

The Universal Basic Income should it replace the existing social security system?

Abstract

A universal basic income (UBI) would provide all citizens with a guaranteed income, irrespective of their earnings, age or household status. It would be financed from a flat-rate personal income tax. It would replace the existing work-based social security system with its plethora of benefit types, abatement rates and eligibility rules. However, when the trade-offs between the competing objectives of a tax/benefit scheme are considered, and the variety of individual and family circumstances that need to be addressed, the apparent simplicity of a UBI quickly disappears. The article shows that while the current tax/benefit system represents a ‘welfare mess’, and needs substantial restructuring, a UBI does not necessarily provide an adequate income for poverty relief, nor ensure labour force incentives, at an acceptable fiscal cost.

Keywords universal basic income, social security, fiscal costs, changing nature of work

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The question raised in this article is whether a universal basic income (UBI) should replace the existing social security system in New Zealand. A UBI would provide all citizens, on an individual basis, with a guaranteed income from the state, irrespective of income from the labour market and returns on assets. It would be very simple in concept and design compared to the existing targeted social security system with its emphasis on workforce obligations, plethora of benefit types, benefit levels and abatement rates on entering work, and link between the family-based social security system and the individual-based tax system.

To be a viable alternative to the existing system, the UBI would need to show that it would provide an adequate income for poverty relief; ensure labour force incentives; be at an acceptable fiscal cost; have greater political and social acceptance; give greater certainty of income; be easier to administer; be less stigmatising; and be flexible in relation to the changing patterns of work.

The article starts with an analysis of the UBI, followed by a brief discussion on the existing system of social security. The two approaches are then compared using the traditional trade-offs in any tax/benefit system between fiscal costs, benefit adequacy and labour force incentives. To this must be added the issues that underpin the UBI, such as the changing nature of work and societal relations, citizen's rights, human dignity and administration costs. Some rough costings are given for a UBI based on current benefit levels.

The universal basic income

A universal basic income is a type of social security (and tax) system where all individuals would receive a minimum income from the state, irrespective of any market income assets (BIEN, n.d.; Glazer, 2017; Standing, 2018). The pure version of a UBI is an unconditional flat-rate cash payment to all adults, and a lower flat-rate payment made to all dependent children. Neither of these payments would be added to taxable income. However, a UBI could be added to market earnings, so that those on higher incomes, possibly facing higher marginal income tax rates, would effectively receive less of the UBI.

In most proposals, the UBI is to be financed from personal income tax, often levied at a flat rate. Some proposals have used other forms of financing, such as a capital gains tax, inheritance tax, a tax on financial transactions or a tax on land, as well as the reduction in existing social security expenditure (Morgan and Guthrie, 2011). While the usual argument is that a UBI will be fiscally prohibitive, many evaluations of a UBI start from a revenue-neutral stance (OECD, 2017). A UBI may even have a lower net fiscal cost, depending on the level of the UBI compared to the existing system, the extent to which existing income-tested benefits are retained, and the rate of personal income tax levied on additional earnings.

An alternative approach, favoured by libertarians, is a negative income tax. While the mechanics of a negative income tax are the same as the taxed version of the UBI (Mendelson, 2016), it has a different philosophical pedigree, based on workforce participation. It would be paid selectively via a tax credit, through income testing, to

those with lower levels of market income. Several US states introduced well-evaluated trials of such schemes in the 1970s, with mixed results in terms of workforce participation, poverty relief, health status, quality of life, educational attainment and fiscal costs. Atkinson (1996) argued for a 'participation income', where 'the basic income would be paid conditional on participation'. Participation covers not just labour market activity, including active job search, but also voluntary work, child and elder care and education. This would be an extension of the social security system – a guaranteed minimum income.

work hours. Societal changes include sole parenting and reconstituted families, and the increased incidence, severity and intergenerational persistence of poverty, as well as greater income and asset inequality.

