Funding Basic Income

Steven McAtee

BIEN Conference September 2022

Abstract

This paper presents a strategy of funding a Universal Basic Income (UBI) for Australia based on current economic data economic including population, the government budget, and income distribution. The economic stabilisation proposed in this paper requires:

1. Modifying the existing government funding framework to support a UBI.
2. Sovereign currency strategy to produce money where needed
3. Money taxation or negative interest rates to remove money from the economy
4. Wage offset to subsidise and minimise labour costs
5. Scale money to maximise the benefits of UBI and wage offset.

The effects of the UBI are shown compared to Australia's income distribution. These effects are examined using standard economics (supply vs demand, equilibrium analysis). Reallocate areas of the budget directly paid to people (social security or wages) reduces the main cost of $400 Billion down to around $130 Billion. The second strategy is to print money and tax the money supply. Printing money increases the money supply in the economy and spending where needed and taxing the money supply reduces the amount of money in the economy and removes money where it remains static.

This analysis demonstrates using standard economic equilibrium analysis that:

1. It is possible to fund a UBI with minimal effect on the economy and taxes
2. A UBI would be able to reduce income disparity
3. A UBI would move the equilibrium point of the economy to ensure that the total population is funded appropriately and thus eliminate most poverty in an economy.
4. This mechanism avoids financial crises

The Stabilised CPG Model demonstrates that it is possible to stabilise an economy by releasing money into the economy (specifically, to its Consumers) and by taxing money to ensure that the total amount of money in the economy does not increase without bound.

Introduction

A Universal Basic Income (UBI) is a government social security payment for all people that is irrespective of their employment status. The UBI is intended to cover basic expenses such as rent food and utility bills. It has been a subject of research for many decades and has been shown to have many benefits for society. Including reductions in crime, general improvements in health increased and social stability.

There have been many trials over the last century [1–9] that have demonstrated the many social benefits of a UBI. These benefits include reduced crime, improved health and increases in entrepreneurial activities to name a few. Most of these trials, despite the positive results have not been more broadly implemented.

One of the criticisms for implementing a UBI is the cost of implementing such a plan. A few researchers have discussed how a UBI can be funded for an entire population [10]–[13]. The typical strategies are funding from taxation or a negative income tax. These researchers typically present a funding strategy and some expected outcomes, but have not presented a numerical analysis of the funding and its effects.

Previous research [14] has shown that a basic income would also prevent recessions and allow an economy to be continuously stable. The model presented here showed that a UBI paid every person involved in an economy allows people to be continually funded so that even if business make profits they maintain enough money to purchase the goods they require and keep the economy running at a maximum.

In this paper it is shown how a stabilised economy with supercharging can be funded and the effects to an estimated equilibrium point, and as such how poverty can be addressed.

Recommended Funding Structure

There are four features that need to be implemented to allow the economy to be stabilised [14]:

1. Modifying the existing government funding framework to support a UBI.
2. Sovereign currency strategy to produce money where needed
3. Money taxation or negative interest rates to remove money from the economy
4. Wage offset to subsidise and minimise labour costs

Stabilisation allows money to flow through the economy in a more linear fashion, as opposed to the Circular Flow of Money. It allows money to flow in a production–consumption cycle. Products are created from resources and traded to Consumers, who consume them, i.e. they effectively disappear. In an unstabilised economy, money is supposed to circulate, but it does not circulate evenly. The money in a stabilised system is allocated to Consumers and used on Government-approved projects. This money is spent and eventually finds its way into the hands of private enterprise (i.e. Producers). As it moves, the money is taxed and is continually removed from the economy. The stabilisation process deallocates money, at a slow rate. This allows the money to be used then removed from the system, much like the products that are consumed.

From the stabilisation, a money flow can be established, starting with money being allocated to Consumers or to any projects the Government has decided are necessary. The Government and Consumers can then use private enterprise, i.e. Producers, to meet their requirements.

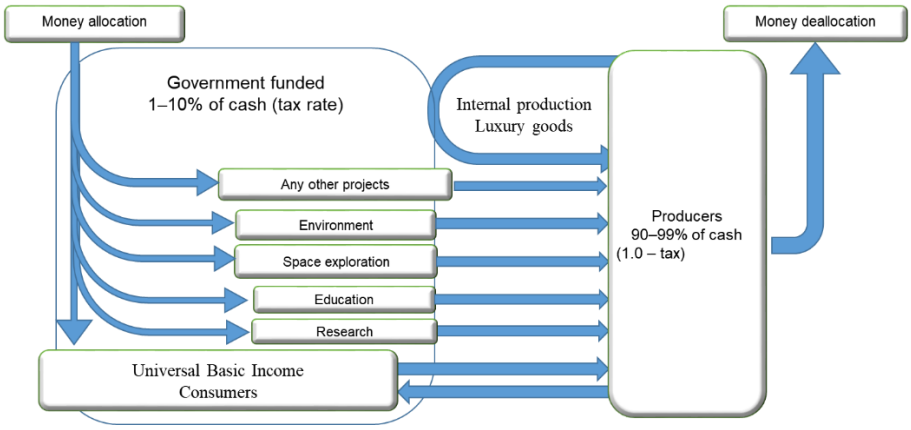

Figure 1: Proposed Government funding structure

From examining the input money created and output money taxed or deallocated, the balance of money created or deallocated can be determined.

The standard CP model is derived from the "Circular flow of money" description of the economy. In this model Producers pay consumer's wages for their work and consumers buy the products they need as shown in Figure 2.

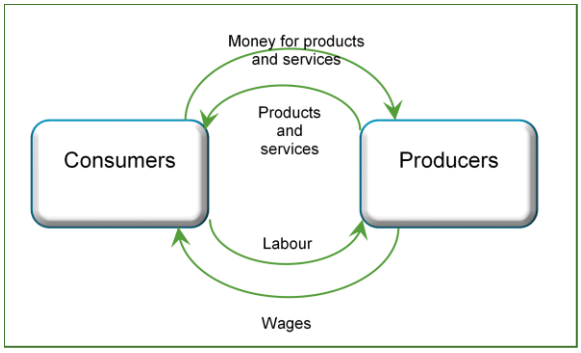

Figure 2: CP System Model

When operating with a constant population, constant money supply and business investment the model produces business cycles as shown in Figure 3

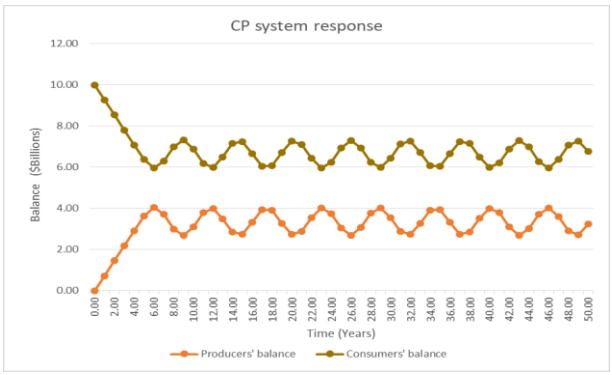

Figure 3: CP System Response

The consumer distress diagram below shows that distress (The number of people who do not have enough money to buy their necessities) varies between 0% and in the case shown below 18%.

