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Housing Assistance Payment: Potential impacts on financial incentives to work

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Abstract: *Since March 2017, a new income-related housing support for those with a long-term housing need called Housing Assistance Payment (HAP) has been available throughout the state. This paper examines the potential impact on financial work incentives of transferring long-run Rent Supplement recipients onto HAP with tenants' rental contributions assessed through a national Differential Rents scheme, initially proposed by the Housing Agency but yet to be implemented. While such a system would strengthen the financial incentive for most long-term Rent Supplement claimants to be in full-time paid work, a small minority would continue to face quite weak incentives. This is driven by the receipt of multiple means-tested benefits – in particular, jobseekers allowance and one-parent family payment – which results in some low-income individuals facing very high effective marginal tax rates from relatively low levels of earnings.*

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Section 1

Introduction

Since March 2017, a new income-related housing support for those with a long-term housing need called Housing Assistance Payment (HAP) has been available throughout the state. This support forms an integral part of the government's 'Rebuilding Ireland' housing strategy, with over 60% of the almost 140,000 additional households to receive social housing over the period 2016-2021 to do so through HAP. The government intends that HAP will become the primary income-related housing support for those in the private rental sector, replacing Rent Supplement – currently the main such support – for existing long-term claimants over the coming years.¹

This paper examines the potential impact on financial work incentives of transferring long-run Rent Supplement recipients onto HAP. It uses representative household survey data from the Survey of Income and Living Conditions (SILC) along with SWITCH – the ESRI's tax and benefit microsimulation model – to calculate summary measures of the financial incentive to work full-time. We compare these under the existing system and a variant of HAP where tenants' rental contributions are determined by a system of 'National Differential Rents', as proposed by the Housing Agency (Carroll, 2014).

We find that introducing such a system would strengthen the financial incentive for long-term Rent Supplement claimants to be in full-time paid work, with just over half gaining by an average of €2,084 per year and two-fifths losing by an average of €568 per year. We estimate that the proposed scheme would increase the entitlements of this group by about €25 million per year, in part for the same reasons as it would improve financial work incentives: the elimination of Rent Supplement's restriction on working more than 30 hours per week, and the lower rate at which the HAP payment would be withdrawn against income.

¹ See 'Rebuilding Ireland: Progress against targets' at <https://www.housing.gov.ie/housing/social-housing/social-and-affordable/overall-social-housing-provision> and 'Rebuilding Ireland: Action Plan for Housing and Homelessness' at http://rebuildingireland.ie/Rebuilding%20Ireland_Action%20Plan.pdf

However, a small minority of existing claimants would continue to face weak work incentives even after being transferred from Rent Supplement. This is driven by the receipt of other means-tested benefits in addition to income-related housing supports; in particular, jobseekers allowance and one-parent family payment. The simultaneous withdrawal of multiple means-tested benefits means some low-income individuals can face very high effective marginal tax rates from relatively low levels of earnings, and demonstrates the importance of considering the tax and benefit system as a whole. The effect of changes to the design of income-related supports for housing costs is mediated by other elements of the system, all of which should be considered when analysing the effect of policy changes on incomes, work incentives or behaviour.

Finally, while this paper shows that HAP has the potential to improve financial work incentives for existing long-term recipients of Rent Supplement, it is important to note that we have considered a variant of HAP where tenants' rent contributions are determined by a hypothetical 'National Differential Rents' scheme. Although such a unified national scheme was planned when work on this report commenced, rental contributions under HAP are currently determined by county or city council's Differential Rent scheme, also used to calculate the rental contributions of local authority tenants. These differ in terms of minimum (and maximum) contributions, definitions of means-testable income, and the rate at which contributions increase with this income.² As a result, the actual effects of HAP on financial work incentives may differ from those described here, and will vary across local authorities.

The remainder of this paper proceeds as follows. Section 2 sets out key features of the existing structure of income-related housing support. Section 3 describes the data used in the study; a pooled sample of 2013 and 2014 waves of SILC. The way in which HAP is modelled in SWITCH is also discussed in this section. Section 4 reports results relating to costs, the pattern of gains and losses, and the impact on incentives to be in full time work. Section 5 concludes.

² The government committed to reviewing 'the disparate systems of Differential Rents for social housing across local authorities' in its Rebuilding Ireland Action Plan, though this has yet to be published.

Section 2

Income-related Housing Supports

In this section, we briefly describe the main income-related housing supports available to those in the private rental market: Rent Supplement, the Rental Accommodation Scheme (RAS), and Housing Assistance Payment (HAP).

Rent Supplement is an income supplement designed to support those in the private rented sector who are having difficulty meeting rent payments after a change in circumstances. Historically, this has been the main housing support available to low-income tenants in the private rented sector. The amount of rent supplement paid depends on a number of factors, including household income and the rent paid for the property. Maximum rent limits apply, which vary by region and by household composition, but may be exceeded in exceptional circumstances at the discretion of a Community Welfare officer.

Eligibility for Rent Supplement depends on a number of factors. Private renters must have lived in rented accommodation for at least 6 out of the last 12 months, or have been assessed by a local authority as being eligible for and in need of social housing in the last 12 months. In addition, applicants must pass a means test that takes into account employment income and most social welfare income. They must also work no more than 29 hours per week, which can create a strong disincentive to work full-time for individuals with low wages and high rental costs.³

Table 1 shows that despite its intention as a short-run support, more than half of Rent Supplement claimants have been in receipt of the payment for at least a year since 2000. This proportion rose to a high of 75% in 2015.

³ An exception to this rule can be granted where an applicant has been out of full-time employment for over 12 months and has been assessed as in need of housing under the Rental Accommodation Scheme.

Table 1: Recipients of Rent Supplement Classified by Claim Duration -

<i>Months</i>	<i>2000</i>	<i>2005</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>
	%	%	%	%	%	%	%	
0 to 3	8.2	13.4	11.8	11.3	8.5	7.0	5.5	5.0
3 to 6	15.3	14.8	15.0	13.6	11.6	10.9	8.4	7.0
6 to 9	12.0	10.5	12.1	10.8	9.7	8.6	7.5	6.8
9 to 12	9.6	8.5	10.9	9.5	8.1	7.5	6.9	6.2
12 plus	54.8	52.8	50.1	54.7	62.0	65.9	71.7	75.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Statistical Information on Social Welfare Services, 2000 to 2015

The Rental Accommodation Scheme (RAS) was established to provide support for people with a long-term housing need, in particular those claiming Rent Supplement for 18 months or more. Unlike Rent Supplement, local authorities agree contracts with landlords to provide accommodation for households on their social housing waiting lists, and pay landlords directly. Tenants make a contribution towards their rent determined by the Differential Rent scheme operated by their local authority, that depends on household income, size and composition.

