Rialtas na hÉireann
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BUDGET 2021

Forecasting Jobseeker Numbers & Expenditure 2021

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This paper has been prepared by IGEES staff in the Department of Public Expenditure & Reform. The views presented in this paper do not represent the official views of the Department or the Minister for Public Expenditure and Reform.

IGEES
Irish Government Economic and Evaluation Service

Executive Summary

For 2020, the annual average LR figure is estimated to be 212,667, with expenditure estimated at €2,072m. The actual number of persons expected to be on the LR at end 2020 is expected between 226,000 and 229,000. This reflects an additional 45,000 people on the LR compared to the start of 2020. In 2020, the PUP baseline estimated forecast an end year number of 181,000 persons.

1. Baseline 2021 Forecasts for Live Register and PUP

Taking the average and Mid PUP Baseline Scenario across all forecast methods gives an estimated average LR of 359,767 in 2021 and a total jobseekers expenditure of €3,727m**. The PUP is estimated to finish at 159,000 persons at 1 April 2021, with 380,000 persons on the LR at end 2021.**

2. Impact of Level 3 Restrictions for 3 Weeks

The additional Level 3 restrictions introduced from 7th October will see an estimated additional inflows into PUP of up to 41,000 for a 3 week duration, which is estimated to cost an additional €72m in 2020 with additional costs of €159m in 2021.

It is estimated that the LR number will increase by 10,000 on average to reach an average LR number of 370,000 in 2021. This illustrates the expectation that there will continue to be a very high number of Jobseekers supported throughout 2021. **It is estimated that there could be up to 400,000 jobseekers at the end of 2021 and into the beginning of 2022.**

3. Impact of Further Public Health Restrictions on PUP

If further restrictions are imposed under the Resilience and Recovery strategy, the baseline estimates increase further. The increase in the PUP number alone are expected to have the following impacts.

- If Level 3 restrictions are imposed, it is estimated that 41,000 additional persons will enter PUP which would add an **additional €11m each week the restrictions are in place.**
- If Level 4 restrictions are imposed, it is estimated that up to 115,000 additional persons will enter PUP which would add an **additional €39m each week the restrictions are in place.**
- If Level 5 restrictions are imposed, this is estimated that there will be up to 167,000 additional persons on PUP which **would cost an additional €47m each week the restrictions are in place.**
- If a full lockdown (as per March 2020) is imposed, it is estimated that an additional 392,400 persons would enter the PUP, **which is estimated to cost an additional €105m each week the restrictions are in place.**

4. EWSS Supports

EWSS has a significant role in supporting employment, with the Department of Finance estimating an average of 350,000 employees on the scheme which will cost €936m in 2020 and €1,207m in 2021 to 1 April.

The EWSS scheme is due to lapse on 1 April 2021, and it is estimated that if 50% or 175,000 EWSS employees transfer to the Live Register once the scheme closes, this will cost an additional €1,299m in 2021.

Glossary

JA	Jobseekers Allowance
JB	Jobseekers Benefit
JA + JB	Jobseeker Expenditure
PUP	Pandemic Unemployment Payment
TWSS	Temporary Wage Subsidy Scheme
EWSS	Employment Wage Subsidy Scheme
LTU	Long-Term Unemployed (> 1 year)
STU	Short – Term Unemployed (< 1 year)
LR	Live Register
YtD	Year-to-Date
YOY	Year on Year
UE	Unemployment
DEASP	Department of Employment Affairs and Social Protection
CSO	Central Statistics Office
DoF	Department of Finance
CBI	Central Bank of Ireland
LFS	Labour Force Survey
SIF	Social Insurance Fund

Introduction

The Live Register (LR) is a monthly series dated back to 1967 which provides an important record of the number of people registering for Jobseekers Benefit (JB), Jobseekers Benefit for the Self-Employed (JBSE) Jobseekers Allowance (JA) or for various other statutory entitlements with the Department of Social Protection (DEASP). It is a widely used metric and is an important indicator of the general labour market.

