A dissertation submitted in partial fulfillment of the requirements of the Degree of Bachelor of Commerce (Honours) in Economics at the University of Malta.

Mark Micallef

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Malta's in-work benefit scheme.

A comparative analysis with the Earned Income Tax Credit and the Working Tax Credit.

Dissertation supervisor:

Clyde Caruana
Dedicated to my family

and to

Emanuel Costa and Sarah Jane Agius.
UNIVERSITY OF MALTA

FACULTY: Faculty of Economics, Management and Accountancy (FEMA)

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I hereby declare that I am the legitimate author of this Dissertation and that it is my original work. No portion of this work has been submitted in support of an application for another degree or qualification of this or any other university or institution of learning.

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Signature of Student     Name of Student (in Caps)

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Date

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13.05.15
Abstract

Work is the key to alleviate people from poverty and social exclusion. People sometimes fall into poverty traps and are often fully dependent on social services. The latter is a detriment to the economy and given the ageing process, it is imperative that government ensures that the working population is not dependent on social services, but it is engaged in employment. This dissertation will assess the situation of single parents vis-a-vis the labour market, and will attempt to find ways on how to encourage employment and discourage dependencies. The results presented in this study confirm that all the three in-work benefits are useful to accomplish the latter.
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Section 1: Introduction

The Budget for 2015 presented by the Ministry of Finance, last November, gave a clear message; that of encouraging people to be less dependent on social services and on other allowances offered primarily by the government. If people truly respond to this message, it will benefit both the people in employment and the economy as a whole, because, if people are encouraged to be less dependent on the state, this will increase their own standard of living, and even that of their families.

Increases in the employment levels also benefits the government because it will collect more contributions from the workers and decrease the expenditure on social services. In 2013 social protection accounted for one-third of the government expenditure (NSO). Decreasing the dependents, especially from the working-age population, is therefore paramount, in order to offset the ageing population problem facing Malta and the EU.

According to the labour force survey (Eurostat), the employment rate for men was 79.5% and 49.8% for women in 2013 (Malta). The employment rate for men was better than the EU28 average of 74.2%, however the employment rate for women was much less than the EU28 average of 62.5%. This increases the onus on the government to introduce and enforce more friendly-family measures to encourage women to seek employment. Furthermore, the average number of weekly hours worked by women is less than that of men. Women worked on average 33.2 hours a week and men worked on average 39.2 hours a week in 2013. The discrepancies between the two genders in the employment rate and in the average number of weekly hours worked, are attributed to several factors such as: the upbringing of children, gender inequality, culture, lack of opportunities and so on.

Employment is perhaps on the agenda of every political manifesto, and is one of the most debated topics in economics. There are a lot of ways of how to encourage employment, however this dissertation will look at one particular scheme that has gained popularity during the last two decades or so; the in-work benefit (IWB)
scheme. IWBs have been introduced in many countries such as the UK, France, Canada and the U.S., and has been expanded and altered to reflect the societal needs. In March 2015, it started to operate in Malta as well, and as much as 600 people have benefited from the scheme in one month. IWBs are intended to transfer income in a form of subsidy. These schemes require the claimant to be employed and thus earning a positive disposable income.

This dissertation aims to analyse and compare three in-work benefits offered in the U.S., U.K. and Malta. It will attempt to prove the hypothesis that Malta’s IWB is generous enough to convince single parents to seek employment. One of the principle aims of any in-work benefit is to ‘make work pay’ and therefore to redistribute income to low income/middle income family households. This redistribution of income helps in reducing in-work poverty rates present in lone parent family households with children. In addition, an IWB’s objective is not solely to keep lone parents in employment but also to increase their disposable income, for example by prolonging their working hours per week.

This dissertation conducts simulations on two groups of society that are most likely to be in-work poor, namely minimum wage earners and people earning as much as the poverty threshold of their respective country. The results of the simulation show that although IWBs seem to encourage people to work in different ways, importance is not given to the amount of working hours that a single mother can work during a week. This dissertation will finally propose that encouraging more working hours per week may be beneficial for the economy, and as a result to a higher GDP of the country.

The thesis is structured as follows: section 2 analyses previous research on in-work benefits and their effectiveness, and outlines how the IWBs are paid to its claimants, section 3 will present the methodology and the simulations that were carried out with minimum wage earners and poverty threshold earners. Section 3 attempts to present specific findings that help in the analysis and the results of part 4 of the thesis. Section 4 analyses and presents the results of this dissertation for the three countries being analysed. Section 5 will examine whether the hypothesis
of this dissertation is supported and presents a set of conclusions and recommendations for the government to follow or implement.
Section 2: Literature Review

The most well-known researchers of IWBs, such as Richard Blundell, Mike Brewer and Mark Pearson, seem to have consensus that in-work benefits do encourage lone parents to come out of dependency. This dissertation will therefore attempt to present its own findings, so as to complement the work of other researchers, and will continue shedding light on whether IWBs do in fact encourage single mothers to come out of dependency and start working in part-time or full-time employment. It will also assess the recently introduced ‘In-work benefit’ scheme of Malta and will compare it to the IWBs found in the U.K. and the U.S., in an attempt of improving the scheme.

2.1: The EITC and the WFTC Eligibility Rules and how they are paid

The Earned Income Tax Credit (EITC) of the U.S. and the Working Families Tax Credit (WFTC) of the U.K. are similar in nature, but have some distinguishing differences. Brewer (2000) shows that both in-work benefits differ in the following ways: (i) differences in the assessment period and in the payment mechanisms (EITC is paid annually and WFTC is paid every six months (26 weeks)) (ii) different rules determining how the IWBs coincide with other benefits provided by the Government of the country (for example: how the EITC interacts with the Temporary Assistance for Needy Families (TANF) programme) (iii) differences in eligibility.

Earned Income Tax Credit

Single mothers must adhere to the following set of eligibility rules (Internal Revenue Service – for tax year 2014) to benefit from the EITC (EIC  {Earned Income Credit}):

1) Adjusted gross income (AGI) of claimant must be less than:
   - $46,997 if single mother has three or more qualifying children.
   - $43,756 if single mother has two qualifying children.
   - $38,511 if single mother has one qualifying child.
   - $14,590 if single mother does not have a qualifying child.
2) Must have a valid social security (N.I.) number.