The new Housing Assistance Payment (HAP) is similar to RAS except individuals, rather than local authorities, are responsible for sourcing and signing a tenancy agreement with landlords. The ‘Rebuilding Ireland Action Plan’ states that the Government’s intention is for HAP to eventually replace Rent Supplement and RAS for households with a long-term housing need.

Payments are made directly to landlords on behalf of tenants, with tenants’ rental contribution calculated under their local authority’s Differential Rent scheme. While the precise details of how these contributions are calculated differ substantially across local authorities, they in general consist of a minimum payment that increase with income (up to a ceiling in many but not all local authorities). As with Rent Supplement, maximum rent limits – which vary by region and household composition – apply, though local authorities have discretion to exceed these by up to 20% (and more for claimants who are registered as homeless).

Section 3

Data Issues and Modelling of Income-Related Housing Supports

In this Section we provide a broad description of the data available from the CSO Survey on Income and Living Conditions which underpins the modelling of tax and welfare policy options. We then consider the data issues relating specifically to Rent Supplement, comparing the numbers receiving this payment as recorded by the Department of Social Protection with the estimated numbers in receipt based on the CSO's Survey on Income and Living Conditions. In Section 3.3 we explain how SWITCH uses the information in SILC to model the main housing support payments in Ireland.

3.1 SILC data and the SWITCH microsimulation model

The Survey on Income and Living Conditions (SILC) is an annual survey conducted by the Central Statistics Office (CSO) in order to obtain information regarding the income and living conditions of Irish households. It is the Irish component of an EU wide survey which aims to capture information on poverty and social exclusion across Europe. The survey is both cross-sectional and also has a panel dimension with certain households surveyed annually. The survey began in 2003. The SWITCH database was recently updated, and is currently based on a pooled sample of households from the 2013 and 2014 waves of SILC.⁴ The SWITCH database contains almost 8,000 households or over 20,000 individuals. Basing the model on SILC means that the model represents as fully as possible the great diversity of household circumstances relevant to tax and social welfare. Methods of updating and recalibrating the data to represent the next budgetary year have been developed, in line with practice in many other countries.

⁴ The sample of households used to construct the SWITCH database contains all households from the 2014 survey, and all additional households from the 2013 survey that were not interviewed in the 2014 survey. This ensures that households that were interviewed for both the 2013 and 2014 waves of SILC are present only once in the SWITCH database.

SWITCH, the ESRI tax-benefit model, simulates the disposable income each family would obtain under the current set of income tax and social welfare policies, and under an alternative policy of interest. The results can be tabulated to show the patterns of gains and losses over the income distribution, or by family type. The policy change under consideration could be a simple change in one tax rate, or a complex programme of tax and welfare reform. The model can be used to explore long-term packages of reforms, and then examine alternative paths towards the selected long-term objective. As well as evaluating possible and actual policy changes, SWITCH can be used to examine counterfactual situations, such as the income an unemployed person would receive if they became employed, or the income an employed person would receive if they became unemployed.

3.2.1 Constructing a Model Database from SILC 2013 and 2014

The tax and welfare systems use information on age, marital status, numbers and ages of children, incomes from all sources and mortgages in order to determine tax liabilities and welfare entitlements. Much of this information is gathered by SILC, as part of the process of measuring disposable income – one of the key concepts used in poverty measurement. SILC also includes information on housing values which can be used to simulate the new Local Property Tax.

Published results from SILC focus mostly on the household and individual levels. For tax and welfare purposes, however, there is an intermediate unit - often called the family unit or tax unit - which is very relevant for policy purposes. Most tax and welfare policies do not operate at the level of the household, though household income and household welfare are of key concern to policy. Instead, tax and welfare policies tend to operate at either individual level (e.g., contributions to social insurance, and some social insurance benefits) or at a family unit level. Detailed information on family and household composition is needed to ensure that it is possible to group individuals into family units, defined as an individual, together with his or her spouse, and dependent children.

SILC forms part of a set of harmonized surveys used by Eurostat to analyse issues relating to poverty, social inclusion and other issues (Callan et al., 2012b). The income concept adopted at European level is measured in annual terms. e.g., total employee and self employed income received during the last year etc. As a result, annual incomes are the core concern of the Irish implementation of SILC. While there are good reasons to be interested in this measure of income, it is not a suitable measure for the purpose of simulating welfare entitlements. Welfare entitlements depend in the main on *current* income and labour market status. The CSO's implementation of SILC therefore goes beyond what Europe requires to capture key elements of the current income measure as well as annual income. These current income variables are then used within the SWITCH model to simulate means-tests within the social welfare system, such as that applying to Rent Supplement or the new Housing Assistance Payment.

Further details on the calibration and validation of the SWITCH model, based on SILC data, are given in Appendix 3.1. We turn next to issues specific to the modelling of the Rent Supplement and the Housing Assistance Payment.

3.2 Rent Supplement in the Pooled 2013 and 2014 SILC sample

Before outlining the detail of how existing Rent Supplement and new HAP schemes are to be modelled in SWITCH, we consider the nature and representativeness of the SILC data on which this modelling exercise is built.

The annual statistical report of the Department of Social Protection (DSP, 2014) reports national caseload for the Rent Supplement scheme. This is based on a “snapshot” of numbers in receipt at 31 December each year. In the 2014 wave of SILC, information is available on whether each respondent received Rent Supplement at any point during the previous 12 months, and whether the respondent was currently in receipt of Rent Supplement at the time of interview. Current receipt of the payment is most relevant in this case, as it gives an estimate of the “snapshot” numbers for SILC which can be compared with the official caseload reported by DSP. The 2013 wave of SILC, which contributes about 30 per cent of the overall SWITCH database, only records whether

an individual has received Rent Supplement at any stage during the previous 12 months. To approximate the numbers of respondents in the 2013 wave of SILC that “currently” the payment, we exclude those cases where the household is no longer in a private sector tenancy, and/or which contain a full-time employee. Such households may have qualified for Rent Supplement during the year but could not qualify on a “snapshot” basis at the date of interview. There may also be other reasons why a household qualified during the year, but no longer qualifies, so the estimate provided is an upper bound on the snapshot numbers in the 2013 survey.

The first row of Table 2 shows the number of recipients of Rent Supplement in 2014 and 2016, as reported by DSP (2014, 2016). The table then compares this figure with the number of recipients of Rent Supplement in the pooled 2013/2014 SILC database, as well as the number of recipients of Rent Supplement as modelled by SWITCH. The weight constructed by the ESRI team designed to represent the 2017 situation (see Appendix A for details) controls for the numbers of taxpayers by income group and numbers of recipients of a range of other welfare payments.⁵ Table 3 shows that the use of the ESRI weight produces a very similar number of modelled recipients of Rent Supplement in SWITCH compared to DSP official statistics, as well as a very similar number of actual recipients recorded in SILC compared with DSP statistics.

