and Stutzer (2002), p 409.

63 Layard (2003), Lecture 2, p 19; Kahneman and Krueger (2006), p 8; Donovan *et al* (2002), pp 13–14; Frey and Stutzer (2002), p 410.

64 Smith (1759), part IV, ch 1, pp 8–10.

The effect that changes in income have on happiness is minor compared with the impact of other factors such as marriage, divorce and unemployment.

On the other hand, living standards depend on consumption, which depends on lifetime income or wealth, and is more equally distributed than annual income. Annual income differences exaggerate differences in material circumstances among people. Researchers who use annual income in their happiness regressions will get biased results, in the case of a single regressor, underestimating the effect of material goods on happiness.

In international comparisons, people in richer countries are, on average, happier than people in poor countries, but once a threshold is reached, the average income in a country has little effect on happiness. Happiness varies greatly across countries at the same level of development. Democracy, basic human rights and economic freedom increase happiness; upheaval reduces it.[65]

Within many western countries, per capita income has risen dramatically since World War II, yet average happiness has risen slowly or stayed constant (at high levels).[66] Over the same period, the incidence of clinical depression has increased.[67]

The main explanation for the failure of reported happiness to rise substantially as countries become wealthier is that happiness is judged relative to a subjective reference point. A person's reference point depends on their own past experience, their expectations for the future and comparisons with other people. Objective conditions are evaluated via a frame of reference that shifts over time.

Two important factors that shift the reference point when a society becomes wealthier are a process of habituation (or hedonic adaptation) and relative comparison with peers (or interdependent preferences). Both change aspirations. People adjust their expectations of life upwards as general prosperity increases. Some authors use the term 'hedonic treadmill' to refer to people's tendency to adapt their outlook to their new circumstances.[68] Really, though, it is just an illustration of the concept at the heart of economics – scarcity. Wants are limitless, and we can never satisfy them all. No matter how much they have, people always want more of something.

If you ask people how much income they would need to be happy or to make ends meet, they usually increase their current income by some proportion. For example, when asked how much income is enough, all workers tend to double their current

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65 Frey and Stutzer (2002), pp 416–419, 422–426; Donovan *et al* (2002), pp 9, 28–29; Norberg (2005), p 10.

66 Norberg (2005), p 11; Frey and Stutzer (2002), pp 413–414; Tella and MacCulloch (2006), pp 26–33; Donovan *et al* (2002), pp 15–17.

67 Layard (2003), Lecture 1, pp 19–20.

68 Kahneman and Krueger (2006), p 14; Donovan *et al* (2002), p 19; Graham (2005), p 47; Layard (2003), Lecture 2, p 6.

income.[69] That is rational behaviour. The goods that people consume and consider buying are appropriate to their current income. They do not waste time learning or thinking about consumption goods that they are unlikely ever to afford, so possession of those goods is not part of their picture of the good life.[70]

Rayo and Becker[71] argue habit formation and peer comparisons have been documented in every known human culture and result from an evolutionary process: natural selection favours a happiness function with a reference point to motivate the individual to seek goals that favour genetic replication.

Another consequence of peer comparisons is that rivalry is important: people care about status. Several studies have found a person's rank in the income distribution is more important to happiness than their level of income.[72] People care about their income relative to others and do not adapt to their relative position. People also care about absolute income. Economic growth that increases all incomes proportionally would make people happier, even though their relative position is unchanged.[73]

Others point out that if happiness is subject to framing effects, the frame of reference for answering questions about happiness may also shift. People may increase their standards for what 'happy' or 'very happy' means. That is, as wealth increases, both aspirations and reporting standards increase so that people gradually adapt their expectations to the utility they normally experience and report no higher life satisfaction, even though they are experiencing higher utility than before. If so, a flat trend in reported happiness is consistent with growing actual happiness. What it takes to report you are 'very happy' in 2006 could be different from what it was in 1950.[74] There is, however, some evidence that people have not changed the way they report happiness.[75]

Another possible reason for the failure of overall happiness to increase significantly since World War II is that other factors have offset the rise in income, such as increased unemployment, crime and divorce rates.[76] But studies that allow for trends in these other factors that affect happiness find that they should have increased happiness, deepening the puzzle of flat happiness.[77]

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69 Graham (2005), p 44. Easterlin (2004) claims, "When asked how much more money they would need to be completely happy, people typically name a figure greater than their current income by about 20 percent" (p 11).

70 Friedman (1990), p 24.

71 Rayo and Becker (2005).

72 Kahneman and Krueger (2006), p 8.

73 Tella and MacCulloch (2006), pp 33–35; Layard (2003), Lecture 2, pp 7–9.

74 Cowen (2005), p 14.

75 Kahneman and Krueger (2006), p 16; Tella and MacCulloch (2006), p 32.

76 Donovan *et al* (2002), p 18.

77 Tella and MacCulloch (2006), p 33.

Adam Smith anticipated many of the results of happiness research, recognising the effects of habituation and relative comparisons may mean increases in income do not permanently increase happiness. But he argued that striving for that higher income may benefit society:

> The poor man's son, whom heaven in its anger has visited with ambition ... admires the condition of the rich ... He is enchanted with the distant idea of this felicity ... and, in order to arrive at it, he devotes himself for ever to the pursuit of wealth and greatness … Through the whole of his life he pursues the idea of a certain artificial and elegant repose which he may never arrive at, for which he sacrifices a real tranquillity, that is at all times in his power, and which, if in the extremity of old age he should at last attain to it, he will find to be in no respect preferable to that humble security and contentment which he had abandoned for it. It is then ... that he begins at last to find that wealth and greatness are mere trinkets of frivolous utility ... In his heart he curses ambition, and vainly regrets the ease and the indolence of youth, pleasures which are fled for ever, and which he has foolishly sacrificed for what, when he has got it, can afford him no real satisfaction …
>
> And it is well that nature imposes upon us in this manner. It is this deception which rouses and keeps in motion the industry of mankind. It is this which first prompted them to cultivate the ground, to build houses, to found cities and commonwealths, and to invent and improve all the sciences and arts, which ennoble and embellish human life.[78]

3.4 Competition for status

Layard, an economist and a leading proponent of using government policy to promote happiness, argues that people care about relative income and when one person earns more, it makes others unhappy, creating a negative externality. If people care about their relative rank in the income distribution they may work long hours to raise their relative income. If everyone worked harder so that incomes increased proportionately, rank and status would remain unchanged and everyone would be worse off because they worked excessively. He claims:

> … if my income increases, the **loss** of happiness to everybody else is about 30% of the **gain** in happiness to me. This is a form of pollution, and to discourage excessive pollution, the polluter should pay for the disbenefit he causes. So the polluter should lose 30 pence out of every 100 pence that he earns – a tax rate of 30% on all additional income. Assuming the tax proceeds are returned to him through useful public spending, he will work less hard – and the self-defeating element in work will have been eliminated.[79]

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78 Smith (1759), part IV, ch 1, pp 8–10.

79 Layard (2003), Lecture 2, p 9.

Such a sweeping policy conclusion places a heavy weight on surveys and a few academic studies. Does the happiness research really justify a 30 percent income tax on everyone because of status competition?

In fact, Layard's policy prescription depends crucially on particular assumptions about how status is acquired, about how income is acquired and about preferences. Competition for status is consistent with efficiency and may even be beneficial for society. In particular, Layard neglects the role of prices.

Becker, Murphy and Werning examine the outcomes of competition for status when status can be purchased, either directly or indirectly.[80] They put a good called status (or some good that gives you status) in the utility function. It is in fixed supply and the more you consume of it, the higher your status. Although a person's utility depends directly only on their own status, it depends on that of others indirectly. Thus when someone acquires a lot of status, the availability of status to everyone else is reduced. If one person moves up in status, someone else must move down. But that would happen under any system of allocating the status good.

In their analysis, Becker *et al* assume that everyone has the same utility function, that utility depends on consumption and status, and that they are complements (a rise in status increases the marginal utility of income) so that status, income and consumption are positively related. As economic growth increases incomes, the marginal willingness to pay for status increases and the fixed supply of status becomes an increasing drag on utilities. For a given status, the marginal utility of income declines, explaining why happiness has not risen as fast as income.

Becker *et al* point out that if status could be purchased in a competitive marketplace, there would be no externality. The cost of acquiring status would be the purchase price, a transfer to the seller.[81]

They prove that if there is a fixed supply of goods valued solely for their effect on status, and status is assigned according to the consumption of these goods, the resulting outcome is the same as if there were an explicit market for status and there would be no inefficiency from the competition for status. The indirect acquisition of status through the purchase of status-producing goods is equivalent to being able to directly purchase status. For example, status could come from higher education levels, property in better neighbourhoods, purchases of diamonds, art and titles and so on.[82]

When the competition for status pushes up the price of a status good, there will be some inefficiency if resources are used to produce more of it or if it has intrinsic value.

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80 Becker *et al* (2000a, 2000b).

81 Becker *et al* (2000b) p 123.

82 Becker *et al* (2000a).

That is, it is efficient for status goods to be in fixed supply and have a low intrinsic value, as is commonly observed.[83]

Becker *et al* show that people will choose to participate in risky activities as they strive to improve their status, even when they have declining marginal utility of income. People would raise their expected utility through participating in fair lotteries, for example, and could even gain from unfair lotteries (explaining why so many people participate in them). They would choose favourable gambles if possible. Positive sum gambling could be pursued through human, physical and financial capital investments, utilising the productive risks in the economy. Examples include entrepreneurial efforts, stock market speculation, gambling, lotteries, crime and occupations with uncertain payoffs.

The risky activities change the distribution of personal income, consumption and status. Winners receive high income, high consumption and high status, losers low income, low consumption and low status, increasing the ex post inequality in the distribution of income, consumption and utility. The economy 'manufactures' inequality, converting the functional income distribution into the actual one.

If the initial functional distribution of 'full' income (used to buy consumption and status) is sufficiently compact and people can participate in fair lotteries, then the equilibrium distribution of consumption and the equilibrium covariance of consumption and status are the same for all initial income distributions within the 'compact' range. In this context, 'full' income includes the value of a person's status endowment and 'sufficiently compact' means that the equilibrium distribution of income is a mean-preserving spread of the initial distribution. The lottery determines the unique equilibrium distribution of status and consumption, which give the distribution of full income. Observed money income depends on the initial distribution of status.

Further, Becker *et al* show that their way of introducing status not only results in people undertaking risky activities, generating greater inequality; the results are also socially optimal. The unique equilibrium income distribution maximises a utilitarian social welfare function. The private choices of selfish market participants give the same outcome as the optimal distribution of consumption, status and income by a utilitarian social planner using lump-sum transfers. By contrast, identical utility functions, declining marginal utility of income and lump-sum transfers would mean, without status, that a social planner would maximise a utilitarian social welfare function by redistributing until all incomes (and consumption) were equal, which would not be the private market outcome.

Under Becker *et al*'s assumptions, public policies to reduce inequality would be ineffective. Polices that reduce inequality of final incomes and utility below the equilibrium level would be reversed through lotteries and other gambles.

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83 Becker *et al* (2000a) pp 32–33.

If, instead, status depends on the rank in the income distribution, as Layard assumes, and the initial distribution of income is sufficiently compact, the market will still produce a unique distribution of consumption, status and full income, supported by lotteries. But the result is not efficient, because there are now real externalities: people now directly care about the income and status of other people. A person who gambles to raise their rank lowers the rank of others when they win, and raises the ranks of others when they lose. The equilibrium distribution of income is no longer the socially optimal one. But because the gambling produces positive and negative externalities, the market outcome could involve too much or too little inequality compared with the utilitarian social optimum. If it involves too much inequality, attempts to increase equality would be offset by lotteries and other gambles, leaving the final distribution of income unchanged.