3) Filing status cannot be: ‘Married’ filing separately.

4) Must be a U.S. citizen or a resident alien all year.

5) Cannot file Form 2555 (Foreign earned income) or Form 2555-EZ (Foreign earned income exclusion).

6) Investment income must not exceed $3,350.

7) Must have a positive income.

8) The adjusted gross income and earned income must fall below a certain threshold.

9) Qualifying children must:
   - Meet the relationship, residency, age and joint return tests. Additionally, the child must be the tax payer’s: son/daughter (including adoption), stepchild, foster child or next of kin. In particular, the child has to have up to 19 years or up to 24 years of age in case he/she is a student.
   - Be used by only one claimant of the EITC.
   - Not be a qualifying child of another person.

10) If the single mother does not have at least one qualifying child then she must:
   - Have between 25 and 65 years of age.
   - Be independent.
   - Not be a qualifying child of another person
   - Have lived in the U.S. for more than half of the year.

The Department of the Treasury (Internal Revenue Service) explains in detail the above eligibility rules and the amount of benefit that each single mother is entitled to in the U.S. The single mother starts benefiting from the tax credit if she is in employment and earning at least $1 per annum. The table (overleaf) explains the phase-in, plateau and the phase-out ranges for the Earned Income Credit for 2014.

---

1 A single parent could automatically benefit from the EITC if the child is disabled.
<table>
<thead>
<tr>
<th>EIC (2014)</th>
<th>Gross Income</th>
<th>EIC (Benefit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase-in</td>
<td>$1 - $9700</td>
<td>$9 - $3290</td>
</tr>
<tr>
<td>Plateau</td>
<td>$9700 - $17850</td>
<td>$3305</td>
</tr>
<tr>
<td>Phase-out</td>
<td>$17850 - $38510</td>
<td>$3298 - $1</td>
</tr>
</tbody>
</table>

*Therefore, if the gross income/year is $38,511 or more a single mother (with one child) will not be entitled to receive the tax credit.*

The values in the above table show the gross income (before tax). Figure 1 (below) shows the household disposable income (after deducting income tax, social security contributions and medicare tax). The workings of how the gross income was changed to disposable/net income can be seen in table 1 of the appendix.

**Figure 1**

(Department of the Treasury Internal Revenue Service (2014))
Working Tax Credit

On the other hand, single mothers living in the U.K. could benefit from the WTC (Working Tax credit) if they:

1) Have between 16-24 years and have at least one child.
2) Have a qualifying disability.
3) Have 25 years or more, and have or do not have children.
4) Work a specified amount of hours a week:

<table>
<thead>
<tr>
<th>Circumstance</th>
<th>Hours a week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aged 25-59</td>
<td>At least 30 hours</td>
</tr>
<tr>
<td>Aged 60+</td>
<td>At least 16 hours</td>
</tr>
<tr>
<td>Disabled</td>
<td>At least 16 hours</td>
</tr>
<tr>
<td>Single with at least 1 child</td>
<td>At least 16 hours</td>
</tr>
</tbody>
</table>

5) Have a child who is under 16 or under 20 years of age if the child is a student or a trainee.

The WTC is paid every month or every week – according to the preference of the claimant. The claimants can also benefit from the credit if they are on maternity leave, sick leave or in between jobs. The following table explains the duration of the benefits for the claimants, according to their circumstance:

<table>
<thead>
<tr>
<th>Circumstance</th>
<th>Period you get tax credits for</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lose/leave job</td>
<td>4 weeks</td>
</tr>
<tr>
<td>Maternity leave</td>
<td>First 39 weeks of leave</td>
</tr>
<tr>
<td>Adoption leave</td>
<td>First 39 weeks of leave</td>
</tr>
<tr>
<td>Paternity leave</td>
<td>The period of ordinary paternity leave</td>
</tr>
<tr>
<td>Sick leave</td>
<td>First 28 weeks</td>
</tr>
<tr>
<td>On strike</td>
<td>First 10 days</td>
</tr>
<tr>
<td>Laid off work</td>
<td>4 weeks</td>
</tr>
<tr>
<td>Suspension from work</td>
<td>Period of suspension</td>
</tr>
</tbody>
</table>
The WTC has a more complex structure than the EITC. The WTC is made up of a basic amount (up to £1960/year), and then is topped up with what is known as ‘elements’, that vary according to the specific income and circumstance. The elements that are useful for this dissertation are the: single parent element and the 30 hours a week element. If the claimant is a single mother she is topped up by £2010/year, and if the claimant is working for 30 hours or more per week, she is entitled to a top-up of up to £810/year. Moreover, a WTC claimant can benefit from a maximum of £4780 if he/she is single and works 30 hours or more per week.

The following table was calculated using the tax credit calculator of the HM Revenue and Customs of the UK. The WTC does not have a phase-in range and is therefore offered at its maximum, or the plateau. The benefit is then tapered down to £0 as the gross income increases (phase-out range). The benefit was calculated for a single mother born in 1980 having one child born in 2008 (in school).

<table>
<thead>
<tr>
<th>WTC (2014)</th>
<th>Gross Income</th>
<th>WTC (Benefit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plateau</td>
<td>£0-£7000</td>
<td>£3724.98</td>
</tr>
<tr>
<td>Phase-out</td>
<td>£7000-£16114</td>
<td>£3502.13-£0.21</td>
</tr>
</tbody>
</table>

Therefore, if the gross income/year is £16115 or more, a single mother (with one child) will not be entitled to receive the tax credit.

The gross income was changed to disposable/net income for comparison purposes. The workings of the net income could be seen in table 2 found in the appendix. The table above is shown graphically in figure 2 (overleaf).
2.2: The effectiveness of the EITC and the WTC to encourage employment

The EITC was introduced in 1975, and since then its main objective was to encourage labour force participation. It had to be updated and improved by time, in order to meet the needs of the U.S. citizens. Eissa and Liebman (1996) show that the expansion of the EITC in 1986 through the Tax Reform Act, affected mostly single women with children and not those without children. In addition, the paper compares the participation rates of before and after the Tax Reform Act and finds that single women with children increased their participation rate by 2.4%, but finds no change in participation for single women without children.

