CBB Working Paper No. WP/15/12

THE FEASIBILITY OF USING A BASIC INCOME APPROACH TO ADDRESS POVERTY IN BARBADOS

BY

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Abstract

A universal basic income (UBI) is a modest periodic income provided by the state to all citizens unconditionally. It is a natural extention of traditional welfare systems but avoids the negative connation normally associated with the receip of government welfare type payments or mechanisms (e.g. food stamps). This paper provides an assessment of the possibility of adopting such a mechanism in Barbados. An attempt will be made to investigate the fiscal implications of such a proposal along with the broad macroeconomic effects of such a policy.

Keywords: basic income; poverty; taxation

1 Introduction

The state has resources for bestowing benefits and for preventing harms. But there are limitations. The designing of poverty alleviation (and ultimately elimination) policies is a task of incurable complexity. Yet, it is fundamentally grounded in a clear and simple claim: people should not needlessly suffer. The emergence of the welfare system stems from this claim. This system has been funded primarily through state taxation; but, liberalisation of capital flows has persistently corroded the plausible tax base to which states gain revenue (Navarro, Schmitt, & Astudillo, 2004; Swank, 1998). This revenue anaemia threatens, severely, the continuation of Barbados' welfare system.

It is submitted that the state should look for creative policies to progress under these conditions. If the state agrees that its citizens should not needlessly suffer, but the current welfare system is unsustainable, then a plausible conclusion would be to shift the way it handles the problem of poverty. We suggest that an unconditional basic income (UBI) is a plausible solution to combat poverty while facing a decaying traditional tax base.

The UBI is a modest periodic income provided by the state to all citizens unconditionally. The sheer simplicity of this idea may be misconstrued as theoretical fragility but such misconstruing will be mistaken. The UBI is conceived as a cash transfer, rather than being paid in kind. There are multiple examples of welfare systems in which people are given some sort of special currency, say food stamps, to use; or, some kind of special grant to be used for pre-specified purposes like housing. These are not cash transfers and they are not done under a policy of UBI as defined here. UBI is a period transfer of cash (by cheque or direct deposit). The periodic nature is also important. It is not a one-off payment as proposed by (Ackerman & Alstott, 1999) but, rather, a UBI consists in purchasing power provided at regular intervals as proposed by (Van Parijs P. , 1998 [orignially 1995]).

This paper investigates the possibility of introducing a basic income in Barbados. Two approaches, conjoined by the labour supply question, are used to evaluate the implications of such a policy approach. The labour supply equation, estimated using microeconomic data from the labour force survey provides an indication of the effects

of income on the potential to supply additional hours to the labour market. The labour supply effects of the basic income are then combined with a small macroeconomic model of the Barbados economy to simulate the effects of various iterations of the proposal on key macroeconomic variables.

The remainder of the paper is structured as follows. Section 2 provides a brief review of the literature on basic income. Section 3 outlines the methodological approaches utilised in the study and Section 4 summaries and discusses the implications of the results. Section 4 concludes by providing an overview of the main results and provides a brief discussion of the feasibility of the basic income concept for Barbados.

2 Brief Review of Previous Literature

The UBI is paid to all citizens but this criterion is one that needs to be explicated further. Access to a UBI can be seen as a piece of the whole package of rights and duties associated with full citizenship, as in the conception of (Ferry, 2000). Some commentators on UBI, however, tend to conceive of membership in a broader sense that tends to include all legal permanent residents. The operational criterion may be, for non-citizens, a minimum length of past residence, or it may simply be provided by the conditions which currently define residence for tax purposes.

It is debatable whether children should also receive a UBI. Some proposals restrict the UBI, by definition, to adult members of the population, but then tend to propose it side by side with a universal, i.e. non-means-tested, child benefit system. Others conceive of a UBI as an entitlement from the first to the last breath and therefore view it as a full substitute for the child benefit system (Van Parijs P. , 2005).

One of the most striking features of a UBI is the absence of any means-testing. One can locate three stages in the redistribution process: the entrance (opportunity), the market, and the exist (outcome). Public assistance (the typical welfare) is an intervention at the exit to the market. In contrast, a policy on entrance intervention such as a UBI draws a line to separate “independent” citizens from “dependent” welfare recipients (Yamamori, 2004). Existing schemes operate ex post, on the basis of a prior assessment, be it provisional, of the beneficiaries’ income. The UBI scheme, instead, operates ex ante,

irrespective of any income test. It is well known, but sometimes disregarded by some economic models, that some persons who would benefit from welfare do not want to take the benefit because of social pride: they feel a sense of shame in taking the benefit because of the inherent negative social assumptions that ensue.

There is nothing humiliating about benefits given to all as a matter of citizenship. This cannot be said, even with the least demeaning and intrusive procedures, about benefits reserved especially for the destitute, those identified as unable to fend for themselves (Van Parijs P. , 2005). From the standpoint of the poor, an ex ante system (at the entrance) may count as a benefit in itself, because of the lesser stigma associated. Further, the rate of take-up of benefits is likely to be higher under a universal system rather than if a means test is in place. Fewer among the poor will fail to be informed about their entitlements and to gain the benefits they have rights to.

Using a UBI scheme, aspects of the unemployment trap are removed. In economic analysis this so called unemployment trap is usually articulated in the manner of (Pedersen & Smith, 2001): if the disposable income as unemployed is higher than or close to the disposable income in a potential job, the incentives to search for jobs are reduced and the economic incentives to quit a low-paid job and become voluntarily unemployed for a shorter or longer period are high. Often, people in this position, are ridiculed as lazy but one does need to be particularly lazy to turn down a job that lacks a significant positive income differentials between no work and low-paid work. Given the additional costs, travelling time or childcare problems involved, one may simply not be able to afford to work under such circumstances. It is neither laziness nor is it paradoxical; it is rational. Since the UBI is distributed ex ante this particular issue is avoided.

