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# **THE MACROECONOMIC IMPACT OF THE INCOME TAX REDUCTIONS IN MALTA**

Aaron G. Grech

## **Abstract**

This paper presents estimates of the possible macroeconomic impact of the reductions in income tax introduced in the Budgets for 2013 and 2014. The simulations are based on the structural macro-econometric model described in Grech and Micallef (2014).

The impact of the reductions on Government revenue, estimated at 0.7% of GDP, is computed using data on chargeable income under the different tax bands from the Inland Revenue Department as at 2013, with future income projected using Central Bank forecasts.

The policy should have a positive effect on economic activity, with the impact on GDP peaking at 0.35% in 2016 and stabilizing at just under 0.3% in the medium term. This effect is primarily driven by increased consumption following the boost in disposable income caused by the cuts. While this is complemented by higher investment, the impact is gradually dampened by worsening net exports due to rising domestic prices. Though the policy is in part self-financing as it results in a larger tax base, it should be accompanied by measures to reduce pressure on government finances.

**JEL Classification:** E62, H20, C5.

**Keywords:** Fiscal Policy, Macro-econometric modelling, Malta.

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# 1. Introduction

In November 2012, the Government of Malta announced that the highest income tax rate of 35% would only start to apply on those earning more than €60,000.<sup>1</sup> The income bracket for the 25% would be gradually increased to cover a much larger share of the income distribution. This change followed a number of reforms that had benefitted largely those on low to middle incomes, such as the introduction of a separate tax regime for parents. The new tax regime, which had been first mentioned in 2008, was implemented as part of the Budget announced on the 8<sup>th</sup> April 2013.<sup>2</sup> That budget also tried to address the fact that those on the minimum wage had started to be liable for tax at 15% on part of their income due to the unchanging level of the minimum tax threshold. In this light, the Minister for Finance announced that anyone earning the minimum wage would still remain exempt from tax. This exemption was extended in the following budget to pensioners earning the equivalent of the minimum wage.<sup>3</sup> The 2014 budget also raised the minimum tax threshold for those opting for the parent-rate computation.

This study will try to quantify the possible macroeconomic impact of these tax reductions using the structural model of the Central Bank of Malta, as described in Grech & Micallef (2014).<sup>4</sup> One of the main advantages of this model is that it has a relatively disaggregated fiscal block, which was designed to be able to estimate the impact of such shocks, amongst other things.<sup>5</sup>

The rest of this paper is organised as follows. Section 2 describes the income tax reductions modelled in this paper, and sets out the estimates of the impact of these changes on the level of income tax revenue. Section 3 then examines the potential macro-economic impact of this reduction in revenue. It is important to note that this exercise is studying just the income tax reductions and ignores any other fiscal policies that took place at the same time, or that may have been taken subsequently. The results of the simulation are further discussed in the concluding Section 4 of this paper.

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<sup>1</sup> According to the NSO's Survey on Income and Living Conditions, in 2012 average household gross income stood at €26,746. See NSO (2014a), downloadable from: [http://nso.gov.mt/en/News\\_Releases/View\\_by\\_Unit/Unit\\_C1/Living\\_Conditions\\_and\\_Culture\\_Statistics/Documents/2014/News2014\\_164.pdf](http://nso.gov.mt/en/News_Releases/View_by_Unit/Unit_C1/Living_Conditions_and_Culture_Statistics/Documents/2014/News2014_164.pdf)

<sup>2</sup> See Ministry for Finance (2013), downloadable from: <http://mfin.gov.mt/en/The-Budget/Documents/The%20Budget%202013/Budget%20Speech%202013%20%5bEnglish%5d.pdf>

<sup>3</sup> See Ministry for Finance (2014) downloadable from: [http://mfin.gov.mt/en/The-Budget/Documents/The\\_Budget\\_2014/Budget2014\\_Speech\\_MT.pdf](http://mfin.gov.mt/en/The-Budget/Documents/The_Budget_2014/Budget2014_Speech_MT.pdf)