Similarly, Dickert et al. (1995) found that the expansions of the EITC of the years between 1993 and 1996 encouraged more than half a million families to move off from the AFDC cash assistance welfare, and go into work. In addition, Ron Haskins, a Republican that worked on the 1996 welfare law and who served under President Bush said that; “Although there are undoubtedly many factors related to this remarkable increase in employment by single mothers, welfare reform, recent increases in the EITC, and a booming economy are the most important factors.”
Holtzblatt et al. (1994), however, stated that although EITC expansions have increased the marginal return to work for low-income families, these expansions were expensive for the state. In fact the EITC expenditure rose from $3.8 billion in 1975 to $31.9 billion in 1999 due to these expansions (OECD figures 2000).

Nevertheless, Meyer and Rosenbaum (2000) also found that with EITC expansions single mothers got out of dependency and started working. In particular, Meyer et al. explained that the EITC expansions of the 1990s increased employment opportunities for the high school dropout single mothers. It is important to point out that single women may be dependent on social services not only because of their children, but also because they did not attain the necessary human capital through education or experience. Meyer and Rosenbaum (2000) also emphasised the importance of the timing of the IWBs, and said that single mothers went into employment because the timing of the policy changes was right. Blundell (2000) continued on the latter and said that the expansions of the IWBs happened at a time when the out-of-work benefits were being reduced.

It is perhaps also worth mentioning the reduction of the average tax rates of entering into part-time or full-time work, as a result of the EITC programme. Eissa and Hoynes (2006) find that tax rates decrease for all family sizes and wage levels. Despite the above, the authors however, find that the EITC encourages single women with children to get out of financial dependency, but find little evidence that eligible-working women adjust their hours of work in response to the EITC.

Studies that tackle in-work benefits find that the lone parents segment is a good area of study. Brewer (2000) explains that this is because this group is most likely to be out of work or to be in-work poor. Bargain and Orsini (2004) conducted simulations on three European Countries and found that between two-thirds and three-fourths of the poor households in France and Germany are in fact lone parent family households. This continues to stress the importance of IWBs.

The EITC benefit was also criticised by several papers studying the effectiveness of in-work benefits. Brewer (2000) stated that both the EITC and the WFTC encouraged single mothers to take up minimum wage jobs, but both benefits gave
few incentives for these mothers to increase their incomes beyond that. V. Joseph Hotz and John Karl Scholz (2000) also criticises the EITC benefit by finding that EITC-like policies may be less effective or administratively not feasible in economies having different institutional structures. They also find that since the EITC is based on annual income and not on wages, it is sometimes the case that this IWB is received by people who are earning high wages and who for some reason or another, work few hours during the year. Eissa and Liebman (1996) also noted that many EITC claimants are not even aware that they are receiving the credit, and those who know, do not know how it works.

Sawhill and Karpilow (2014) mention the unintended consequences of the EITC. They say that the EITC may discourage marriage and may promote cohabitation. This may impose negative effects on the EITC sustainability. Nevertheless, Sawhill et al. (2014) stated that the EITC is well targeted to those in need. They also make some important contributions to the literature treating the EITC policy. The following are some of the reforms which were proposed in the paper:

- Use individual earnings and not household earnings to construct both the worker and family credit.
- EITC must be expanded to help those workers without children as well.
- Concentrate more on families with young children.
- Expand the EITC to include childless parents in their twenties.
- The work requirements must be strengthened for the claimants.

In the U.K., the WFTC replaced the Family Credit in 1999 and was accompanied with the introduction of the NMW (National Minimum Wage) and the New Deal schemes. According to Blundell et al. (2000, 2005) the WFTC was more generous than the FC in five ways:

1) The credit increased from £48.80 to £52.30 per week.
2) The credit per child (under 11) increased from £14.85 to £19.85 per week.
3) The threshold before earnings increased and was tapered off from £80.65 to £92.90 per week.
4) The taper rate was reduced from 70% to 55%.
5) Included a childcare credit.

Blundell and Hoyness (2004) showed that the WFTC’s effect on lone parents to get out of dependency was positive but modest. They found that with the introduction of the WFTC there was a 2.2% increase of single mothers in the labour force. However, Francesconi and van der Klaauw (2004) found a higher effect than Blundell et al. Blundell et al. used panel data derived from the BHPS (British Household Panel Survey) and found a 7% increase in single mothers’ participation after the WFTC was introduced.

Apart from the increase in labour force participation, Dr Andrew Leigh (2004) from the Australian National University also found a positive impact on the hours worked. The two agreements of the decision to work and how much to work were explained perfectly by Saez (2002). Saez (2002) showed that the optimal design of IWBs depends on how responsive the claimants are at the ‘intensive’ and ‘extensive’ margins; the hours of work and the decision to work, respectively.

Leigh (2004) explained that the WFTC had no “phase-in” range and was not available to those working below 16 hours a week. It was only available to those working 16 hours or more. Apart from this, WFTC claimants have to have at least one dependent child (under 16 or 19 years if in full-time education), and household savings that fell below a certain threshold (£92.90/week). In cases where the lone parents’ income is greater than this threshold, the maximum credit is reduced proportionately.

Azmat (2005) finds an interesting result; that as the WFTC claimants increased, the claimants and the non-claimants’ wages decreased after the reform, causing a negative “spillover” effect. Consequently, Azmat (2005) (London School of Economics), proposed that the WFTC must be introduced in a general equilibrium framework. This will impose a direct and indirect change on the gross wage of the eligible and ineligible claimant respectively, assuming that both types of workers are not perfect substitutes. Through the latter methodology, Azmat managed to assess the WFTC effect on the whole U.K. population and not solely on the lone
parents, even though as Azmat explains, these might be the largest eligible group of the IWB.

A common methodology used by researchers was to isolate the WFTC and therefore exclude income from other benefits such as the housing and child benefit, New Deal scheme and so on. By isolating the WFTC, the researcher could assess the credit’s true impact on lone parents’ participation. Blundell and Hoynes (2000) continue stressing on the importance of isolating the WFTC by saying that “in-work benefits incentives in the United Kingdom are dulled by integration with the rest of the tax and benefit system”. Blundell et al. (2002) notes that due to the WFTC’s interaction with the other benefits, the increase in the net income was minimal for those who worked less than 25 hours a week. Therefore, according to Blundell one had to work on a full-time basis to benefit fully from the WFTC.