It may be asserted that the benefits of a UBI scheme can be achieved through a negative income tax (NIT) as advanced, most famously, by Milton Friedman as a way of trimming the welfare state (Friedman, 1962). The NIT amounts to reducing the income tax liability of every household by the same fixed magnitude, while paying, a cash benefit, the difference between this magnitude and the tax liability whenever there is a positive difference. Friedman's idea was quite straightforward: set a minimum income

boundary, say $1500, and if a person earns $1000 then the government would simply give them the extra $500. If a person earns $0 then the government gives them $1500.

The earned income tax credit (EITC) is often seen as an implementation of a NIT, but its central feature distinguishes it. Where non-workers receive the largest payments under the NIT, only families with earned income can receive the EITC. This feature tries to ensure that the EITC encourages rather than discourages labour force participation among eligible individuals (Rothstein, 2010). But even in the closest variant, there remains a difference between a system that operates, by default, ex ante, and one that operates, by default, ex post.

With technological transfers and with a reasonably well-run tax administration, Van Parijs (2005) suggests that the bulk of the administrative costs associated with an effective guaranteed minimum income scheme is the cost of information and control: The expenditure needed to inform all potential beneficiaries about what their entitlements are and to check whether those applying meet the eligibility conditions. In these respects, a universal system will plausibly perform better than a means-tested one. As automaticity and reliability increase on both the payment and collection side, it is therefore, in this administrative sense, increasingly likely a UBI will be the cheaper of the two, for a given degree of effectiveness at reaching all the poor.

2.1 Experiments and Outcomes

The few countries that have implemented a UBI policy or have had an experiment carried out regarding a UBI have all reported positive results. Consider the case of Namibia. Despite Namibia's relatively high GNI per capita, income is distributed more inequitably than in any other country. More than half of the population lives on less than $2 US per day.

One proposed solution to this problem was the Basic Income Grant (BIG). It was, however, constrained by the nation's ability to fund the project. The BIG coalition raised the money privately to fund a pilot project to test's the grant's effectiveness in an attempt to convince the government that it was an affordable and viable option. A poor impoverished village of Otjivero was chosen and, in July of 2007, residents were given

N$100(~$12.50 US) per month for two years. For children under the age of 21, the funds were provided to the caregiver.

Researchers found that the BIG reduced malnutrition, poverty, and crime; while increasing income levels, employment, health, education, and migration to the settlement. The study reported that the unemployment rate fell from 60% to 45% over the two years (Haarmann, et al., 2009). Most importantly, the study reported that the preponderance of income gains was a result of an increase in self-employment; that is significant since critics of social welfare programs argue that they discourage people from working. Kaufman (Kaufmann, 2010) argues that the results of the study though impressive are extremely flawed because it lacked a control group, the selection of the settlement is not representative of population and the assumption that results from a small settlement will be generalizable and scalable at the macro level is incorrect. Regardless of the positive results, funding for a national experiment still continues to be a hindrance for most countries.

Another unconditional basic income project similar to the one carried out in Namibia was done in India. Like the project in Namibia the funding for the project was obtained privately through SEWA and UNICEF. Two pilots took place in the rural areas of Madhya Pradesh for 18 months. There was the Madyha Pradesh Unconditional Cash Transfer in which 8 villages were provided with monthly grants and 12 similar villages were used as control villages and also the Tribal Village Unconditional Cash Transfer pilot whereby in one tribal village every one received grants and in another tribal village no one was given a grant for comparison. Over 6000 individuals received small unconditional monthly payments of 200 Rupees for adults and 100 Rupees for children. After a year, the amounts were raised to 300 Rupees and 150 Rupees respectively. The Indian project differed from that of Namibia in that for both pilots there were control groups to aid in the comparison of results. It was found that all of the citizens who received the payments, their socioeconomic conditions improved, school attendance increased and the same peculiarity witnessed in the case of Namibia whereby citizens established businesses were also evident in these studies. Significant increases were observed in asset ownership in the tribal village receiving the basic income, particularly in livestock and modes of transport. The households used the additional income wisely instead of wasting it which led to household income increasing and living conditions

improving as well. SEWA and UNICEF (2014) note that despite the positive results, India still has not gained national support for a universal basic income initiative to be instituted.

One of the more successful de facto basic income programs is a product of Alaska. It is known as the Alaska Permanent Fund. It is actually a version of the basic income grant known as a social dividend. Social dividends distribute the wealth of a community amongst all of its members. The Alaska Permanent Fund is a current example of this because it distributes profits from oil revenues to all Alaskan residents. An important economic effect of the permanent fund dividend (PFD) is that it stabilises the flow of cash to rural Alaska where per capita money incomes are among the lowest in the US and non-governmental sources of income are variable and uncertain. In some areas, the PFD accounts for more than 10% of household income. It has become a safety net for unexpected expenditures and has served as an important automatic stabilizer for the entire economy of the state, reducing business cycles associated with swings in energy prices and production (Goldsmith, 2002).

In December of 2004, the Brazilian National Congress became the first in the world to approve and sanction the institution of a universal basic income grant called the citizen's income. It announced that the initiative would be implemented gradually from 2005 and onward taking into priority those most in need before it is extended to all Brazilians residing in the country as well as foreigners living in Brazil for five years or more regardless of their socioeconomic condition. The Citizen's Basic Income will be a monetary benefit of equal value paid to everyone on a monthly or annual basis with the amount being at the discretion of the executive in adherence with the national budget and the level of development in the country at the time (Suplicy, 2007).

Since the implementation of the citizen's basic income, Brazil's level of income equality is dropping at a faster rate than that of almost any country. Poverty has fallen from 22% of the population to 7% (Rosenberg, 2011). Like most developing countries, however, governments are being constrained by not having enough funds to meet demand but results are encouraging enough to find a way to fund those programs. The World Bank and the Inter-American Development Bank have all signed up to help countries implement these programs in their countries.

Each experiment has revealed two things. First, basic income is a viable option to end poverty, and two; the lack of capital to fund the national projects continues to be a hindrance.

2.2 Taxation

The issue of taxation emerges in any discussion on/or proposal for a basic income. With a UBI, all households receive a basic income and are also subject to taxation, even if they receive basic income (Van Parijs P. , 2000). If the UBI is financed via taxes, however, it obviously implies some households would pay more taxes than others. Some types of tax financing mechanisms proposed include a Tobin tax on transactions, wealth or estate taxes or a tax on transactions.