The equilibrium distribution of observed money income in societies where family background, race, religion and the like determine status endowments would be more equal than in societies where status is up for 'sale' rather than determined by family background and so on. In open societies, status endowments are more equally distributed, explaining the greater inequality and the appeal of risky activities in more open societies. Although the equilibrium distribution of consumption, status and full income would be the same in both societies, in open societies, status is purchased rather than inherited, and the distribution of observed income reflects the cost of status.[84]

Becker *et al*, argue that competition for status could even raise efficiency and allow society to work better where it encourages people to engage in socially valuable but uninsurable, and so underprovided, risky activities, such as entrepreneurship, innovation, research and development, scientific and start-up activities. Without the spur of gaining prestige and status if successful, there would tend to be underinvestment in these risky activities (indeed, some economists already call for them to be subsidised). Although 'rat race' aspects of competition for status exist, they argue that, on balance, the competition to get ahead makes a society function better.[85]

That is, there may be a reason why status is a powerful motive in any society where people interact. It may help motivate people to engage in risky activities that have beneficial effects on others (such as discovering new goods, production processes, or medical treatments), and so societies that reward higher incomes and other achievements with greater status do better.

If, as Layard assumes, status is gained through rank in the income distribution, then there could be excessive competition for status. If one person works harder to raise their status, that imposes a negative externality on those who lose status.

Excessive work is only one way to increase income. Becker *et al* emphasise the effect of choice and risk-taking on the distribution of income. Status-seeking through risky

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84 Becker *et al* (2000a), pp 27–28.

85 Becker *et al* (2000b), pp 124–125.

activities creates positive and negative externalities. It is not clear whether the positive or the negative is larger; that depends on how status enters the utility function.

To the extent that people compare their incomes with those of people in other countries, national policies cannot correct all status externalities and may exacerbate them. For example, if New Zealanders compare their incomes with Australians, a tax on income in New Zealand may cause them to fall even further behind and feel even worse.

Layard could point to envy as another reason why people directly care about the consumption and status of other people. When one person increases his income, others lose, creating a negative externality and a case for a tax on income. But if that is legitimate, what if the rich are spiteful and enjoy the envy of the poor? Or what if people benefit from distinguishing themselves from the crowd, and others do not care? There are many ways people can care about others' status and income.

It is not clear what envy, resentment and spite imply for income redistribution on balance, but it is clear that when they are common preferences, a powerful redistributive state is likely to generate much conflict and promote rivalry and hostility.

A constantly changing and unpredictable tax and transfer regime undermines property rights and a stable framework of rules and institutions, reducing the incentive for people to invest in capital formation and move assets to uses that are of highest value. When income redistribution is an important focus of government policy, elected officials and voters have less time and attention to devote to more essential functions of government. Redistribution is divisive, pitting groups against each other and encouraging rent-seeking, whereby resources are spent on political battles to influence policy.[86]

Trying to overcome envy through redistribution or suppressing income competition is unlikely to work. Envy is based on differences from other people. If income is equalised, people will focus on some other dimension and the process will repeat itself. The battle for status will still be present, but may now be channelled into less productive means.

The case for an income tax is to redirect effort from zero sum competition for status (where if one person improves his position, the gains they receive are offset by losses to others) towards non-positional activities, such as spending time with family. But the tax would not work if people substitute into other status-seeking activities that continue to create 'envy externalities'. For example, an income tax would only improve matters if people do not compare their leisure. Layard claims leisure is a non-positional good. But Lee argues many leisure activities involve relative competition and impose negative externalities on others.[87]

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86 Browning (2002), pp 522–524.

87 Lee (2005), p 395.

If it really is true that humans have evolved a naturally competitive nature, when competition for income is suppressed it is not clear why it would not surface in some other dimension, such as in the use of leisure. When work is made less important, more attention would be focused on these other dimensions. Further, these other outlets for competition would not necessarily be better for society than competition for income. For example, Mark Latham wrote about the effects of welfare dependency:

> All of us want some kind of status and belonging in our lives. Not everyone, however, takes their self-esteem from a positive contribution to society. People with little hope often seek recognition from destructive types of behaviour. They form groups with their own sub-culture and success signals. Doing well doesn't come from how many job promotions you receive or how many houses you buy. It comes from how many cars you can steal or how many drugs you take.[88]

Although the advocates of higher taxes assume status competition focuses on position in the income distribution, there are many ways people can seek and achieve status and they can often choose how they seek it. It can depend on wealth, income, occupation, or education; political, scientific, military, sporting or business accomplishments; dancing, music, goods consumed and so on. Not all create negative externalities.

David Friedman argues that status competition is not zero sum:

> It is true that my status is relative to yours. It does not, oddly enough, follow that if my status is higher than yours, yours must be lower than mine, or that if my status increases someone else's must decrease.[89]

Friedman argues what matters to you is your status as you perceive it. Whether you feel your status is high or low depends on how other people view you and which other people's views matter to you, which is to some degree a matter of choice. People can split into subgroups that pursue status in different ways. A musician may acquire status through the opinions of music lovers, which matter to him. At the same time, an accountant may acquire status from the opinions of his clients, whom he cares about. Both can experience high status that does not detract from the status of the other.

Wilkinson agrees that status competition is not zero sum, arguing that status has many dimensions that can be multiplied endlessly, and there is no overall common frame of reference to compare different people, or even different status groups. Who has higher status: captain of the All Blacks or chief justice of the Supreme Court? If the All Black captain raises his status with a match-winning try in the final of the World Cup, how does that reduce the chief justice's status?[90]

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88 Quoted in Sullivan (2000), p 10.

89 D Friedman's blog, *Ideas*, at: http://daviddfriedman.blogspot.com/2006/10/economics-of-status.html (last accessed November 2006).

90 See W Wilkinson's blog, *The Fly Bottle*, at: http://www.willwilkinson.net/flybottle/2006/10/31/the-great-chain-of-status (last accessed November 2006).

As Wilkinson points out, liberal market economies create new dimensions of status competition that do not necessarily take status from the old ones, liberating us from zero sum positional conflict.

> Once we recognise the anarchic multi-dimensionality of status, the frequent supposition of Frank, Layard, Cassidy, and others that the distribution of income – whether within the office or within the nation – is the main dimension of positional competition begins to look bizarre. Struggling artists do not doubt their superiority in the face of successful accountants. And it should not need pointing out that many of us simply don't know how much our friends make, and don't much care.[91]

It is within our power to opt out of particular status races and compete for status on a different dimension.

Even within a group or domain, Wilkinson argues, total status is not fixed and status competition need not be zero sum. A group may have many dimensions of status so that most members are high status on some dimension. Thus a member of the group could gain status on one of these dimensions without lowering the status of other group members.[92]

The relevant externality from, and appropriate tax on, status competition is not as large as Layard thinks. Becker *et al* establish that competition for status can be efficient and beneficial for society. Their argument is strengthened when it is recognised that status competition is not a zero sum game and occurs over more than one dimension. Status competition over many, and multiplying, dimensions of status creates incentives for people to put effort into activities with beneficial effects for others, whether it is inventing a new product or trying to be the best jazz trumpet player. The many status competitions encourage people to pursue activities they are good at and minimise the negative externalities from status competition.

The trick is to direct status seeking into the most socially productive competition. It is not clear whether an income tax would direct effort into activities with greater social benefits. Lee argues competition for income is a relatively benign form of competition, which produces positive as well as negative externalities. It increases overall wealth, improving everyone's standard of living and creating benefits for all, such as reduced child mortality and longer life expectancy. Historically, people put more energy into dominating others and fighting over religious truth before they were distracted into pursuing money.[93]

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91 Wilkinson (2006).

92 See W Wilkinson's blog, *The Fly Bottle*, at: http://www.willwilkinson.net:80/flybottle/2006/01/02/the-strange-myth-of-finite-status (last accessed November 2006).

93 Lee (2005), pp 396–399.

Certainly the political process involves a great deal of rivalry and zero sum competition. When taxes are raised and the government controls a greater share of the economy, it encourages more effort to be put into political competition. Why wouldn't competition to control the distribution of government-provided goods create negative externalities? For example, people could use their leisure time to lobby for government spending that favours them, imposing costs on those whose share of government spending falls.

3.5 Conclusions for welfare policy

Even the advocates of higher taxes do not claim that happiness research supports a case for greater income redistribution. Their objective is to make those who overwork happier, not to help the poor. Excessive work is not a problem usually associated with welfare recipients.

In fact, the happiness research undermines the case for redistribution. The notion that underlies the equality justification for income transfers is that a dollar is worth more to the poor than the rich, so that it would increase overall happiness to transfer a dollar from the rich to the poor. It is a promise to make the poor happier. Although there are practical problems with implementing this notion, such as the difficulty of measuring who is poor and who is rich and the ongoing doubt over the validity of interpersonal comparisons of utility,[94] the happiness research raises an additional, fundamental objection: if happiness does not vary greatly with income, redistribution will not make much difference to happiness.

Indeed, if people's aspirations completely adapt to rises in income, then income transfers will not raise happiness among the poor at all. But it is not all bad news, as the well-being gaps between rich and poor are small, something that makes the focus by the political left on income redistribution even more puzzling.

If redistributing income does not produce benefits, it may still have costs. Even if adaptation to rises in income were complete, the research does not say that people adjust to falls in income. Losing the lifestyle once taken for granted can create unhappiness for those losing from redistribution. People are more sensitive to losses than to gains.

Further, the factors that research shows do promote happiness – marriage, achieving something yourself, being engaged in useful work, good prospects for your children, self-respect, self-reliance, safety, self-fulfilment, social connections, and belief that you have control over your life – are often undermined by current welfare policy.

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[94] These reasons are summarised by Buchanan and Hartley (2000), pp 112–120. For example, they show that annual income may be a deficient measure of how well off someone is.

For example, marriage (and remarriage) has a strong positive and long-lasting effect on happiness, and marriage dissolution (by divorce or death) a permanently negative effect. Studies have consistently found that married people are happier than those who have never been married and those who are divorced, separated or widowed. This difference in happiness does not appear to be caused by any tendency for happier people to be more likely to marry. Further, full habituation or adaptation do not seem to occur with marriage. Most people aspire to a good marriage, and their aspirations persist even when their chances of a good marriage become very low.[95]

Yet current welfare policies discourage marriage by subsidising single motherhood and encouraging family break-up.

If increased income has only a limited effect on happiness, it is likely that income transfers have even less. Major sources of happiness include self-respect and self-fulfilment from achieving something yourself and a sense of control over your life.[96] Welfare transfers do not promote any of these qualities, perhaps the opposite.

The traditional view of happiness is that it is a way of travelling, not a destination. Directly seeking happiness does not produce it. Happiness is a by-product of other goals. Indeed, the happiness research shows that people are happiest when they are creative and absorbed by a challenging but do-able activity. For some, working life offers these opportunities, and also provides social connections. Further, unemployment is especially bad for happiness, which is why even Layard opposes unrestricted welfare payments.[97]

Welfare programmes penalise work and discourage recipients from acquiring work experience and developing a work ethos. Benefit recipients risk becoming unemployable and trapped in poverty: welfare programmes create dependency and discourage self-reliance and independence. Working less now reduces future earnings and the chance of becoming self-sufficient. People acquire fewer job skills when they are out of work for a prolonged period, or work part-time or intermittently.

Receiving money without working does little for happiness, which explains why the growth of the welfare state has not increased happiness.[98]

Welfare payments do not bring happiness because recipients do not get the satisfaction of earning income and because being on welfare does little for their children's prospects. When the government controls important aspects of your life, it discourages attitudes likely to lead to a satisfying and happy life.

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95 Easterlin (2003), pp 6–21.

96 Donovan *et al* (2002), p 31; Norberg (2005), p 13; Murray (1988).

97 "… any job is better than no job. That is something which you are not allowed to say in France or Germany at present, but the evidence supports it. That is why I believe strongly in welfare-to-work". Layard (2003) lecture 3, p 5.

98 Norberg (2005), pp 12–13.

A widespread view is that welfare is actually bad for recipients – that it makes them worse off in the long run and they become incapable of supporting themselves. This line of argument presumes that people do not know their own interests, that they go on to welfare programmes that eventually make them worse off. It is easy to agree that a teenager who decides to get pregnant and have a child so that she can go on the domestic purposes benefit and drop out of school may not be following her true interests. Yet such a view is inconsistent with standard economics, which would say that giving the poor a bigger opportunity set (the choice of receiving income transfers) must make them better off. Even if welfare offers a choice with immediate benefits and uncertain long-term costs, if people make choices optimally they would take it up only if they expect to be better off. Standard economics would also assume that people have accurate and unbiased expectations about the future costs.[99] But behavioural economics argues that standard economics is wrong: that people can be irrational, have judgment biases and lack willpower, and that these traits have a profound effect on how they act.