Figure 4: Consumer distress

By adding in the four mechanisms, all of the consumers always have enough money to purchase their required goods, the business cycles disappear and the amount of money in the system becomes constant, as shown in Figure 5.

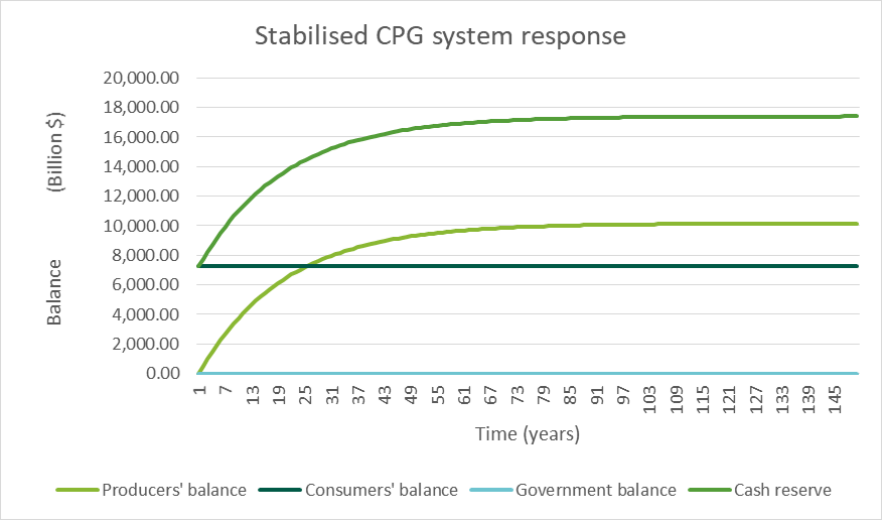

Figure 5:Stabilised CPG system response

As everyone can afford the products they need and everyone can be employed hence consumer distress is zero. 0% distress also means 100% employment Figure 6.

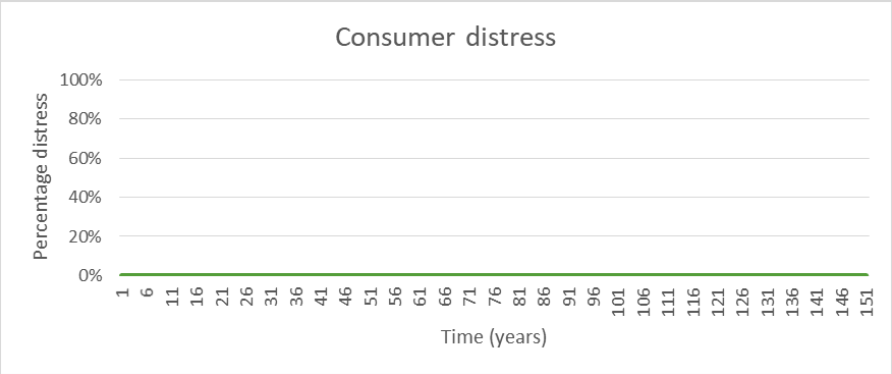

Figure 6:Stabilised Consumer Distress

This shows that the stabilisation can be funded using Sovereign currency and a cash tax. Several example of how this works numerically are shown in Table 1, Table 2 and Table 3.

Table 1 Summary of Government Costs 4% Cash Tax $2.5 Trillion cash

	Cash Allocated		Cash Deallocated
UBI	$400B	Cash Tax 4% ($2.5T)	$100B
Other Government Funding	$300B	Income Tax	$250B
		Company Tax	$100B
		GST	$80B
Total	$700B		$530B

Net Result Cash Released: $170B. Assuming no change in expenses, to balance this out the amount of Total Cash (Broad Money) would increase to $6.25T.

Table 2 Summary of Government Costs Balanced Cash Tax 4% Tax $8.75 Trillion cash

	Cash Allocated		Cash Deallocated
UBI	$400B	Cash Tax 4% ($8.75T)	$350B
Other Government Funding	$300B	Income Tax	$250B
		Company Tax	$100B
Total	$700B		$700B

It is even possible to eliminate **all other taxes** and just use the cash tax.

Table 3 Summary of Government Costs Balanced Cash Tax 4% Tax $17.5 Trillion cash, No other taxes.

	Cash Allocated		Cash Deallocated
UBI	$400B	Cash Tax 4% ($17.5T)	$700B
Other Government Funding	$300B		
Total	$700B		$700B

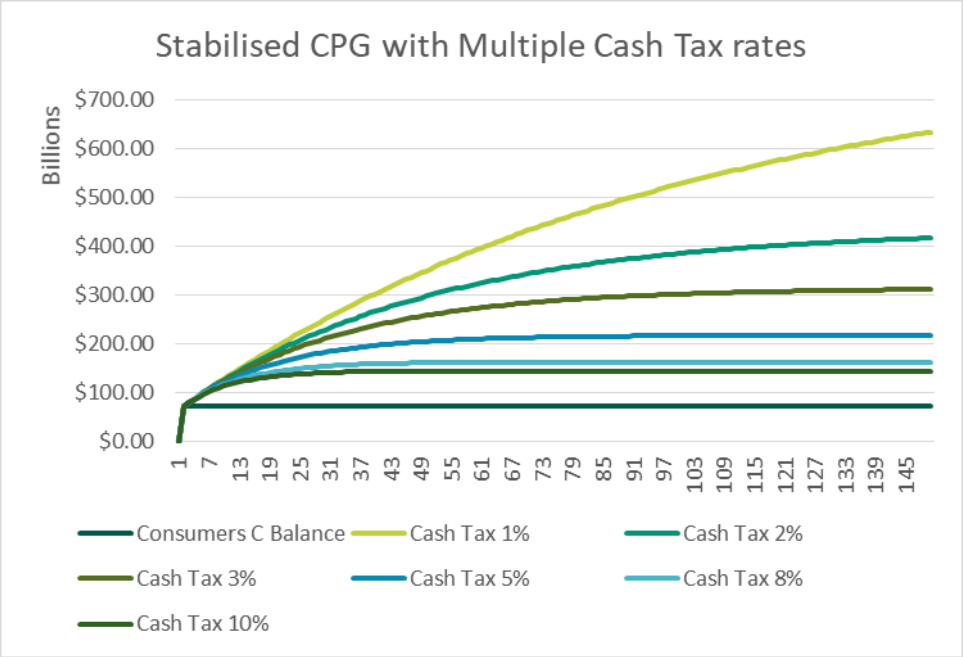

Figure 7: Stabilised Economy at various cash tax rates

As long as the UBI is paid to citizens the economy can continue without interruption. One of the benefits of this system is that varying the Cash Tax rate simply changes the end amount of money in the economy as shown in Figure 7.