In addition to increased or new taxes, the UBI can also be contrasted with traditional negative income tax (NIT) schemes. With a negative income tax, each household subtracts the basic incomes for all its members and the difference gives the amount of tax that should be paid or that they should receive from the tax authorities. One drawback of these NIT schemes, however, is that refunds are only received at the end of the fiscal year. As a result, low-income households may face liquidity problems before tax refunds are received. Added to the timing problem highlighted above, a NIT may prevent persons from taking risks or looking for a new job, due to the fear or uncertainty regarding the receipt of the NIT (2006).

Contrary to *a priori* expectations, a UBI might not have as large an effect on labour supply as one might expect. Burtless and Hausman (1978) use data from a negative income tax experiment conducted in Gary, Indiana where families were provided income support (cash transfers) based on their family size. However, if individuals worked beyond a given number of hours their earnings were taxed as normal. Burtless and Hausmann, using a sample of 380 individuals reported that while there was a labour supply response to the introduction of the NIT plan, the size of this change was very small and could be explained by random differences in individual preferences. The authors did find, however, that the plan did result in persons taking a longer time between jobs once they had an income guarantee. This might be interpreted as

individuals waiting to find a job that better matched their skills as well as compensation requirements.

A UBI income can also be conceptualised as an integration or simplification of the tax-benefit system that most countries currently have in place. In most countries, individuals pay taxes on incomes and then, using some qualification criteria, normally also based on income, also access benefits (e.g. health care, education, among other things). Jordan (2012) uses the reforms proposed by the Coalition Government in the UK to integrate the tax and benefits systems should be analysed as a first step towards the idea of a basic income. This notes that while integrating the tax and benefits system might lead to some operational efficiency and reduced enforcement costs, it still suffers from a stigmatisation of state payments. Moreover, a UBI is much simpler to administer, has there are criteria for qualification.

3 Methodology

The paper estimates a model of labour supply to simulate the potential effects of the introduction of various versions of the basic income concept in Barbados. The study utilises a behavioural microsimulation model similar to that outlined by Labeaga, Oliver and Spadaro (2008). Individuals are assumed to obtain utility from income, m, and from leisure, $T - h$, where T is total time available to the individual and h is the total number of hours worked. The consumer therefore faces the following utility (u) maximisation problem:

$$\max_{h} U(m, h, Z) \qquad (1)$$
$$m \leq wh + \theta - T(h, w, \theta, Z)$$

where Z is a vector of individual characteristics, w are gross wages and θ is total non-labour income.

Following Keane and Moffit (1998) as well as Blundell et al. (2000), a flexible quadratic utility function is employed:

$$U(m, h, Z) = \alpha_{mm}m^2 + \alpha_{hh}h^2 + \alpha_{mh}yh \quad + \beta_m(Z)m \quad + \beta_h(Z)h \qquad (2)$$

The functional specification therefore allows the coefficients to vary with the individual and household characteristics. It also allows for a potential U-shaped relationship

between income and earnings, where the greater the income of the individual, the more likely he/she is willing to sacrifice additional income for more leisure.

Equation (2) is estimated using data from the labour force survey conducted by the Barbados Statistical Service. The survey does not collect information on the actual number of hours worked but for particular ranges: 0, less than 5, 5-9, 10-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, and over 45 hours. As a result Equation (2) is estimated using an ordered probit model. The ordered choice probability for individual i is given as:

$$h_i^* = \beta' Z + \varepsilon_i \tag{3}$$

where Z is a matrix of potential explanatory variables describing the individual and labour market characteristics, β is vector of parameters to be estimated and ε_i is a random error terms that is assumed to have a standard normal distribution. The observed coded hours worked is determined from the model as follows:

$$h_i = \begin{cases} 0 & h = 0 \\ 1 & 0 < h < 5 \\ 2 & 5 < h < 9 \\ 3 & 10 < h < 14 \\ 4 & 15 < h < 19 \\ 5 & 20 < h < 24 \\ 6 & 25 < h < 29 \\ 7 & 30 < h < 34 \\ 8 & 35 < h < 39 \\ 9 & 40 < h < 44 \\ 10 & h \geq 45 \end{cases} \tag{3}$$

The explanatory variables included in Z are similar to those utilised by Blundell and MaCurdy (1999) and include household and individual characteristics and work related variables as well as transfers. Household variables include the number of children in the household, number of individuals in the household, district, age, land tenure (own, lease, rent, squatting and other). Angrist and Evans (1998) find that the number of composition of children in the family has a significant effect on female labour supply but little or no effect on male labor supply. Similarly, household (family) size may either increase or decrease the likelihood of certain members of the family working. For example, Patrinos and Psacharopoulos (1997) argue that in households with a large number of siblings around the same age may have a negative effect on schooling. The effects of age on labour supply can capture many aspects of the individual decision-

making process. As persons age, they accumulate more human capital and therefore a higher wage which may allow them some flexibility in choosing to increase leisure (Imai & Keane, 2004). On the other hand, individuals close to retirement have an incentive to work more hours in order to accumulate greater savings for their retirement. Land tenure arrangements may add an element of uncertainty and may therefore impact on the labour supply decision (Yang, 1997; Rosenzweig, 1978) while district is used to capture any location specific influences on labour supply (e.g. availability of childcare).