3.6 Behavioural economics

Behavioural economists maintain that most people do not always act in their own interests. People are subject to judgment biases and self-control problems. They may have imperfect memories, discount the future excessively, make erroneous calculations and be influenced by how questions are framed. Judgment biases include mistaken beliefs, at odds with logic or established facts. Two important biases are self-serving bias and biased risk estimates. People tend to be over-confident in their own judgments and put too much emphasis on small risks and not enough on large ones.[100]

For example, behavioural economists argue that people make systematic errors of judgment about the factors that lead to their long-term happiness. Specifically, people overestimate the benefits to be gained from more income, comfort and positional goods, because they underestimate how hedonic adaptation and social comparison will raise their aspirations. As a result, they allocate too much time to chasing these goals, which have little lasting impact on happiness, sacrificing family life and health, for which aspirations remain fairly constant as actual circumstances change.

Further, self-control problems and a focus on immediate gratification reduce future happiness. We over-indulge in activities with immediate rewards and delayed costs, such as eating and television watching. We procrastinate too much over activities with immediate costs.[101] People with self-control problems predictably regret their choices. Giving people with these problems more choice can make them worse off.

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99 Beaulier and Caplan (2002), pp 3–4.

100 Beaulier and Caplan (2002), pp 9–10; Becker (1996), p 22.

101 See, for example, Frey, Benesch and Stutzer (2005).

Behavioural economists argue that people would be happier if forced to spend less time chasing material gains and positional goods and to devote more time to family life, health, and non-positional and cultural goods.[102]

Some economists argue for taxes to achieve these aims. For example, Layard suggests at least 30 percentage points be added to income taxes to account for habituation (on top of the 30 percent to account for relative income externalities).[103] That is, he claims an effective marginal rate of 60 percent could be levied to finance government-provided goods with no efficiency cost, as the resulting reduced work effort is desirable. If so, the marginal cost of redistribution would fall substantially.

When people are directly concerned about others' status and income, there are real externalities and the government could, hypothetically, intervene to increase efficiency. In contrast, the adaptation argument for government intervention is not so that the government can combat externalities imposed on others, but on the grounds that people do not fully consider the costs that their problems of self-control and errors of judgment impose on themselves in the future, so-called 'internalities'.[104] The claim is that people systematically underestimate the extent to which adaptation will reduce their happiness. If people were rational, there would be no case for the government to intervene. That is, the motivation is paternalism, "the interference of a state or an individual with another person, against their will, and justified by a claim that the person interfered with will be better off or protected from harm".[105]

Policies to force people to work less for their own good are controversial. Does the state have the knowledge and incentive to devise and implement policies that would make us happier according to our own preferences? The optimal policies involve trading off current against future utility. Would a government policy really be better at solving these problems and choosing the correct trade-offs than the individuals concerned, who know their own particular preferences and circumstances? There is much diversity, and a single government policy cannot be best for all.[106] A tax certainly would make those people who do correctly account for future adaptation worse off.

Further, a tax would only improve long-term happiness if it led people to substitute into activities for which adaptation is not important. Lee argues that most activities do not permanently increase happiness: "achieving happiness is an ongoing project, not something that can be accomplished once and for all".[107] For example, if the government used the proceeds of higher taxes to provide more public transport, health

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102 See, for example, Easterlin (2003), pp 23, 27; Donovan *et al* (2002), p 35; Layard (2003), Lecture 2, pp 6–7.

103 Layard (2003), Lecture 2, p 11.

104 Whitman (2006), p 1.

105 Dworkin (2005).

106 See Whitman (2006), p 13, for more on the huge informational requirements needed for optimal policies.

107 Lee (2005), p 394.

insurance, music and art, as some economists call for, would they provide lasting happiness? Or would people soon adapt?[108] The proponents of higher taxes present little evidence on this crucial issue.

The habituation argument for taxation assumes people are ill-informed about the true sources of happiness and are making the wrong decisions. If the government has superior information, why not release it? Why not simply tell people that positional goods do not increase happiness, and let people decide for themselves whether to purchase these goods? Alternatively, there may be ways the government could facilitate private self-control.

Although people may sometimes misjudge their own welfare, sometimes in predictable ways, at least they can be trusted to give their own welfare a high priority. By contrast, political decision-makers are likely to follow their own interests.[109] It is difficult to design appropriate policies that are not open to capture by special interest groups.

Glaeser argues that flaws in human cognition should make us more, not less, wary about trusting government decision-making:

> Endogenous cognitive errors increase the advantage of private decision-making over public decision-making, which suggests that recognizing the limits of human cognition pushes us away from, not towards, paternalism. In these models, as the bounds to human rationality increase, the quality of government decision-making decreases even faster than the quality of private decision-making.[110]

Errors are frequent in political markets, and more difficult to correct. If the error comes from the influence of a small number of firms, they may well find it easier to persuade a small number of political decision-makers than a vast number of consumers.

Would there be any political pressure for paternalistic policies? Why would people vote for policies they reject when making choices over similar issues in their own lives? How well would the political process work when voters are the same myopic, irrational people considered unable to run their own lives? Why would they make better decisions on whom to vote for, especially when the benefit to them from acquiring information on political issues is so low?

Economic freedom is correlated with happiness, but it is reduced by government taxes and regulation. Would a society where the government has such control over your decisions really make you happier? Is it a good idea to put that kind of power in the hands of politicians?

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108 See Lee (2005), p 391.

109 D Friedman's blog, *Ideas*, at: http://daviddfriedman.blogspot.com/2006/11/obesity-wireheads-and-case-for-and_03.html (last accessed November 2006).

110 Glaeser (2006) p 134.

3.7 Economic growth

Some economists draw the conclusion from happiness research that "the pursuit of rapid economic growth as a policy is questionable".[111] Imposing taxes to discourage income-producing activities would certainly reduce economic growth. Yet a slowing of the growth rate could reduce happiness.

Norberg (2005) points out that a lack of hope and opportunity correlate strongly with unhappiness. For example, people in communist countries were much more miserable than those in other countries on the same income level.

People become worse off when their aspirations about the future are not met. What makes people happy is the chance to improve their own, and their children's, standard of living – the hope that tomorrow will be better. For example, if they believe it will bring a better future for their children, immigrants are often willing to come to a country where they will be relatively poor rather than go to, or stay in, countries where they will be relatively rich.

Economic growth creates a belief in the future. For example, there was a large surge in measured happiness in western countries in the period immediately after World War II when their economies started growing rapidly.[112] Although measured happiness levels in most western countries have grown slowly since then, that does not mean economic growth contributes nothing to happiness. It could be that ongoing growth makes us hopeful for the future and maintains happiness at high levels.[113] Reducing growth runs the risk of reducing happiness.

Economic growth provides the potential for everyone to gain relative to their own experience, and to focus less on relative position. Growth allows people to derive satisfaction by comparing their present income with their former income. Even if a rise in income only raises happiness temporarily, that is still more happiness than zero growth can bring.

Growth fosters greater opportunity and social mobility. In a zero growth economy, one person's gain may well be at someone else's expense, generating resistance to social mobility. When growth stops people lose the sense that they are getting ahead in their own lives, and that a better future awaits their children. Worse, they now judge their lives solely by comparisons with others, fuelling envy and resentment and making the battle for status more bitter.[114]

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111 For example, Easterlin (2003), p 23.

112 See Oswald (1997), table 1, which presents the surge in happiness in the United States from 1946 to 1956, when the percentage declaring themselves "very happy" rose from 39 to 53 percent, and the proportion declaring themselves to be "not very happy" fell from 10 to 3 percent.

113 Norberg (2005), p 11.

114 See Kerr (2006a).

As happiness research draws upon a fixed pool of people in relatively normal circumstances, it does not measure many of the benefits of growth. For example, dead people cannot complain about their situation in a questionnaire.[115] Even if people are no happier, a richer economy helps them live longer. Further, there is more to life than happiness.

3.8 Happiness isn't everything

> Nobody's happy in this town except for the losers. Look at me, I'm miserable, that's why I'm rich.
>
> Ari Gold on Hollywood[116]

A wealthier economy generates longer life expectancy, better health, better education, more leisure, less hunger, lower infant mortality, cleaner environments, improved jobs, better communication and more travel, and is better placed to mitigate (and prevent) extreme tragedies.[117] Even if people adapt to a better world and it does not increase their long-term happiness, improvements in the standard of living may still be beneficial. Even if we are no happier, are we really no better off? Surely reduced sickness and deaths of close family members are worth something?

Further, a richer economy allows increased defence capabilities against foreign aggression, which provides a benefit even if it does not make us happier.

Taking better health and fewer accidents as one example, economist Dan Ariely reflects on his personal experience as a severe burns victim, which meant he has faced years of extreme pain, disfigurement, hospitalisation and emotional turmoil. Although he has adapted and considers himself relatively happy in day-to-day life, and would give a high score in a happiness survey, "there is not a day in which I do not feel pain, or realize the disadvantages in my situation".[118] He would be willing to pay a lot to have avoided the injury, a perspective not captured in life satisfaction surveys.

Layard assumes all that matters is how happy people are. According to this line of reasoning, if working hard does not bring happiness, it is considered a mistake. But perhaps it reveals that other things matter. For example, happiness research suggests having children, especially when they are babies and teenagers, reduces average daily happiness. When most married couples have children they become less happy, returning to their initial levels of happiness only after their children grow up and leave home. People are less happy when they are interacting with their children than when they are eating, exercising, shopping or watching television. Indeed, an act of

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115 Cowen (2005), pp 16–17.

116 *Entourage*, season 2

117 Cowen (2005), p 16.

118 Ariely (undated), p 23.

parenting makes most people about as happy as an act of housework.[119] Yet most people do not regret having children, nor would many be willing to become happier if it meant one of their children had never been born. Similarly, few people would be willing to lose a talent or reduce their IQ in order to become happier.

Robert Nozick proposes a thought experiment where neurophysiologists have invented an experience machine that stimulates the brain to give us whatever desirable or pleasurable experiences we could possibly want. When plugged into the machine, we would not be able to tell that these experiences were not real. He asks whether, if given the choice, we would choose the machine over real life. Rejecting the machine demonstrates happiness is not everything.[120] Yet most people would reject the machine. One recent survey of Australians supports this conclusion: it found that if an over-the-counter, legal happiness drug with no side effects were available, 73 percent would definitely or probably not take it on any occasion.[121]

Reasonable people could disagree on whether the government should, and could, adopt policies to promote or maximise happiness. But surely we should all agree that the government should not maintain costly policies that pander to people's flaws and encourage them to act against their long-term interests. Beaulier and Caplan argue that welfare policy does just that.

3.9 Behavioural economics and welfare policy

The behavioural economic approach makes sense of arguments that welfare can make recipients worse off.[122] The decision to go, or stay, on welfare may involve an error of judgment. Going on to welfare involves immediate gains and delayed costs. The future costs are easy to underestimate. For example, people may think they will not like work as much as they like staying at home, but underestimate how their preferences will adapt once they start work or how they will advance in their jobs to better paid and more appealing work. Or they may underestimate the adverse effect of a stint on welfare on an employer's willingness to hire them and on their long-term wage growth. Teenage girls may underestimate the difficulty of raising a child on their own.

Further, there are good empirical reasons to believe that behavioural economics tells us more about welfare recipients than about the rest of the population. Specifically, welfare recipients have more extreme judgmental biases and self-control problems than the general population. Their deviations from standard economic assumptions about behaviour are especially pronounced. The social pathologies of crime, substance

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119 Gilbert (2006).

120 Nozick (1974), pp 42–45. For a summary, see the entry in Wikipedia, available at: http://en.wikipedia.org/wiki/The_Experience_Machine (last accessed November 2006).

121 See Hamilton and Rush (2006).

122 Beaulier and Caplan (2002), pp 6–14.

addiction, and illegitimacy are more common among welfare recipients, and are linked to impulsive behaviour that develops in a culture of poverty and low IQ.[123]

Welfare programmes that harm their recipients in the long run will attract those with self-control problems who find the short-term benefits too tempting to turn down, those who most heavily discount the future, and those who overestimate their ability to pursue their long-run interests while on welfare.