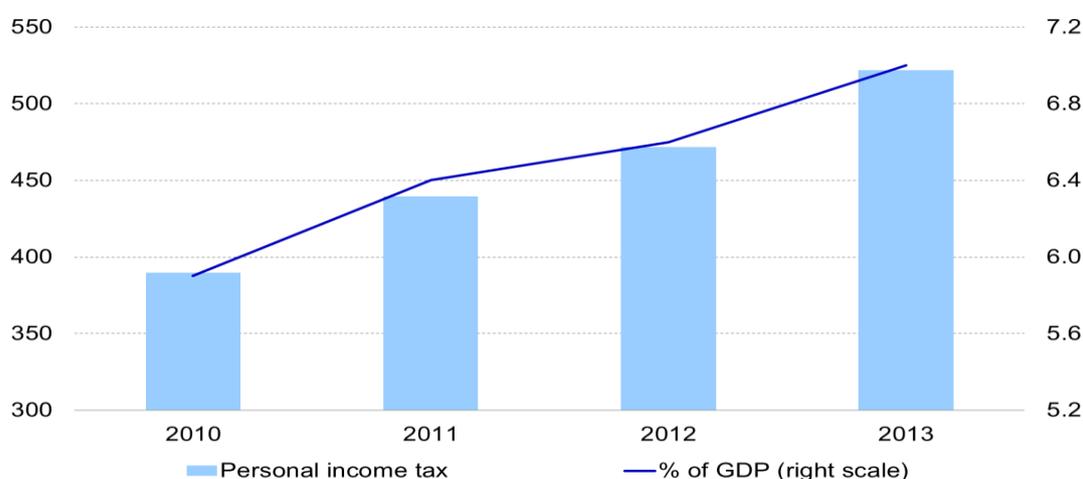
<sup>4</sup> More information on the model can be found at: <http://www.centralbankmalta.org/macro-econometric-model>

<sup>5</sup> A detailed description of the fiscal block is given in Grech (2014), available at <http://www.centralbankmalta.org/file.aspx?f=1114>

## 2. The impact of the income tax reductions on government revenue

Personal income tax constitutes a major element of government revenue. Data from the National Statistics Office, shown in Chart 1, indicates that between 2010 and 2013, income from personal income tax rose from €389.8 million, or 5.9% of GDP, to €522 million, or 7% of GDP.<sup>6</sup> The relative strength of this revenue item has also resulted in its share out of total tax revenue rising from 18.9% to 21% in just 3 years.

**Chart 1**  
**PERSONAL INCOME TAX**  
(euro millions; % of GDP)



Source: National Statistics Office.

In view of this, one can understand why Government felt the need of a reduction in income tax rates. While Malta's personal income tax revenue as a share of wages and salaries (at 15.7%) is similar to the OECD average (see OECD, 2014), the fact that tax thresholds tend to be held constant means that the tax burden tends to grow over time.<sup>7</sup> The fixed nature of tax thresholds has also meant that since the minimum wage increases annually with the cost-of-living adjustment, those on the minimum wage and pensioners on similar levels of income, who are also awarded this adjustment, are ending up with an income above the minimum tax threshold.

<sup>6</sup> See National Statistics Office (2014b) downloadable from [http://nso.gov.mt/en/News\\_Releases/View\\_by\\_Unit/Unit\\_A2/Public\\_Finance/Documents/2014/News2014\\_208.pdf](http://nso.gov.mt/en/News_Releases/View_by_Unit/Unit_A2/Public_Finance/Documents/2014/News2014_208.pdf)

<sup>7</sup> Countries like Canada, the Netherlands and the US automatically adjust their income thresholds with inflation, while others like Spain, Switzerland and the UK apply some discretion but also have rules in place to raise thresholds. See Australian Government (2006).

While the introduction of the parent computation rate in 2011 had been targeted to low-to-middle income families, the income tax reforms affected in 2013 were focused on the upper and lower ends of the income distribution. On the one hand, those earning more than the average wage, and households earning more than the average gross income, were awarded a gradual reduction in their income tax rates (see Table 1). On the other, those on the minimum wage were given an exemption from paying income tax, even though the minimum tax threshold was lower than this amount. This exemption, a year later, was extended to pensioners earning the equivalent of the minimum wage, while the minimum tax threshold for those opting for the parent computation rates was increased by €500.