The work related variables on the other hand include earnings, experience, second job, and reason for not seeking work (health, vacation, study, industrial dispute, reduced economic activity, suspension of work and other) while the transfers considered include pensions, investment, remittances, disability (or unemployment benefits), multiple sources, contribution from relatives and other public assistance. As noted earlier, earnings may have a non-linear effect on the labour supply decision, particularly at higher income levels, as these individuals take the opportunity to substitute one marginal dollar for more leisure (Pencavel, 1986; Killingsworth & Heckman, 1986). Work experience makes it less likely that individuals would leave the labour force, and if they do, it makes it easier for them to return to the job market (Altug & Miller, 1998). Individuals may hold a second job if primary work hours are below those desired or if additional income is required (Conway & Kimmel, 1998) while some members of the job market may choose to work a smaller number of hours due injury or fulltime study. Heckman (1993) notes that the effects of welfare programmes are complex, and may not only result in a disincentive to work. Citing the case of South Africa, Ardington, Case and Hosegood (2009) notes that large pension payments actually result in greater employment as pensioners can care for small children, allowing working age adults to look for work as well as allow these elderly individuals to contribute to enhancing the working capital of younger members of the family. This variable along with the earnings series plays a key role in the study as it provides an approach to estimate the effects of basic income on labour supply in Barbados.

In addition to the labour supply equation, the overall macroeconomic effects of the introduction of a basic income are evaluated using a small macroeconomic model of the Barbados economy. The model has four exogenous variables (tourist arrivals, US GDP, employment and government expenditure) and four endogenous variables (Gross

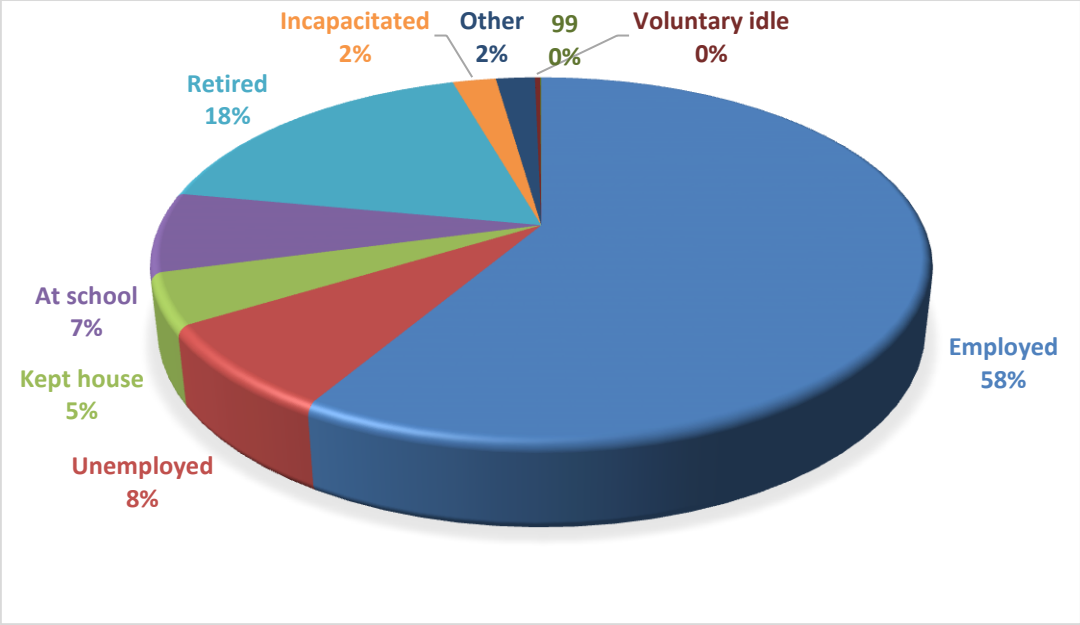
Domestic Product, GDP; Net International Reserves, NIR; real imports, and real imports) and is estimated using a multivariate structural time series model of the form:

$$y_t = Z_t\alpha_t + \varepsilon_t \quad (4)$$

$$\alpha_{t+1} = T_t\alpha_t + R_t\eta_t \quad (5)$$

where y_t is a vector of endogenous and exogenous variables, Z is a matrix associated with the unobserved components, α_t, while ε_t are zero mean Gaussian random variables. The unobserved components evolve based on the coefficients of the state equation (Equation 5), where T_t is the transition matrix and η_t is another zero mean Gaussian random variable (Mendelssohn, 2011).

Figure 1: Major Activity Status of Individuals



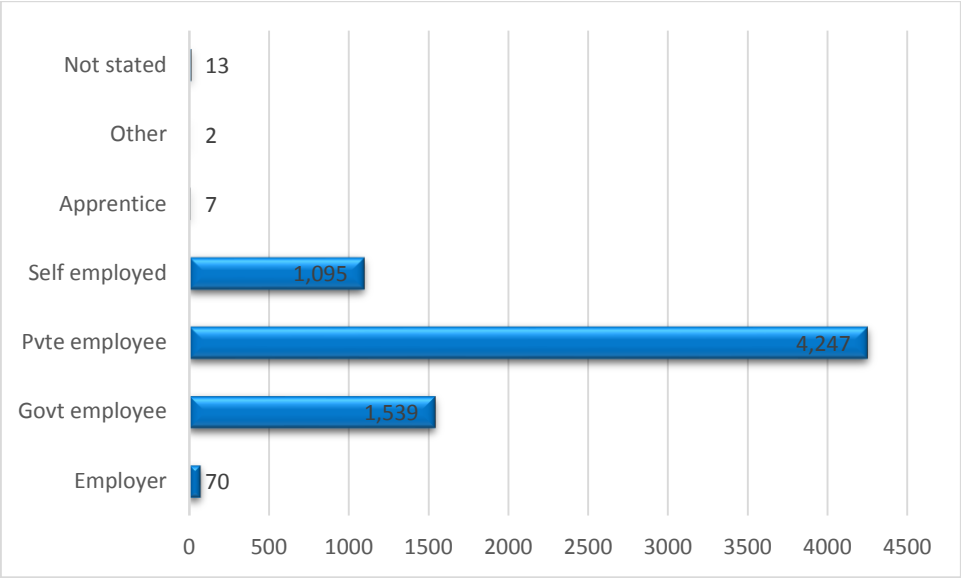
Source: Barbados Statistical Service

Figure 1 above shows the activity status of the respondents from the 2012 labour survey. It clearly shows that the majority of the respondents are employed versus the 8% who are unemployed. It also shows that 18% of the respondents are retired. More significantly though, the data showed that less than 1% of the candidates surveyed were voluntarily idle. This is significant because previous studies have reported an increase in those choosing to be voluntarily idle after the UBI was initiated (BIG Coalition, 2009) (SEWA & UNICEF, 2014). This could potentially suggest that in Barbados, persons are less likely to give up their jobs if given the grant. This is consistent with the results

reported when persons were asked if they were willing to work or not and 96% of those asked responded yes. [1] Only 2% of the respondents answered no.