Critics of the UBI argue that it breaks the unwritten social contract on reciprocity and mutual obligations that underpins society. Paying a benefit for the voluntary leisure of Surfer Jill certainly breaks the immediacy of that reciprocity. However, the social contract can be intra- or intergenerational, with paid employment or unpaid childcare or voluntary work at

Most [UBI literature] start from a notion of citizenship, in that we all contribute to society from a variety of perspectives, and thus are entitled to the fruits of our participation in society.

A distinction is made between a full and a partial basic income. A full UBI would be financed from general tax revenue and would largely replace the existing social security system and other redistributive measures. A partial UBI is a demogrant paid to all in society, funded from a windfall source of revenue such as casinos, oil revenue or carbon tax. It is not a replacement for the existing social security system and is not considered further here (Piachaud, 2016).

Rationale for a UBI

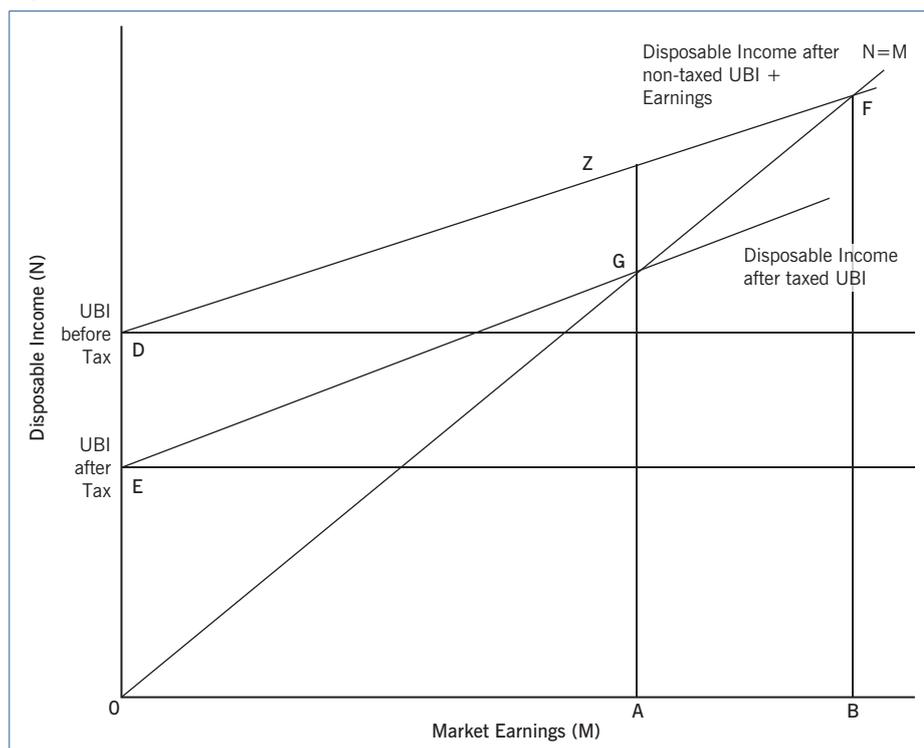
The literature provides many rationales for a UBI. Most start from a notion of citizenship, in that we all contribute to society from a variety of perspectives, and thus are entitled to the fruits of our participation in society. Most also note the change in the employment relationship since the development of social security: a shift to a service economy; the potential impact of changes in technology, especially robotics, on work; the casualisation of work from short-term contracts; increased part-time and part-year work; and irregular

one point in time and unconditional receipt of a benefit at another. New Zealand Superannuation is thus a form of UBI, with contributions during one's working life and receipt of a pension post the age of 65 (see Davey and Stephens, 2018). Equally, a universal child allowance, especially for children under age five, has a similar generational aspect: the majority of child development occurs in the early stages of life, and that development – and thus future outcomes – is affected by the level of family income.

The structure of a universal basic income

Figure 1 outlines the basic structure of a UBI and personal income tax system, and also a negative income tax. The horizontal axis covers all sources of market income before tax is levied – wages and salaries, and income from assets such as dividends and rental property. The vertical axis covers the UBI, and then adjusts only market income for personal income tax and any receipt of benefits or tax credits – i.e. disposable income after taxes and benefits. Tax is paid on the first dollar of market earnings, and in Figure 1 there is a single tax rate. $N=M$

Figure 1: Universal Basic Income, Tax and non-Taxed



represents the situation where no personal income tax is levied or benefit received. As market earnings increase, net disposable income rises along the line DZF (market earnings, less tax, plus the UBI). The fiscal cost of the UBI is DFO, suitably adjusted for the distribution of income. At F the tax on market earnings just equals receipt of the UBI.