**Table 1**  
**Change in tax rates**

	2012	2013	2014	2015
<b>Single computation</b>				
€19,501 - €60,000	35%	32%	29%	25%
<b>Married computation</b>				
€28,701 - €60,000	35%	32%	29%	25%
<b>Parent computation</b>				
€21,201 - €60,000	35%	32%	29%	25%

Source: Inland Revenue Department.

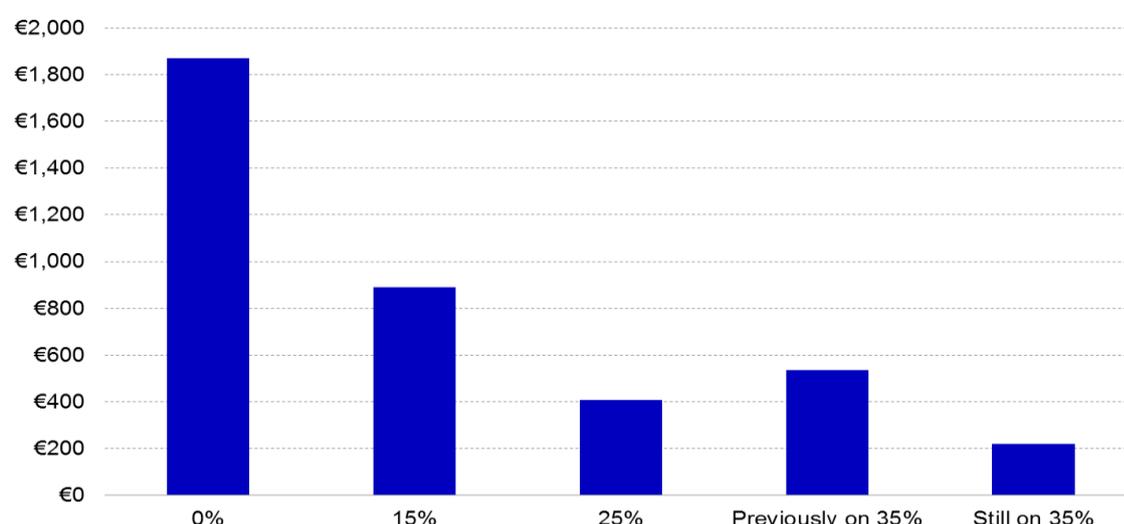
Chargeable income tax distribution data (provided by the Inland Revenue Department) suggest that in 2013 there were 45,239 taxpayers who benefitted from the change in tax rates shown in Table 1. This constitutes 16.8% of all taxpayers. While the bulk of beneficiaries, approximately 27,700, were single computation taxpayers, in relative terms the main gainers were those on parent computation rates. In fact, the change in tax rates benefitted 36% of this group of taxpayers.

To get a better understanding of the implications of this tax reduction, one needs to look at the distribution of chargeable income by tax rate. Chart 2 shows data for 2013 provided by the Inland Revenue Department at the start of 2015, by which time the processing of income tax returns for basis year 2013 (the first year of the reform) was virtually finalised. Out of total chargeable income of €3.9 billion,<sup>8</sup> nearly 48% was beneath the minimum tax threshold. Note that this includes not only the income of those earning beneath this threshold, but also that element of income of all other taxpayers. The proportion of chargeable income that

<sup>8</sup> Note that this figure is equivalent to 52% of GDP, or to 115% of compensation of employees.

previously was taxed at 35%, but which then benefitted from the cuts in rates amounted to approximately €530 million, or 26% of all chargeable income on which tax was paid. Since the tax rate dropped by 3 percentage points, this implies that the foregone revenue amounted to €16 million. This is significantly higher than the original estimate of €10 million which had been mentioned in November 2012. However it should be noted that already in May 2014, the National Audit Office in their assessment of the fiscal impact of this reform had noted that their estimate was of €13.3 million (see National Audit Office, 2014). They noted that this estimate would need to be revised upwards once more tax returns for 2013 were processed.