Similarly Blundell et al. (2005) assesses the effect of the WFTC reform and treats the IWB in isolation using differences-in-differences (DiD) technique. The paper of Blundell et al. (2005) also uses the probit model to estimate the explanatory variables affecting the probability that a single parent starts working. Blundell et al. conclude that children are a crucial factor that affects the women’s decision to work. In fact a single women having one dependent child has a 10% less probability of working than if she had no children, 15% less probability if she had two dependent children and 28% less probability of not working if she had three dependent children. Using the DiD approach, they found that single women without children do not increase their participation as much as those with children. In the case above, participation increased from 47% in 1996 to 54.9% in 2002.

Gregg et al. (2007) suggested that lone parents increased year by year in the UK because of the increase in divorce and separation rates. In addition, lone parents also chose to cohabit with their partner instead of getting married. Gregg et al. (2007) finds that even after the WFTC reform was introduced, the number of lone parent households kept on increasing. However, despite the latter, regression results showed that lone mothers’ mental health and life satisfaction improved
following the reforms, and most importantly, participation increased from 4% to 5% and 4% to 7% for those working more than 16 hours.

The WFTC’s effectiveness also depends on the number of dependent children of the lone parent. Francesconi and Klaauw (2004) find that the probability of working 16 hours or more per week is observed in cases where the single mother has one pre-school aged child. In fact they found that these single mothers increased their participation by 12%. Francesconi et al. explains that this might have been due to: the reduction of the taper rate, the child maintenance disregard and the increase of the child specific component of the WFTC. Blundell (2005) contradicts the latter and finds that the younger the dependent child is, the higher the probability of the lone parent not working.

Recently, Brewer and Cribb (2014) refer to the “in-work credit” (IWC) and the ‘Employment, Retention and Advancement Demonstration’ (ERA) introduced in the 2000s. The IWC differed from the previous IWBs of the UK. It could only be received by lone parents who had at least spent a year on welfare and who have moved into employment of 16 or more hours a week. As opposed to the WFTC, where payments were given every 26 weeks, the IWC was paid a maximum of 52 times a year (weekly), and was worth £40 a week.

On the other hand, the ERA demonstration was a random intervention programme which targeted the: unemployed lone parents who depended on Income support (IS), lone parents receiving WTC whilst working on a part-time basis and the long-term unemployed over the age of 25 years. ERA claimants had to work at least 30 hours a week meaning a full-time employment. The ERA demonstration had a larger influence in encouraging lone parents to get out of dependency according to Brewer and Cribb. The authors conclude that it would be beneficial for the state to use time-limited IWBs such as the IWC and ERA to encourage lone parents to go out to work. The latter policies were of also utmost importance because they encouraged job retention, and ensuring long term work.
In the near future the Working Tax Credit (WTC) will eventually be replaced by the Universal Credit (UC). The UC will be introduced in stages and will be paid once a month. The UC will replace most of the existing U.K. benefits such as the: Jobseeker’s Allowance, WTC, Housing Benefit, Income Support and so on. For claimants to be eligible for this credit they have to be either out of work, looking for work, in-work poor or sick (therefore unable to work). The UC will not impose a limit on the working hours that the claimant has to work; however, it requires the ‘Claimant Commitment’ for it to be claimed. Adam and Browne (2013) use micro-simulation techniques to assess whether financial work incentives will be stronger in 2015-16 than they were in 2010-11. The results confirm that a household where no one of the working age is in employment loses a bigger share in percentage of their income, when reforms are introduced.
Section 3: Methodology

In this section a comparison is done about the eligibility rules and conditions of the WTC, the EITC and the Maltese IWB. It will use purchasing power parity (PPP), so as to compare the different IWBs in a ‘like with like’ method by eliminating price differentials. The currency to be used from now onwards will be the Euro (€). This will make it easier to compare between the three IWBs. The comparisons of the three IWBs being studied will be done using simulations that will ultimately portray which IWB is most effective to encourage employment and reduce poverty amongst single mothers.

3.1 Maltese ‘In-Work Benefit’ scheme

The Maltese ‘In-work Benefit’ scheme was introduced in the Budget for 2015, and began being implemented in March 2015. €2 million were allocated for this measure in the financial estimates, and according to the latest data that was found, 600 people have already benefited from the measure. Similar to the other two IWBs, the Maltese IWB also emphasises the importance of tapering. The tapering of the benefit occurs when income starts to increase (during the phase-in range). This tapering concept is crucial for the success of the IWB, because if the eligibility of the IWB stops after surpassing the plateau phase then people would not view it as generous and will opt out of the labour force.

Moreover, tapering the benefit as income increases (phase-out range) seem advantageous from the claimants’ point of view, because although they are earning more they are still receiving the IWB. Policy makers must however, keep in mind, that high tapering rates may lead to changes in the individuals’ willingness to work, especially if these rates are combined with high elasticities of labour supply. The tapering concept was emphasised by Mike Brewer (2000) and by other researchers in the field.

The Maltese IWB’s plateau for a single parent with one child is €1,200. This tax credit is available to those single parents with a net/disposable income (after deductions of the social security contributions – N.I.) that ranges from €8,200 and
€9,099 annually. The Maltese IWB is similar to the EITC in nature, and consequently it has a phase-in range which starts at a net income level of €6,600 and reaches its peak at a net income level of €8,199.

The phase-out range therefore starts at the net income level of €9,100 and is tapered down to the net income level of €16,390. The latter could be viewed graphically in figure 3 below:

**Figure 3**

3.2 IWBs’ differences

This section will introduce some assumptions that would eventually help in the analysis of the results. Firstly, the single mothers are assumed to have only one qualifying child and are living on their own. Secondly, it is assumed that the mothers depend solely on allowances and social services and hence they are not benefiting from any other income coming from their partner, family or investments.

Thirdly, it is assumed that the child satisfies all the rules and conditions mentioned in section 2; it will assume that the child is not working and is still in formal education. Another assumption to be made is that the mother does not incur childcare costs, in cases when the child is still young. Instead these childcare costs are paid fully by the government. Although this does not apply in the U.K. and in
the U.S., it will surely help in the comparison with the Maltese scheme. Since the IWBs being assessed, all have these four assumptions in common, the comparisons and contrasts done will be analogous.