A potentially less fiscally expensive approach would be to add the UBI to market earnings. While the gross UBI is still paid to all members of society, the net UBI would be OE, with the difference between OD and OE being based on the tax rate. Disposable income after tax is then EG, and net fiscal costs are EGO. At G, the tax-abated UBI just equals the tax paid. Positive tax payments start at G, or market earnings of OA. The net fiscal costs also require knowledge of the number of people at each point on the pre-tax earnings axis.

The same outcome as with the earnings-abated UBI is achieved by the negative income tax approach, with those below income OA receiving a tax credit, with the maximum tax credit, and thus minimum income level, being OE. The net fiscal cost to the government is again EGO. In both scenarios, the tax rate is progressive in that the average tax rate rises with income, even though the marginal tax rate is flat.

The above discussion indicates some of the issues that any UBI has to resolve:

- What should be the unit of assessment: the individual, the couple, or the family with dependent children?
- What eligibility criteria should be used, in particular residency requirements?
- Should the UBI be added to other income for tax purposes, or be unconditional and thus tax free?
- Should all those eligible receive the same amount, given differences in family circumstances?
- At what income level should the UBI be set? Should the UBI be designed to avoid poverty, or set at a lower level and rely on income-tested supplementary payments to recognise differences in need?
- To what extent will the UBI be a replacement for the existing social security system, or a supplement to it?
- Are incentives to work and save relevant considerations, or are the objectives just citizenship, dignity and human rights?
- How can the UBI be made flexible in relation to changing economic and social conditions, such as different family circumstances, especially in regard to care of dependent children, changing social attitudes and differences in the nature of work and employment?

The existing social security system

The current social security system is strongly work-contingent. There are two major benefit types: jobseeker support and supported living payment benefit, with benefit levels set related to workforce expectations rather than need. Those on jobseeker support have to be available for full-time work, with strict sanctions whereby benefit levels can be cut by half for non-compliance. Those on the supported living payment (temporary ill-health, sole parent, injury or disability) have a part-time work or work preparation obligation. There is also a family tax credit for families on benefits or low incomes, and an in-work benefit dependent upon workforce participation. There are targeted second-tier benefits for housing and childcare, where family needs vary on a systematic basis, and a discretionary third tier based on specific circumstances, such as disability, residential care or to offset one-off needs.¹

The benefit level for those on the supported living payment is significantly higher than for those on jobseeker support: e.g., using April 2018 rates, a couple on the supported living payment will receive \$448 per week, whereas a jobseeker would receive \$358. This difference also applies to those with children: \$474 compared to \$384, and for a sole parent with one child \$379 compared to \$334. Benefit abatement rates also differ, with jobseeker support having a 70 cents in the dollar abatement on income over \$80 gross per week, while those on the supported living payment can receive up to \$100 per week before benefit abatement begins, at 30% up to \$200 per week, and thereafter at 70%. Personal income tax is also levied on any earnings. The lower benefit level, lower abatement threshold and higher abatement rate for jobseeker support are meant to provide a greater incentive to move into the full-time labour force. Child assistance has an abatement rate of 25% above a threshold of \$42,700.

As Figure 2 shows, the result of this system is a very complex array of effective marginal (and average) tax rates (Nolan, 2018). And this does not take into account the impact of abatement rates for the accommodation supplement or childcare allowances, nor issues arising from changing family circumstances, or

movements in and out of work (tax is based on annual income, benefits on income over the last fortnight). The components of disposable income are shown, with market income increasing with hours of work, the main benefit abating with income as well as family assistance tax credits.