Standard tax cycle

The standard tax cycle can be modelled with a version of the circular flow of money from basic economics.

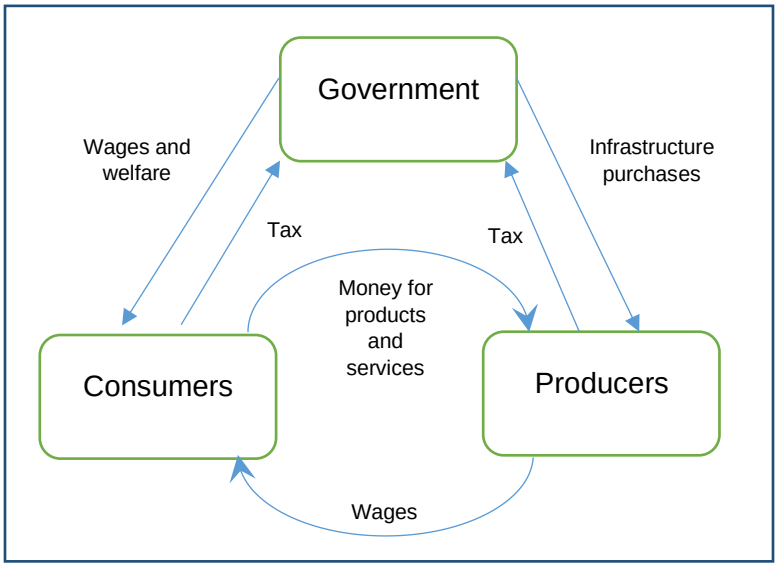

Figure 8: Circular flow of money

Currently, the Australian government collects around $510 Billion per year from the various mechanisms. The largest revenue streams include income tax, company tax and sales tax.

Table 4 Australian Government Revenue 2019
https://archive.budget.gov.au/2019-20/index.htm [15]

Individuals income tax	$234.10
Company and resource rent taxes	$101.90
Sales taxes	$71.40
Non-tax revenue	$37.20
Fuels excise	$20.50
Customs duty	$21.10
Superannuation taxes	$9.80
Other taxes	$10.20
Fringe benefits tax	$4.00
Other excise	$3.70
Total revenue	$510.20

Table 5 Australian Government Budget 2019 expenditure

https://archive.budget.gov.au/2019-20/index.htm [15]

Expense	Amount (Billions)	Percentage
Social Security & Welfare	$180.125	35.96%
Health	$81.777	16.33%
General revenue assistance - States and Territories	$69.053	13.79%
Education	$36.350	7.26%
Defence	$32.243	6.44%
General public services	$23.614	4.71%
Public debt interest	$17.037	3.40%
Nominal superannuation interest	$11.127	2.22%
Other economic affairs	$9.297	1.86%
Transport & communication	$9.038	1.80%
Fuel & energy	$8.171	1.63%
Public order & safety	$5.919	1.18%
Housing and community services	$5.907	1.18%
Recreation & culture	$3.849	0.77%
Mining, manufacturing & construction	$3.442	0.69%
Agriculture, forestry & fishing	$2.871	0.57%
General revenue assistance - Local governments	$1.275	0.25%
Natural disaster relief	$0.011	0.00%
Contingency reserve	-$0.216	-0.04%
Total	$500.872	

Current Government expenses shown in Table 2

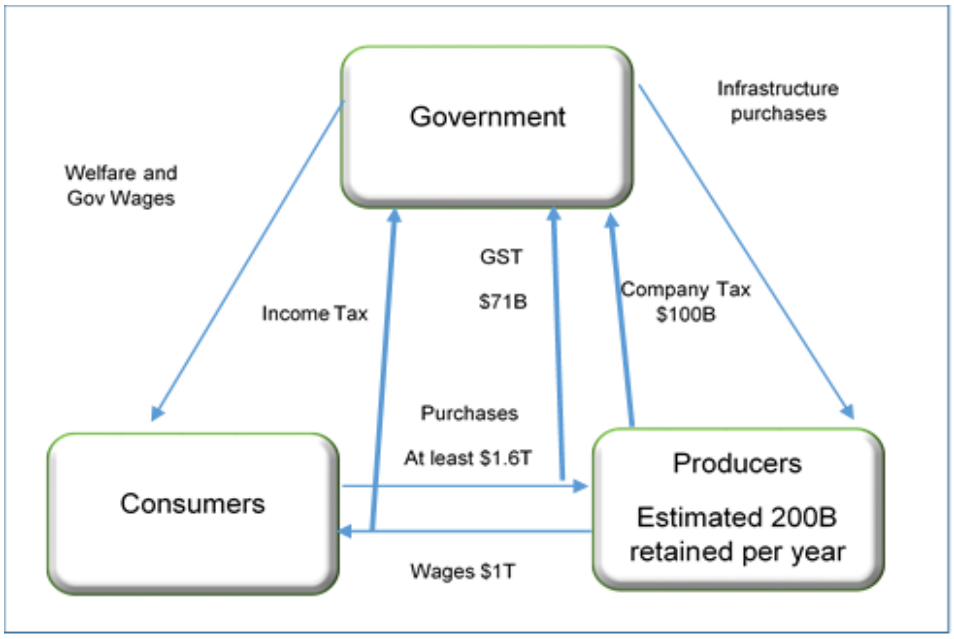

Figure 9 CPG model showing Producer Income and expenses

Figure 8 shows the Producer income. When analysed this shows that Producers have a net profit as expected for viable businesses.

Producer Income:

Wages + GST + Company tax / 0.3

1.2T + 74B + 333B

~ $1.6T

Given that Producers pay $100B in tax at 30% companies must be earning approximately $200B per year in after tax profits. The total amount of cash in the economy is around $2.5T. With $1.4T cycling through Consumers means that there is at most $1T of "savings" not spent by anyone. At $200B per year it takes only 5 years for all of the savings to be acquired by producers. The retained earnings could also be invested in new business, but ultimately this is at the discretion of business owners.

This establishes that we need to keep at least $1.6T circulating in the economy, and we are currently running this at roughly a 30% tax load.

Modifying the existing Tax Framework

With an average of $86,000 plus a 20,000 UBI gives a total of $106. To recover the UBI from wages requires an average increase in taxes of around 20%. At higher incomes this might need to be as high as 70% as around 70% of incomes are below the $86,000.

The main difficulty with modifying or especially increasing taxation is the backlash from the public.

Worst case scenario people decide to immigrate. Consider Rupert Murdoch who relocated to the US to avoid Australian taxation. High taxes in California are blamed for people immigrating to other states in the US.