The following table portrays the main differences between the EITC, WTC and Maltese IWB:

<table>
<thead>
<tr>
<th>EITC</th>
<th>WTC</th>
<th>Maltese IWB</th>
</tr>
</thead>
<tbody>
<tr>
<td>No minimum hours</td>
<td>Minimum hours required:</td>
<td>Minimum hours required:</td>
</tr>
<tr>
<td>requirement</td>
<td>16 hours</td>
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<td>Paid annually</td>
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<td>Child can be up to</td>
<td>Child can be up to</td>
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<tr>
<td>24 years of age if</td>
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<td>23 years of age if</td>
</tr>
<tr>
<td>he/she is</td>
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<td>€1500</td>
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At first glance the WTC seems to be more generous, considering that it offers a maximum of €5026, as opposed to the EITC maximum of €2126 or the Maltese IWB maximum of €1500. However, there are other features of the EITC or the Maltese IWB that makes them more appealing to those willing to start working. These features could be identified more clearly in figure 4, that combines all the three benefits together.

---

² PPS (Purchasing power standard) is useful to eliminate price differentials and therefore to compare benefit levels for each country. The PPS for the U.S, U.K and Malta for 2014 were 140, 101 and 80, respectively (Eurostat).
Figure 4 shows that at its first stages, the WTC (red line) seem to be more generous; it is approximately twice as much as the EITC benefit and three times as much as the Maltese IWB. On the other hand, the phase-out range gradient of the WTC is steeper than that of the EITC. This means that the EITC is offered at higher levels of income than the other two benefits. Figure 4 also shows that the Maltese IWB is the only benefit out of all three that is not offered at very low incomes – it starts being offered at €6,600. The Maltese IWB also tapers much faster than the other two.

When comparing the gradients of the phase-out ranges, it is clear that the gradient of the Maltese IWB and the WTC are very similar and steeper than that of the EITC. This means that proportionately these two benefits stop being offered at the same tapering rate. This may therefore imply that the WTC and the Maltese IWB have the same level of generosity in the phase-out region. The latter finding might have some important policy implications and requires a thorough analysis of the tapering rates. Simulations could also be conducted with claimants, at different tapering rates of the IWB. For example, it would be interesting if researchers could expand on this and conduct a study using different tapering rates. A priori one would expect that if the tapering rates are lower, and hence the gradient of the
phase-out region is flatter, people would be more encouraged to work and earn higher incomes. However, a study is needed to be done in order to confirm this hypothesis.

Furthermore, when the phase-in gradients are observed it appears that the gradient of Malta is much steeper than that of the U.S. This may imply that the Maltese IWB is more encouraging to those single mothers who are willing to start working than the EITC. Lastly one can also observe that the plateau distance of each IWB differs. It is observed that the plateau distance for the WTC and the EITC is quite similar, whilst that of Malta is much less than the others; the maximum amount of benefit in Malta is offered at an income bracket (€8200-€9099) which is much less than the WTC and EITC benefits.

The IWBs could also be compared by using simulations. The simulations hereunder will show the amount of benefit that a minimum wage earner and someone who is on the poverty line, gets each year.

3.3 Simulations: Minimum Wage

This section will simulate what benefits minimum wage earners are entitled to, if they work 20 hours, 30 hours and 40 hours per week, respectively. The same procedure will be done for the U.S, U.K and Malta. The purpose of this exercise is to find the generosity of each IWB of each country, and to establish whether the IWB encourages the single mother to work more hours per week.

a. U.S.

Minimum wage earners:

Gross Income = Minimum wage ($7.25) x 20 hours = $145/week or $7540/year

Net Income = \(7540 - 467.48\text{ (SSC)} - 109.33\text{ (Medicare)} - 0\text{ (Income tax)}\) = $6963/year

Gross Income = Minimum wage ($7.25) x 30 hours = $217.50/week or $11,310/year

Net Income = \(11,310 - 701.22\text{ (SSC)} - 164\text{ (Medicare)} - 1245\text{ (Income tax)}\) = $9200/year
Gross Income = Minimum wage ($7.25) x 40 hours = $290/week or $15,080/year

\[
Net \ Income = \$15,080 - \$934.96 \ (SSC) - \$218.66 \ (Medicare) - \$1808 \ (Income \ tax) = \$12,118/year
\]

This means that minimum wage earners working for 20 hours and earning a gross wage of €4811 (PPS terms) will get an EIC benefit worth €1631/year and minimum wage earners working for 30 hours and earning a gross wage of €7217 or working 40 hours and earning a gross wage of €9621, will both get the maximum worth of benefit of €2108/year (adjusted with PPS – 2014). The above may imply that the EITC benefit does not encourage more than 30 hours of employment per week. This is because the amount of benefit offered to those working 30 hours is the same as the amount of benefit offered to those working 40 hours a week.

b. U.K.

Minimum wage earners:

Gross Income = Minimum wage (£6.50) x 20 hours = £130/week or £6760/year

\[
Net \ Income = £6760 - £0 \ (N.I) - £1352 \ (Income \ tax) = £5408/year
\]

Gross Income = Minimum wage (£6.50) x 30 hours = £195/week or £10140/year

\[
Net \ Income = £10140 - £1216.8 \ (N.I) - £2028 \ (Income \ tax) = £6895/year
\]

Gross Income = Minimum wage (£6.50) x 40 hours = £260/week or £13520/year

\[
Net \ Income = £13520 - £1622.4 \ (N.I) - £2704 \ (Income \ tax) = £9193.6/year
\]

This means that a minimum wage earner working 20 hours a week and earning a gross wage of €9157, gets €4857 worth of WTC, if she works 30 hours and earns a gross wage of €13735, she gets €4131 worth of WTC and if she works 40 hours and therefore earns €18314, she gets €2376/year worth of WTC benefit (adjusted with PPS – 2014). These results may imply that the WTC does not encourage minimum wage earners to work more than 20 hours a week, since the benefit decreased substantially from €4857 to €2376.
c. Malta

**Minimum wage earners:**

A minimum wage earner in Malta who works for 40 hours/week and earns a net wage of €149.11/week and therefore €9692/year (PPS) gets **€1500/year** worth of IWB. When the mother works for 30 hours she earns a net wage of €112/week, and therefore she earns €7280/year (PPS) and gets **€1188/year** of IWB. (adjusted with PPS -2014). In the case of Malta, if she works for less than 30 hours she is not entitled to the IWB. This method was put in place, so as to encourage more working hours during the week, especially in the case of single mothers. Malta’s IWB do encourage minimum wage earners to work for 40 hours a week, rather than 30 hours a week since the benefit is higher for full-time workers (€1500).