Given that 58% of the individuals in the sample were employed, figure 2 below depicts which sector each person is employed in. Employment status is considered because the grant will affect those persons in the private sector versus those working in the other sectors differently.

Figure 2: Main Employment Status



Barbados Statistical Service

Figure 2 above shows that the majority of those surveyed work in the private sector and just under 1600 persons are employed in the public sector. It also shows that a significant number of the respondents were self-employed, which according to the studies carried out, this number is expected to rise following the introduction of the grant. (BIG Coalition, 2009) Hopefully, the grant could result in the number of persons employing others to increase as well.

The survey reported that the Wholesale and Retail Trading industry in Barbados employs the most persons. The main industries in Barbados along with the percentages

[1] Original table can be found in the appendix.

of respondents they employ are depicted in Table 1 below. Unfortunately approximately half of the respondents did not state which industry they were employed in, which results in a biased representation of the population however, sensible inferences can still be drawn from the results. Behind the Wholesale and Retail Trade industry, the Accommodation and Food Services and Construction industry seems to employ the most persons. The aforementioned suggests that these industries would be the greatest affected by the introduction of a UBI.

Table 1: Distribution of Individuals by Main Industry Employed

Industry	% of persons employed	Industry	% of persons employed
Agriculture, Forestry and Fishing	1.4%	Professional, Scientific and Technical	1.7%
Mining and Quarrying	0.1%	Administrative and Support	2.8%
Manufacturing	3.4%	Public Administration and Defence	3.9%
Electricity, Gas, Water and Waste	1.1%	Education	2.8%
Construction	5.1%	Human Health and Social Work	2.7%
Wholesale and Retail Trade	8.2%	Not Stated	49.6%
Transportation and Storage	3.0%	Arts, Entertainment and Recreation	1.0%
Accommodation and Food Service	5.2%	Other Service Activities	2.1%
Information and Communication	0.9%	Activities of Households as Employers	2.0%
Finance and Insurance	2.4%	Activities of Extraterritorial Organisation	0.3%
Real Estate	0.4%	Professional, Scientific and Technical	1.7%

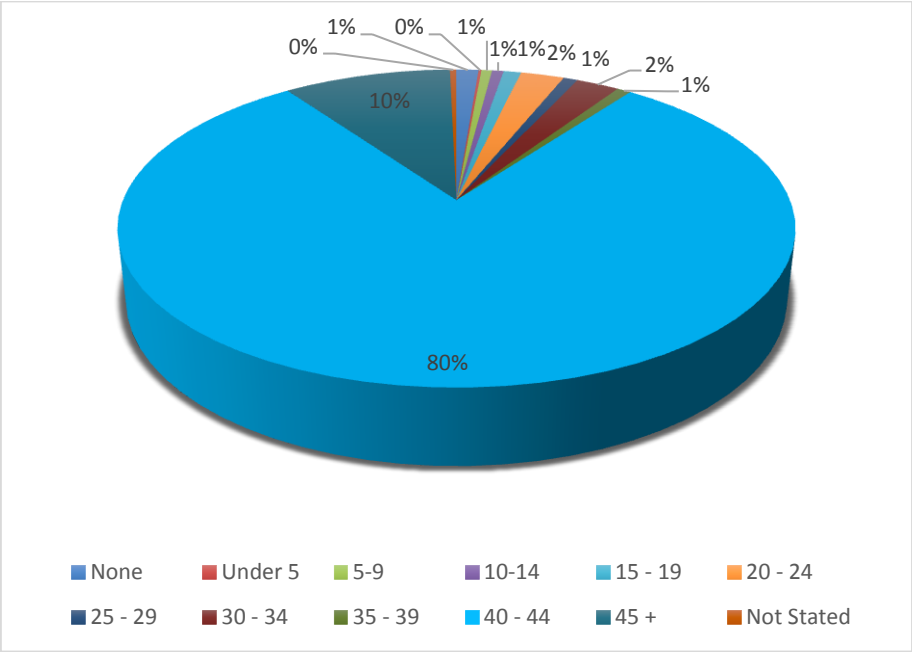
Table 2 below provides the number of hours worked in a week by respondents and the average earnings in a week respectively. As can be seen below, most Barbadians work a 40-44 hour work week and only about 10% work more than 45+ hours a week. Figure 3, on the other hand, shows how many of the respondents fall into a certain range of pays a week. The data has shown that most persons earn between $300-$599 a week, which is bit more than the proposed weekly, grant sum. It also shows that a significant number of people were working for less than $300 a week, which is slightly above the national minimum wage for shop assistants. It suggests that most persons would benefit greatly from the grant.

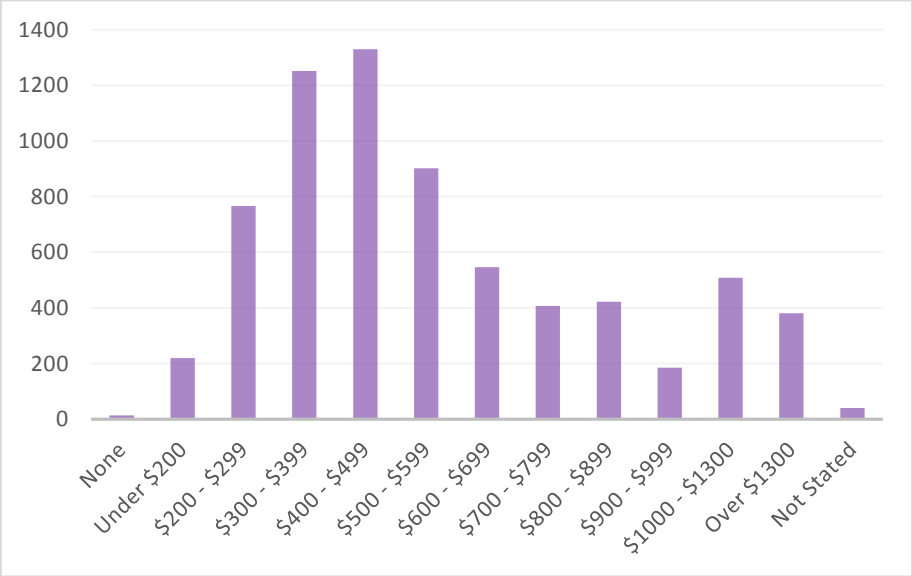
Table 2: Distribution of Hours Worked in Barbados