As Murray says:

> In the end, all these changes in behavior were traps. Anyone who gets caught often enough begins going to jail. Anyone who reaches his mid-twenties without a record as a good worker is probably stuck for the rest of his life with the self-fulfilling prophecy he has set up – it is already too late for him to change the way he thinks about himself or to get others to think differently of him. Any teenager who has children and must rely on public assistance to support them has struck a Faustian bargain with the system that nearly ensures that she will live in poverty the rest of her days. The interconnections among the changes in incentives I have described and the behaviors that have grown among the poor and disadvantaged are endless. So also are their consequences for the people who have been seduced into long-term disaster by that most human of impulses, the pursuit of one's short-term best interest.[124]

The case for welfare payments is weaker when those income transfers encourage people with judgmental biases and self-control problems to act in ways that harm their long-term interests. Even if welfare, on balance, does not harm the recipients, these problems reduce the gains from paying income transfers.

Welfare may be bad for some recipients, and people may wrongly choose to go on welfare. But what if we, as the Child Poverty Action Group urges, "think of the children"?[125] Children do not choose to go on to welfare, and surely it is unfair to cut benefits or tighten eligibility and make them suffer?

3.10 Murray's thought experiment

A prominent welfare critic, Charles Murray, proposes the following thought experiment:

> Imagine that you are the parent of a small child, living in contemporary America, and in some way you are able to know that tomorrow you and your spouse will die and your child will be made an orphan. You do not have the option of sending

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123 See Beaulier and Caplan (2002), pp 5–6, 15–20; Herrnstein and Murray (1994), pp 127–268 (chs 5–12).

124 Murray (1984), p 176.

125 This was the title of the group's press release available at: http://www.cpag.org.nz/news/cpag-news/nr1115334266.pdf (last accessed November 2006).

> the child to live with a friend or relative. You must select from among other and far-from perfect choices …
>
> Suppose first this choice: You may put your child with an extremely poor couple according to the official definition of "poor" – which is to say, poverty that is measured exclusively in money. This couple has so little money that your child's clothes will often be secondhand and there will be not even small luxuries to brighten his life. Life will be a struggle, often a painful one. But you also know that the parents work hard, will make sure your child goes to school and studies, and will teach your child that integrity and responsibility are primary values. Or you may put your child with parents who will be as affectionate to your child as the first couple but who have never worked, are indifferent to your child's education, think that integrity and responsibility (when they think of them at all) are meaningless words – but who have and will always have plenty of food and good clothes and amenities, provided by others.
>
> Which couple do you choose? [126]

Most people would choose the first – poor but virtuous – couple. Murray suggests many would choose the first couple even if the second couple were very rich. Why would parents choose hunger and rags for their child rather than wealth? Murray proposes that what we want for our children is for them to become reflective, responsible adults who value honesty and integrity, because ultimately that is the best way for them to achieve self-respect and fulfilment in their lives – that is, the best way to pursue happiness. He argues:

> In deciding how to enhance the ability of people to pursue happiness, solutions that increase material resources beyond subsistence independently of other considerations are bound to fail. Money per se is not very important.[127]

He suggests that public policy should worry about more than just providing money. Imposing greater material hardship may be justified if it leads to more of the first type of parent and fewer of the second. The kind of person that is encouraged to have children by welfare payments is precisely the type of person unlikely to pass on values such as self-reliance and self-restraint to their children.

Further, welfare policy influences family structure, encouraging family breakdown, single parenting and illegitimacy. This impact is a concern because:

> … family structure affects outcomes for children in a statistically consistent manner, even after controlling for the usual suspects of income and race. The best results, whether the measure is academic performance, drug use, criminality, income as adults, or just about anything else, are produced by married biological parents. The next best results are produced by divorced single mothers and remarried mothers. There isn't much difference between the two – statistically, stepfathers don't seem to help much. The worst results are produced by never-

126 Murray (1988).

127 Murray (1988).

> married women. "Never-married women" in these studies has been defined to include cohabiting women.[128]

If the second couple did not appeal to you, how much worse would it be to place your child with a single parent with the same characteristics – say your son in a fatherless family? And how would you like your child to grow up in a community where many other such families live? Some regions have concentrations of welfare recipients.[129]

There is a trade-off. More assistance to single mothers can help raise the living standards of their children, but it also encourages more single-parent families, which could increase poverty.

We need to worry about the incentives created by welfare programmes and be careful about supporting policies that condemn more children to a fate we would not choose for our own children.

Murray's thought experiment also reminds us of something else relevant to welfare policy: childhood experience and environment help shape preferences. Values are transmitted to children.

3.11 Endogenous preferences

> A young woman was charged with assault, under the influence of alcohol and marijuana, on a very old lady about five times her age. Describing her childhood, the young accused mentioned that her mother had once been in trouble with the police.
>
> "What for?" I asked.
>
> "She was on the Social [Security] and working at the same time."
>
> "What happened?" I asked.
>
> "She had to give up working."
>
> Theodore Dalrymple[130]

Nobel prize winning economist Gary Becker argues that although cognitive imperfections are sometimes important, they have received excessive attention; it is more relevant to model how past experiences and social interactions shape preferences, values and attitudes. Childhood and other experiences, culture, the attitudes and

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128 Murray (2001). For surveys of the evidence, see also Morgan (2004), chs 7 and 8; Morgan (2000); and Civitas (2004).

129 Morgan (2004), p 174.

130 T Dalrymple (2006).

behaviour of others and other social interactions frequently place more far-reaching constraints on others than do mistakes and distortions in perceptions.[131]

Becker incorporates experiences and social forces into preferences through personal capital and social capital. Personal capital includes the relevant past consumption and other personal experiences that affect current and future utilities. It includes, but is not limited to, the effects of habituation. Social capital incorporates the influence of social interactions, such as culture, norms and social structure. It includes, but goes beyond, relative comparisons with peers and others in an individual's social network.[132]

Welfare programmes can corrupt the values of their participants. For example, they can discourage the self-reliance and independence of recipients, which can have a large effect on preferences. Virtues such as work and a concern for one's reputation are encouraged when people must make decisions, provide for themselves and take responsibility for their own actions. Those on welfare programmes can lose, or never develop, the habits necessary to hold down a job – habits as simple as waking up to an alarm and getting to work on time. Needed job skills such as diligence, initiative, responsibility, cooperation and punctuality are developed only by working for a prolonged period at a job or in an occupation.[133]

Welfare often corrupts the values of the children of welfare recipients. Parents have enormous influence over the experiences of their children, especially in the formative early years, and these childhood experiences can greatly influence adult preferences and choices. Becker points out that:

> Children use their parents as role models and absorb their parents' values. The values acquired by children have a much larger effect on their employment, education, and other achievements as adults than the amount of money their parents have.[134]

Many eligible families choose not to go on to welfare, perhaps because they anticipate the future adverse effects of receiving benefit payments on themselves and their family through the development of dependency and other bad habits. In the United States, it seems that one in every four families eligible for welfare does not participate in the system. Becker concludes:

> If this is true, then families who do join the welfare rolls tend to be the ones who are least concerned about their children and least willing to help themselves. They most need financial pressures – both carrot and stick – to induce them to take better care of their children.[135]

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131 Becker (1996), p 22.

132 Becker (1996) is a collection of his papers on this theme. Becker and Murphy (2000) extend the analysis of social capital.

133 Becker and Becker (1997), pp 95, 101.

134 Becker and Becker (1997), p 96. See also Becker (1996), p 10; Mayer (1997).

135 Becker and Becker (1997), pp 101–102; see also pp 95–96; Becker (1996), p 21.

People most subject to cognitive and self-control problems are most likely to respond to the perverse incentives of welfare programmes. They are the most likely to pass on unproductive values to their children, creating a culture of poverty and problems for the future. For example, people who heavily discount the future are the most likely to ignore the potential adverse effects of welfare on their future and the least likely to train their children to be aware of the future consequences of their choices.

Welfare programmes subsidise destructive attitudes, bad habits and unproductive lifestyles, encouraging their development and discouraging their modification. Because welfare programmes subsidise the downside of risky decisions, they may encourage more people to make risky lifestyle choices, such as taking drugs, leading to more cases of hardship in the future.

The standard economic approach ignores the effect of the welfare state on the preferences and morality of the whole population. The combination of welfare handouts and high taxes undermines the whole population's work ethic and self-sufficiency. Work ethic is a tradition-habit that builds up over time, under the influence of examples set by parents and others. High effective tax rates may have little impact on work in the short run, but over time high taxes break down slowly accumulated work habits. Estimates of labour supply elasticities understate the long-run effect of high tax rates. Further, once eroded, good work habits are difficult to resurrect.[136]

Further, the welfare state reduces savings, as the habit of thrift decays if there is no penalty for not saving. As Murray summarises:

> The welfare state produces its own destruction. The process takes decades to play out, but it is inexorable. First, the welfare state degrades the traditions of work, thrift, and neighbourliness that enabled a society to work at the outset; then it spawns social and economic problems that it is powerless to solve. The welfare state as we have come to know it is everywhere within decades of financial and social bankruptcy.[137]

The adverse effect of income transfers on the work ethic and savings could reduce growth rates.[138] The bottom quintile receives around 5 percent of household income. To transfer 1 percent of household income to people in that quintile, raising their share to 6 percent, would require a uniform increase in effective tax rates of at least 6.5 percentage points (when there are no incentive effects), and probably substantially more (when the elasticity of taxable income is 0.5, the average tax rate would increase

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136 Becker (1996), p 125.

137 Murray (2006), pp 3–4.

138 Cowen (2005) lists other reasons why welfare transfers would lower growth, such as an adverse effect on innovation.

by over 10 percentage points).[139] Say this redistributive scheme decreased growth by 1 percentage point a year.[140] If, as the evidence suggests, the share of income accruing to the bottom quintile stays constant as the economy grows,[141] then after 19 years, average income would be 20 percent lower than it would have been without the scheme and the 6 percent share of the lowest quintile would give the same amount of income as a 5 percent share would have given at the higher growth rate. After 19 years, the lowest quintile would actually get less than it would have with no extra redistribution but higher growth. Most households would have their income reduced from the extra redistribution long before 20 years (the top two quintiles lose from year 1), as most households in the lowest quintile are there only temporarily.

When redistribution lowers growth, there is a trade-off between the current poor and future poor. The redistributive scheme makes the current poor better off, but the future poor worse off.[142] Although 19 years seems a long time (and if the growth rate fell by less than 1 percentage point, it would take longer for the scheme to reduce the income of the bottom quintile), the present is the 'long run' of years gone past. We are already suffering the consequences of redistributive schemes introduced more than 20 years ago. If those schemes lowered growth, today's poor could be receiving lower incomes than they would have received had the schemes never been introduced.

3.12 Promoting equality or alleviating poverty?

A case for the government to redistribute income arises because the external benefits from giving may result in too little charitable giving. For example, assume everyone in society wants to see poverty alleviated. People could donate money to alleviate poverty according to their own values. What is the case for government intervention? If one person alleviates a family's poverty, then everyone who cares about the poverty of that family benefits. If the donors do not take account of these benefits to other people, then there may be too little giving – and not enough poverty alleviation – in the private market.

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139 The 6.5 percentage point figure comes from section 2.4. When the initial tax wedge is 35 percent, a 10 percentage point increase in the tax rate would lower the after-tax wage rate by 0.1/0.65, or 15.5 percent. With an elasticity of taxable income of 0.5, income falls by 7.7 percent. The revenue raised would be the same as that raised by a 6.5 percentage point increase with no incentive effects. But pre-tax income has fallen, so it would take an even higher tax rate to increase the bottom quintile's income by 1 percent of initial household income.

140 Kerr (2006b), p 6, cites two estimates of the effect on growth of a 10 percentage point increase in the share of government. First, Bates (2001) estimated that reducing the lowest quality government spending by 10 percentage points could add 0.5 percent per annum to the growth rate for a 10- to 25-year period. Second, Tanzi and Schuknecht (2005) found, for the 1960 to 2000 period, that a 10 percentage points increase in the government spending to GDP ratio tended to reduce a country's long-term growth rate by 1.5 percent per annum. The estimate here, 1 percent, is halfway between the two.

141 Dollar and Kraay (2002).

142 Cowen (2005); Browning (2002), pp 518–519.

It is possible for everyone to be better off if the government forces extra giving to those in poverty. Although some individuals lose by being forced to give more than they want, they benefit from the increased giving to alleviate poverty by other people. How the government should intervene depends on the preferences of donors. If people cared about equality, the market may produce too little and there would be a role for government to redistribute as a way to increase it.