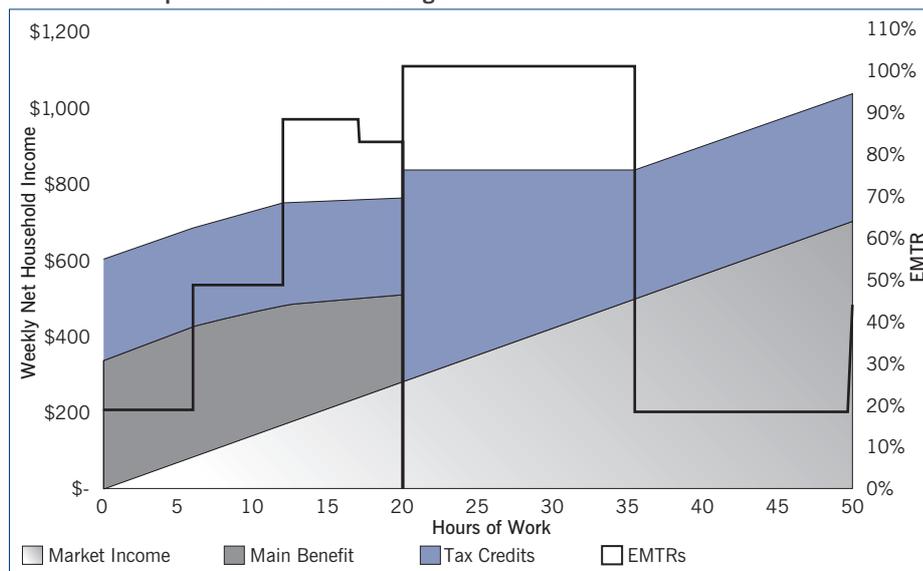
The dark black line is the effective marginal tax rates (EMTRs), with only personal income tax levied on earnings until the abatement threshold of \$100 a week is reached. After that threshold, benefit abatement of 30%, plus personal income tax of 17.5%, gives a total EMTR of 48.9% (includes ACC levy of 1.4%). After \$200 earnings per week, or 12 hours of work, the benefit abates at 70%, and personal income tax and ACC levies put up the EMTR to 88.9%. But at 17 hours of work the level of the main benefit has fallen, so that a lower personal income tax applies. At 20 hours of work the sole parent becomes eligible for the minimum family tax credit, giving a boost in net income and thus lower average tax rate, but the minimum family tax credit is abated at 100% until it is exhausted – hardly an encouragement to work for longer than 20 hours. Only after 35 hours does the EMTR fall so that only the personal income tax rate applies, and disposable income increases. If wage rates are higher, the segments both prior to and after the 20-hour threshold are shortened.

Criteria for evaluation

As the comparison between Figures 1 and 2 shows, the existing social security system is very complex compared to the apparent simplicity of a UBI. The eligibility rules for social security do not provide certainty of income, nor human dignity and social rights. However, part of the complexity of the existing system results from taking account of the likely permutations of need, which vary not just by income level but also by family type and size, housing location and tenure, workforce eligibility and expectations, and need for additional (and discretionary) disability allowances and one-off expenditures that the basic benefit is not designed to cover.

Economic analysis of the welfare system, and political mandates, concentrate on the trade-offs that occur between minimising

Figure 2. EMTRs, earnings level profiles post the 2018 Family Assistance reforms: Sole parent on a minimum wage



Source: Nolan, P 2018.

the fiscal costs of the programme, providing positive labour supply incentives by both the provision of a benefit and its abatement on entering the workforce, and the alleviation of income poverty² – the ‘iron triangle’ (Stephens, 1997). These trade-offs have to be made by any social security system, including the UBI. The UBI draws attention to the complexity of the existing system and gives different weightings to the components of the iron triangle, and adds further criteria for evaluation. The issue is thus whether a UBI would, compared to the existing tax/benefit system: reduce stigma from a lack of income; provide greater certainty of income; reduce compliance and administration costs; provide adequate incentive effects for labour force participation and savings; ensure relief from income poverty; be affordable in terms of tax levels; and be flexible in relation to changing patterns of work.