	Number of Individuals	Percent	Cumulative Percent
None	88	1.260	1.260
Under 5	11	0.160	1.420
5 - 9	42	0.600	2.020
10 - 14	46	0.660	2.680
15 - 19	69	0.990	3.670
20 - 24	172	2.470	6.140
25 - 29	57	0.820	6.960
30 - 34	170	2.440	9.390
35 - 39	55	0.790	10.180
40 - 44	5,574	79.950	90.130
45 or more	663	9.510	99.640
Not Stated	25	0.360	100.000
	6972	100	

Source: Barbados Statistical Service

Figure 3: Average Hours Worked and Earnings Per Week





Source: Barbados Statistical Service

4 Empirical Results

4.1 Model of Labour Supply

The number of children, education, and earnings largely drives labour supply in Barbados. This relatively simple model is able to explain 5 percent more of the variation in the labour supply decision than a model with just a constant. In addition, the LR statistic imply that all the slope coefficients are statistically different from zero.

The marginal effects are provided given that the effects of the explanatory variables on the dependent variable cannot be directly gleaned from the coefficient estimates with discrete dependent variables. The level of effects of children was statistically insignificant; however, the marginal effect of the squared term was positive and significant at the 1 percent level. This finding indicates that larger families might have a greater incentive to supply more labour due to the child-care costs associated with a large family (Blau & Robins, 1988). These costs include such things as education, childcare costs and general maintenance.

Unlike previous studies that reported labour supply effects for married persons, only married couples seem to have statistically different labour supply responses. Windowed individuals, who were previously not in the labour force, are more likely to re-enter the labour force or offer more hours to the labour market. As noted by Killingsworth and Heckman (1986), these effects are particularly important for females.

The education dummies suggest that schooling tends to have a negatively impact on labour supply. The largest effects seem to be for those with just primary education, with these individuals being likely to have significantly hours of work than their other counterparts in the labour force. This could result from these individuals working reduced hours to enhance their educational qualifications as well as frustration with the labour market due to inability to find a job that offers the desired hours of work. Only the marginal effect for the tertiary level dummy was insignificant. These individuals have invested a large amount of money in their human capital and may therefore be less inclined to leave the labour market (Blinder & Weiss, 1976).

In line with *a priori* expectations, there appears to be an inverted U-shaped relationship between earnings and labour supply. The results suggest that somewhat counter-intuitively that at relatively low income levels, individuals have a disincentive to reduce their hours of work maybe due to attempts to return to school to enhance their skills or simply frustration with the labour market. At higher income levels, in contrast, the hours worked is significantly greater than that for the mean for the sample.

Table 3: OLS and Ordered Probit Regression Results for the Labour Supply Equation

	(1) OLS	(2) Ordered Probit	Marginal Effects
Number of children	-0.034 (0.201)	0.033 (0.052)	-0.001 (0.002)
Number of children squared	-0.062 (0.034)*	-0.021 (0.010)**	0.001 (0.000)***
Single	0.074 (0.326)	0.100 (0.080)	-0.003 (0.002)
Married	-0.024 (0.340)	0.020 (0.083)	-0.001 (0.002)
Widowed	-0.845 (0.712)	-0.297 (0.174)*	0.009 (0.005)*
Primary education	-0.560 (0.817)	0.609 (0.200)***	-0.018 (0.006)***
Secondary education	-0.900 (0.778)	0.359 (0.190)*	-0.010 (0.006)*
Post-secondary education	-0.622 (0.796)	0.359 (0.195)*	-0.010 (0.006)*
Tertiary education	-0.365 (0.822)	0.126 (0.201)	-0.004 (0.006)
Age	-0.176 (0.056)***	-0.003 (0.014)	0.000 (0.000)
Age squared	0.001 (0.001)***	-0.000 (0.000)	0.000 (0.000)
Total earnings	-0.006 (0.001)***	0.003 (0.000)***	-0.000 (0.000)***
Total earnings squared	0.000 (0.000)***	-0.000 (0.000)***	0.000 (0.000)***
Incapacitated	0.104 (5.081)	0.185 (1.345)	-0.005 (0.039)
Number of income earners	0.005 (0.152)	0.059 (0.037)	-0.002 (0.001)
Household size	0.072 (0.111)	-0.017 (0.027)	0.000 (0.001)
Experience	0.385 (0.059)***	0.011 (0.014)	-0.000 (0.000)
Intercept	15.004 (1.656)***	-	-
R-squared (pseudo)	0.027	0.054	
F(25, 3021)/LR chi-squared(25)	3.360 [0.000]	302.150 [0.000]	
Observations	3047	3047	

Notes: (1) Standard errors provided in parentheses below coefficients and p-values in square brackets.
(2) ***, ** and * indicates significance at the 1, 5 and 10 percent level of testing.
(3) Region dummies included in all regressions.

4.2 Simulating the Effects of the Introduction of a Basic Income in Barbados

Five versions of the basic income concept discussed earlier are considered (Table 4). In scenario 1, every adult is given a basic income equal to the poverty line threshold of $163 per week, $655 per month or $7861 per year. There are no qualifications standards: once one is part of the adult population (over 15 years), the individual automatically qualifies for the basic income. The other 4 scenarios have qualification standards: scenario 2, individuals not actively seeking employment (e.g. students, incapacitated, among others); scenario 3, all individuals below 3; scenario 4, all individuals above 60; and, scenario 5 individuals below 30 and above 60 years of age.