The comparison of the number of actual recipients in SILC in Table 2 must be conducted on a 2014 basis to ensure a valid comparison between SISWS and SILC. Pooling the 2014 and 2013 waves of SILC significantly improves the coverage of Rent Supplement recipients, compared to a previous version of this report that was based on SILC 2010.

⁵ Results throughout the paper are based on the ESRI constructed weight..

Table 2: Estimated Numbers of Recipients of Rent Supplement, Statistical Information on Social Welfare Services (SISWS), SILC and SWITCH

	<i>Estimated national</i>	
	<i>caseload</i>	<i>N of sample cases</i>
DSP 2014	66,400	n/a
Pooled SILC 2013/14	62,000	281
DSP 2016	46,300	n/a
SWITCH, 2017 Policy, 2017 Incomes	40,900	303

Source: Statistical Information on Social Welfare Services, and authors' calculations using SILC and SWITCH. DSP 2016 row excludes 8,700 cases above rent limits.

Using information provided by DSP,⁶ we can compare the profile of Rent Supplement recipients in SILC and in SWITCH with the profile of the full population of recipients recorded by DSP. Table 3 shows single individuals represent a smaller proportion of Rent Supplement recipients in SILC, compared to DSP records. Conversely, SILC and SWITCH have a somewhat higher proportion of two-child families compared to DSP statistics from 2014.⁷

Table 3: Profile of Rent Supplement Recipients – percentage in each family type

	DSP 2014	SILC Pooled 13/14	Modelled 2014	Modelled 2017
<i>ESRI Weight</i>				
Single	38.5	29.6	23.2	20.0
Couple	8.0	7.1	8.7	7.2
Couple/One Parent Family - 1 Child	20.6	20.5	18.1	21.6
Couple/One Parent Family - 2 Children	17.7	22.6	28.7	29.7
Couple/One Parent Family – 3+ Children	15.3	20.3	21.3	21.6

⁶ We thank Joe Meehan for the information on the Rent Supplement cases by family type.

⁷ At the Sept. 2017 meeting of the Interdepartmental HAP Group, it was suggested that the profile of Rent Supplement recipients has shifted more towards that modelled by SWITCH in recent years (i.e a lower proportion of singles and a higher proportion of couples compared to the DSP 2014 statistics).

3.3 Modelling Housing Supports in SWITCH

Using the income, housing tenure and demographic information in SILC, SWITCH can be used to model eligibility for income related housing supports, and the level of support each eligible household receives.

3.3.1 Rent Supplement

Using the tenure status information contained in SILC, we group households into seven different tenure categories: owned outright, owned with mortgage, owned under tenant purchase scheme, rented at market price, rented below market price, local authority tenant, and rent free. Only those renting at or below market price are eligible for Rent Supplement (i.e. owner occupiers and those renting from local authorities are not eligible). In addition to the tenure status, the detailed income information in SILC allows SWITCH to model the means test element of the Rent Supplement. The means test takes account of net income from employment (defined as gross income less PRSI), as well as most social welfare payment including the Family Income Supplement. As per the rules of the Rent Supplement scheme, recipients of Rent Supplement are required to pay a minimum contribution towards their rent. Recipients with means, subject to the relevant income disregards,⁸ above the relevant Supplementary Welfare Allowance (SWA) rate are required to make a further contribution towards their rent. Finally, the maximum rent limits, which place a limit on the rental value of properties for which Rent Supplement will generally be paid, are captured using the geographical information in SILC.⁹

⁸ The information in SILC allows the majority of income disregards relevant to the calculation of Rent Supplement to be included in SWITCH. SILC does not include the relevant information to model the Rehabilitative Earnings Disregard or for the assessment of savings in the Rent Supplement means test, so these are features are omitted from the calculation of Rent Supplement in the main analysis.

⁹ SWITCH models maximum rent limits at health board level. In practice, maximum rent limits are set at county level (excluding Dublin, Wicklow and Kildare who also have some within county variation), and local authorities within each county can lower the maximum rent limit at their own discretion. In SWITCH, we use the average of the county level maximum rent limits for each health board region.

The Rent Supplement means test allows for “reasonable” travel costs to be deducted from gross income in assessing an applicant’s means. As SILC does not contain information on travel costs, we do not include any travel costs in the means test for Rent Supplement. This also ensures that travel costs do not distort the change in financial incentives to work reported here as individuals move from Rent Supplement to HAP.¹⁰

3.3.2 Differential Rents

Under HAP, families’ rent contributions are determined by the same system of Differential Rents used to calculate the contributions of local authority tenants. Since 1986, these have been set at a local authority level, with minimum (and maximum) contributions, contribution rates and definitions of assessable income varying across authorities. The government committed to reviewing ‘the disparate systems of Differential Rents for social housing across local authorities’ in its Rebuilding Ireland Action Plan, though at the time of writing this has not been published.

In this report, we examine the effect of replacing Rent Supplement with HAP where rent contributions are determined by a hypothetical National Differential Rent (NDR) scheme. Table 4 displays the details of the two schemes we consider, based on proposals by the Housing Agency (Carroll, 2014). These would both consist of minimum contributions (or ‘base charges’, determined by household size and composition) and income-related contributions for households with income above a household allowance (also determined by household size).

¹⁰ As a sensitivity test, we included an average value for travel costs of €13 to be deducted from gross income when modelling the Rent Supplement; this value was based on previous research by Callan et al. (2012a). Little sensitivity was found in the results.

Table 4: Differential Rent schemes modelled

Base Charge per week			
		Aged over 26	Aged under 26
No children	Single tenant	€30	€17
	Couple tenants	€45	€27
With children	Single tenant	€30	€30
	Couple tenants	€45	€45
Add - any other adults		€22.50	€13
Children or full time students under 23		€3	
Household Allowance per week			
First Adult		€268.50	
Additional Adults		€191.80	
Children		€28.77	
Banded Charge (Applies on Income Above Allowance)			
		Income Band Above Allowance, per week	Rate
Band 1		€96	18%
Band 2		€96	22.5%
Band 3		€96	25%
High Income Cases: applies on All Income if Income > Allowance + Bands)			
High Income Rate		22%	

Source: Carroll (2014)

Under the first NDR scheme considered, households would pay 18 per cent of the first €96 per week of income above their household allowance in income-related contributions, 22.5 percent of the €96 per week above that, and 25 per cent of the next €96 per week. For households with income above this third band, a ‘high income rate’ of 22 per cent would apply to their entire income, creating a cliff-edge where rent contributions would jump discretely for some households and fall for others, depending on the level of their base contributions. The second NDR scheme considered does not contain this feature, but rather applies the 25 per cent rate to any income above the third band, that is, any income in excess of €192 per week above the household allowance.