Human dignity and citizen's rights

Human dignity, income certainty, and the right to a share of the wealth and income from societal production are the essence of the UBI. Apart from an initial application, people will be automatically eligible for the UBI, and probably most secondary or second-tier benefits, resulting in high take-up rates, giving income certainty. A UBI overcomes the demeaning nature of a targeted welfare system, with its emphasis on work incentives and encouragement and enforcement, and will provide some

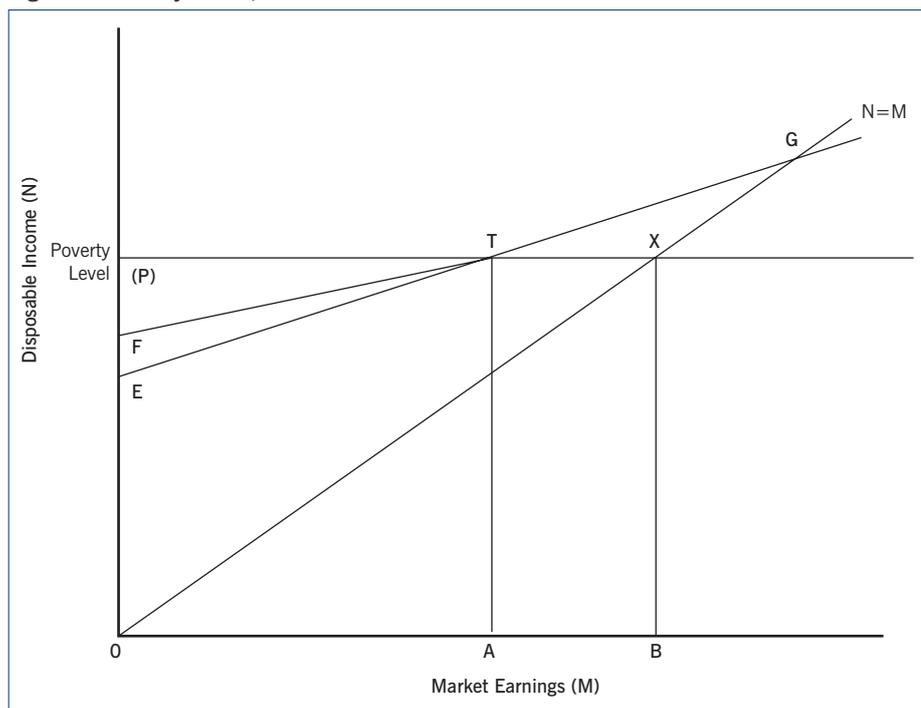
minimum income guarantee in periods of need, especially in periods of transition in and out of employment. Take-up rates for receipt of the UBI should be very high, whereas take-up rates for income-tested benefits, especially second- and third-tier benefits, tends to be fairly low: UK estimates of less than 50% have been recorded (Eardley et al., 1996).

The current social security system is the antithesis of human dignity, with detailed and intrusive application forms, repeat visits to Work and Income offices, monitoring of work applications, threats of and actual reductions to benefits because of non-compliance with complex rules, and in some cases an apparent lack of compassion at the front desk. Stigma attaches to receipt of a benefit. Benefit income is not assured, given stand-down periods which apply when moving into unemployment, or the income gap between entering work and the first pay cheque. Chapple (2018) argues that the 2011 social investment welfare reforms provided perverse incentives by imposing higher surveillance and information costs on legitimately eligible beneficiaries, as well as encouraging benefit exit, but not necessarily to a well-paid job, or even a job.

Administration and compliance costs

These are an automatic part of operating any tax and benefit system. Administration costs are incurred by the government in operating and delivering transfer payments, obtaining tax revenue, and ensuring

Figure 3: Poverty Relief, Fiscal Costs and Labour Incentives



compliance with tax and social security legislation. Compliance costs are incurred by taxpayers and benefit recipients, and include monetary, time and psychological costs of filling in tax forms, or stigma from applying for benefits. Minimising total costs should be the aim. Administration costs can be shifted to compliance costs by requiring, for example, employers to calculate the appropriate amount for family tax credits or deductions of tax liabilities at source.