The threshold of 30 years of age is chosen since this is the time that most individuals are acquiring assets (e.g. studying, mortgage, children, among other things). The basic income is therefore provided to ensure that there is no risk of these individuals being classified as working poor and therefore unable to take advantage of investment opportunities either by returning to school or starting a new business (Table 4). In contrast, individuals above 60 are more likely to fall below the poverty line for a wide array of reasons (e.g. loss of work, illness and the like) (Barrientos, Gorman, & Heslop, 2003). There are many different versions of the basic income idea that one can conceptualise. This study uses these five scenarios to illustrate the infeasibility of the basic income idea.

All four scenarios would significantly impact on overall public expenditure. In 2014, total central government expenditure was estimated at just over $3 billion, 95 million more than in 2013. The cost of the various basic income proposals considered vary from $1.7 billion, almost 60 percent of total expenditure, to as low as $402 million or about 13 percent of government expenditure (Table 4). The additional earnings received by labour market participants are then combined with the small macroeconometric model of the Barbados economy discussed earlier to simulate the effects of the basic income on key macroeconomic variables.

Table 4: Estimated Costs for Various Versions of the Basic Income Concept

	Per Week	Per Month	Per Year
Mean Income	291.852	1167.408	14008.896
UBI Poverty Line	163.771	655.083	7861.000
Scenario 1 - UBI at Poverty Line	36,463,576.042	145,854,304.167	1,750,251,650.000
Scenario 2 – Basic income only for individuals not in labor force	23,288,212.500	93,152,850.000	1,117,834,200.000
Scenario 3 – Basic income for individuals below 30	8,386,622.490	33,546,489.958	402,557,879.500
Scenario 4 – Basic income for individuals above 60	9,079,430.434	36,317,721.738	435,812,660.850
Scenario 5 – Basic income for individuals below 30 and above 60	17,466,052.924	69,864,211.696	838,370,540.350
Assumptions (2014)			
Adult Population	222650.000		
Labour Force	142200.000		

Source: Authors' Calculations

The results from the various simulations are all quite similar in terms of impact on the macroeconomy (see Table 5). Scenario 1 has the largest and positive, labour market effect, with labour supply estimated to rise by 1.1 percent, relative to the baseline scenario. The overall labour supply effect was obtained by applying the marginal effects for the earnings and earnings squared term after the individual receives the basic income.

The estimated impact of the increase in labour supply has a small positive impact on GDP relative to the baseline scenario (Table 5). This positive longrun effect could result from the positive labour market effect that the basic income provides. Individuals might for example use the additional income to expand their small business, while employees might be encouraged to supply greater effort due to tax effects. Lee, Raffo and Rogerson (2008), for example, discuss the labour market effects of the tax wedge (individuals that are relatively worse-off after receiving additional income since this pushes them into a higher tax bracket).

Table 5: Impact of Basic Income on Key Macroeconomic Variables

Scenario 1	GDP	NIR	REV	IMPORTS
1	1.001	0.967	1.014	1.005
2	1.001	0.967	1.014	1.005
3	1.001	0.967	1.014	1.005
4	1.001	0.967	1.014	1.005
Scenario 2	GDP	NIR	Revenue	Imports
1	1.001	0.974	1.011	1.005
2	1.001	0.974	1.011	1.005
3	1.001	0.974	1.011	1.005
4	1.001	0.974	1.011	1.005
Scenario 3	GDP	NIR	Revenue	Imports
1	1.001	0.986	1.006	1.003
2	1.001	0.986	1.006	1.003
3	1.001	0.986	1.006	1.003
4	1.001	0.986	1.006	1.003
Scenario 4	GDP	NIR	Revenue	Imports
1	1.001	0.987	1.005	1.003
2	1.001	0.987	1.005	1.003
3	1.001	0.987	1.005	1.003
4	1.001	0.987	1.005	1.003
Scenario 5	GDP	NIR	Revenue	Imports
1	1.001	0.980	1.009	1.004
2	1.001	0.980	1.009	1.004
3	1.001	0.980	1.009	1.004
4	1.001	0.980	1.009	1.004

Source: Authors' calculations

The introduction of the basic income, however, has a negative effect on the accumulation of international reserves. In scenario 1, with the UBI set at the poverty line threshold, net international reserves for the island would be 3.3 percent lower than in the baseline scenario. For the other basic income scenarios (scenarios 3-5), which have a smaller income effect, the net international reserves are between 1-2 percent below the NIR projections for the baseline scenario.

Most of this deterioration in the net international reserves would be expected to an expansion in import demand. In all the scenarios, however, the net impact import

demand is just around 1 percent above the baseline scenario. This relationship between the demand for international reserves and imports has been reported in previous studies for Barbados (Craigwell, Downes, & Greenidge, 2006; Craigwell, Greenidge, Codrington, & Worrell, 2003).

While the basic income is likely to have negative implications for government expenditure, once the additional income individuals receive is subject to the existing tax code, there is likely to be a positive effect on revenue. With a UBI, tax revenue rises by 1.4 percent relative to the baseline scenario. The rise in income, however, would not be enough to offset the impact on the overall fiscal deficit which more than doubles under more the scenarios considered.

4.3 Welfare Institutional Shifts

If anything can be said about the current iteration of the welfare system of Barbados is that it suffers from hysterical paternalism where the state micromanages persons and practically forces people to beg for money. The common rhetoric of welfare economics avoids stating this but alas, this is the situation. It is quite often stated – but possibly not stated enough – that economic growth alone does not, in itself, address problems of poverty. The contribution of growth to poverty alleviation lies in the enhancement of fiscal resources in the provision of social capital and social infrastructure: the scaffolding that the famed Barbadian novelist George Lamming beckons to.

To use the vocabulary of Amartya Sen, "development involves an expansion of capabilities". Capability refers to a 'the various combinations of functionings (beings and doings) that the person can achieve. Capability is, thus, a set of vectors [or n-tuples] of functionings, reflecting the person's freedom to lead one type of life or another... to choose from possible livings' (Sen, 1992). Each of our capability set represents 'the real opportunity that we have to accomplish what we value' (Sen, 1992).