**Chart 2**  
**AMOUNT OF CHARGEABLE INCOME BY TAX RATE**  
*(€ millions in 2013)*



Source: Inland Revenue Department

While the estimate of the fiscal impact of the 2013 tax rate change (from 35% to 32%) is based on actual data, estimates for later years depend on the assumptions one takes on the number of taxpayers and their income. National Audit Office (2014) states that the official estimates of the fiscal impact of the further reforms assume that “the number of taxpayers and their respective income remain constant in 2013 and 2014”. This assumption was deemed to imply “some underestimation of the impact of this measure due to growth in employment and wages”. The same report notes that the Economic Policy Department computed the revenue impact of the reduction in tax rates in 2015 to be €19.2 million, as they assume that income will grow by inflation.

In this paper, we instead assume that chargeable income will grow in line with the compensation of employees growth forecast made by the Central Bank in late 2014. This amounts to 4.8% in 2014 and 3.4% in 2015.<sup>9</sup> Beyond 2015, given the lack of projections, we assume that chargeable income continues to expand by 3.4% (which is relatively close to the average observed over the last decade). As a result the estimate of the impact of the tax cuts for 2014 is €19.6 million, while that for 2015 is €28.2 million. If instead we were to assume that the 2013 chargeable income would stay constant till 2015, the impact of the tax cuts for 2014 would be €16 million while that for 2015 would be €21.4 million.

Besides the impact of the reduction of tax rates, one also needs to consider the impact of the exemption from tax of those on minimum wages or pensions equivalent to this amount, and the impact of the increase in the minimum tax threshold for those on parent computation. Data from the Labour Force Survey and from the Survey on Income and Living Conditions, provided by the National Statistics Office, indicate that in 2013 there were approximately 3,600 full-timers on the minimum wage and nearly 3,500 pensioners earning the equivalent of this amount. Projections for these two groups are not available. Hence, the number of those on the minimum wage was increased in line with overall employment (as per the latest Central Bank projection), while the number of low-income pensioners was assumed to grow with the rate shown by the overall pension age population in Eurostat's Europop2013 projection for Malta. The minimum wage was increased in line with the cost-of-living adjustment, calculated using the Central Bank's projected inflation rate.

The exemption from income tax of minimum wage income is estimated to have resulted in foregone revenue of just over €0.2 million in the first year. In 2014, the decline in income tax revenue rose to €2.5 million, mainly on account of the rise in the minimum tax threshold for the parent rate computation. The concessions for those on minimum wage and for low-income pensioners, in fact, are estimated to have cost close to €0.7 million. Note that while the income tax reductions benefitted 18.3% of taxpayers, the rise in the minimum tax threshold for those opting for the parent computation favoured close to 26,000 taxpayers while the exemptions for those on low income benefitted approximately another 7,500 taxpayers. In distributional terms, the group that gained the most were those on parent-computation who earned incomes above €21,201 as these pocketed the effects of both the decline in tax rates and the €500 rise in the minimum tax threshold for this category. The beneficiaries of the income tax reductions, and their average gain, are shown in Table 2. While the gain for those on the minimum wage may seem small in monetary terms, in

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<sup>9</sup> See Central Bank of Malta (2014) downloadable at <http://www.centralbankmalta.org/economic-projections>

relative terms it amounts to an income boost of 1.2%. The €1,440 tax cut for those earning €43,100, and using the married rate computation, amounts to 3.3% of their income.