3.4 **Comparing the benefits as a share of gross or net wage (Minimum wage earners)**

After conducting a simulation on minimum wage earners in the three countries in question, the next step of the methodology is to compute the benefit share of each gross wage per year. In other words, the following will show the different percentages of each IWB out of each gross income of the claimants. This will portray the level of generosity of each IWB of each country.

a. U.S

**Minimum wage earners:**

- 20 hours/week: Benefit share of **gross wage** = \( \frac{\€1631}{\€4811} \times 100\% = 33.9\% \)
- 30 hours/week: Benefit share of **gross wage** = \( \frac{\€2108}{\€7217} \times 100\% = 29.2\% \)
- 40 hours/week: Benefit share of **gross wage** = \( \frac{\€2108}{\€9621} \times 100\% = 21.9\% \)
b. U.K

Minimum wage earners:

- 20 hours/week: Benefit share of gross wage = \( \frac{€4857}{€9157} \times 100\% = 53\% \)
- 30 hours/week: Benefit share of gross wage = \( \frac{€4131}{€13735} \times 100\% = 30.1\% \)
- 40 hours/week: Benefit share of gross wage = \( \frac{€2376}{€18314} \times 100\% = 13\% \)

c. Malta

Minimum wage earners:

- 30 hours/week: Benefit share of net wage = \( \frac{€1188}{€7280} \times 100\% = 16.32\% \)
- 40 hours/week: Benefit share of net wage = \( \frac{€1500}{€9692} \times 100\% = 15.48\% \)

3.5 Simulations: Poverty Line

These simulations will calculate what in-work benefits the people are entitled to if they are living off the poverty line threshold. For comparison purposes, the poverty threshold of the U.S. will be calculated like the U.K. and Malta, by taking 60% of the median wage (instead of 50%). When a single mother has a yearly income that is just above the poverty line, she will be at-risk of poverty, and therefore needs more ‘make work pay’ policies such as the IWBs being studied in this dissertation. The only things that will differ from section 3.3 is that in this case, single mothers are living off the poverty threshold, and since there is no statistical data available for 2014, the year 2013 will be analysed. Hence, the PPS for the year 2013 will change from those outlined before for 2014. Instead the PPS for the U.S., U.K. and Malta will be 150, 109 and 86, respectively (Eurostat).
a. U.S.

**Poverty threshold earners:**

In the U.S., the median gross income for 2013 was $52250 (U.S. Census Bureau) or €31101 (PPS terms). Therefore, the poverty threshold was €18661, since poverty thresholds are measured by taking 60% of the median wage. This means that whoever earned less than this threshold is considered as poor in the U.S. At this gross income level the EITC amount will be €1673 (PPS terms).

Therefore, the benefit share of gross wage for a poverty threshold earner in the U.S. is:

\[
\frac{\text{€}1673}{\text{€}18661} \times 100\% = 8.97\%
\]

b. U.K.

**Poverty threshold earners:**

In the U.K., the median gross income for 2013 was £22880 (Department for work and pensions) or €28373 (PPS terms). Therefore, the poverty threshold was €17024 (60% of the median income). This means that whoever earns less than this threshold in the U.K. was considered to be living in poverty. At this threshold, the amount of WTC that a single mother with one child (working for 40 hours a week) would have is €2598 (PPS terms).

Therefore, the benefit share of gross wage for a poverty threshold earner in the U.K. is:

\[
\frac{\text{€}2598}{\text{€}17024} \times 100\% = 15.26\%
\]
c. Malta

**Poverty threshold earners:**

In Malta, the median net\(^3\) income for 2013 was €12093 (NSO) or €14062 in PPS terms. Hence, the poverty threshold/line was €8437 (60% of €14062). Additionally, the IWB that a single mother would benefit from if she earned the latter wage per year would be €1105 (PPS).

Therefore, the benefit share of net wage for a poverty threshold earner in Malta is:

\[
\frac{\text{€1105}}{\text{€8437}} \times 100\% = 13.1\%
\]

### 3.6 IWBs’ structures

The structure of the three IWBs being analysed depended on the particular circumstances and different traits of the countries. Figure 1 shows the structure of the EITC being offered in the U.S. The EITC starts being offered when the household disposable income is near $0. It then starts increasing with every additional $ of net income until it reaches its maximum (plataeu). It is then tapered off in the phase-out stage.

On the other hand, figure 2 shows the structure of the Working Tax Credit for the UK. This time, the IWB does not have a phase-in stage and is offered at its maximum right from the beginning. It is then tapered down in the phase-out stage, just like the other IWBs. Nevertheless, the structure of the WTC seems to be very encouraging in getting people out of dependencies and into work.

Figure 3 shows the Maltese IWB and its structure. Its mountain-like structure makes it look similar to the EITC, however, figure 4, shows that both IWB have some very distinguishing features. Figure 4 allows us to compare between the three IWBs, since the values are all in € and in PPS terms. Comparing and analysing the different structures is easier since the IWBs are all shown in the same graph.

\(^3\) The reason why the net income was used and not the gross income is because the IWB of Malta is worked out on the net income and not the gross income (as is worked out for the the U.S and U.K).
As shown in figure 4, the WTC offers the highest amount of tax credit to those who start working - this may encourage employment. However, the phase-out phase is steeper than that of the U.S. This means that the IWB of the U.K. stops being offered at an income level which is less than that of the U.S. The WTC stops being offered at €25000 (PPS terms) and the EITC stops being offered at €34000 (PPS terms). This €9000 difference, may on the other hand, encourage U.S. single mothers to seek employment since they know that they would benefit from the IWB even though they might earn more and fall into higher brackets of income.

The same could not be said for Malta since the IWB structure shows that it is less generous than the WTC or EITC; it stops being offered at €15000. However, Malta’s IWB still is advantageous for the labour market since it encourages longer working hours per week. A single mother can start benefiting from the IWB if she works for 30 hours or more per week. With the introduction of the free child-care centres policy, the latter seems possible and manageable for a single mother. In addition, the Maltese IWB is offered as soon as the worker starts earning €6600 per year.
Section 4: Analysis and Results

This dissertation has so far dealt with the in-work benefits’ rules, conditions and levels of generosity. This section aims to put into perspective its results and build upon the already existing literature. A thorough analysis will be made on the levels of generosity of each respective benefit. The section will analyse the simulations that were conducted in section 3 of the dissertation, and will present its own observations on each IWB being examined.