The use of the current pay-as-you-earn tax system should address some of the concerns about integrating the tax and UBI systems. Costs of transitioning to a UBI should be low, as the design issues are relatively straightforward. There is one application form for each individual, and the current tax deductions at source can be used to assess market income. Complications arising from any need for targeted second- and third-tier benefits will add to costs, but the UK universal credit model (*Economist*, 2018) may provide guidance. There will still be a need for administration expenditures to minimise tax avoidance and evasion, but a UBI should reduce the opportunities for benefit fraud. In contrast, the existing system, with its complex entitlement rules, several benefit levels, abatement of the first- and second-tier benefits and family assistance, at different levels of income and effective

tax rates, plus turnover of the case load and enforcement of work search requirements, all lead to high administration costs.

The iron triangle – fiscal costs, labour force incentives and poverty relief

Returning to the iron triangle mentioned above, the UBI brings these trade-offs into stark relief, showing how these three objectives cannot be simultaneously achieved, irrespective of the parameters of the income maintenance system.

In Figure 3, the income-based poverty level has been set at OP, while the value of the UBI or jobseeker support is OE, below the poverty level. The poverty level has been adjusted, through the use of equivalence scales, for the number (and age) of children, with the disposable income level ET adjusted for any financial assistance provided. The fiscal costs are the triangle OEG, with many of the now non-poor (AB) receiving income not solely needed to avoid income poverty. The direct fiscal cost is also determined by the number of people at each point in the pre-tax income distribution. The provision of the UBI has lowered the number in poverty from OB, based on market income, to OA, giving a relatively small reduction in the incidence of poverty. However, if the measure of effectiveness is the severity of poverty – or the extent to which people fall below the poverty level – the UBI/jobseeker

support is far more effective, reducing the size of the poverty gap from OPX to EPT.

Reducing the incidence and severity of poverty requires raising the level of the UBI/jobseeker support to, say, OF. The extra fiscal cost could be reduced by a higher EMTR, giving FT, with no reduction in the incidence of poverty, although the severity of poverty is reduced. Retaining the original tax rate would increase fiscal costs significantly. Eliminating spillover of fiscal costs to the non-poor could be achieved by having a UBI/jobseeker support of OP, which would eliminate the incidence and severity of poverty. However, it would require a 100% EMTR over the market earnings range OA, giving no incentives to enter the labour market for those with likely market earnings below OA. This lack of incentive to enter work is the concern of those opposed to a UBI.

In other words, the higher the UBI/jobseeker support for poverty relief, the larger the fiscal cost; to reduce the fiscal cost, either the basic benefit has to be lower, increasing the incidence of poverty, or EMTRs have to be higher, giving more adverse labour supply incentive effects. Retaining labour supply incentives requires a lower EMTR, with the likely impact of less poverty relief and/or greater fiscal costs from a higher level of spillover of benefits to the non-poor. The choice is based not just on the direct parameters of the UBI or jobseeker support, as both systems will probably require use of income-tested second- and third-tier benefits if poverty relief is to be provided, increasing fiscal costs and adverse labour supply incentives from higher EMTRs. Raising benefit levels, or the UBI, is the most certain way of reducing income poverty for those out of work, while increasing the generosity of family assistance benefits will be a cost-effective way of reducing child poverty.

Fiscal costs

Very rough estimates can be made of the fiscal costs of a UBI. All of these estimates indicate either a substantial increase in expenditure on social welfare, and/or greater poverty for current recipients of benefits. These costs vary according to the level of the weekly payment, the tax rate and who is covered, but ignoring any labour market incentives. The current

(2018) expenditure estimates for Social Development are \$20bn, of which \$13.7bn is for New Zealand Superannuation. Total core tax revenue is roughly \$70bn, with personal income tax roughly \$20bn. Even using the jobseeker payments, and lowest child assistance expenditures, the fiscal cost of a UBI would be \$45.5bn, or roughly two thirds of all tax revenue, and more than double the existing expenditure on social security benefits.