3.3.3 Housing Assistance Payment

Modelling of HAP entitlements using SWITCH is carried out in two stages. First, we model whether a household is eligible for HAP at all, which requires a family to be on their local authority’s housing list. However, as SILC does not contain information on this, we consider three alternatives to model eligibility:

- 1) Long-term receipt of Rent Supplement
- 2) Receipt of Rent Supplement
- 3) Renting privately at or below market price

As SILC does not record the length of time individuals have received Rent Supplement, we use the duration of receipt of other welfare payments in the household as a proxy to model option 1. SILC records the duration of receipt in weekly steps from 1 to 52, meaning the maximum duration of receipt we can identify is therefore 52 weeks or more. Table 5 shows that using this approach closely mirrors the proportion of long-term Rent Supplement recipients as of April 2014.

Table 5: Duration of Rent Supplement Receipt – SWITCH v Actual

Months in Receipt of Rent Supplement	SWITCH		
	DSP 2014	2014 policy, wgt17	2017 policy, wgt17
	%	(%)	(%)
0 to 6	13.9	12.5	14.2
6 to 12	14.4	14.1	13
12+	71.7	73.4	72.8
Total	100	100	100

Source: authors’ calculations and Statistical Information on Social Welfare Services.

While the second option does not require using long-run receipt of other welfare benefits as a proxy for HAP eligibility and should capture some individuals with a long-term housing need who have only recently started claiming another welfare benefit, it will also likely overstate the numbers eligible for HAP relative to the government’s plans. This is because those who experience a temporary change in circumstances and are not deemed to have a social housing need will continue to be eligible for Rent Supplement rather than HAP.

The third option assumes all those renting privately at or below market price would be eligible to receive HAP. While this is a broader role for the payment than is currently envisaged by government, it comes close to the role of Housing Benefit in the UK: a means-tested support for housing costs available to privately renting low-income households (see section 4.4.2 of Hood and Norris Keiller, 2016).

In what follows we use the first of these options to model eligibility for HAP, as this most closely approximates the initial scope of HAP. In the second stage, we then model the net value of the HAP payment that families receive. This is done by using the rules of the Differential Rent schemes outlined in Table 4 to calculate families' rent contributions, with the net-value of HAP received the difference between their actual rent and this contribution.

Section 4

Gains, losses and financial work incentives

In this Section we examine the impact of introducing HAP on the incomes and financial work incentives of long-term rent supplement claimants. Our focus on this group is motivated by the Government's intention to transfer all long-term rent supplement claimants onto HAP.

4.2 Gains and Losses

Table 6 shows the estimated numbers who would gain and lose from the introduction of HAP under the NDR schemes outlined in Section 3. Because the vast majority of long-term rent supplement claimants are not in paid work (and so do not have earnings high enough for the differences in NDR schemes to apply), the two schemes have the same effect on claimants. Just over half of claimants (14,720) would gain by an average of €2,084 per year, while two-fifths (11,328) would lose by an average of €568 per year.¹¹ The remaining 1,688 claimants would see no change in their income. This translates into an average gain of €874 per year, or 3% of disposable income, for long-run rent supplement claimants, implying an annual cost of just under €25 million relative to the current system. Similar estimates suggest that moving all (not just long-run) rent supplement claimants onto HAP with Differential Rents assessed through either NDR scheme would cost close to €40 million per year.¹²

¹¹ A straightforward example of where a household can experience a loss of income due to the transfer from Rent Supplement is for an unemployed couple with two children. Assuming both members of the couple are aged over 27 with no sources of income other than a Jobseeker's payment, the contribution towards rent under Rent Supplement would be €40, whereas under the Differential Rent rules modelled in this analysis, their contribution would be €52.

¹² Neither of these costings account for any changes in behaviour that might arise in response to improved financial work incentives.

Table 2: estimated impact of HAP NDR schemes on disposable income of long-term rent supplement claimants

Long-term Rent Supplement claimants who:	€ per year	N	%
Gain		11,328	53
<i>by</i>	€2,084		7.8
Loose		14,720	41
<i>by</i>	€568		-1.9
Are unaffected		1,688	6
Total		27,736	100

Source: SWITCH, run using pooled 2013-14 SILC data.

4.2 Financial Incentives to be in paid work¹³

There are two main approaches to the measurement of the incentive to be in paid work. The replacement rate (RR) gives an individual's out-of-work income as a percentage of their in work income, and is defined as:

$$RR = \frac{\text{net income out of work}}{\text{net income in work}}$$

For example, an individual whose net weekly income out-of-work was €200 (€100 in jobseekers allowance and €100 in HAP), and whose net income in work was €450 (the sum of €400 in earnings and €50 in HAP) would have a replacement rate of 44 per cent.

The Participation Tax Rate (PTR) gives the proportion of earnings that are taken away in tax or lower benefit entitlements when an individual starts work, that is

$$PTR = \left(1 - \frac{\text{net income in work} - \text{net income out of work}}{\text{gross earnings}} \right)$$

¹³ This section draws heavily on the material in Callan et al. (2016).

For our example individual, this gives a PTR of 56 per cent.

For both of these measures:

- Net income means income at the family level after benefits have been added and taxes and social security contributions are deducted.¹⁴ In all cases, partners' behaviour is assumed to be held constant when calculating an individual's financial work incentive.
- Lower numbers indicate stronger financial incentives to work and vice versa.¹⁵

Both these measures attempt to capture the incentive to work or not, but they are conceptually different. In order to understand this better, consider an equal cash gain in each of in-work and out-of-work incomes. This should reduce the attractiveness of working compared to not working. On the other hand an increase in the hourly wage should increase the financial incentive to work. The replacement rate measure conforms to these expectations; but the PTR has different implications:

- An increase in income of a constant Euro amount at all hours (including zero) does not change the PTR, but increases the RR. This means that the PTR would suggest no change in incentives, but the RR would suggest that they have got weaker.
- At a given level of hours of work, an increase in the gross hourly wage will strengthen work incentives according to the RR, but will have ambiguous effects according to the PTR.

¹⁴ Whether family or individual income is more appropriate depends on which is more important for the individual's decisions. For example, a low-earning person living with a high-earning partner may have no independent income if he or she does not work, and therefore would have a very low RR – a strong financial incentive to work – when calculated using individual income. However, the same individual would have a very high RR when calculated using family income, because whether he or she works makes little difference proportionally to the family's income. By contrast, the PTR for this individual is likely to be very low (if the individual is only paying income tax and employee PRSI on a small portion of their earnings, and is in a family which has an income too great to be entitled to Working Families Payment) regardless of whether individual or family income is used for the calculation.

¹⁵ A PTR of 0% would indicate that an individual did not have to pay any tax on their earnings and did not lose any benefit entitlement when they started work, whereas a RR of 0% would indicate that an individual would not receive any income if they did not work. A PTR or RR of 100% would indicate that all of an individual's earnings would be taken from them in tax or lower benefit entitlements if they worked, so they would be no better off working than not.