In Australia for 2019 the average wage is around $86,000 per year and there are 13.8 million jobs. This means we have a total of nearly $1.2 trillion circulating through producers and consumers. Producers pay around $100 Billion in taxes and at an average rate of 30% they must be making $300 billion in profits and with 71B in GST the total would be $1.6 trillion in the CP cycle.

From this The Australian Government receives around $510 Billion in Taxes. What this shows is that we are currently running at an average tax rate of around 19.5% ($234B/ $1.2T). Adding $500 Billion for a UBI, the total revenue needs to be $1Trillion i.e. doubled for the government to ensure the UBI can be funded. This would mean all taxes would need to be doubled.

Even adding the UBI Into aggregate income ($1.2T + $400B) and assuming this would be taxed back at the maximum tax rate of 50% would increase income by $200B.

Some expenses could be offloaded onto the UBI such as Social security and there are some potential benefits, but clearly there is work to be done for this strategy to work.

Put simply if we attempt to pull out more money from the CP cycle, the cycle itself will expand. If we attempt to pull $200 Billion out of the cycle, it will grow from $1.6 Trillion to $1.8 Trillion. This would result in an increase in inflation by as much as 12.5%. Currently inflation runs at between one and two percent.

The problem by attempting to increase taxation on the CP cycle is limited to how much businesses **decide** to spend on employees, calculated at $1 Trillion. The rest mainly comes from Social Security ($180B) government wages and people spending savings. So if businesses decide to stop spending money on this cycle, either by offshoring work or simply shutting down business, the tax load on this cycle would need to increase to fund the UBI and other Government expenses.

That said the existing tax framework does help to rebalance income inequality by taxing higher wages more so it is still a useful mechanism to have in place.

Without the cash tax it is not possible to stabilise the economy. Attempting to taxing Spending even of rich people simply adds to the existing problems in the economy. The solution is to minimise the CP loop entirely and use taxes that do not increase costs for businesses, hence minimising inflation.

Analysis

This paper uses the current Australian population, budget and income distribution to demonstrate how a UBI could be funded and analyses the changes in income distribution and equilibrium in the Australian economy.

The funding strategy is to reallocate parts of the budget that are directly paid to people to account for a UBI. This includes a large proportion of social security and as much as 25% of other budgets. The second part of this strategy is to “print” any further money required and to tax the money supply (i.e. savings). This technique increases the amount of money in the economy (via printing) and at the same time removes money from circulation (from money supply taxation).

Table 6 Australian Government Revenue 2019.

Revenue Stream	Income $ AU (Billions)
Individuals income tax	$234.10
Company and resource rent taxes	$101.90
Sales taxes	$71.40
Non-tax revenue	$37.20
Fuels excise	$20.50
Customs duty	$21.10
Superannuation taxes	$9.80
Other taxes	$10.20
Fringe benefits tax	$4.00
Other excise	$3.70
Total revenue	$510.20

In Australia there are approximately 4.6 Million people on Government allowances including, Pensions and unemployment. Approximately 20 Million people in Australia over 15. If each is paid say $10,000, this means $200 Billion is needed to fund a basic income in Australia.

If we take the existing social security system, on Average Pensioners are paid about 26,000 per year, $51B to 1.95 Million people. The total social-security payments is approximately $120B which averages out to around $26,000 each supporting around 4.6 Million people.

If we pay a UBI in place of some of the pension all we are doing is reallocating money from the social security system to the UBI this would move $46 Billion from Social Security to UBI.

Average wage in Australia is around $80,000. A $10,000 UBI represents 12.5% of the average wage. The rest of the government budget is $320 Billion 12.5% of this is another $40B.

Simply using reallocation from the government budget $86 Billion of $200B has been found leaving $114B.

If we increase the UBI to $20,000 we require $400B. The reallocation in social security is then $92B. Reallocation in the rest of the budget 25% ($20,000 out of $80,000) is then $80B. This allocates $172B out of $400B required leaving $128B that needs to be funded.

The strategy I present to stabilize the economy is to create or “print” the money required and to tax the static money in the economy i.e. “savings”. Not asking you to like it, but these two features in combination avoids the problem of hyper-inflation. The next feature we consider is the total amount of Australian money which is a bit over $2 Trillion. If we tax this at 2% per year this represents another $40B, 4% gives $80B, 5% gives $100B.

If the amount of money we need is more than what we tax out, this simply means that there will be more money created into the economy and therefor more tax would be received by taxing static money.

Depending on the tax rate and UBI amount leaves between $14B and $88B required. This final amount can be created directly from creating money. We can also consider the increase in demand by examining income distribution.

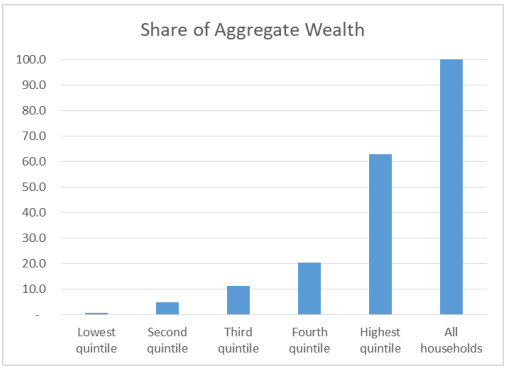

Figure 10 Share of Aggregate Wealth

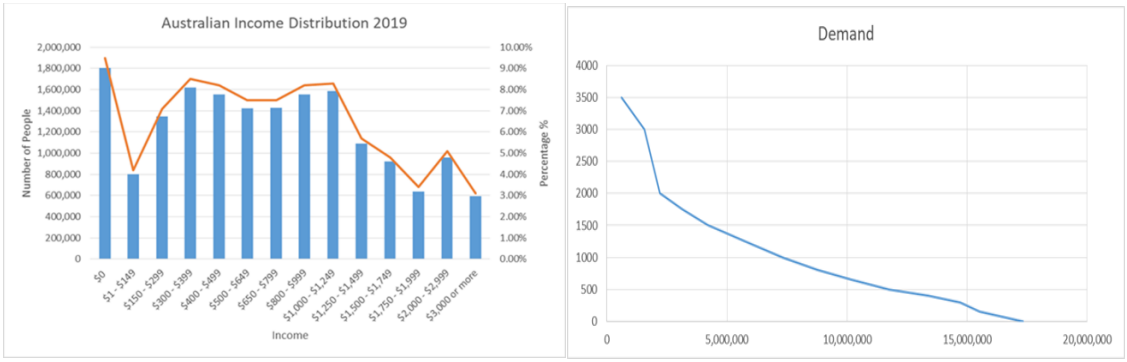

Figure 11 Income Distribution and Demand curve Australia 2019

The existing demand can be calculated from income distribution and population as shown above. UBI can be added directly to incomes which results in the demand.