- If the UBI is set for all persons aged 18+ at the jobseeker support level of \$215 per week, then the total cost for 3.7 million people would be \$41.3bn.
- To this should be added the payment per child for those receiving benefits: \$5,875pa for the first child or \$4,745 for second and subsequent children. Using the first child allowance for all children would raise expenditure by a further \$6.2bn, and \$4.2bn if the second child rate is used.
- If the UBI is set at the supported living payment rate for all aged 18+, the total cost rises to \$51.8bn, plus the child allowance payment.
- If the UBI is set at the existing New Zealand Superannuation level for a single person of \$400 per week, the fiscal cost would rise to roughly \$74bn, plus the child allowance payments.
- If the UBI is restricted just to those aged 18–64, at the jobseeker rate the cost would be \$34.4bn, plus the child allowance of \$4.2bn, plus the existing pension costs of \$13.7bn.
- If the UBI is paid to those aged 18–64 at the supported living payment rate, the cost would be \$41.9bn, again with child and pension payments.
- If revenue neutrality is desired, then the existing fiscal cost of the current social security and pension scheme has to be distributed across all members of society. If we assume that there is no change in the amount spent on children under age 18, then there is approximately \$20bn for the population of 3.7 million people aged 18 and over. The resulting UBI would be only \$104 per person.

In all these cases, significant spending on second- and third-tier benefits would be required to reduce the high poverty level that would ensue, increasing total fiscal

costs. Other options are a substantial increase in tax levels or cuts to government expenditure, especially on social services such as health, education and housing, reducing the real value of the UBI.

Labour supply incentives

The ability to finance either a UBI or the current social security system depends upon the tax base, which is a function of both the tax rate and the number of taxpayers with market earnings in each tax bracket. The imposition of a tax, and

replacement rate – the level of benefit when out of work compared to the expected level of earnings in employment. A higher UBI or benefit level is less likely to encourage work effort. However, a UBI provides limited disincentive to enter work as the EMTR on any earnings is only based on the structure of the tax rates for the total population. For the existing social security system, Figure 2 shows that EMTRs are effectively U-shaped, with high rates as benefits are abated, before falling when earnings are beyond the abatement

The UBI does highlight many of the problems facing the current social security system, and thus provides an outline for how that system can be improved.

the provision of a benefit, can affect the number of taxpayers and their level of market earnings – i.e. labour supply incentive effects.

However, other factors may predominate. Atkinson and Micklewright (1991) indicate that entitlement conditions and case management rules may be the more important determinants of labour supply. Positive encouragement, such as training and education, or working with employers to encourage them to accept those with a disability or released from prison, help overcome disadvantages in participation and are more likely to lead to primary jobs at decent wages, with a lower likelihood of return to unemployment. But the UBI, by ignoring this contingent information, treats all recipients identically and does not take account of these differential potential impacts on labour supply, and thus the possibility of improving the trade-off between fiscal costs, poverty relief and labour supply incentives. Nevertheless, a UBI does allow job experimentation, and time for study and to undertake child or elder care, without the risks of sanctions and stand-down periods.

The decision to enter the workforce is traditionally seen as dependent upon the

thresholds. The resulting structure of EMTRs can be seen as an attempt to encourage either very limited part-time work or full-time work, as there is virtually no financial gain from working at a modest level of employment.

Moreover, the evidence shows that the disincentive to enter work is larger for women than for men, especially with a family-based benefit system. When a partner enters the labour force, benefits which are abated against family income tend to show a limited gain in cash income. Browne and Immervoll (2018) argue that as a UBI is not withdrawn when people start earning more, work incentives are strengthened. Much of the evidence suggests that most people want to work, and the biggest constraint is the availability of suitable employment, at adequate wages in preferred locations. The few experiments with forms of a UBI/negative income tax, such as the Denver/Seattle experiment and that in Canada, have shown a slight reduction in hours of work rather than withdrawal from the labour market, though there were bigger reductions for wives and single mothers. More importantly, there was an improvement in quality of life, teens stayed in high school longer, many women took longer maternity leave, and

there was improved mental and physical health and reduced criminal activity (Glazer, 2017).