The PTR does, however, have one significant advantage over the RR measure: the PTR is driven largely by how the tax and benefit system (rather than potential wages) affects the incentive to work. While the RR conflates the incentives caused by taxes and earnings power, the PTR distinguishes, to a greater extent, between whether a reduced reward to work is caused by higher taxes or lower wages.

Broadly speaking, therefore, the RR measures the absolute strength of financial incentives to work whereas the PTR measures the effect of the tax and benefit system on work incentives. Both are of interest, and because of this difference in what the two measures are describing, much of the empirical analysis that follows will use both measures.

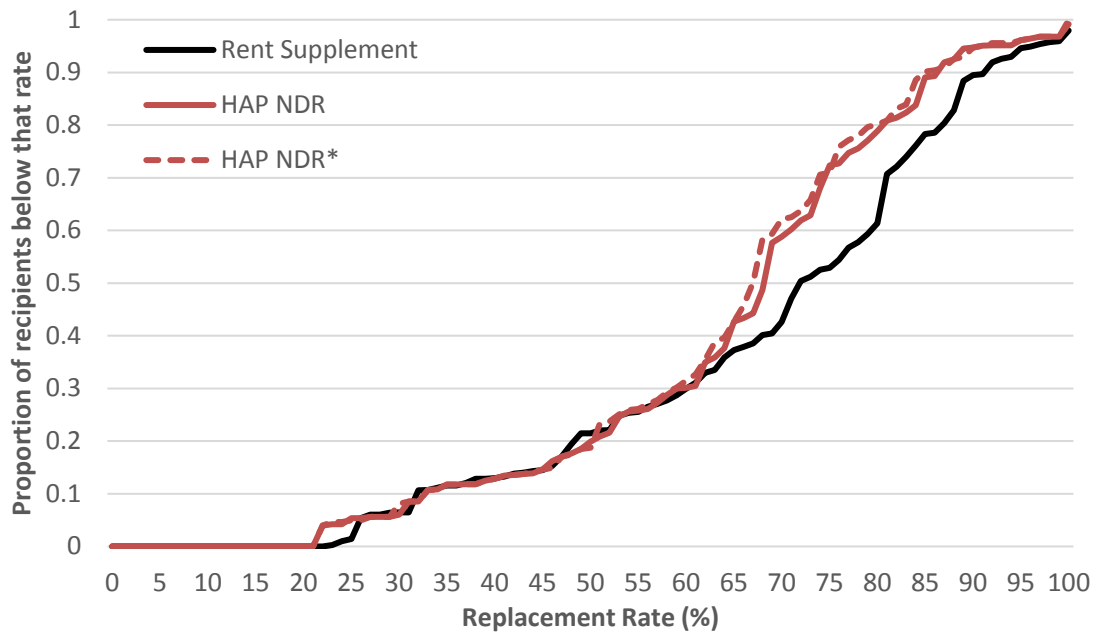
For non-workers, an estimate is required of how much they would earn if they did work. The approach taken here is to estimate the hourly wage that an individual could command, based on characteristics such as age and educational qualifications. We then examine how much they would earn at 40 hours per week, as an indicator of their potential earnings in full-time work.¹⁶

4.3 Financial Incentives to be in full-time paid work

We now consider the potential impacts of HAP on the financial incentive long-term rent supplement claimants face to be in full-time paid work. Figure 1 shows the cumulative distribution of replacement rates for this group under the current system and the two NDR schemes we examine. The series plot the proportion of long-term Rent Supplement recipients that face a replacement rate of less than that shown on the horizontal axis. For example, the black series shows that under the current system, just over half of individuals have a replacement rate below 75%.

¹⁶ See Callan et al. (2016) for more detail on how wages are estimated for non-workers.

Figure 1: Cumulative distribution of Replacement Rates for long-term Rent Supplement recipients under current system and HAP NDR schemes

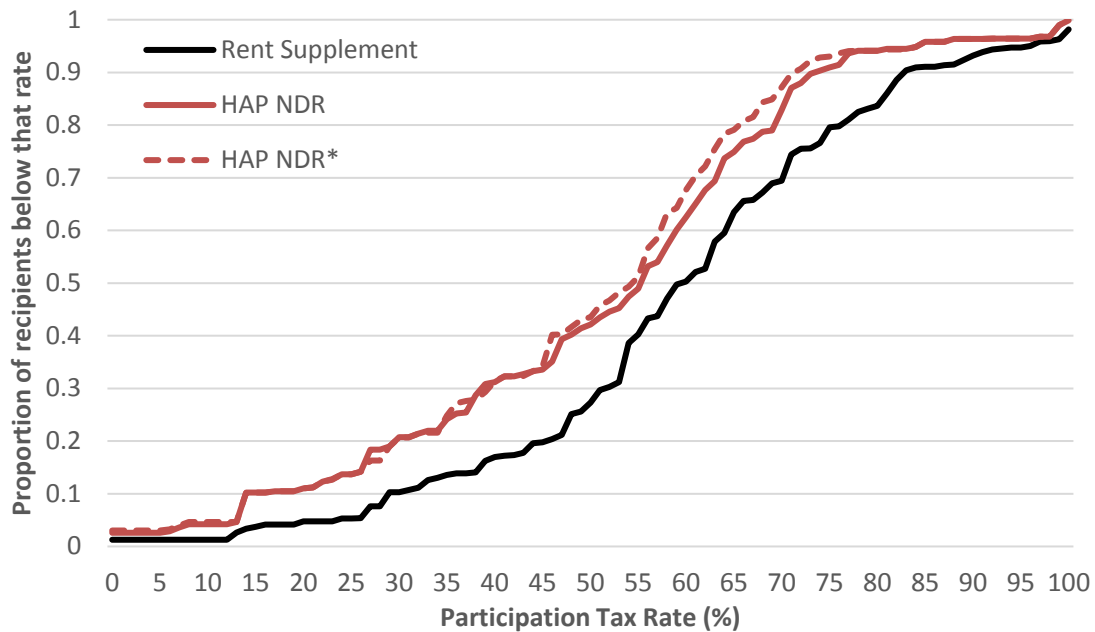


Source: authors' calculations using SWITCH run on 2013-14 SILC data.

The red series show the effect introducing the HAP NDR schemes would have on the distribution of replacement rates. Both would significantly strengthen work incentives for long-run rent supplement claimants, reducing the share facing a replacement rate in excess of 75% from about a half to less than a third. The potential effects are especially pronounced where work incentives are currently weakest, with the share facing a replacement rate in excess of 90% falling by half (from 10% to 5%) under either HAP NDR scheme.