A controversial question is whether the objective of welfare policy should be to promote equality or alleviate poverty. Some argue that, judging by people's charitable giving, redistributions within their family and gambling behaviour, most seem to care about alleviating poverty rather than about promoting equality.[143] Other evidence in support of this argument includes the following points:

- Genuine deprivation – an inability to afford the necessities of life – is what motivates most charity. Further, the altruism we observe is more closely linked to the basic needs of individuals than to their incomes. Most people genuinely believe it is good for the sick to be healed, the homeless to be sheltered and so on.
- Families step in to help fellow members meet basic needs, but seldom redistribute to equalise income (for example, bequests are usually divided equally rather than to offset income differences between children).[144]
- The Becker *et al* analysis shows that in seeking status, people willingly participate in lotteries and risky activities, which increases inequality.

Buchanan and Hartley argue from ethical principles that promoting equality is a misguided goal and trying to achieve it does more harm than good. As they point out, commonly used measures of inequality do not distinguish between envy and compassion as reasons for being concerned about inequality. For example, most measures of inequality, such as the Gini coefficient, regard income above the average level as equally objectionable as incomes below the average level by the same proportion.[145] A policy that makes the rich worse off, and no one better off, would improve equality on these measures. People who regard it as an improvement simply to make the rich worse off have been described as "spiteful egalitarians".[146] The idea that a dollar to a rich person is worth less than a dollar to a poor person underlies the equality objective. Although consensus on the exact values of each is unlikely, spiteful egalitarianism requires a dollar to a rich person to have a negative value. Most people would reject this approach.

Harberger would go further and say it is not the recipient's utility that the donor cares about; rather it is the recipient's consumption of particular goods and services (food, housing, medical care, education and so on) or their attainment of certain states (better

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143 Harberger (1984).

144 For references on the evidence supporting this proposition, see Landsburg (1997), pp 223–224.

145 See Buchanan and Hartley (2000), pp 5, 154.

146 Feldstein (1999).

nourished, better housed, healthier, better educated and so on). Often the donor most cares about the recipient's children. Altruism is focused on alleviating poverty and fulfilling basic needs, not on recipients' self-perception of well-being.[147]

For example, a welfare programme could decrease the work effort of recipients by so much that it actually lowers their total income. Suppose a single mother with two children earns $25,000 a year after-tax and including family assistance. She can receive $19,500 a year (net) from welfare without working. If she gave up work and went on the domestic purposes benefit, it would reduce the family's income; the family would have less to spend on the children and they would not have the good role model of a working parent. Certainly it would make poverty and inequality look worse according to the household income statistics.

Traditional economic analysis concludes that the recipients are better off according to their own (leisure-preferring) utility function. Yet most people would think that a welfare programme that lowered the total income of recipients was a failure. They support welfare programmes on the grounds that they will increase expenditure on the children in poor families, not because they will provide extra leisure for the parents. Even those who want to increase equality usually focus on equality of incomes rather than utility.

The analysis in this paper supports the emphasis on alleviation of poverty and meeting basic needs. The happiness research and behavioural economics suggest that governments cannot do much to increase the utility of the poor through income transfers and may even make the poor worse off, undermining the goal of equalising utilities.

A more pressing problem than inequality is to raise living standards at the bottom of the income distribution. As Nobel prize winning economist Heckman summarises:

> Redistributive policies aimed at eliminating inequality miss the point. Our current problem is not that some are doing better than others, but rather the despair among the least-skilled, who have become detached from the modern economy. If the trend continues, it will promote participation in the social pathologies of crime, welfare, and illegitimacy.[148]

147 Harberger (1984), pp 111–112.

148 Heckman (1996). Although written about the United States, the statement applies to New Zealand, which faces similar trends.

4
CONCLUSIONS

The analysis in section 1 shows that the costs of income transfers are high. Even with low elasticities of taxable income, there are high costs associated with increasing the extent of redistribution. For example, a realistic figure is that transferring an additional dollar of income to the bottom quintile would reduce the disposable income of those in the top four quintiles by $7.80. Taking account of changes in leisure means that for every dollar of economic benefit to those in the bottom quintile, it costs others $3.30. In other words, helping the poor by a dollar comes with an efficiency cost of $2.30. These costs make marginal government redistribution expensive, especially when compared with private charitable transfers, which do not involve deadweight loss.

These figures are conservative because they use a low estimate of the initial tax wedge, assume a uniform elasticity of response across different income groups and ignore rent-seeking, administrative, collection, enforcement and compliance costs, all of which understate the costs of income redistribution. They use annual income figures and take no account of any crowding out of private charity, which overstates the amount of redistribution to the poor.

Judging by their sweeping proposals for unrealistic amounts of redistribution, many politicians, academics and welfare lobbyists appear unaware of the high cost of redistribution.

Not only are the costs of redistribution insufficiently appreciated, the benefits of redistribution are also often overstated. Even standard economics overstates the net benefits from income transfers.

Indeed, the literature on behavioural economics and endogenous preferences raises the possibility that welfare payments may make some recipients worse off. When we recognise the effects of personal and social capital, it is evident that income transfers can corrupt the values and behaviour of the recipients and their children, an outcome that most donors would object to.

By creating dependency, reducing self-reliance and discouraging work and marriage, welfare payments "seduce people into behaving in ways that seem sensible in the short term but are disastrous in the long term".[149] To put it another way, restricting access to subsidies may make people better off.

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149 Murray (1996), p 85.

Behavioural economics shows that income transfers can encourage self-destructive behaviour and induce recipients to make decisions that lower future income, helping create an underclass with a lifestyle at odds with the mainstream. Those encouraged by welfare to have more children are the very people who are most likely to pass on unproductive values to their children. The underclass is defined not by low income but by undesirable behaviour, including illegitimacy, violent crime, drug-taking, and drop-out from the labour force – often arising from impulsive, unsocialised behaviour. Such behaviour is driven by the breakdown in the socialisation of the young, which is in turn often driven by the breakdown of the family.

Regardless of whether people are actually worse off, the adverse effects of income transfers on recipients and their children mean that welfare has fewer advantages for taxpayers. Income handouts may entrench the habits and attitudes that perpetuate poverty. Such effects also favour a focus on fulfilling basic needs and encouraging recipients and their children to become more productive citizens.

Some economists, such as Layard, use the happiness research to argue that high income taxes do not impose efficiency costs but make people happier. They argue that people care about relative income and the result is zero sum competition for status – an increase in income for one person lowers everyone else's rank in the income distribution, imposing negative externalities. As a result, high taxes are required to reduce the excessive effort put into earning income.

They also use behavioural economics to argue that people fail to anticipate how hedonic adaptation and social comparison will reduce the happiness they get from higher income. According to this reasoning, too much effort is devoted to the pursuit of money, and taxes are justified to encourage people to reallocate time to alternative activities, boosting happiness.

But the proponents of higher taxes exaggerate the benefits that may result. They do not specify what is to be done with the higher taxes nor do they establish what the response to them is likely to be. It is not clear whether the activities encouraged by higher taxes would involve a lower level of social comparison or adaptation than working for income. The proponents give very little empirical evidence about these important questions.

Preferences and the form that competition for status takes are not a given; they can respond to policy. Status competition occurs over more than one dimension and is not necessarily zero sum, implying the negative externalities from competition for income need not be large. Further, it is not clear whether a higher income tax would direct efforts into more socially productive activities.

When work is less important, more attention is focused on other dimensions, which could then become the focus of the competition for status. Certainly tax increases raise the importance of the political process and encourage more effort to be put into

political competition which involves a great deal of rivalry and zero sum competition. The result could be to increase the cost of status competition and envy.

The proponents of higher taxes often neglect the role of prices in status markets. Even supposing total status has one dimension and is fixed, if status or the goods that produce it can be purchased, there is no externality. The cost of acquiring status is a transfer to the seller. This view is consistent with the evidence from happiness research, but leaves no role for government to intervene to improve efficiency. Becker *et al* show that the outcome may be socially optimal and render policies to redistribute income ineffective.

Further, excessive work is not the only way to increase income. People can improve their status by participating in risky activities, which can encourage socially valuable activities, such as entrepreneurship, which would otherwise be underprovided.

The argument for higher taxes because of adaptation is even weaker. Not only may people adapt to whatever replaces higher income, but the whole case for intervention assumes people are irrational and make poor decisions, underestimating the effects of adaptation. Further, the argument assumes the political process would produce better decisions – even though the participants (politicians, bureaucrats and voters) are also subject to judgment biases and have poor incentives and information for implementing policies aimed at maximising happiness.

Even if the government could produce policies that maximise happiness, happiness is not everything. People have other concerns that the government cannot hope to measure, much less maximise or determine the appropriate trade-off with happiness.

When taxpayers care about the poor's consumption of particular goods, they prefer transfers in kind to cash transfers. For example, if they cared about ensuring people have food and shelter, then a portion of welfare payments could be vouchers for spending only on these items (such as food stamps in the United States or, as was recently proposed in Australia, restricting up to 40 percent of welfare paid to parents who are not taking proper care of their children and putting it into vouchers for rent, food, clothing and other essentials). Further, if taxpayers cared about work effort, they might support work requirements for recipients. If they cared about children's consumption of education, they would favour rewarding parents who ensure their children are educated. If taxpayers cared about dependency, they might support time limits on benefits.

Although such policies interfere with freedom and are paternalistic, that is an inevitable consequence of income transfers. Forcing taxpayers to provide unrestricted transfers interferes with their freedom and paternalistically tells them the best way to spend their money in order to help the poor.

The size of transfers and how they are allocated are related. Insisting on cash transfers with no obligations attached may reduce political support for transfers to the poor and make the poor and taxpayers worse off.

The marginal cost of redistribution is relevant for determining the scope of transfer policies. Most people would agree that raising the income of the poor by one dollar is more desirable if it costs others $1.50 than if it costs them $3.00. But if the goal is equality then, for a given transfer of income towards the poor, the higher the marginal cost of redistribution is, the more the incomes of the rich fall, making the distribution of income more equal. Reducing income inequality is not necessarily desirable.

The government cannot do much to raise the income of the poor through income transfers. Even transferring an additional 1 percent of income to the bottom quintile of households would be a tall order. That would involve a $900 million transfer, a much greater cost to taxpayers (at least double) and would increase the average tax rate by at least 6.5 percentage points (when there are no incentive effects), and probably substantially more (when the elasticity of taxable income is 0.5, the average tax rate would increase by over 10 percentage points). As there are 300,000 households in the bottom quintile, the transfer would increase their annual incomes by an average of $3,000, which would do little to reduce poverty rates.

The adverse incentive effects from high marginal tax rates limit the amount of income that can be transferred to the poor. The income distribution among households is largely determined by the returns to people in the household from labour and capital factors they own. Changes in the distribution of income have little to do with government policies; instead, they arise largely from other causes (such as changes in technology and global trends). The only way the government can significantly improve equality is to level down the rich, which is not desirable.

The happiness research undermines the equality argument for income redistribution. Differences in the level of happiness between the rich and poor are small to begin with, and the research suggests income redistribution does little to increase happiness. To the contrary, much welfare policy undermines factors that promote happiness

Extra money, especially when not earned, has little effect on the ability of poor people to pursue happiness. Income transfers between those not in poverty have even less. They have little impact on the distribution of income from a lifetime perspective and do little to satisfy the general population's desire to alleviate hardship. Their high cost in return for little (if any) benefit supports the argument for reducing transfers to the middle class. Yet the current policy trend has been towards increasing income transfers to the middle classes through family tax payments. In effect, most families are automatically placed on welfare, increasing dependency, with adverse effects on values and incentives.

Given the modest effect that the government can have on the income and well-being of the poor, welfare policy should be focused on alleviating poverty, addressing the hard issues involved.

As well as being expensive, redistribution does not address the underlying causes of poverty, such as welfare dependency, family breakdown, inadequate education and skills, the erosion of the work ethic, substance abuse and illegitimacy. Any approach to alleviating poverty needs to focus on non-monetary factors, such as encouraging self-reliance and personal responsibility, and supporting the family and marriage. Current policy, conversely, often encourages family breakdown and discourages low-earning parents from forming two-parent families.