4.1 Simulation Analysis

Simulation is a very useful mechanism that is used for analysing, operating and designing complex systems. This dissertation conducted two important simulations to substantiate the findings and attempt to prove the hypothesis of this dissertation. The two simulations were done on single parents who are likely to be in-work poor, namely the minimum wage earners and the poverty threshold earners.

Minimum Wage Earners

a. U.S.

A minimum wage is the least money that an employer can pay for every hour to each worker. Regardless of the size of the company, the employer is obliged by law to pay his worker the established minimum wage. In 2013 there were 3.3 million workers earning the federal minimum wage ($7.25) or less in the U.S, or 4.3% of all the workers aged 16+. At first sight the figure of 4.3% is not worrying, however, there is a hidden reality in the minimum wage being offered in the U.S. Its purchasing power is weaker than it was in the past. In other words, a minimum wage earner can consume less now than before.

According to The White House data, last year, the minimum wage’s purchasing power was about 20% less than it was in 1981. Apart from the above, the prices of commodities has gone up during the years, therefore making the minimum wage weaker. The weak purchasing power has led the U.S. Government to propose an increase to the minimum wage, from $7.25 to $10.10, however, this is subject to criticism and interpretation.
The simulation that was conducted in this dissertation calculated what IWB would a single mother get if she worked for 20, 30 or 40 hours. This technique is useful in order to show if firstly the EITC benefit encourages one to seek employment and secondly to work longer hours per week. The benefit share of gross wage was therefore calculated. The results show that the EITC benefit do encourage mothers to go to work, however, it does not encourage them to increase their hours per week. The benefit share of gross wage percentages for single mothers working for 20, 30 and 40 hours were 33.9%, 29.2% and 21.9%, respectively. The EITC benefit share decreases if the worker decides to work for more hours each week (from 33.9% to 21.9%), however the drop is not substantial and therefore this means that the EITC promotes more earnings per week. Having said this the worker is still better off in absolute terms if he/she works more each week.

b. U.K.

In the UK the minimum wage was introduced in the same period of the WTC benefit in 1999. Since then the minimum wage has increased by over 80%, from £3.60 an hour to £6.50 an hour in 2014. Today, there are 1.3 million jobs that pay a minimum wage in the U.K., or 5.1% of the labour force. In 2013, out of this 5.1%, 59% were women. The case is also the same in the U.S. Hence, the majority of minimum wage earners in the US and in the UK are women. This puts pressure on the policy makers and encourages them to implement policies that are targeted towards womens’ needs, such as the free child care facilities implemented in Malta.

The simulations that were conducted in section 3 also showed the benefit share of gross income for UK minimum wage earners. A priori one would expect since the WTC is offered at its maximum (as soon as single mothers start working 16 hours a week), the WTC will be tapered in such a way as to provide no incentive for mothers to increase their income and therefore their hours per week. This a priori assumption was proved right with the percentages for the benefit share of gross income. For those working 20, 30 and 40 hours each week the WTC benefit share was 53%, 30.1% and 13% respectively. This shows that there is a substantial drop in the benefit share, from 53% to 13%. This is attributed to the high tapering rate that
exists in the U.K. High tapering rates discourage employees from working more
hours and consequently from earning more earnings per week. These results are in
line with the results of the EITC benefit.

c. Malta

The minimum wage in Malta was introduced in 1974 through the CERA (Conditions
of Employment Regulations Act). Since then the national minimum wage (NWM)
was stated by the government of Malta, on the recommendation of the
Employment Relations Board. The minimum wage has increased from €23.29 per
week in 1974 to €149.11 per week (net) in 2014. The people earning the minimum
wage also is on the increase in Malta.

The simulations that were done for Maltese minimum wage earners portrays some
interesting results. This is because, as shown in section 3 the Maltese IWB has an
important requirement, i.e. the single mothers could benefit from the IWB if they
worked at least 30 hours a week. Therefore, the IWB does not apply for part-timers
working 20 hours a week. Moreover, this seems advantageous and it promotes
getting a job and to work more hours per week. However, the IWB of Malta does
not favour single mothers that are working on a full-time basis. This is because
the benefit share of net wage is 16.32% for those working 30 hours and 15.48% for
those working 40 hours, ceteris paribus. The Maltese IWB seem to promote more
hours per week, but more has to be done to promote full-time employment in
single mother family households.

Poverty threshold Earners

a. U.S.

As outlined in section 3, the poverty threshold in PPS terms in the US was €18661 in
2013. According to several research articles on poverty and poverty thresholds,
single mothers tend to have a lower standard of living, due to lower income, than
married mothers. According to single mothers statistics, the poverty rate for single
mother family households was 39.6% in 2013 (five times as much as the poverty
rate found for married mothers – 7.6%). In addition, in a survey that was conducted
between 2009 and 2013 by the American Community Survey (ACS) 15.4% lived below the poverty threshold in the U.S.

In the simulation study that was conducted in this dissertation, the benefit share of gross wage was also calculated for poverty threshold earners. In the case of the U.S the result of the latter was 8.97%; out of the gross income earned by poverty threshold earners the government offered almost 9% of EITC benefit to ease the financial pressures. However, to see if this share was beneficial or not, it was compared with the other shares of the other IWB outline below.

b. U.K.