Figure 2 shows the cumulative distribution of PTRs under the current system and the two HAP NDR schemes we consider. On this measure, the introduction of either scheme would substantially strengthen work incentives for most long-term rent supplement claimants, half of whom currently face PTRs in excess of 60%: that is, half currently lose at least 60% of what they would earn in employment through taxes and withdrawn benefits. Under the HAP NDR schemes, this would fall by between 12 and 17 percentage points, from half to about a third.

Figure 2: Cumulative distribution of Participation Tax Rates for long-term Rent Supplement recipients under current system and HAP NDR schemes

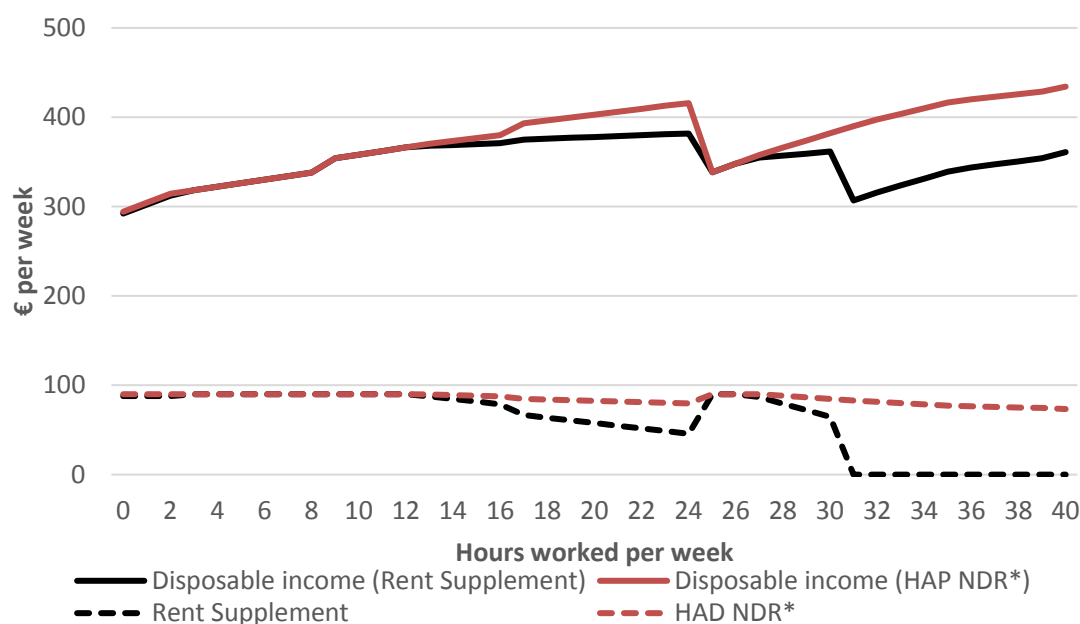


Source: authors' calculations using SWITCH run on 2013-14 SILC data.

The proportion of individuals facing a PTR of less than 50% would also rise substantially, from less than a third under the current system to more than two-fifths (40%) under either scheme. The potential effects are again more pronounced where work incentives are currently weakest: we estimate that the proportion who keep less than 20% of their earnings after taxes and withdrawn benefits (a PTR above 80%) would fall from 16% to 6%.

To get a sense of what features are driving these results, we now consider an example budget constraint, which plots the disposable income and Rent Supplement or HAP a hypothetical single adult paying €200 per week in rent would receive at each hour of work (at an hourly wage rate of €10) under the current and proposed systems. Figure 3 shows that if out of work and claiming jobseekers allowance, this example adult would have roughly the same disposable income under HAP and Rent Supplement, as both schemes require a minimum contribution of €30 per week. This begins to diverge when working more than 12 hours per week as Rent Supplement is withdrawn against other sources of income at a faster rate than HAP under the proposed NDR scheme examined here: 75% compared to 18% at this income level.

Figure 3: budget constraint for single adult



Source: authors' calculations using SWITCH. Assumes single adult working for €10 per hour with rental costs of €200 per week.

At 24 hours per week, this example individual loses their residual entitlement to jobseekers allowance under either system, as they are deemed to be working more than 3 days in 7 (assuming 8 hours of work a day). The drop in other income restores this example adult's full entitlement to both Rent Supplement and HAP, though this is not sufficient to offset the drop in jobseekers allowance, resulting in a decline in disposable income under both systems. Above this level of hours, the disposable income attained under each system again diverges due to the more aggressive means-test of Rent Supplement. This is exacerbated by the cliff-edge in Rent Supplement at 30 hours per week, which eliminates our example single adult's entitlement to that payment and leaves them financially much better off under HAP when working full-time.

This example neatly illustrates how the proposed HAP NDR scheme can strengthen the incentive to be in full-time paid work. Taking disposable income when out-of-work and when working 40 hours per week gives a replacement rate (PTR) for this example adult of 81% (83%) under the current system of Rent Supplement, much higher than 68% (65%) as under the proposed HAP NDR scheme. The key differences between the systems that result in these stronger work incentives are the cliff-edge in entitlement to

Rent Supplement at 30 hours per week and the much less aggressive means-testing of other income under the proposed HAP NDR scheme.

The example also highlights how other aspects of the tax and benefit system are important to take into account when analysing the possible effects of changes to the design of income-related supports for housing costs. While the cliff-edge in Rent Supplement entitlement at 30 hours per week certainly weakens financial incentives to work, so too does the requirement that one works no more than 3 days in 7 to be eligible for jobseekers allowance. And as the flat segments of the budget constraint in Figure 8 between 12 and 24 hours per week show, the receipt (and so withdrawal) of multiple means-tested benefits (in this case jobseekers allowance and Rent Supplement) can lead to very weak incentives to increase earnings or hours at low levels of income.

Indeed, while we find that the proposed HAP NDR scheme would improve financial work incentives for most existing long-term Rent Supplement recipients, a small minority would continue to face quite a weak incentive to be in full-time paid work in part because of the receipt of multiple means-tested benefits. Of the group with a PTR or a replacement rate in excess of 70% under the proposed system (one-fifth and two-fifths of the sample respectively), more than half would also be entitled to jobseekers allowance, with another 10% entitled to one-parent family payment. This suggests that should policymakers want to further strengthen work incentives for claimants of HAP, they may want to consider changes to the wider benefit system, in particular jobseekers allowance.

Section 5

Conclusions

This paper has examined the potential impact of HAP on the financial work incentives of long-run Rent Supplement claimants. We found that if transferred onto the new housing support with rent contributions calculated under the National Differential Rents scheme proposed by Carroll (2014), HAP will on average improve work incentives, and lead to fewer individuals facing extremely high replacement rates and participation tax rates. Effects are particularly pronounced where work incentives are currently weakest.