Individuals from low-income groups appear disadvantaged mainly in the skills they acquire. The permanently poor have fewer and less valuable skills than others. For example, age, education and literacy are the major reasons for the significant income gap between Maori and non-Maori, while ethnicity explains only a small amount of income differences.[150]

Much of the recent rise in earnings inequality in western countries has been attributed to a rising skill premium. That is, the earnings of the educated have increased faster than those of the less educated. But the increased return to skill provides a means for the poor to increase their earnings and find a way out of poverty: by acquiring skills. The challenge is to overcome the problems facing poor children and adults that prevent them from taking advantage of the higher rates of return to investments in human capital. Increased expenditure on schooling is an expensive and often ineffective way to try to meet this challenge. Long-run family and environmental factors are decisive in shaping children's abilities, social skills, attitudes and expectations that determine their readiness for and capacity to benefit from extra schooling.[151] Policies that reduce family breakdown and improve family environments would help poor children increase the amount of schooling they acquire, as well as enhancing their returns from it.

150 Green (2001), p 43.

151 See Carneiro and Heckman (2003).

APPENDIX

A1 Measuring efficiency effects

To measure the efficiency effects of a change we examine the dollar value of the gains and losses for all people affected. We work out how much the change is worth to each individual: how many dollars they would, if necessary, pay to get it. The amount could be positive or negative, depending on whether the change makes them better or worse off. Summing these amounts across all affected people gives the total willingness to pay for the change. If the sum is negative, the change reduces efficiency, or creates a deadweight loss. In summing dollar values, a one dollar gain to one person cancels a dollar loss to another.

We use dollar values because they can be estimated from observed behaviour. We can measure the value that people place on something by observing how much they are willing to pay for it. Box A1 sets out how the concept of a compensated equilibrium is used to measure gains and losses.

For example, taxes reduce efficiency, or create deadweight loss, because they distort decisions and change behaviour. They affect the willingness to work, to start new enterprises and to take risks with capital. Taxes induce individuals to consume a mix of goods that is less desirable from the standpoint of their own subjective preferences. That is, taxes change what people do to a less preferred option. The deadweight loss from a tax is the difference between how much it makes individuals worse off and the amount collected. The more the tax changes behaviour, the greater the deadweight loss.

Efficiency is not the only outcome that matters, but it is an outcome that is worth knowing. Redistribution reduces the income of the rich by more than it increases the income of the poor, yet it may still be justified if the extra dollars are worth more to the poor than the rich. But it is worth understanding exactly how much the rich lose for each dollar of gain to the poor to help determine the desirable level of redistribution.

Box A1: Measuring gains and losses: the compensated equilibrium

The gain or loss from a change is best measured by asking how much would we have to take away from, or give to, each individual affected to leave them just as well off as before the change. In economic jargon, the question is how much is needed to keep the individual's utility constant, which is the same as the amount they are willing to pay for the change. If the change makes an individual better off, the amount is positive. If the change makes them worse off, the amount is negative. Adding all these amounts, for all individuals affected, gives the efficiency effects of the change. If the total is negative, it represents the amount we would have to get from a foreign source to compensate New Zealand for a change, and the change reduces efficiency.

The introduction of the linear income tax-transfer scheme would increase a distorting tax (the income tax) and use the proceeds to finance lump-sum grants, with the net effect of redistributing income from households with above-average income to those with below-average income. It would result in a new distribution of household income, moving us from situation A to situation B.

We can think of a change as being introduced in two steps. First, the change is introduced and lump-sum compensating payments are made to all New Zealanders affected by the change, to keep their utility constant, moving us from situation A to situation C. C is a compensated equilibrium. It reveals the efficiency effects of the policy – asking how much we have to take away to compensate them for the change is exactly the same as asking how much they are willing to pay to get the change. Adding up all the payments gives the total willingness to pay for the change.

Second, we reverse the compensating payments and move from situation C to situation B. That movement involves changes in lump-sum payments to households.

In economic jargon, the change from A to B moves people along ordinary supply and demand curves, involving income and substitution effects. In the movement from A to C, every New Zealander's utility is constant, and it involves only substitution effects; people move along compensated demand and supply curves, which is why the compensated elasticities are the relevant ones for measuring efficiency effects. The movement from C to B involves only income effects. Substitution effects determine the willingness to pay for a change.

What actually happens is that the change is implemented and we move from A to B, and that is what is observed. But decomposing the move into two hypothetical steps allows us to determine rigorously the willingness to pay for the change. The hypothetical movement from A to C can be worked out from observed behaviour. It does not matter whether lump-sum compensation is possible in practice, as any hypothetical lump-sum payments are fully reversed in the movement from C to B.

A2 The effective tax rate

What is the appropriate initial tax wedge? Under the current tax system, taxes paid include a progressive personal income tax, corporate tax at 33 percent, an Accident Compensation Corporation (ACC) levy of 1.3 percent, GST at 12.5 percent of the producer price, and excises. Central government tax revenue is about 35 percent of

GDP so, on average, households pay 35 percent of their income in tax. Marginal tax rates are higher, and they determine efficiency costs.

Consider the taxes paid on an extra dollar of earnings. Table A1 sets out the effective marginal tax rate imposed by income tax and GST. The income tax rates are effective tax rates, taking account of the low-income rebate and ACC levy.[152] After income tax is paid, further tax is paid when after-tax income is spent. The goods and services purchased are subject to consumption taxes. For example, someone earning over $60,000 and under $96,619 pays 40.3 cents in tax and takes home 59.7 cents out of an extra dollar earned. If that 59.7 cents is spent on goods subject to GST, then the person pays an extra 6.6 cents in tax.[153] The total tax wedge is at least 46.9 cents. If the person spends some of their income on petrol, beer, cigarettes or other goods subject to excise, the tax paid will be even greater. If some of the income is saved rather than spent, then the tax paid will also be greater. When the saved money is eventually spent, GST will still be paid, and further income tax will be paid to the extent that returns on savings are subject to income tax. Further, corporations may pass at least part of the corporate income tax on to consumers and part may be borne by workers.[154] Even if we consider only GST and income tax, they alone impose high tax effective rates on all individuals.

Table A1: Effective marginal tax rates imposed by income tax and GST

Income range (individual)	*Income tax rate (effective)*	*GST paid out of after-tax income*	*Total effective tax rate*
Under $9,500	16.3	9.3	25.6
$9,500 to $38,000	22.3	8.6	30.9
$38,000 to $60,000	34.3	7.3	41.6
$60,000 to $96,619	40.3	6.6	46.9
Over $96,619	39	6.8	45.8

The abatement of family assistance tax credits and welfare benefits, once a threshold is reached, raises effective marginal tax rates even higher. Rates of abatement are usually between 20 and 30 cents per dollar earned, adding 20 to 30 percentage points to the effective marginal tax rates of families subject to them. For example, the accommodation supplement abates at 25 cents in the dollar. Family support abates at 20 cents in the dollar. Benefit payments abate at 30 or 70 cents in the dollar. When more

152 Cullen (2006), p 1. The table does not account for the ACC levy on employers, so understates the tax wedge.

153 GST is 12.5 percent on the producer price, or 0.111 (one-ninth) of the consumer price.

154 In a small open economy, it is likely that labour bears more than 100 percent of the burden of the corporate income tax. See Harberger (1994).

than one payment is being abated, the relevant rates must be added to the effective marginal tax rate. The interaction of the benefit system, tax credits and tax rates can create effective marginal tax rates of over 100 percent.[155]

The Treasury estimates the mean effective marginal tax rate for all individual taxpayers from 2005/06 to 2007/08 to be 28 percent without the Working for Families package and 29 percent with it. These estimates are for the income tax and family income assistance abatement rates, but do not include other taxes and some benefit abatement.[156] Adding GST alone, as in table A1, would raise the effective marginal tax rate from 29 to 37 percent.

The personal tax scale is based on individual income while family assistance tax credits and the benefit system are based on household income. Benefit payments are targeted in different ways, but most benefits abate as market income increases. The effective marginal tax rate facing a household depends on its composition and the circumstances of its members. Different household members may face different effective tax rates.

A Treasury paper estimated that in 2003/04, 88 percent of the adult population was on an effective marginal tax rate of 22 percent or more; for 46 percent of adults the effective marginal tax rate was 22 percent, and for 26 percent it was over 40 percent. But these rates do not include indirect taxes. Just adding GST raises the 22 percent rate to 31 percent.[157]

For the calculations in this study, I assume all households face an initial effective marginal tax rate of 35 percent (the average tax rate). That assumption is conservative. Twenty-five percent of taxpayers earn more than $40,000, so face tax rates in excess of 40 percent.[158] Many of those on lower incomes face high benefit abatement rates and spend a large portion of income on goods subject to excise.

A3 The labour supply elasticity

What effect would changing the tax rate have on household income? A tax increase lowers after-tax wages. At a minimum, we should account for the resulting changes in hours worked.

The labour supply elasticity summarises the average response over a large number of people. Some would respond more, some less. They would respond in different ways.

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155 See, for example, Nolan (2004), pp 9, 11, 13, which show substantial income ranges with a 100 percent effective marginal tax rate for a sole parent with one child, and for a couple with two children where one parent is not working.

156 Dwyer (2005), pp 29–30.

157 These figures are consistent with the potential for many people to face ranges of income with an effective marginal tax rate of 100 percent or more. We would not observe people choosing to be in that income range.

158 Cullen (2006), p.1.

Some would reduce hours worked per week, others may leave the workforce altogether. Because hours of work are offered to agents in indivisible blocks, the elasticity of the aggregate supply of labour may be very different from that of the individual supply of the majority of workers.

Variations in the total number of hours worked in an economy flow principally from differences in rates of participation in employment rather than from variations in hours worked by individuals. But even hours worked by individuals can, and do, respond over time.

Although many workers lack control over the hours they work per week, they can influence how many hours they work by choosing between different types of jobs (full time or part time, or jobs involving high pay and many hours of work) and the amount of overtime they work. Employees' preferences will influence the hours packages offered by employers as they compete for workers. Further, employees can influence how many hours they work in a lifetime through decisions about when to enter the workforce, how much time to have off between jobs, and when to retire. Women often face these decisions at a number of points in their life, and are estimated to have more elastic labour supply curves than men.

The effect of a wage fall on hours worked can also be broken into income and substitution effects. The wage fall reduces the relative price of leisure, increasing the amount of leisure (and decreasing hours worked) through the substitution effect (which holds utility constant). The wage fall reduces real income, decreasing the demand for leisure and increasing hours worked through the income effect.

It is difficult to estimate labour supply elasticities and there is a broad range of estimates. Literature surveys find a wide dispersion in estimates of income and substitution effects, and there is little agreement among economists on the magnitude of labour supply elasticities.[159] There is a consensus that the effect of wage changes on hours worked by primary earners (usually prime age males) is negligible; the income and substitution effects offset each other.[160] For example, a survey on the size of labour supply elasticities, conducted among specialists in labour economics and public economics at 40 leading research universities in the United States, had a median uncompensated elasticity of 0 and a mean of 0.1.[161]

For secondary earners (usually women), the elasticity of labour supply is quite high, between 0.3 and 4.8, mainly coming from the decision about whether to work.[162] The substitution effect dominates the income effect, which is no surprise as the income effect depends on how many hours are worked. Women tend to work fewer hours than men

159 See Fuchs, Krueger and Poterba (1998).

160 See the surveys in: Gruber (2006), ch 21; Cahuc and Zylberberg (2004), p 41.

161 See Fuchs *et al* (1998), table 2, p 1392.

162 Cahuc and Zylberberg (2004), p 40; Stuart (1984), table 3, p 360.

(they are more likely to work part time and spend more time out of the workforce), and so the income effect is weaker. Further, they often have greater flexibility in choosing whether to work at all or whether to work part time, and substitute between home and market production. In the survey of leading labour economists, the median estimate of the uncompensated labour supply elasticity for women was 0.3, the mean 0.45. There was a substantial dispersion in their best estimates.

The appropriate elasticity to work out the efficiency effects of a marginal change in redistribution is the compensated elasticity, which shows how hours worked change in the movement to a compensated equilibrium (see box A1 above). It summarises the substitution effects, and is higher than the uncompensated elasticity estimates. The survey of labour economists' best estimates found a median compensated supply elasticity of 0.18 for men and 0.43 for women (with means of 0.22 and 0.59 respectively).