**Table 2**  
**Beneficiaries of the income tax reductions\***

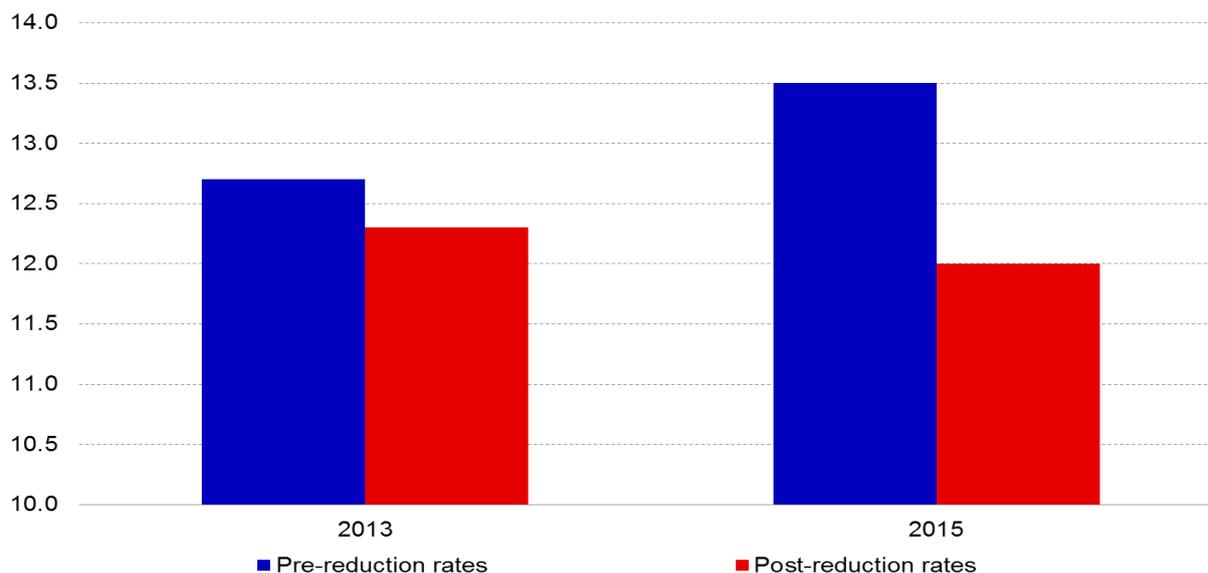
	2013	2014	2015
<b>Income tax reductions</b>			
Average tax reduction	€ 380	€ 819	€ 1,440
Number of beneficiaries	42500	43500	44400
<b>Minimum wage exemption</b>			
Average tax reduction	€ 70	€ 90	€ 100
Number of beneficiaries	3600	7300	7500
<b>Parent computation threshold</b>			
Average tax reduction	€ 0	€ 70	€ 70
Number of beneficiaries	0	42500	42500

\* Tax reduction rounded to next ten euros, while number of beneficiaries rounded to next hundred.

Source: author's calculations using data from the Inland Revenue Department.

Before passing on to study the macroeconomic impact of the income tax reductions, it is useful to look at how the effective tax rate has changed as a result of the reform. To compute the effective tax rate, the applicable tax rate was multiplied by the share of chargeable income that was taxed at that rate. As before, the number of taxpayers and their income was assumed to grow over time in line with Central Bank projections of employment and of compensation per employees. Given the progressive nature of the income tax system, and the constancy of the tax thresholds, growth in income results in a higher effective tax rate. In fact, as Chart 3 shows, had the pre-2013 tax rates remained in place the effective tax rate would have risen from 12.7% to 13.5% by 2015. The 2013 tax reductions resulted in a lowering of the effective tax rate to 12.3% in that year, lowering it further to 12% by 2015. Thus, in effect, the tax reductions lowered the average burden of personal income tax by 1.5 percentage points, or by about a tenth, of its projected development.

**Chart 3**  
**EFFECTIVE PERSONAL INCOME TAX RATE**  
*(percent)*



Source: author's calculations using Inland Revenue Department data and Central Bank forecasts.

### 3. Quantifying the macroeconomic impact of the income tax reductions

The impact of fiscal policy on economic activity has been a highly debated topic in economic literature, with different schools of thought advocating diametrically opposite conclusions. In perspective, there has been little analysis of this subject in Malta.<sup>10</sup> However in 2014, two studies shed some light on the matter. Grech and Micallef (2014) simulated the effect of a 1% of GDP rise in government spending. They concluded that by the second year this would have raised real GDP by 0.8% of GDP, but that the effect would start declining from the third year onwards as resulting higher prices reduce competitiveness and lower exports.