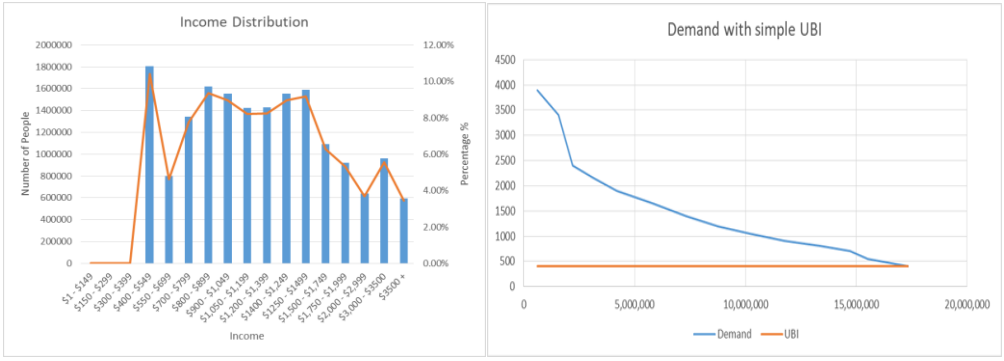

Figure 12Income Distribution and Demand curve with simple UBI Australia 2019

Using a UBI increases the amount of money the poorest 15% of the country receives. This represents approximately 3 Million people. A UBI of $20,000 represents an increase in their income of at least on average $10,000 to $15,000 per year. With 3 million people this represents an increase in demand at the

low end of $30 to $45 Billion per year. If 30% of this comes back in tax on profits this also adds $10-$15B to the funding.

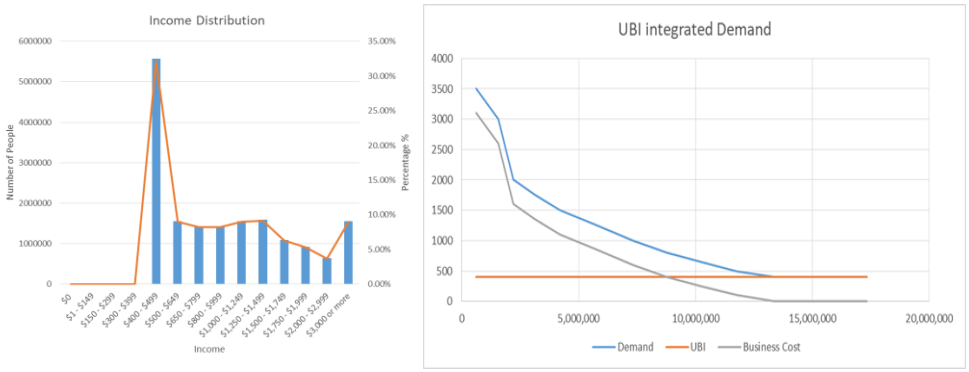

Figure 13 Income Distribution and Demand curve with Integrated UBI Australia 2019

This either fully funds a Universal Basic Income or requires as much as $78 Billion with no increase in existing taxes, and 1 new tax.

The other potential benefit of this approach is that if we allow businesses to use the UBI as part of their responsibility to their employees' wages.

If we use a UBI of $20,000 and apply this against the wages paid by businesses. This means that businesses reduce their costs by $20,000 per person. With around 12,000,000 people employed this saves businesses $240 Billion per year. This means that businesses should be able to reduce costs by 20 to 25%. If costs can be reduced by 25% it means the government budget is effectively expanded as the cost of products are reduced.

This also eliminates inflation and, according to my previous research, recessions.

The other reason we want prices to decrease is to be able to compete better with other countries. The cost of living in China and India is almost 4 times lower than in Australia. This is why many jobs have been offshored to these countries. By decreasing prices we can begin to reduce the cost of living and hence shift jobs back to Australia (or any other country that implements a basic income).

This gives a summary of what we do know about how the economy runs. What we don't know is how much effect taxing saving would have on money flow. Essentially if money in savings disappears people and businesses are more likely to spend what they get. How much more is a good question and will only be answered by implementing these ideas.

Scaling the economy

One final trick is to scale the economy before applying the UBI payment. Scaling the economy means that all amounts of money (prices, wages, costs etc.) are multiplied by a scaling factor, 0.5 for example. This would scale the average wage from around $90,000 per year to $45,000 per year. When the UBI at $20,000 is applied with the wage offset, this results in the load on businesses to be reduced to nearly 50%. This means people will on average receive less than 50% of their income from businesses meaning that costs can be reduced by as much as 50%, hence prices. The income distribution and Demand curves are shown below.

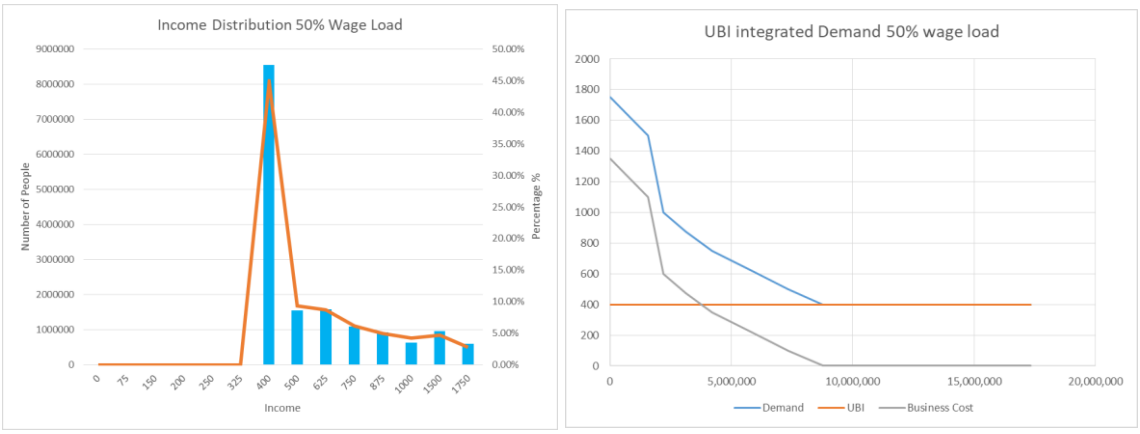

Figure 14 Income Distribution and Demand curve with 50-50 Wage Load UBI Australia 2019

Again realistically the income distribution would bleed out above the $400/week UBI level. Notably the Demand curve highlights that the best strategy for businesses is to aim for cheap high volume products that almost everyone can afford. Using this combination of mechanisms reduces income inequality from a range of $150-3500 without UBI, a factor of 23, to a range of $400-3500 with UBI offset, a factor of 8.75, and finally a range of 4.25 with a scaled UBI.

Equilibrium

If the demand curve is used with a supply cost line we can estimate an equilibrium point. The Henderson poverty line, put simply, is a measurement of the weekly income at which people are considered poor. For 2018 is reported as around $433 per week [16]. If this is used as the supply cost at maximum population of 17 Million people it results in an Equilibrium point of 14 Million people. This is consistent with the measurement 3.05 million people in poverty [16].