The movement from the compensated to the final equilibrium involves income effects, with no efficiency consequences. Some households receive a positive net transfer, others a negative one. For households who gain from a linear income tax-transfer scheme, the income effect would reinforce the substitution effect, and work effort would fall further. For households who lose, the income effect would act to decrease leisure and increase work effort, offsetting the fall in income from substitution effects. Even the income effect for these households is less negative than for a wage fall, because it is partly offset by the lump-sum grant. For example, a 1 percent linear tax transfer scheme reduces the after-tax marginal wage by $1/(1-t)$ percent, where t is the initial tax rate. Income falls by less than $1/(1-t)$ percent. That explains why the authors of a review of the labour supply effects of social insurance conclude that labour supply elasticities with respect to benefits for unemployment insurance, workers' compensation and disability insurance "are substantially higher than the labour supply elasticities typically found for men in studies of the effects of wages or taxes on hours of work … [and] are also larger than the consensus range of estimates of the labour supply elasticity for women".[163]

Working out the final equilibrium perhaps takes my illustrative numbers, which are calculated for one year only, too seriously. The net transfer received by a household in any one year exaggerates the redistributive effects of the tax and subsidy arrangements. A more accurate picture takes account of taxes and transfers over the lifecycle. Because a household's income fluctuates from year to year, and tends to rise with age and experience in the workforce, the household's payment will fluctuate and tend to fall from year to year.[164] Many households will move from decile to decile over time. The same household may receive positive transfers in some years, offset by negative in others. The net redistribution from a tax-transfer scheme that uses annual income will be smaller over a number of years than in any one year.

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163 Krueger and Meyer (2002), pp 2384–2385. Note the compensated elasticities should be the same, as they are independent of income effects.

164 See subsection 2.7 above.

The effect of the scheme on wealth depends on how it affects lifetime income, and that determines the income effect on labour supply. Using one year's data would be misleading.

A4 The elasticity of taxable income

The labour supply elasticity summarises the effect of wage changes on hours worked. But the effect of an income tax rise on household income is much broader because:[165]

- Labour supply is more than hours worked and depends on such factors as job effort, choice of occupation, the location and conditions of work, and the degrees of risk and responsibility that individuals assume. All contribute to output. The income tax reduces the incentive to increase income through these activities.
- The income tax affects forms of compensation and patterns of consumption. A higher marginal tax rate on labour income encourages workers to substitute untaxed fringe benefits and more pleasant working conditions for taxable cash income and to spend more on tax deductible items.
- A higher income tax rate increases the incentive to engage in tax avoidance and evasion, such as substitution between legal and underground activity and the use of tax shelters.

These effects raise the efficiency costs of income taxation substantially. To the extent that they reduce taxable income, all of them contribute to the overall deadweight loss. To get the full efficiency effect of the tax we add all the reductions in taxable income from all the distortions. The loss in income from a reduction in hours worked is only one component of this calculation.

An income tax of t percent means a person is willing to give up a dollar of taxable income to undertake an untaxed activity (more leisure, less effort, consumption of tax-preferred items, tax avoidance and evasion) that increases well-being by $\$(1 - t)$. These activities will be pushed to that point, so that an increase in an activity that reduces taxable income by a dollar would increase deadweight loss by the forgone tax revenue, t cents. For example, taxpayers conceal income to the point where the marginal cost of tax evasion is just equal to the tax saved. A rise in the tax rate increases the incentive to engage in these activities, increasing deadweight loss by t percent of the reduction in taxable income. The extent to which higher taxes reduce taxable income is summarised by the elasticity of taxable income.[166]

That is, the efficiency and revenue effects of an income tax depend on the compensated elasticity of demand for tax-favoured activities with respect to the net of tax relative price, which is the same as the elasticity of taxable income with respect to one minus the marginal tax rate. It is higher than the elasticity of labour supply with respect to the

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165 See Usher (1986); Feldstein (1997, 2006); Prescott (2005).

166 Feldstein (2006). See also Usher (1986); Giertz (2004).

net of tax wage, which is only one of the relevant incentive effects. Indeed, the labour supply response to changes in tax rates may be low because taxpayers respond on these other margins. The change in taxable income reflects a broader concept of the labour supply than hours worked and also incorporates the induced changes in the form of compensation, use of tax deductions, and tax avoidance and evasion.[167] The deadweight loss from income taxation is, therefore, much larger than the loss from reductions in working hours. For a small increase in the income tax rate, *dt*, the deadweight loss rises by $-\frac{t}{(1-t)}\varepsilon I dt$,

where ε is the elasticity of taxable income, $\frac{\partial I}{\partial(1-t)}\frac{(1-t)}{I}$, and I is taxable income.

A recent comprehensive survey of US estimates of the elasticity of taxable income concluded:

> In terms of overall findings, several of the more recent studies have reached similar conclusions, finding overall elasticities of about 0.40. A closer examination of the literature, however, suggests a great deal of variation. Estimated elasticities are often quite sensitive to sample selection, methodology, and the reform under consideration.[168]

An examination of the summary table of estimates shows the estimates range from 0 to 3.04, with all but one averaging above 0.4.[169]

Because of the lack of consensus on what figure to use, a range for the elasticity of taxable income, 0.25, 0.5 and 1, is used in this study. The lowest level is justified by the (compensated) elasticity of labour supply alone (taking an average of male and female elasticities, weighted by their share of labour income). Even this conservative low value gives a high cost of redistribution. Further, this paper examines only the incentive effects of redistribution. But the collection, administration, enforcement and compliance costs of raising tax revenue and giving out transfers add to the high cost of redistribution. Also contributing to that cost is rent-seeking: resources put into political battles over who bears the taxes to finance redistribution and who benefits from government spending on redistribution.

For simplicity, I assume everyone faces the same elasticity of taxable income. From a theoretical perspective it is not clear whether higher- or lower-income groups have higher or lower elasticities. Higher-income groups probably have greater scope for tax avoidance and evasion activities, for tax-preferred consumption and for exercising control over their working conditions. Lower-income groups probably have higher labour supply elasticities, as they have lower labour force attachment, and perhaps

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167 Feldstein (2006).

168 Giertz (2004), p 37.

169 Giertz (2004), p 40.

greater scope for participation in the underground economy. Elasticities are usually higher when a labour supply response can easily occur as adjustments in participation or weeks worked rather than changes in hours per week. Further, competition for employees encourages employers to offer more tax-attractive forms of compensation for all employees.

Empirical estimates usually find high-income earners have the highest elasticity of taxable income.[170] For example, Feldstein estimates the relevant elasticity for high-income earners in the United States to be between 1.0 and 1.5, although others have produced lower estimates.[171]

To estimate the efficiency effects, we use household income as measured by the Household Economic Survey. Household income is not the same as taxable income. Changes in hours worked and in work effort, compensation arrangements and working conditions that lowered taxable income would also lower measured household income. It is not clear to what extent changes in avoidance and evasion would affect household income as measured by the survey. Changes in tax-preferred consumption would probably not affect it at all. Household income, therefore, probably overstates taxable income.

The relevant elasticity applies to the response of non-benefit income to changes in tax rates. The estimates of efficiency costs assume that benefit income does not respond to changes in tax rates. When work effort changes, any abatement of benefit income is reflected in the net tax revenue figures.

Non-benefit income includes capital income, although investment income was only 4.3 percent of household income in 2003/04.[172] But capital income is likely to be responsive to changes in tax rates. The income tax applies to the nominal return from a taxable asset, part of which only compensates the asset holder for inflation. The effective tax rate, e, on the asset's real return would be much higher than the statutory tax rate.[173] For example, if the real rate of return were equal to the inflation rate (for example, if both rates were 3 percent), then the effective tax rate would be double the statutory tax rate. For example, a 35 percent tax rate would impose an effective tax rate of 70 percent. If the inflation rate were higher than the real interest rate, e would be even higher. If taxable investments earn a pre-tax real rate of return r, people would be willing to invest in a tax sheltered investment of the same risk that returned $r(1 - e)$. An

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170 See Giertz (2004), pp 15–36 and the summary table on p 40.

171 Feldstein (2006), pp 8–9; Feldstein (1997), pp 201–202.

172 Household Economic Survey 2003/04, standard tables, table 24.

173 When an asset's nominal return i is taxed, the after-tax real return on the asset is $i(1 - t) - \pi = r(1 - t) - t\pi$, where t is the statutory tax rate, π is the rate of inflation and r is the pre-tax real return on the asset, $r = i - \pi$.

The effective tax rate is $e = t + \frac{t\pi}{r}$.

increase in tax rates would reduce capital income and create a deadweight loss, and the elasticity of response is likely to be high.

In the compensated equilibrium, a rise in the income tax rate raises the price of future consumption relative to current consumption and leisure, encouraging households to reduce future consumption. Further, the falls in income for high-income earners are likely to reduce savings (low-income earners do not save much) and the whole welfare system reduces the incentive to save to meet unforeseen contingencies. When savings fall, taxes on capital imply a high efficiency cost.[174] Say the tax increase reduces taxable savings by one dollar , the pre-tax real rate of return is 10 percent, income is taxed at 35 percent and the effective tax rate is 70 percent. When savings fall by one dollar, society loses a stream of annual benefits worth 10 cents a year, with 7 cents going to the government and 3 cents to the saver. The discount rate for the saving household is 3 percent (the after-tax real rate of return). The cost to the saver of the dollar fall in savings is the present value of 3 cents a year forever, discounted at 3 percent, or \$0.03/0.03 = \$1.00. But the present value of lost tax revenues is \$0.07/0.03 = \$2.33. That is, the present value of the cost to society of the reduction in savings is \$3.33, of which \$1.00 is borne by the saver and \$2.33 (or 70 percent) is borne by others. The true figure would take account of how long the principal is held intact and the extent to which some of the net return is saved in the future. But the efficiency costs from reducing savings are likely to be large.

A5 The marginal cost of redistribution

What are the effects of a small increase in redistribution – say, from imposing a 1 percent linear income tax-transfer scheme on top of current arrangements? It is easiest to think of the scheme as being imposed through a 1 percentage point increase in the income tax rate for everyone, with the proceeds used to provide an equal grant to all households.

With an initial effective tax rate of 35 percent, adding a 1 percent linear income tax-transfer scheme lowers the after-tax wage by 0.01/(1 – 0.35) = 0.0154, or 1.54 percent. This figure multiplied by the elasticity of taxable income gives the fall in before-tax non-benefit income, from the fall in hours worked and other responses.[175] The first column in table A2 sets out the fall in non-benefit income with various elasticities. As a result, redistributing income involves an efficiency cost. The higher the elasticity, the greater the fall in income and the greater the efficiency cost.

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174 This analysis draws on Browning and Johnson (1986).

175 I am assuming linearity, which is accurate for infinitesimal changes and is reasonable for a small, 1 percent change in tax rates. I assume the elasticity is a point elasticity. The arc elasticity for discrete changes would be different, as the elasticity varies along a linear, inelastic supply curve.

Table A2: Effect of a 1 percent rise in all income tax rates

Elasticity	*Reduction in non-benefit income (percent)*	*Revenue per household ($) (2003/04 household income data)*
0	0.00	603
0.25	0.38	529
0.5	0.77	456
1	1.54	309

The incentive effects that reduce non-benefit income reduce the extra revenue raised from the tax increase. Without incentive effects, the extra tax raised is $603 per household – 1 percent of average household income. But when total income falls, the extra tax revenue falls because the tax is on a lower base and, more importantly, revenue from existing taxes falls. With an elasticity of 1, the extra revenue raised falls by almost half.

Table A3 works through the marginal cost of redistribution when the elasticity is 0.5. The first three rows give the distribution of household income in 2003/04 across the 10 income groups (deciles). The fourth row shows the reduced pre-tax income per household when the tax reduces non-benefit income by the percentage shown in table A2. For example, the average household had $53,102 in non-benefit income. The rise in tax rates reduces this amount by 0.77 percent, or $408 in the compensated equilibrium (that is, through the substitution effect).