However, caution should be taken in inferring anything about the magnitude or extent of likely *employment responses* to this change. Firstly, there is limited evidence on the responsiveness to financial incentives of the affected group. Current long-term claimants of Rent Supplement include some lone parents (who we know from the international literature to be relatively responsive to financial incentives) but also many married and single men (on whom evidence is more mixed).¹⁷ Second, many of those who see improvements to their financial work incentives have been out of the labour market for a substantial period of time, and may face difficulties in re-entering even though it is financially beneficial to do so.¹⁸ And finally, while it was originally proposed that HAP be rolled out in conjunction with a National Differential Rent scheme along the lines examined in this paper, such a scheme has yet to be progressed. The rental contributions of HAP recipients are instead currently determined by the Differential Rents scheme operated by their local authority. These differ in terms of minimum (and maximum) contributions, definitions of means-testable income, and the rate at which contributions increase with this income. As a result, the actual effects of HAP on financial work incentives may differ significantly from those described here, and will vary across local authorities.

¹⁷ For a comprehensive review of the literature, see Blundell and MaCurdy (2011), Keane (2011) and Meghir and Phillips (2011). Bargain et al. (2014) provide one of the few estimates of own-wage labour supply elasticities by gender and income level in Ireland, and suggest that low-income single men may be particularly responsive to financial incentives by international standards.

¹⁸ This could be because of the depreciation of general human capital (Pissarides, 1992), psychologically discouragement (Clark et al 2001), and poorer worker-firm match quality (Liu et al, 2016).

Bibliography

- Atkinson, A.B., Gomulka, J., Sutherland, H., (1988). "Grossing-up FES data for tax-benefit models", in A.B. Atkinson, H. Sutherland (eds.) *Tax-Benefit Models*, London: STICERD Occasional Paper No. 10.
- Bargain, O., Orsini, K., & Peichl, A. (2014). Comparing labor supply elasticities in Europe and the United States: New results. *Journal of Human Resources*, 49(3), 723-838.
- Blundell, R. and T. MaCurdy (1999). Chapter 27 Labor supply: A review of alternative approaches. In O. Ashenfelter and D. Card (Eds.), *Handbook of Labor Economics*, Volume 3, Part A, pp. 1559-1695. Elsevier.
- Callan, T., Keane, C., Savage, M., Walsh, J.R., and Timoney, K. (2012a). "Work Incentives: New Evidence for Ireland." *Budget Perspectives 2013*.
- Callan, T., Keane, C., Walsh, J.R., Lane, M., (2012b) "From Data to Policy Analysis: Tax-benefit Modelling Using SILC 2008", *Statistical and Social Inquiry Society of Ireland*, Vol. 40, 2010-11, pp.1-10
- Carroll, R. (2014) "Social Housing Rents- Update", presentation to ICSH, 20 February 2014.
- Coates, D. and Norris, M. (2006). "Supplementary Welfare Allowance, Rent Supplement: Implications for the Reform of the Rental Accommodation Scheme." Centre for Housing Research, Dublin.
- Department of Social Protection (2014) "Statistical Information of Social Welfare Services: Annual Report 2014" Published by Department of Social Protection, Ireland
- Keane, M. P. (2011). Labor Supply and Taxes: A Survey. *Journal of Economic Literature* 49 (4), 961-1075.
- Meghir, C., & Phillips, D. (2010). Labour supply and taxes, in S. Adam, T. Besley, R. Blundell, S. Bond, R. Chote, M. Gammie, P. Johnson, G. Myles and J.M. Poterba (eds.) *Dimensions of Tax Design*, pp. 202-74.
- Merz, J. (1991), "Microsimulation - A Survey of Principles. Developments and Applications", in *International Journal of Forecasting* 7, pp. 77-104.

Appendix A: Calibration and Validation of SWITCH

The weighting procedures used by the CSO help to ensure that SILC is broadly representative of the Irish household population in terms of key demographics (age group, sex, household composition and region). There is, however, no guarantee that this set of controls will ensure that the survey data represent the social welfare client population and/or the income tax base. These are key requirements for a tax-benefit model: the value added by the model will be greatly enhanced if the input database provides a good representation of the welfare client population and the income tax base.

For this reason, and as discussed in Callan et al. (2012b), an adjusted weight to the initial weight provided by the CSO is used commonly used for SWITCH analysis. The CSO weighting procedure used to create household cross-sectional weights begins with household design weights, which are in inverse proportion to the probability of selection. A further adjustment is made to take account of non-response among longitudinal households. Benchmark information or “control totals” are then used to estimate weights which gross up the data to population estimates. Broadly speaking, the weighting estimates are derived finding the smallest adjustment to the weights which ensures that the weighted estimates reproduce the control totals or “benchmarks”. The control totals or benchmarks used by CSO are:

- population estimates by sex and age group (0-14, 15-34, 35-64, 65 and over). These are based on population projections, which draw on Census data.
- Household population estimates at regional level using the eight NUTS3 regions. These are generated from the Quarterly National Household Survey (QNHS)
- Household composition controls (6 categories, depending on numbers of adults and numbers of children) which are also drawn from the QNHS.

These controls help to ensure that SILC is broadly representative of the Irish household population in terms of key demographics (age group, sex, household composition and region).

The SWITCH model, however, requires an accurate and representative representation of the income tax paying and social welfare receiving population. There is no guarantee that the set of initial controls used will ensure this. Without such controls a tax benefit model may fail to accurately capture the total cost/savings to the exchequer of policy changes or the impact policy changes have on income distribution and poverty rates. For this reason SWITCH requires additional controls. Essentially the procedure used is the same as that employed by CSO in constructing the benchmark weights. The difference is that some additional control totals are used, chief among these being control totals or benchmarks relating to the distribution of income taxpayers by income band as well as estimates of the social welfare population. Similar approaches have been employed for many years in UK tax-benefit models (Atkinson et al., 1988) and in Germany (Merz, 1991). The CSO benchmark weights are treated as the initial weights in our procedure, and new weights are estimated using the CALMAR software, which gross up the population both to the new control totals, and to the controls applied by CSO. Different weights are used for each year of analysis, so that the SILC 2013/2014 data can be reweighted to be representative, along the lines discussed, of the 2017 population.

We now focus on the representativeness of the underlying data and the model. Table shows the estimated numbers of social welfare recipients by major scheme type, comparing the numbers modelled by SWITCH to the figures reported by the Department of Social Protection. The first column of figures shows the number of recipients by scheme as provided by the Department of Social Protection. These figures are based on a projection for the numbers in receipt of benefit at a certain point in time, specifically at the 31st December 2017. The SWITCH figures refer to the number of people who are modelled to receive the payments based on the information provided in SILC. The figures are therefore not directly comparable with the end- December figures from DSP, as the SILC interviews take place throughout the year. While there are some payments with a seasonal element (e.g., back to school, Christmas bonus and fuel allowance) these do not have a major impact on the comparison. Trends in unemployment have the potential to make a more serious impact.