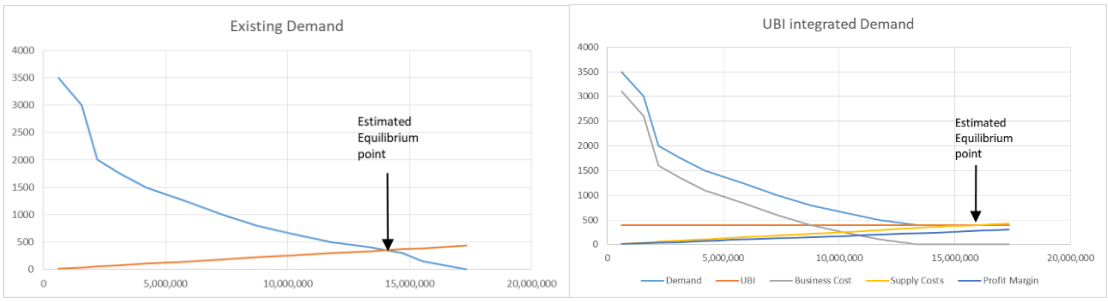

Figure 15 Demand curves with Estimated Equilibrium 2019

If the UBI is implemented at $400 per week, using the same supply curve the equilibrium point moves up towards 16 million people. The next 1 million people have 90% of the money needed, so might need some support but this should be minimal. This shows that the effect of using an integrated Universal Basic income could be used to eliminate as much as 90% of poverty in Australia.

Without the cash tax it is not possible to stabilise the economy. Attempting to taxing Spending even of rich people simply adds to the existing problems in the economy. The solution is to minimise the reliance on the CP cycle i.e. wages, income tax, company tax etc. This prices of both products and labour can be minimised. When prices are lower everyone benefits.

This paper compares a UBI funding strategy based around a cash tax with several approaches based around the existing taxation framework.

The funding strategy is to reallocate parts of the budget that are directly paid to people to account for a UBI. This includes a large proportion of social security and as much as 25% of other budgets. The second part of this strategy is to "print" any further money required and to tax the money supply (i.e. savings). This technique increases the amount of money in the economy (via printing) and at the same time removes money from circulation (from money supply taxation).