The key objectives of this paper are to:

- Overview of Forecast Methods used to estimate LR in 2021;
- Estimate the Jobseeker (Live Register and PUP) baselines and under a range of forecast methods for 2020 and 2021;
- Sensitivity Scenarios for estimating the trajectory of the PUP number to April 2021;
- Estimate Impact of National Level 3 Restrictions on PUP;
- Sensitivity analysis of PUP for additional restrictions under the Resilience and Recovery.

The estimates set out in this paper may not reflect actual increases in budgetary allocations as there are a variety of other factors influencing the actual level of expenditure across DEASP programme areas. However, the estimates provided in this paper inform the Budget process and future labour market developments.

1. Forecasts

This section sets out the methodologies used for estimating the number of persons on the Live Register and the associated jobseeker expenditure for the remainder of 2020 and 2021. Forecasts are based on a no policy change position which assumes no additional economic shocks and no additional COVID related restrictions.

Box 1: Previous Live Register Forecasts[1]

The table below outlines how the LR forecasts from previous iterations of the Live Register paper have performed compared to the actual LR outturn figure. It shows that overall the forecasts have a variance of between 0% and 3%.

Live Register paper	Forecast Average LR *Number*	Actual Average LR *Number*	Variance *Number*	Variance *%*
2014	**395,000**	**385,000**	**- 10,000**	***- 3%***
2015	**340,000**	**344,234**	**+ 4,234**	***+ 1%***
2016	**306,250**	**303,749**	**- 2,501**	***- 1%***
2017	**267,800**	**263,876**	**- 3,924**	***- 1%***
2018	**225,967**	**221,323**	**- 4,644**	***- 2%***
2019	**192,282**	**192,122**	**-160**	***0%***

The mean absolute percent error (MAPE) expresses accuracy as a percentage of the error. The MAPE for the LR forecasts from previous iterations is -1%, which means on average the LR forecasts have a deviation of -1%, and as such are considered accurate and within acceptable standard deviations for forecasting (Athanasopoulos, 2018).

[1] 2014 LR paper can be accessed here: https://igees.gov.ie/wp-content/uploads/2014/11/Analysis-of-Jobseekers-and-Related-Expenditure.pdf
2015 LR paper can be accessed here: https://igees.gov.ie/wp-content/uploads/2014/11/Analysis-of-Jobseekers-and-Related-Expenditure-1.pdf
2016 LR paper can be accessed here: https://igees.gov.ie/wp-content/uploads/2013/06/FINAL-Estimating-JA-and-JB-for-2016-2017.pdf
2017 LR paper can be accessed here: https://igees.gov.ie/wp-content/uploads/2018/04/Analysis-of-Live-Register-and-Related-Expenditure.pdf
2018 LR paper can be accessed here: https://igees.gov.ie/wp-content/uploads/2019/01/Analysis-of-Live-Register-Related-Expenditure.pdf
2019 LR paper can be accessed here:
http://www.budget.gov.ie/Budgets/2020/Documents/Budget/Analysis%20of%20Live%20Register%20Expenditure.pdf

Methodology

Economic forecasters often have a variety of different models and forecasts of the same variable from which to choose. These models and forecasts may differ due to underlying assumptions, or differences in the data used. Forecasts from a given method may provide some useful information that is not conveyed in forecasts from other methods. In order to capture a range of information the approach taken in this analysis is to employ a number of forecast techniques ranging from a simple trend forecasting to a time series autoregressive model.

Description of Forecasting Methodologies

<table>
<tr><th>Approach</th><th>Forecast Method</th><th>Description</th></tr>
<tr><td rowspan="2">A. Macro Level Approach (Top down)</td><td>Method 1: Conversion Number</td><td rowspan="2">These are top down approaches which means the methods capture full effects on the LR (inclusive of PUP). Full economy wide dynamics and jobseeker movements are assumed to be captured in these unemployment forecasts for 2021.
The LR estimate is based on the unemployment rate forecasts from the Department of Finance and the Central Bank of Ireland.
Expenditure can be estimated on aggregate but these methods cannot estimate specific expenditure components.</td></tr>
<tr><td>Method 2: ARIMA</td></tr>
<tr><td rowspan="2">B. Micro Level Approach (Bottom up)</td><td>Method 3: Trend Drift</td><td rowspan="2">These are bottom up approaches which means the LR and PUP are estimated separately using the Trend Drift and Flows methods until 1 April upon the PUP recipient transfer into the LR.
Thereafter, using the Trend Drift and Flows Method, the aggregated LR and PUP are estimated for the remainder of 2021.</td></tr>
<tr><td>Method 4: Trend Flows</td></tr>
</table>