In 2013 the poverty line was set at €17024 (PPS terms). The share of people who were at-risk-of-poverty and therefore below the poverty threshold was 8.4% in 2013 (Eurostat). In the simulations study in section 3 the benefit share of gross income, for people living with the poverty line threshold was 15.26%. This percentage is almost double the percentage of that found for the U.S. This means that the WTC is more beneficial and favours poverty threshold earners more than the EITC. Moreover, a person earning the WTC has a better chance of being alleviated from poverty.

c. Malta

The survey of income and living conditions (SILC) revealed that 15.7% of households were at-risk-of poverty and therefore lived below the poverty line/threshold of €8437/year (PPS terms). The survey also shows that the poverty threshold increased by 5.6% when compared to 2012. When we turn to the simulation results, it was found that the benefit share of the net wage for Maltese poverty threshold earners was 13.1%; the IWB of Malta eases the pressure of at-risk-of-poverty single mothers by 13.1%. The latter share could also be compared with the benefit share of net wage percentage that was calculated for the minimum wage earners of Malta (i.e. 15.48%).
Upon comparing both benefit share or net wages, it seems that the Maltese IWB favours more those earning a minimum wage than those who are earning as much as the poverty line, and who subsequently are at-risk-of poverty. Policy makers must take this factor into consideration and implement policies targeted towards the people who are at-risk-of-poverty. One possible reform is to construct the IWB focusing on individual rather than the household income. This technique was elaborated by Sawhill and Karpilow (2014). According to them the IWB would be more just and generous if the credit was calculated keeping the individual in mind rather than the household income.
Section 5: Concluding remarks

This dissertation attempts to study in more detail the effectiveness of in-work benefits to encourage single mothers to get out of dependencies and start working. After presenting the results and their analysis, it is therefore concluded that IWBs are the one of the most suitable schemes in encouraging single mothers to get out of dependency and become employed. The assumptions that were taken in the thesis eliminated other interferences from other types of income and allowances, such as the child tax credit. Isolating the IWB from these types of incomes subsequently help in observing their true effect on the labour force. Nevertheless, the IWBs have to be taken in conjunction with other benefits being offered to lone parent family households, in order to analyse the participation of the labour force.

The effectiveness of the IWBs also depended on two other important factors, namely the expansions and the timing of the benefits, previously mentioned in the literature review. The IWBs have to be adjusted according to the needs of the society. Similarly, if such expansions are made with the right timing, the claimants would benefit more and consequently boost the economy. As mentioned in the introduction both the individual and the economy will benefit if people are less dependent on social services and other allowances.

As stated by Saez (2002), the optimal design of IWBs depended on how responsive the claimants were at the ‘intensive’ and ‘extensive’ margins i.e.; the hours of work and the decision to work, respectively. The three IWBs that were studied aim to encourage employment. However, not all three IWBs encourage the extension of working hours per week, that is the ‘intensive’ margin. The policy makers in general do not give the due importance to the issue of the working hours. The government of Malta could thereby improve the ‘In-work benefit’ scheme that was introduced in March 2015 by encouraging more working hours, so that single mothers could work on a full-time basis. In doing so the IWB of Malta has to follow on the EITC footsteps and have a flatter phase-out stage. Hence, the IWB has to be offered also
to workers who earn more than €15000 per year. This will not only encourage employees to work more hours, but will also boost employment rates.

The Maltese IWB is still a freshly introduced policy and hence it still has to expand and change according to the social and economic environment. If the IWB stays as it is, it will surely encourage more single mothers and other claimants to enter into the labour force. However, the IWB has to emphasise more on the working hours and the tapering rate for it to be successful in the long-run. Claimants must therefore benefit from a higher IWB for every increment of their earnings per week. Beneficiares must feel that if they go that extra step in their work, in order for them to earn higher incomes, they will be rewarded and not punished with high tapering rates. The flatter tapering rate of the EITC is a model that the Maltese IWB must follow through. The EITC have been in place for 30 years and is therefore a good benchmark upon which policy makers must follow and adapt to each particular labour market.

The hypothesis of the dissertation is therefore proved, however the Maltese IWB have to follow the good attributes found in the other IWBs. Apart from flattening the tapering rate like the EITC, the Maltese IWB could also utilise the good attribute of the ‘elements’ used by the WTC. The Maltese scheme could therefore be improved by establishing different ‘elements’ for each different circumstance. For example, it could have a 40-hour element. Those single mothers who work for an extra 10 hours per week (than the minimum requirement of 30 hours), could be given a top-up to their plateau. This would continue to fulfill the objective of more work and hence more earnings per week.

The results of this dissertation seem to coincide with the results found by Mike Brewer (2000) of the Institute of Fiscal Studies (IFS). Both this dissertation and the study of Brewer concluded that IWBs encouraged single mothers to get out of dependency and take up minimum wage jobs. However, the IWBs gave few incentives for these mothers to increase their incomes beyond the minimum wage. Moreover, if the IWB utilizes the reasoning found in the papers of Saez (2002) and
Brewer (2000), the IWB will be structured in a way that will promote employment and higher incomes through higher working hours per week.

In order for the government to promote more hours per week, good active labour market policies and family-friendly measures have to be implemented. For example, child care centres should be available for the children of single mothers. In addition, the children can do extra-curriculum activities, that are financed by the government. All the latter needs to be done well organised, so that everybody can fully benefit from such policies and measures. In the case of free childcare, the state has to plan for policies that could complement this initiative. One must keep in mind that when the children grow up they would no longer be left in child care facilities. The government must therefore consider all factors before implementing a policy so that when the child grows up the mother would not be forced to move out of employment, in order for her to take care of the child.

The problems that single mothers face have always had an adverse effect on the economy. This is because they require a lot of attention and because unfortunately many abuse of the system. There has been many cases where single mothers are single on paper and yet they live with their partner, and hence benefitting from his/her income. This is one issue of the black economy, and it is difficult for policy makers to monitor and control. Policy makers have to implement policies to discourage such illegal activities by making appropriate checks to avoid such incidents. In this way everyone can enjoy equally the benefits being offered by the government, which are ultimately financed by the tax payer.


### Appendix

#### Table 1: Net Income (after tax) for those benefiting from the EITC

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<td>487.2</td>
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<td>548.1</td>
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<td>6363</td>
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</table>

(Source: IRS 2014)

#### Table 2: Net income (after tax and N.I.) for those benefiting from the WTC

<table>
<thead>
<tr>
<th>Gross income (£)</th>
<th>SSC (N.I)</th>
<th>Income Tax (£)</th>
<th>Net income (£)</th>
<th>Benefit (£)</th>
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<td>0</td>
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<td>800</td>
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<td>3725</td>
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<td>800</td>
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<td>3725</td>
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<td>3725</td>
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<td>1200</td>
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<td>3725</td>
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<td>3502</td>
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</table>

(Source: HMRC 2014)

Note: The band of income of between £0-£32,010 is taxed at 20% (Earnings). The employees are exempted from paying N.I. contributions if they are earning less than £7755 per year. Consequently, employees earning more than £7755 have to contribute 12% out of their gross income for the national insurance.