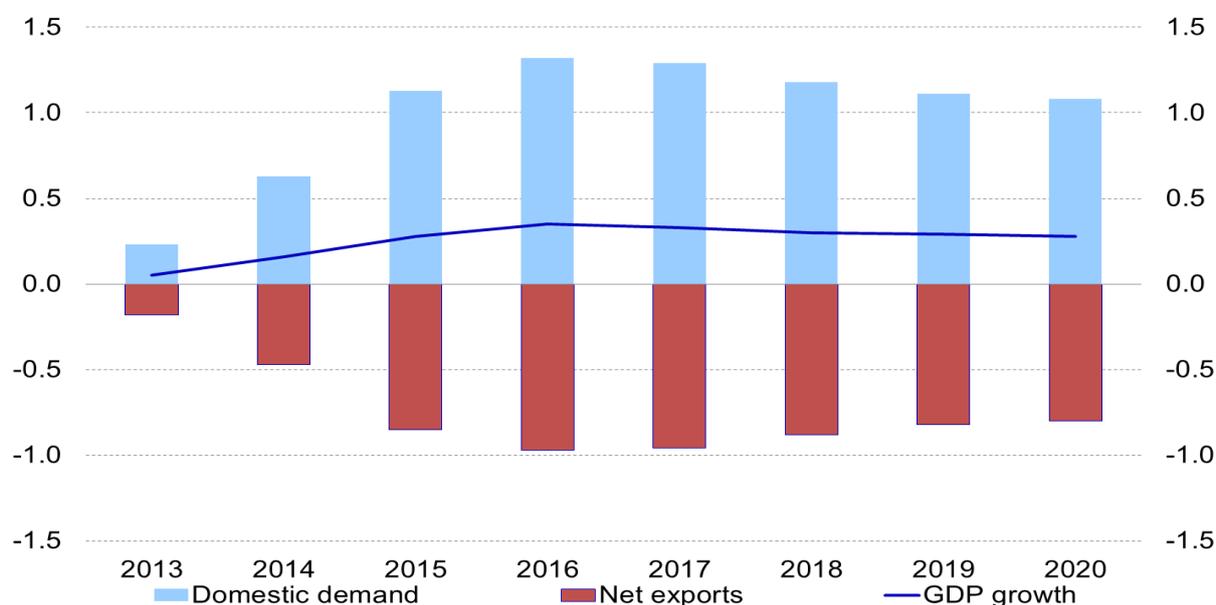
More directly relevant is Borg (2014), which estimates fiscal multipliers for the Maltese economy using the well-known Blanchard-Perotti approach. This paper suggests that an increase in taxation results in lower output and lower prices. The initial impact is estimated to be quite small in terms of output (a 5c decline for every €1 rise in taxes), but rises gradually over the next two years though it stays statistically below one-for-one. The main impact is on private consumption, with a much more contained effect on private investment. As for prices, these react with a significant lag, and the impact is not felt much in the first year.

<sup>10</sup> An exception is Cordina (1996) which had found that a permanent 2 percentage point increase in the marginal income tax rate would reduce consumption by 0.5% relative to the baseline solution and real GDP by 0.1%.

In this paper the macroeconomic impact of the income tax reductions described in the previous section is quantified by carrying out simulations using the Central Bank’s structural macro-econometric model, as described in Grech and Micallef (2014).<sup>11</sup> As in similar models, output in this model is driven by supply in the long run but demand-driven in the short run due to sluggish adjustment of quantities and prices. Thus while initially a reduction in income tax rates could result in a significant boost in output, in the medium term this effect should subside and reflect only the impact that lower taxes would have on the size, and more effective use, of factors of production. As explained in Grech (2014), the main channel for the impact of a change in the direct tax on households is through disposable income, which would then affect private consumption.

Chart 4 illustrates the impact on real GDP of the income tax reductions. The peak impact, of 0.35%, is reached in 2016, the first year after the implementation of the whole array of cuts. Subsequently, the impact declines gradually by 2020 but still remains significant at 0.28%. Given that by 2016, the cumulative cut amounts to about 0.7% of GDP, this implies a multiplier effect of 0.5. This is very similar to the results in Borg (2014).