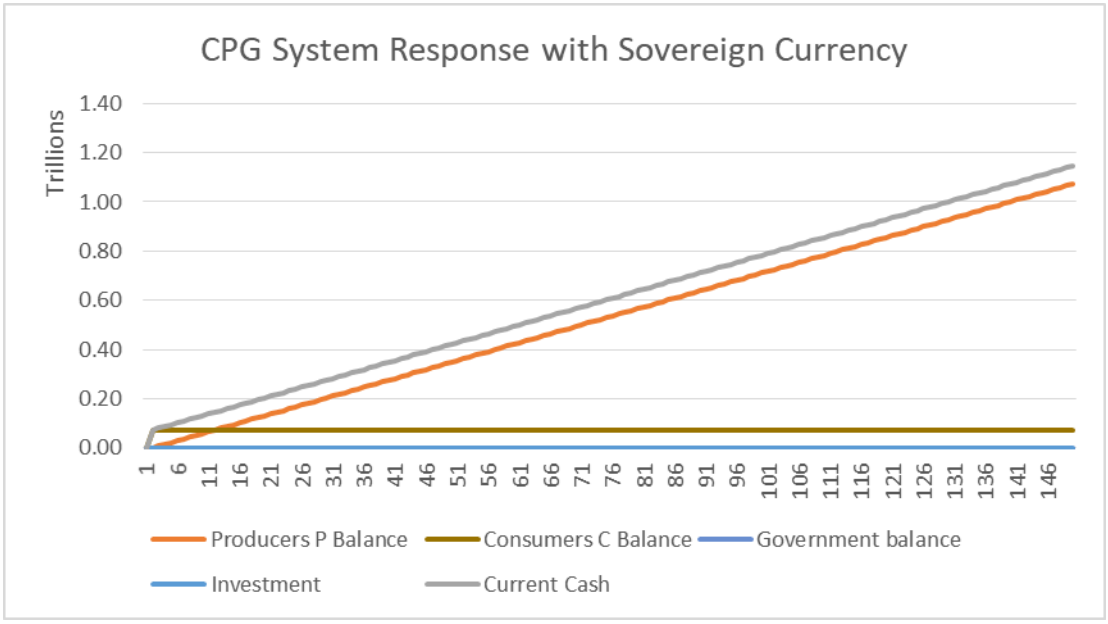

Figure 16 CPG system response, with no cash tax and 1.5% inflation

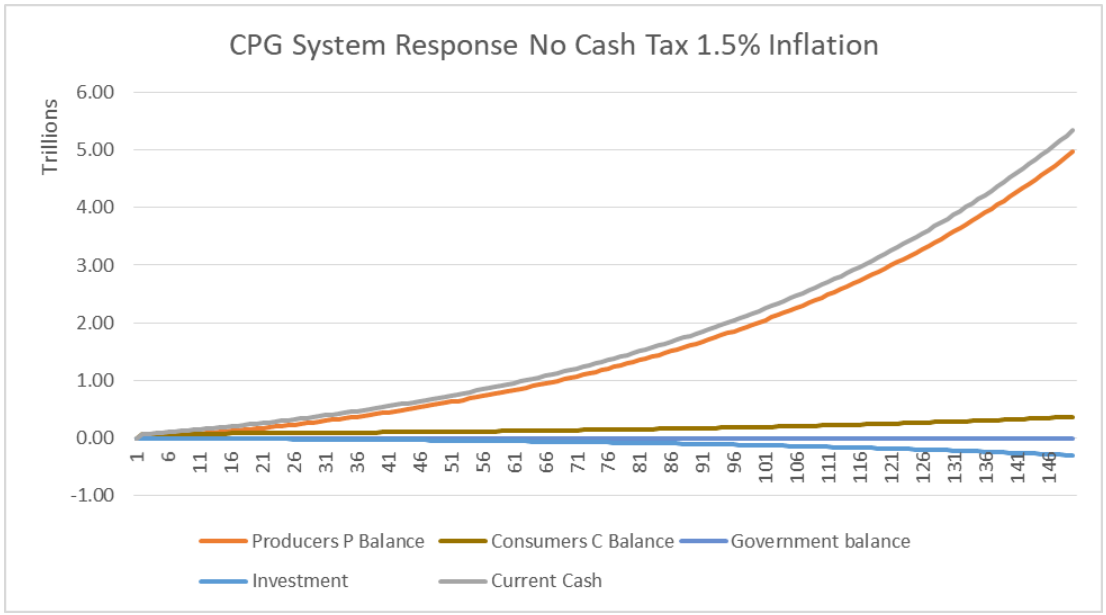

Figure 17 CPG system response, with no cash tax and 1.5% inflation

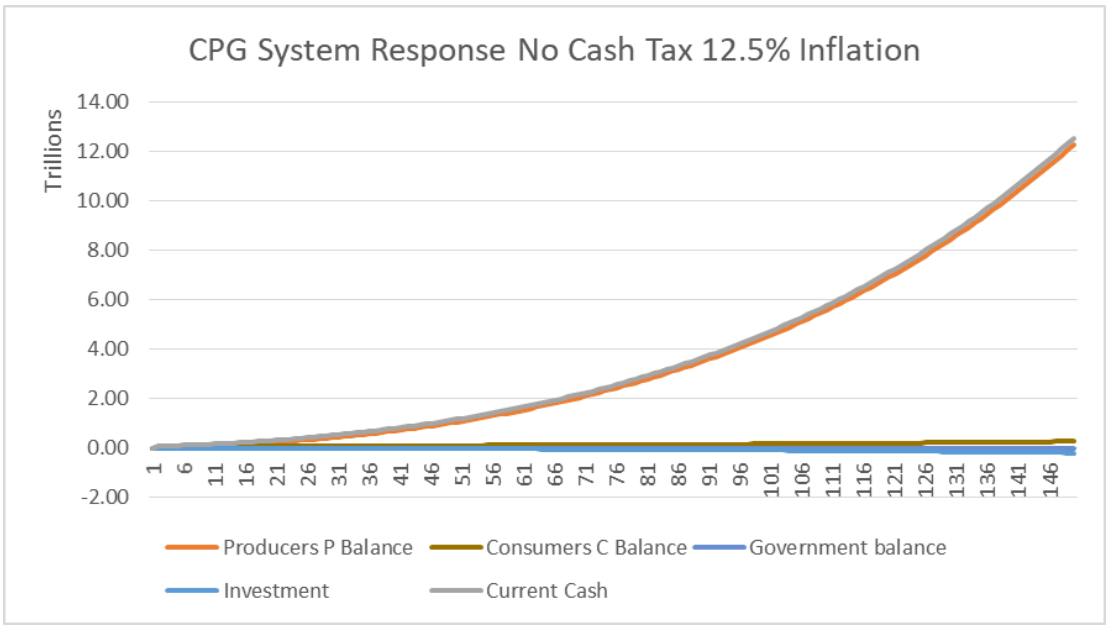

Figure 18 CPG system response, with no cash tax and 12.5% inflation

The real world current debt and money supply look the same, as shown in Figure 19. This shows that again money supply without the cash tax will allow an exponential growth in the money supply.

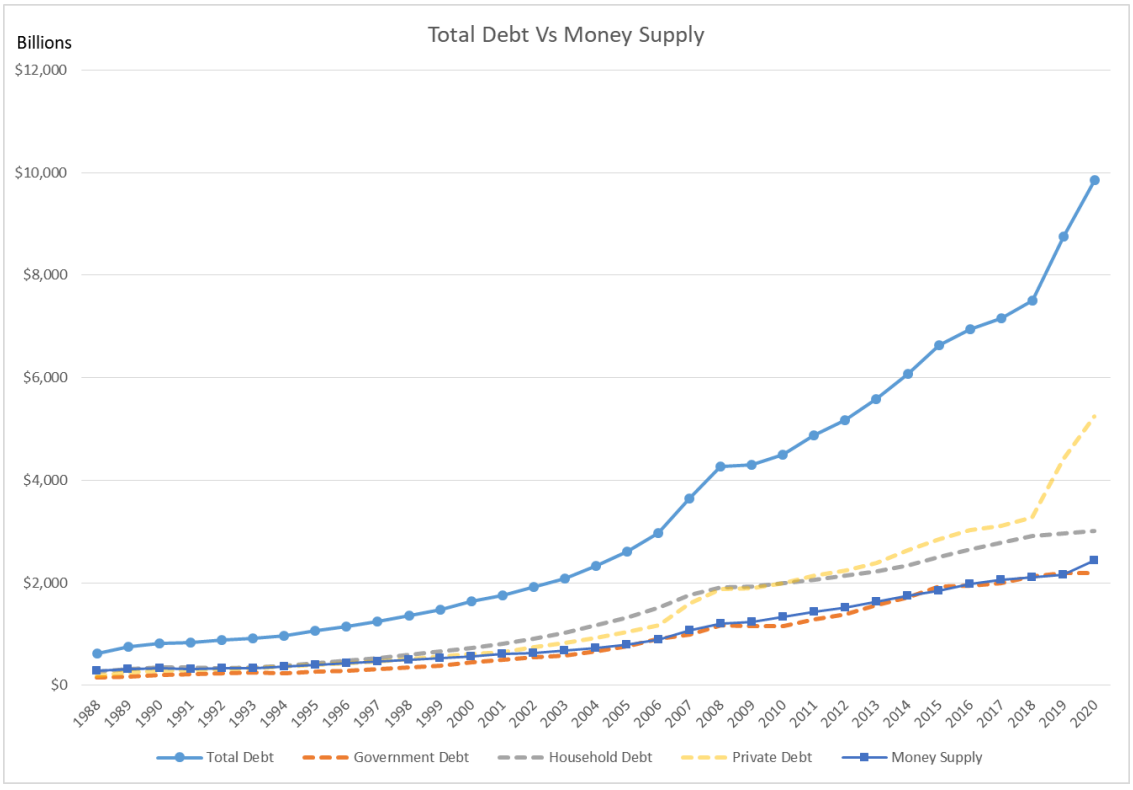

Figure 19 Current Australian Debt and Money supply. [17]

Money Push Pull

By comparison the Money push pull system uses no Debt, and produces a level of money that becomes stable over time.