A. Macro Level Approach

The 2021 LR is estimated using the Macro approach which includes a Conversion Rate Method based on the Department of Finance and Central Bank of Ireland unemployment rates for 2021. The ARIMA Method also applies a macroeconomic view using time series econometric analysis of the LR and PUP.

Method 1: Conversion Rate Method

The conversion method calculates the number on the Live Register for every 1% unemployment rate published by the Central Statistics Office (CSO). This methods uses the macroeconomic unemployment forecasts from the Department of Finance and the Central Bank of Ireland for 2021 and converts the rate into a corresponding Live Register forecast for 2021.

The average conversion rate between 2019 and August 2020 is **40,295** which is the monthly LR number divided by the monthly Unemployment Rate. Since March, the CSO have also published a COVID adjusted unemployment rate which accounts for the additional jobseekers who are in receipt of the PUP. The average conversion number of the collective LR and PUP divided by the COVID adjusted unemployment rate from March 2020 to August 2020 is **28,391**. The mean of both of the average conversion numbers is **34,343**, which means that an approximately 1% unemployment rate equates to **34,343** persons on the Live Register. This is the conversion number that is used to estimate the 2021 estimate for jobseekers supported. (***See Appendix A).***

The decrease in the conversion number for the COVID adjusted UE rate represents a significant shift in the conversion number and the relationship between the Unemployment Rate and Live Register. This shift in that relationship is consistent with trends seen previously in times of high unemployment. Historically, as the unemployment rate increases the conversion number decreases as the differences between the two metrics converge. This represents the greater alignment that occurs during periods of high unemployment as the number of people on the Live Register have a greater representation of actual standard unemployment. Similar changes in the conversion numbers occurred during the 2008 financial crisis when unemployment increased. (***See Appendix B***).

Unemployment scenarios for 2021 by the Central Bank of Ireland[2] and forecasts from the Department of Finance[3] are outlined below and are used in this method to estimate the LR.

Figure 1: Unemployment Rate Scenarios/Forecasts, 2020- 2021.

Unemployment Rate Forecasts	2019	2020	2021
Central Bank of Ireland UE % (Baseline)	**5**	**14.5**	**9.2**
Annual Change		*+ 9.5*	*-5.3*
Central Bank of Ireland UE % (Severe)	**5**	**16.6**	**12.4**
Annual Change		*+11.6*	*-4.2*
Average Central Bank of Ireland UE Rate % (Mid)	**5**	**15.6**	**10.8**
Annual Change		*+10.6*	*-4.8*
Department of Finance UE %	**5**	**16**	**10.73**
Annual Change		*+11*	*-5.27*

Source: Department of Finance Economic Forecasts 2021, Central Bank of Ireland Q3 2020 Bulletin

Method 2: Auto-Regressive Integrated Moving Average Method (ARIMA[4] model No Seasonality)

An ARIMA is a forecasting technique that is used to regress a variable on its lagged values and errors, and then forecast future data points for the variable. ARIMA projects the future values of a series based on its own inertia, and can be used in conjunction with exogenous independent variables. Its main application is in the area of short-term forecasting. The ARIMA model uses seasonally adjusted monthly CSO data backdated to 1967 to the most recently available monthly LR as at August 2020 and includes the monthly PUP number from March 2020 to August 2020. The level data is first differenced to provide a stable, stationary time series for estimation and forecasting.