The main institutions of the welfare state include the redistributive system of taxes and transfers, the pension provisions, the state run health and education institutions, job security regulations, the unemployment benefit systems and the various other welfare entitlements the state provides. However as productivity growth declines, the need for

redistributive income services is increasing which brings the gap between the affluent in society and the poor into a more visible conflict. Labour markets are becoming increasingly segmented as the employment opportunities for unskilled workers are falling compared to their skilled counterparts. In the aftermath of financial crises, oil price shocks, interest rate shocks and exchange rate pressures, unemployment is climbing remorselessly. All of the aforementioned coupled with the usual demands is bound to exert more pressure on an already inefficient welfare system. It is for this reason that this paper suggests that the introduction of a universal basic income in Barbados would replace the current system.

The welfare system in Barbados is centrally planned and as such is very bureaucratic. Buti et al, (1997) argues that centrally planned systems are inefficient and wasteful at best. Similar to most welfare programs worldwide, the welfare system in Barbados is concomitant with its own bureaucracy, its own set of obscure rules, regulations, restrictions and its o significant and rising overhead costs as would have been previously alluded to. The UBI would greatly simplify the process of welfare administration given that each person would receive a cheque or grant without prior conditions needing to be met. Administration of the grant could be carried out through the use of a computer program manned by a few persons. Not only would this increase the efficiency of the system because the tremendous navigation of the bureaucratic regulations in order to sign up for welfare alone would become redundant thus benefitting the beneficiaries as well.

Capability thus captures not only achievements but also unchosen alternatives; it scans the horizon to notice roads not taken. It checks 'whether one person did have the opportunity of achieving the functioning vector [that is n-tuple] that another actually achieved' (Sen, 1985). Thus, capability is a particularly rich kind of opportunity freedom, and functionings are a wide and flexible category that can be elaborated quite extensively.

When discussing the purpose of welfare it is critical to hold this in mind. Van Parijs' concept of real freedom (1998 [orignially 1995]) is related to Sen's notion of capability and leads directly to the scheme of basic income. His approach attempts not to

discriminate between diverse ends or conceptions of "the good life" that people pursue. In a just society poverty limits real freedom and capabilities. The welfare system of Barbados should shift (read, re-ontologise) to a system that promotes what both Van Parijs and Sen argue for. And a basic income is a mechanism for that.

A universal basic income; or, for that matter, an incarnation of it, would inexorably lead to disbandment of several current government programmes centred on welfare promotion. The reason for this is straightforward: with a UBI those programmes will be unnecessary.

Table 6: Selected Accounts that Can be Eliminated with a Basic Income Scheme

Sub-programme/Programme	**Recurrent Expenditure**
Assistance To Legionnaires	19,700
HIV/AIDS Care & Support (Prime Minister's Office)	200,000
Urban Development Commission	7,032,556
Pensions, Gratuity and Other Benefits	236,528,651
HIV/AIDS Care & Support (Ministry of Tourism)	131,887
HIV/AIDS Care & Support (Ministry of Home Affairs)	20,211
Family Affairs	116,577
HIV/AIDS Care & Support (Ministry Social care)	967,698
Welfare Department	20,519,519
Constituency Empowerment	2,099,235
Alleviation and Reduction of Poverty	1,823,577
Rural Development Commission	2,313,538
HIV/AIDS Care & Support (Ministry of Housing)	150,000
Low Income Housing Project	1,000,000
Transport of Pupils	3,000,000
Youth Mainstreaming	400,000
Total:	276,323,149

Source: Barbados Estimates (Draft) 2015 – 2016

The above table is self-explanatory but for force we will explicate a few of the entries. The Welfare department is responsible for the administration of National Assistance

which includes monetary grants and assistance-in-kind. The Welfare department provides a variety of services to families and individuals. If persons are provided with a basic income, which is a direct monetary transfer, then, the need for this department is null.

Next, the Urban and Rural Development Commissions both claim to be structured to improve the livelihood of households. Fundamentally this is a form of welfare and can be treated the same as the welfare department. This, then, also implies that a basic income will make these commissions unnecessary.

The Transport of Pupils account (TPA) is one that has caused many whinges. On one side the essence of its creation was indeed laudable; but, on the other side the larger economic justification for its continuance existence rests on weak foundations. However, with a basic income the argument for the TPA will be void as persons will sufficiently have the income to pay for transport to and from school. This account, too, is null.

And so it goes. The fiscal commitments of the government of Barbados will be radically altered under a basic income system. A future study will be required for a thorough interrogation of this realisation.

5 Conclusions

The bane of poverty has problematized social development in most countries; and it is apparent that Barbados has not escaped this scourge. Approximately 15% of households; or, 1 in 5 individuals fall below the poverty line, with a similar number achingly close to this threshold. These poverty statistics are rather unanticipated given the relatively high per capita income of the country. Every percentage point of poverty is akin to a laceration into the social body; and, it is critical that this problem is resolved – for each laceration (each percentage increase in poverty) leads to a veritable rapture of the social body.

This paper therefore puts forward the idea of a universal basic income as a means of addressing poverty in the island and providing a means of support for those members of

society who unfortunately find themselves in this situation. To model the effects of the introduction of a basic income the paper first estimates a model of labour supply in Barbados. The estimates from the labour supply equation are then combined with a small macroeconomic model of the economy to simulate the likely effects of various versions of the basic income concept on key macroeconomic indicators.

The results presented in the study suggests that the introduction of a universal basic income would only have marginal effects on key indicators followed in Barbados such as net international reserves, imports and employment. The fiscal implications of such a policy, however, seem to make this proposal for a UBI in Barbados inoperable at this time. Indeed, for even modest definitions of the basic income concept, the fiscal deficit would more than double. Any attempt to introduce a UBI in the island will therefore need to confront the problem of financing such an initiative. But once this aspect of the problem is addressed, the overall macroeconomic implications of such a proposal do not seem to be detrimental to the economic development of the island.

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