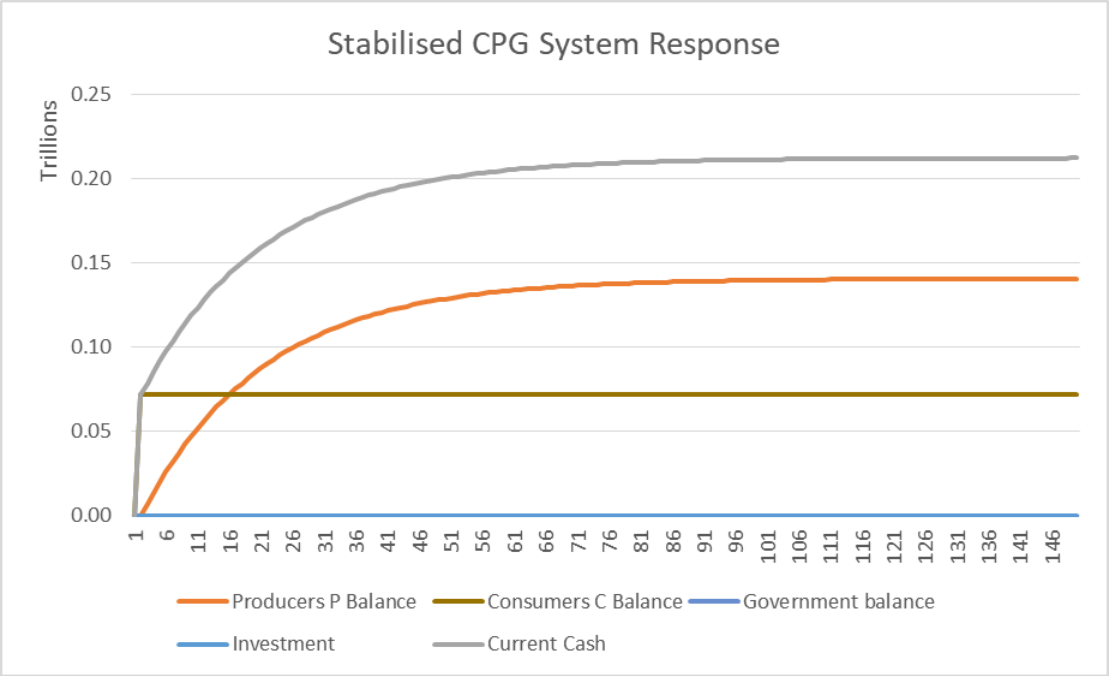

Figure 20 Australia UBI Integrated Demand curve with Estimated Equilibrium 2019

Notes on Inflation

Inflation is an important feature of the economy that we need to find ways to minimise inflation. The reason inflation is an important factor to consider is that it can cause the economy to completely fail. This occurred in Germany after World War I (1924, 1931) [18], and more recently in Zimbabwe (2009)[19]. In both places, inflation increased to such a point that it was called 'Hyperinflation'; this ultimately resulted in the associated currency being abandoned.

One problem with basic income if implemented naively, is that it could produce at least some inflation directly. If we attempt to compensate by increasing basic income and adding further costs to the rest of society we could end up with significantly increased inflation. In both Germany and Zimbabwe much of this inflation was caused by Debt, Issues from War and Recessions. The relevance here is we are currently experiencing high debt, a recession arguably caused by a pandemic and the recent war in Ukraine. Hence, it is some concern that we could make things worse by using mechanisms that cause inflation. Also we should be considering how to limit or mitigate inflation so that we can ensure to avoid a hyperinflation crash.

Conclusions

The economic stabilisation proposed in this paper requires

1. Modifying the existing government funding framework to support a UBI.
2. Sovereign currency strategy to produce money where needed

3. Money taxation or negative interest rates to remove money from the economy
4. Wage offset to subsidise and minimise labour costs
5. Scale money to maximise the benefits of UBI and wage offset.

The analysis of the UBI funding model provided shows that it is possible to fund a basic income of $20,000 per year by offsetting the costs of the basic income with reductions in other government expenses.

This analysis also shows that this method of funding the UBI will be able to move the equilibrium point from 14 million people to around 16 million people, thus eliminating poverty.

The secondary benefit of this model is that business costs are also reduced by around 25%. This should allow businesses to increase employment and give an estimated 20% price reduction which benefits the entire population.

This demonstrates that it is possible to accomplish the following:

1. It is possible to fund a UBI with minimal effect on the economy and taxes
2. A UBI would be able to reduce income disparity
3. A UBI would move the equilibrium point of the economy to ensure that the total population is funded appropriately and thus eliminate most poverty in an economy.
4. This mechanism avoids financial crises

These mechanisms work in concert to minimise income inequality, minimise inflation and ensure a Universal Basic Income can be continuously funded without issue.

Bibliography

[1] F. Setzer and others, “The Rural Income Maintenance Experiment: A Social Experiment in Negative Taxation. Summary Report.,” 1976.

[2] P. K. Robins and others, “The labor supply response of twenty-year families in the Denver income maintenance experiment,” *Rev. Econ. Stat.*, vol. 66, no. 3, pp. 491–95, 1984.

[3] A. H. Munnell and others, “Lessons from the income maintenance experiments: An overview,” *N. Engl. Econ. Rev.*, no. May, pp. 32–45, 1987.

[4] D. Hum and W. Simpson, “A guaranteed annual income: From Mincome to the millennium,” *POLICY OPTIONS-Montr.-*, vol. 22, no. 1, pp. 78–82, 2001.

[5] A. Marx and H. Peeters, “Win for Life? What if anything happens after the introduction of a Basic Income,” 2004.

[6] O. S. Goldsmith, “The alaska permanent fund dividend: A case study in implementation of a basic income guarantee,” 2010.

[7] B. I. G. Coalition, *Basic income grant pilot project assessment report, April 2009*. Retrieved, 2012.

[8] S. Bharat, UNICEF, and others, “A little more, how much it is… piloting basic income transfers in Madhya Pradesh, India,” *January Sewa Bharat UNICEF New Delhi*, 2014.

[9] A. Diaz, M. Jiménez Buedo, and D. Teira Serrano, “Quasi-and Field Experiments,” 2015.

[10] J. Huber, “Funding basic income by seigniorage,” in *8th BIEN congress. Berlin, Germany. Retrieved June*, 2000, vol. 19, p. 2018.

[11] P. Van Parijs, “Basic income: a simple and powerful idea for the twenty-first century,” *Polit. Soc.*, vol. 32, no. 1, pp. 7–39, 2004.

[12] U. Colombino and E. Narazani, “Designing a universal income support mechanism for Italy. An exploratory tour,” *Basic Income Stud.*, vol. 8, no. 1, pp. 1–17, 2013.
[13] J.-M. Monnier and C. Vercellone, “The foundations and funding of basic income as primary income,” *Basic Income Stud.*, vol. 9, no. 1–2, pp. 59–77, 2014.
[14] S. McAtee, “Zero-sum Economics,” Oct. 2017, [Online]. Available: https://www.researchgate.net/publication/321144779_Zero-sum_Economics_How_to_fix_economics_solve_poverty_and_save_the_world
[15] Josh Frydenberg and Mathias Cormann, “Australian Government Budget 2019 expenditure,” Commonwealth of Australia 2019, Apr. 2019. [Online]. Available: https://archive.budget.gov.au/2019-20/bp1/download/bp1.pdf
[16] Davidson M, Saunders, P, Bradbury, B, and Wong, M, *Poverty in Australia 2018*. Sydney: ACOSS/UNSW, 2018. [Online]. Available: https://www.acoss.org.au/wp-content/uploads/2018/10/ACOSS_Poverty-in-Australia-Report_Web-Final.pdf
[17] “Australian Debt Clock,” *Australian Debt Clock*. https://australiandebtclock.com.au/
[18] T. Ferguson and P. Temin, “Made in Germany: the German currency crisis of July 1931,” in *research in Economic History*, Emerald Group Publishing Limited, 2003.
[19] C. Dzingirai and B. Katuka, “Determinants of bank failures in multiple-currency regime in Zimbabwe (2009–2012),” *Int. J. Econ. Finance*, vol. 6, no. 8, 2014.