**Chart 4**  
**IMPACT ON REAL GDP AND CONTRIBUTION BY MAIN COMPONENT**  
*(% deviation from baseline levels)*



The main impact of the reductions in income tax is to boost disposable income, as can be seen from Table 3. This, in turn, leads to higher private consumption and gradually to

<sup>11</sup> The model contains 177 equations, 28 of which are behavioural equations estimated in error-correction form on the basis of quarterly data for the period 2000-2012.

increased investment. The impact on private consumption peaks in 2016, when its level is 1.84 percentage points higher. On the other hand, the effect on investment continues to accelerate till 2017, though the difference from the baseline is much less pronounced than that in private consumption. The improvements in domestic demand are partially offset by weakening net exports. Besides the rise in imports of consumer and capital goods, the tax reductions also lead to a gradual decline in exports. This occurs because higher demand for labour pushes wages upwards, leading to lower competitiveness. This impact dampens over time, as the growth in employment moderates from its peak of 0.39% in 2017. The unemployment rate declines initially as a result of higher demand for labour, but this impact disappears when the labour supply starts responding to higher wages.

Finally it is important to note that while the income tax reductions lead to a widening of the fiscal deficit; this is smaller than the size of the tax cuts. This reflects two developments, namely the foregone revenue is partially offset by an increase in chargeable income due to higher wages and employment, while government expenditure declines slightly initially due to lower spending on unemployment benefits. Spending on other benefits grows, however, as the policy raises inflation and wage growth, which affects benefit indexation.

**Table 3**  
**Impact on main macroeconomic indicators (% deviation from baseline)**

	2013	2014	2015	2016	2017	2018	2019	2020
<b>Economic activity</b>								
Real GDP	0.05	0.16	0.28	0.35	0.33	0.30	0.29	0.28
Private consumption	0.35	0.97	1.69	1.84	1.78	1.69	1.63	1.63
Investment	0.03	0.20	0.45	0.67	0.71	0.63	0.54	0.49
Exports of goods & services	0.00	-0.03	-0.09	-0.16	-0.21	-0.20	-0.16	-0.14
Imports of goods & services	0.18	0.44	0.74	0.79	0.74	0.68	0.65	0.64
<b>Prices and cost developments</b>								
HICP	0.00	0.01	0.05	0.13	0.25	0.33	0.35	0.32
Unit labour costs	-0.03	-0.02	0.03	0.16	0.26	0.31	0.33	0.32
<b>Labour market</b>								
Employment	0.01	0.08	0.20	0.33	0.39	0.38	0.35	0.33
Unemployment rate	0.00	-0.01	-0.02	-0.04	-0.03	-0.02	0.00	0.00
Real disposable income	0.44	1.08	1.80	1.81	1.76	1.69	1.65	1.64
<b>Fiscal developments (% of GDP)</b>								
Fiscal balance	-0.20	-0.43	-0.68	-0.60	-0.59	-0.59	-0.59	-0.58
Public debt	0.16	0.47	0.98	1.41	1.96	2.62	3.29	3.90

Source: author's calculations.

## 4. Conclusion

This paper has tried to estimate the possible macroeconomic impact of the reduction in income tax rates brought into effect since 2013. Using the macro-econometric model described in Grech and Micallef (2014) we find that this policy has a positive effect on economic activity, with its impact on GDP peaking at 0.35% in 2016. Subsequently the impact stabilises at 0.28% in the medium term, as the initial boost to consumption from disposable income is eroded by a decline in net exports due to higher domestic prices. Employment and investment are both expected to grow significantly, contributing to increase potential output.

The study confirms the presence of positive but relatively moderate multiplier effects of fiscal policy. Like in other small economies, the main constraint on the macroeconomic impact of tax cuts is the leakage of domestic demand into imports, especially of consumer goods. Moreover part of the impact of the increase in investment also tends to seep out of the local economy.

The impact on unemployment is not as high as one would expect, primarily due to the assumption that increased demand for labour will be accommodated by higher labour supply. As for inflation, the impact takes quite a while to take hold, with the rise in inflation staying close to zero for the first three years.

On a more cautious note, while the policy is in part self-financing as it results in a larger tax base, it does increase the fiscal deficit and boosts public debt. This points towards the need to take complementary action to reduce the pressure on government finances resulting from this policy.

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