Table A3: Effect of 1 percent linear income tax-transfer scheme on the distribution of per household income when the elasticity of taxable income is 0.5, 2003/04 dollars

	Annual household income										
Source	*Under $15,900*	*$15,900 to $22,999*	*$23,000 to $28,799*	*$28,800 to $37,899*	*$37,900 to $47,299*	*$47,300 to $58,899*	*$58,900 to $71,299*	*$71,300 to $87,599*	*$87,600 to $119,999*	*$120,000 and over*	*All income groups*
Non-benefit income	452	5,143	9,344	22,282	34,419	48,474	61,651	75,826	98,904	173,638	53,102
Benefit income	8,986	14,009	16,052	10,832	7,961	4,644	3,359	2,792	1,726	1,383	7,166
All sources	9,438	19,152	25,397	33,114	42,380	53,118	65,010	78,619	100,630	175,022	60,268
Reduced pre-tax income per household	3	40	72	171	265	373	474	583	761	1,336	408
Extra revenue per household	93	177	228	269	328	397	479	576	732	1,269	456
Gain in disposable income	359	239	156	15	–138	–314	–498	–704	–1,038	–2,149	–408
Change in real income	361	265	202	126	34	–72	–190	–325	–543	–1281	–143

The extra tax revenue raised by the 1 percent increase in marginal tax rates is 1 percent of the new level of household income less the revenue forgone from the fall in income. As the initial effective marginal tax rate is 35 percent, the revenue raised from the average household is 1 percent of $59,860 ($60,268 – $408), less 35 percent of $408. Tax revenue rises by $456 per household.[176] The fifth row of table A3 shows the average extra tax revenue per household in each decile.

The 1 percent income tax increase finances a $456 grant per household. The net gain in disposable income per household in each decile is in the sixth row. It is the per household grant less the extra tax revenue paid less the fall in pre-tax household income. The grant balances extra taxes paid for the average household, but the average household loses $408 (from the fall in pre-tax income). The bottom four deciles gain; they increase their disposable income. The top six deciles lose disposable income.[177]

The redistribution scheme causes a substitution into leisure and other untaxed activities, which have value. The final row in table A3 gives the change in real income, or the transfer needed to keep utility constant. It shows the efficiency effects of the change. When the effective marginal tax rate is 35 percent, extra leisure that reduces pre-tax income by $1.00 would be valued at 65 cents. The final row adds the value of extra leisure to the gain in disposable income to get the gain in real income. For example, the fifth decile loses disposable income, but is better off because the value of extra leisure exceeds the loss in disposable income.

The redistribution causes inefficiency: the loss in income to the top six deciles exceeds the gain to the bottom four. The marginal cost of redistribution is one way to express the inefficiency.[178] It sets out the ratio of the cost to others per dollar gain to a specified group. Table A4 summarises the marginal cost of redistribution for different elasticities, per dollar to the bottom two quintiles and per dollar to the bottom quintile.

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176 Alternatively, initial revenue was 35 percent of $60,268 or $21,094. The new level of revenue is 36 percent of $59,860, or $21,550. Revenue has increased by $456.

177 I include negative self-employment income as part of non-benefit income and assume it is total non-benefit income that responds to tax rate changes. That understates the response, as it is likely that wage income would fall and negative self-employment income become more negative in response to tax increases. Therefore, I understate the marginal cost of redistribution.

178 Browning (1993).

Table A4: The marginal cost of redistribution

	Ratio of top three quintiles to bottom two		*Ratio of top four quintiles to bottom one*	
Elasticity	*Money*	*Real*	*Money*	*Real*
0	1.0	1.0	1.0	1.0
0.25	2.8	1.6	3.7	1.9
0.5	6.3	2.5	7.8	3.3
1	–2,553.1	8.7	30.5	9.6

Each of the two columns for the money cost of redistribution shows the reduction in disposable income for the top groups per dollar increase to the target group. For example, when the elasticity is 0.5, it is 6.3 for the bottom two quintiles. That is, for each $1.00 increase in the disposable income of the bottom two quintiles, the top three quintiles lose $6.30 in disposable income. (We can calculate the loss in disposable income for the top six deciles from table A3 (second last row) and divide it by the gain to the bottom four deciles to get 6.3.) For the bottom quintile, the ratio is 7.8.

For each elasticity in table A4, the marginal cost of redistribution was worked out the same way as in table A3.

When the elasticity is zero, there are no incentive effects and the marginal cost of redistribution is 1 – there is no inefficiency. Giving an extra dollar to the poor costs higher-income households a dollar.

When the elasticity of taxable income is a modest 0.25, the marginal money cost of redistribution is $2.80 for transfers to the bottom two quintiles and $3.70 for transfers to the bottom quintile.

When the elasticity is 1, which is high but not unreasonable, the redistribution reduces disposable income in the bottom two quintiles and the marginal cost of redistribution is negative (and shows the top three quintiles lose much more than the bottom two). Only the bottom quintile gains, but every dollar gain in its disposable income costs the other households $30.50.

The money marginal cost of redistribution is relevant because people often judge a policy's effect on inequality by what happens to the distribution of disposable income.

The real marginal cost of distribution compares the gains in real income to the bottom quintiles with the losses to others. As indicated by the figures in the second and final columns of table A4, the efficiency costs of redistribution are substantial. For example, with an elasticity of 0.5, it costs the top four quintiles $3.30 for an extra dollar of economic benefit to the bottom quintile. A transfer worth an extra dollar to low-income

households comes with an efficiency cost of $2.30. These figures are for a small marginal increase in redistribution. A large increase in redistribution would require large increases in marginal tax rates, raising the cost substantially, as the efficiency costs increase more rapidly than the tax rate (in the case of linearity, they are proportional to the square of the total tax rate).

A6 Increased equality and the cost of redistribution

If we removed the bottom four deciles and the top decile from table A3, we would have a society with a much more equal distribution of income and a higher average income ($67,926). In this scenario, each of the remaining five columns would be one quintile of the population. Total income would fall to $50.7 billion. If we imposed a 1 percent linear income tax-transfer scheme, the reduced pre-tax income per household and extra revenue per household rows would be unchanged (the final column would be different, as the average is over a different population). The gain in disposable income and the change in real income would be $46 greater for each household, as the per household grant is now $502 rather than $456, because average household income is higher. Even though the transfer to the lower households is greater, the extra redistribution reduces the disposable income of all households.

A more equal distribution of income increases the marginal cost of redistribution substantially. Table A5 summarises the marginal cost of redistribution for different elasticities (compare with table A4). In many cases, it is negative (where all household groups lose).

When the distribution of income is more equal, households are much closer to average income and less is redistributed from a linear income tax-transfer scheme. For households close to the average, the offset from higher taxes compared with the per person grant is greater. The distorting effect of higher taxes is large compared with the amount redistributed, so there is a large efficiency cost for little redistribution.

Table A5: Marginal cost of redistribution with a more equal income distribution

	Ratio of top three quintiles to bottom two		*Ratio of top four quintiles to bottom one*	
Elasticity	*Money*	*Real*	*Money*	*Real*
0	1.0	1.0	1.0	1.0
0.25	55.3	2.9	15.9	3.6
0.5	–5.9	16.3	–26.1	11.6
1	–3.4	–4.9	–10.2	–17.5

A7 General equilibrium effects

So far, the analysis has taken the standard approach, which focuses on labour supply responses and assumes that pre-tax wages are constant. Increases in taxes reduce after-tax wages by the full amount of the tax and a 1 percent fall in hours worked reduces pre-tax household income by 1 percent. The labour demand curve is assumed to be horizontal, or perfectly elastic.

In practice, the economy's demand curve for labour would slope downwards, so that when there is an economy-wide fall in labour supply, there is a tendency to bid up wages. The tax increase would be borne partly by suppliers of labour and partly by demanders – with the pre-tax wage rising and the after-tax wage falling.

For a given labour supply elasticity, a 1 percentage point increase in effective tax rates reduces labour supply by less, and the after-tax wage falls by less, the less elastic the labour demand curve (see box A2).

Box A2: Introducing an elasticity of labour demand

The formula for the percentage fall in the labour supply from a small increase in the income tax rate (Δt) is:

$$-\frac{\Delta x}{x} = \frac{\Delta t}{\frac{(1-t)}{\eta} + \frac{1}{|\varepsilon|}}$$

where x is the supply of labour, Δx is change in labour supply (as hours worked fall, it is negative), η is the elasticity of labour supply (evaluated at the after-tax wage rate), ε is the elasticity of labour demand (evaluated at the before-tax wage rate) and t is the initial effective marginal tax rate.

From the definition of elasticity, the percentage rise in the pre-tax wage, w_D, is

$$\frac{\Delta w_D}{w_D} = \frac{\Delta x}{x} \times \frac{1}{\varepsilon}.$$

The percentage fall in the after-tax wage, w_S, is $\frac{\Delta w_S}{w_S} = \frac{\Delta w_s}{(1-t)w_D} = -\frac{\Delta x}{x} \times \frac{1}{\eta}$.

The increase in the tax wedge, $\Delta t \times w_D$, is shared between an increase in the before- and after-tax wage rate according to the formulae:

$$\frac{\Delta w_D}{\Delta t \times w_D} = \frac{\eta}{(1-t)|\varepsilon| + \eta} \text{ and } -\frac{\Delta w_S}{\Delta t \times w_D} = \frac{|\varepsilon|(1-t)}{(1-t)|\varepsilon| + \eta}.$$

When ε is infinite, the above formulae collapse to the one used in deriving the numbers in table 4.

The elasticity of labour demand would differ across industries and across different types of labour, depending on such factors as the elasticity of demand for the output, the share of labour in the cost of production, the elasticity of supply of other factors and the degree of substitutability with other factors.[179] An appropriate value for an aggregate economy-wide ε is difficult to determine. The median best estimate of the output-constant wage elasticity of labour demand was –0.3 in a survey of specialists in labour economics and public economics at 40 leading research universities in the United States.[180] A Productivity Commission survey of the estimates for Australia found a range from –0.25 to –1.07 and preferred an estimate of –0.7.[181]

Introducing downward-sloping demand curves would appear to moderate the negative effects on hours worked and household income identified in subsection A6 above, reducing the marginal cost of redistribution. That would be the result if the estimates of supply and demand elasticities identify supply and demand correctly and account for their simultaneity, rather than estimating the elasticity of net response in each case (the change in the equilibrium quantity). It is not clear, for example, whether the elasticity of taxable income estimates are based on a supply side or a net response. The higher the supply elasticity, the greater the effect of reducing the labour demand elasticity. For example, if the supply elasticity were 0.5, a labour demand elasticity of 0.8 would halve the response of labour supply to 0.25. If the supply elasticity were 0.25, the net response would fall to 0.17, or by about one-third.

These are general equilibrium effects, which take account of how the tax change affects prices across the whole economy, and the end result of taking account of changes in the pre-tax wage is not clear. For example, part of the burden of the tax increase is borne by those who demand labour. Firms only employ labour in order to produce goods to sell to consumers: the demand for labour is derived from the demand for final consumption. The ultimate demanders of labour are consumers, when they purchase goods. When the supply of labour falls, and pre-tax wages rise, the supply and prices of goods and services change. The relative prices of labour-intensive goods increase. How these changes are distributed across households would depend on the pattern of price changes across different goods and services, and on the pattern of consumption across households.

Further, the increase in the income tax affects the supply of and returns to other factors, such as capital, which in turn feeds back into household income through changes in factor and goods prices. The net effect of the tax increase on the distribution of real household income is not clear.

Really, general equilibrium effects should be worked through in a properly specified general equilibrium model to take account of the differential effects of a tax change on

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179 Layard and Walters (1978), p 260.

180 See Fuchs *et al* (1998), table 2, p 1392

181 Productivity Commission State Tax report, table 6.14, pp 104, 107.

different sectors of the economy, different factors and different types of labour. For example, one such model compared rich countries to provide information about the combined effect of taxes working through labour supply and labour demand channels.[182] It found that personal taxes have disproportionately large effects on the demand for less-skilled workers. Personal taxes twist labour demand away from less-skilled workers, shifting the industry mix of market activity away from sectors that use them intensively. Further, less-skilled workers tend to have more elastic labour supply, magnifying the negative effects of taxes on their work hours and employment. The authors conclude, "the aggregate labour supply response to a uniform tax hike is bigger than suggested by the simple cross-sectional mean elasticity of labor supply."[183]

Further, Ballard conducted a general equilibrium analysis of the efficiency cost of income transfers.[184] Although he found a lower (but still substantial) cost than Browning and Johnson, the labour demand elasticity made little difference.

182 Davis and Henrekson (2004).

183 Davis and Henrekson (2004), p 39.

184 Ballard (1988).

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