Fairness and equity

Political acceptability requires that taxes and benefits are seen to be fair or equitable. Tax avoidance and evasion and benefit fraud break this societal norm of fairness. Resentment over benefit receipt often comes from (low-income) workers and taxpayers. This resentment is likely to be high for UBI payments to those not in need.

An intergenerational perspective may yield different answers, however. The perceived fairness of the UBI may depend on whether those with no current market income will make or have made a positive contribution to society. Surfer Jill or Idler Joe may not be making a current contribution to society, but the time off with some security of income may allow them to adjust to changing personal circumstances before re-entering the labour market, or doing further education/training or voluntary work.

A universal child benefit might be more acceptable. Wages are set on economic rather than social bases (so do not adjust for family size), children cost money irrespective of income levels, and child development represents the future of the economy. As much of child development occurs before age five (Expert Advisory Group on Solutions to Child Poverty, 2012) and this is the age when family incomes are at their lowest, a strong case can be made for universal family assistance for all children under five. There is still the issue of how to decide which parent should receive the child assistance, given the individual nature of the UBI. Universal child assistance would overcome many of the labour market incentive issues that

arise from the high EMTRs in the existing targeted system.

Conclusions

A UBI is seductively simple. Many proponents of a UBI look at it *de novo*, or having a blank sheet for the tax–benefit interface. But it will be a replacement for the existing social security system and will have to face the same issues and people. The UBI does highlight many of the problems facing the current social security system, and thus provides an outline for how that system can be improved. It does not resolve the fundamental trade-offs in the iron triangle – the incompatibility of achieving labour force incentives, poverty relief and low fiscal costs at the same time. Nor does it achieve administrative gains, as some forms of supplementary and income-tested benefit will be needed to mitigate the constraints of the iron triangle.

The existing social security system does have significant problems. But some of these could be addressed by reprioritising the existing system rather than moving to a UBI. The UK universal credit evaluations should be monitored to see whether an automatic and integrated payment approach based on income and social characteristics is a suitable vehicle for addressing some of the failings of the current system. This approach would provide some form of guaranteed minimum income, but without spilling over into the total population.

With a UBI, while the workforce disincentives from high EMTRs are partially addressed, there are few mechanisms to ensure employment and thus the tax base. Other policy instruments may be more appropriate: full employment at adequate wages; workforce encouragement through removal of constraints on entering the labour market,

such as lack of appropriate skills; offsetting adverse backgrounds such as prison history, tattoos, drugs, etc.; and lifelong training opportunities for re-education. The automatic payment of a UBI fails to address any of these issues.

Admittedly, the welfare state has not adjusted well to the changing nature of work, which is becoming more transient and precarious. It has used enforcement and punitive sanctions to fit people into the changing world, rather than providing encouragement to offset barriers to work. Once again, though, the UBI is a panacea, not a realistic solution to these problems.

More generally, as Timmins has commented, there is

a key trade-off in the design of any system of social security: the simpler it is, the more it will involve forms of rough social justice; the more attuned it is to individual need, the more complicated it will be, both for claimants and for those running it. (Timmins, 2018, p.8)

The proponents of the UBI have yet to show how it can be adjusted to take account of individual need. Therefore, we may be better off looking to simplify and amend the current system, to make it fit better with the realities of the 21st century.

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Mountains to Sea

Solving New Zealand's Freshwater Crisis Edited by Mike Joy

It strikes me with great clarity that if you look at the problems in isolation they each seem intractable; but when you grasp that there could be one single solution, then suddenly there is a glimpse of light at the end of the tunnel.



The state of New Zealand's freshwater has become a pressing public issue in recent years. From across the political spectrum, concern is growing about the pollution of New Zealand's rivers and streams. We all know they need fixing. But how do we do it?

In *Mountains to Sea*, leading ecologist Mike Joy teams up with thinkers from all walks of life to consider how we can solve New Zealand's fresh water crisis. The book covers a wide

range of topics, including food production, public health, economics and Māori narratives of water. *Mountains to Sea* offers new perspectives on this urgent problem.

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