Table A1: Numbers of Recipients (000s) by Social Welfare Scheme

Social welfare payment type*	DSP Projections 2017	SWITCH 2017 (eurwgt_s)	SWITCH 2017 (Wgt17)	SWITCH (eurwgt_s) as % of DSP	SWITCH (wgt17) as % of DSP
State Contrib & Non-Contrib Pensions	406	406	418	100%	103%
Widows, Widowers and One-Parent Families	174	147	172	85%	99%
Jobseekers Supports	253	393	214	155%	84%
Illness, Disability and Caring	325	293	277	90%	85%

*2017 figures for State Contributory and Non-Contributory Pensions are adjusted using Census estimates of the proportion of the over 65 age group living in non-household situations (mainly nursing homes). 2017 figures for State Contributory Pensions also exclude recipients living outside the state

The figures are presented using the CSO weight (euroweight_s) as well as the new adjusted weight for 2017 (wgt17). We can see that, overall, SWITCH captures the social welfare population well, particularly for the pension schemes and one-parent family scheme, with ratios close to 100 per cent. The working age income supports, and illness/disability support schemes have coverage levels of about 85 per cent. The CSO weight, euroweight_s, also provides good coverage of the social welfare population, though there is a strong over-representation of jobseeker support payments. Given the CSO weight reweights the population to be representative of the survey year, in this 2013 and 2014 when unemployment was considerably higher than forecast for 2017, this result is largely unsurprising.

Given that our procedure involves re-applying the control totals from the CSO benchmarks, results on these social welfare domains tend to be similar. However there are substantial differences in terms of the implications of the alternative weighting choices for the analysis of tax policy. Table reports costings of tax policy changes from the Department of Finance/Revenue pre-Budget 2017 “Ready Reckoner”. These are compared with two costings based on SWITCH: one using SILC with the CSO’s benchmark weight (‘euroweight_s’), and the other using SILC with the adjusted weights involving calibration to the income distribution among taxpayers and social

welfare population. It is clear that when the CSO's benchmark weights are used, the costs of tax policy changes are substantially underestimated – “coverage” of the cost ranging from 60 per cent to 88 per cent for the majority of costings. Using the adjusted weights, on the other hand, the costs are well represented, with the “coverage ratio” for the costings usually varying between 90 and 115 per cent.

Table A2: Costing of Tax Policy Changes

	Ready Reckoner 2017	SWITCH 2017 Eurwgt_s	SWITCH 2017 - wgt17	SWITCH (Eurwgt_s) as % of Ready Reck.	SWITCH (wgt17) as % of Ready Reck.
Personal tax credit +€100	217	186	242	86%	111%
PAYE tax credit +€50	80	62	86	77%	108%
Lone Parent tax credit +€100	3.7	3	6	88%	175%
Tax Band +€100	18	15	21	85%	115%
Tax Band +€500	95	76	103	80%	108%
Tax Band +€1000	178	151	204	85%	115%
Standard income tax rate -1%	576	457	621	79%	108%
Top income tax rate -1%	283	195	262	69%	92%
<u>USC: 1 percentage point decrease in:</u>					
0.5% rate*	124	182	125	147%	101%
2.5% rate	159	96	131	60%	82%
5% rate	367	290	361	79%	98%

*Reduced to 0%

Ready Reckoner Prepared by Statistics & Economic Research Branch, Revenue Commissioners, Nov. 2016

Appendix B: Rent Supplement: Simulation and Receipt

Tables B1 and B2 analyse whether the households that are reported to have received Rent Supplement in SILC are the same households that are modelled as entitled to receive Rent Supplement in SWITCH. This comparison is done using the 2014 policy rules and income levels in SWITCH, to ensure a valid comparison between SILC and SWITCH. As receipt of Rent Supplement is annual in the 2013 data, cases that report receipt of Rent Supplement that also report that they own their home (with or without a mortgage), or that they work more than 30 hours a week are assumed not to be in “current “ receipt of Rent Supplement in the 2013 wave of SILC. Of those who are modelled as entitled to receive Rent Supplement in SWITCH, approximately one-third also report that they receive the payment in SILC. The cases that are modelled to receive Rent Supplement in SWITCH that do not report receipt of Rent Supplement in SILC are due to factors such as non-take-up and temporarily low income in households.

There are a substantial number of cases that report receipt of Rent Supplement in SILC who are not modelled as entitled to receive the payment in SWITCH. A number of factors may cause this. As previously discussed, the annual figure in SILC may be up to 25 per cent higher than the current number of recipients modelled by SWITCH due to short-term receipt of the benefit, so a number of cases that report receipt in 2013 may not be in current receipt of the payment even after removing those in full-time work and those that own their property. Therefore, a large proportion of these cases may have been in short term receipt of the benefit at some point over the year of survey, but no longer qualify for the payment.

However, Rent Supplement receipt recorded in the 2014 wave of SILC, for the majority of cases, comes from DSP administrative records. Again, a number of factors can contribute to the high degree of non-overlap between SWITCH and SILC Rent Supplement recipients. While the rules of Rent Supplement have been strictly modelled in SWITCH as closely as possible to reality with available data, some discrepancies exist. For example, in SWITCH no recipient can work more than 30 hours, while in reality there are certain exceptions to this, such as RAS eligible households. In addition, some discretion exists to the application of maximum rent limits, which again can result

in differences between SWITCH modelling of the scheme and how it is implemented in reality. The comparison of the family type distribution of Rent Supplement recipients discussed in the main text suggests that both the actual and modelled population of Rent Supplement recipients used in this analysis is representative of the true population of recipients.

Table B1: Cross Tabulation of Actual Rent Supplement Recipients in SILC and Modelled Rent Supplement recipients in SWITCH

Actual (SILC 2014/2013 RMF)		Modelled (SWITCH, 2014 Policy, euroweight)		Total
		Not in Receipt	In Receipt	
Not in Receipt			33,670	33,670
In Receipt		45,590	16,076	61,666
Total		45,590	49,746	

Note: Actual Recipients of Rent Supplement in SILC 2013 who report owning their house, having a mortgage, or working more than 30 hours a week are excluded from this table.

Table B2: Cross Tabulation of Actual Rent Supplement Recipients in SILC and Modelled Rent Supplement recipients in SWITCH

Actual (SILC 2014/2013 RMF)		Modelled (SWITCH, 2014 Policy, wgt17)		Total
		Not in Receipt	In Receipt	
Not in Receipt			18,861	18,861
In Receipt		27,385	9,071	36,457
Total		27,385	27,932	

Note: Actual Recipients of Rent Supplement in SILC 2013 who report owning their house, having a mortgage, or working more than 30 hours a week are excluded from this table.

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