[2] These scenario forecasts are from the Central Bank of Ireland Q3 Quarterly Bulletin available here: https://centralbank.ie/publication/quarterly-bulletins/quarterly-bulletin-q3-2020

[3] These are the unemployment rate forecasts published on 29 September 2020 by Department of Finance.

[4] Auto-Regressive, Integrated, Moving Average Model. The LR forecast was modelled using Stata software which ran the econometric models and performed the specification tests to ensure the best fitted model was used in the forecast projection.

B. Micro Level Approach

The micro level approaches used to estimate the LR for 2021 are 'bottom up' methods which estimate the baseline LR for 2021. A range of sensitivity scenarios are employed to project the estimated PUP number and cost to end 2020 and up to April 2021. The transfers of PUP numbers to the LR under each of these scenarios are then incorporated into the LR forecasts from April 2021 to end year.

Method 3: Trend Drift Method

This method uses the 2020 estimated number at end year as the starting position for 2021. It estimates the baseline LR in 2021 using the average 2019 weekly trend in the LR number. This trend has been adjusted to account for the developments in the LR in 2020 with weekly variance having increased by an average **0.6%** in 2020 to date. This upward trend variance is applied to the 2021 LR weekly estimates. The closure of the PUP in April 2021 and the subsequent transfer of remaining PUP recipients into the LR is applied to this baseline LR estimate for 2021, using scenario estimates for the PUP developed from the sensitivity analysis.

The method captures the increase in the LR during the summer period as it follows a similar seasonal trajectory to that of previous years. The sharp increase in the LR upon PUP transfer in April is followed by gradual declines in the LR in the latter months of 2021. This takes into account the time lag for LR declines in the LR as people who were previously on PUP return to work or source new employment.

Method 4: Inflows and Outflows Trend Method

Similarly, this method uses the 2020 estimated number at end year as the starting position for 2021 number. The LR is a constantly moving metric with large weekly volumes of inflows and outflows reflecting the movement of workers and jobseekers and the seasonality of certain sectors in the economy. The level of churn in the LR has increased in 2020 relating developments in the wider labour market and eligibility of schemes like PUP. This method attempts to capture these dynamics to help determine end 2020 and 2021 positions. Using the dynamic LR flows data, which captures the LR movements underpinning the overall LR aggregate trend, the 2021 LR baseline is estimated.

The recent inflows and outflows average trends are extrapolated forward to the LR; on average inflows have increased year on year to date by an average of **18%** however, outflows have also increased by an average **4%** year to date (Week 1- 38). These average percentage increases in the flows into and out of the LR are applied to 2019 flow data to maintain underlying LR trend (but excluding the distortionary effects of weekly 2020 data) and factor in the average increases in churn in the LR for the latter half of 2020 and 2021. This method also applied a range of estimates for the transfer impact of PUP onto the LR in April 2021 to get the average LR estimates for 2021.

Sensitivity analysis: PUP Scenario Estimates

The current policy position to date is that from April 2021 the PUP scheme will lapse and any remaining recipients will migrate into the LR, resulting in a significant inflow into the LR from April 2021. In order to capture the scale of the transfer from PUP to the LR in April 2021, three scenario ranges (high, medium and low) are used to estimate the potential volume of transfers and associated costs for the LR[5].

Weekly declines on the PUP are continuing but at a much slower rate compared with the period of reopening of the economy which saw significant declines occurring with the easing of restrictions under the roadmap. Currently, the rate of reduction is running at an approximately 2% per week. This is included as the Static Scenario (A) as a best case scenario which assumes that the rate of reduction remains the same to April 2021. Other scenarios are based on the assumption that the rate of reduction will fall as the impacts of the COVID on the labour market take effect on unemployment. A Mid Scenario (B) assumes that the rate of weekly reduction reduces to 1%, and the Slowdown Scenario (C) assumes the weekly rate of reduction falls to 0.5% to April 2021. These scenarios are inclusive of estimated impacts on PUP numbers as a result of Level 3 restrictions in Dublin and Donegal for a duration of 3 weeks each.

Table 1: Overview of PUP Scenarios from April 2021

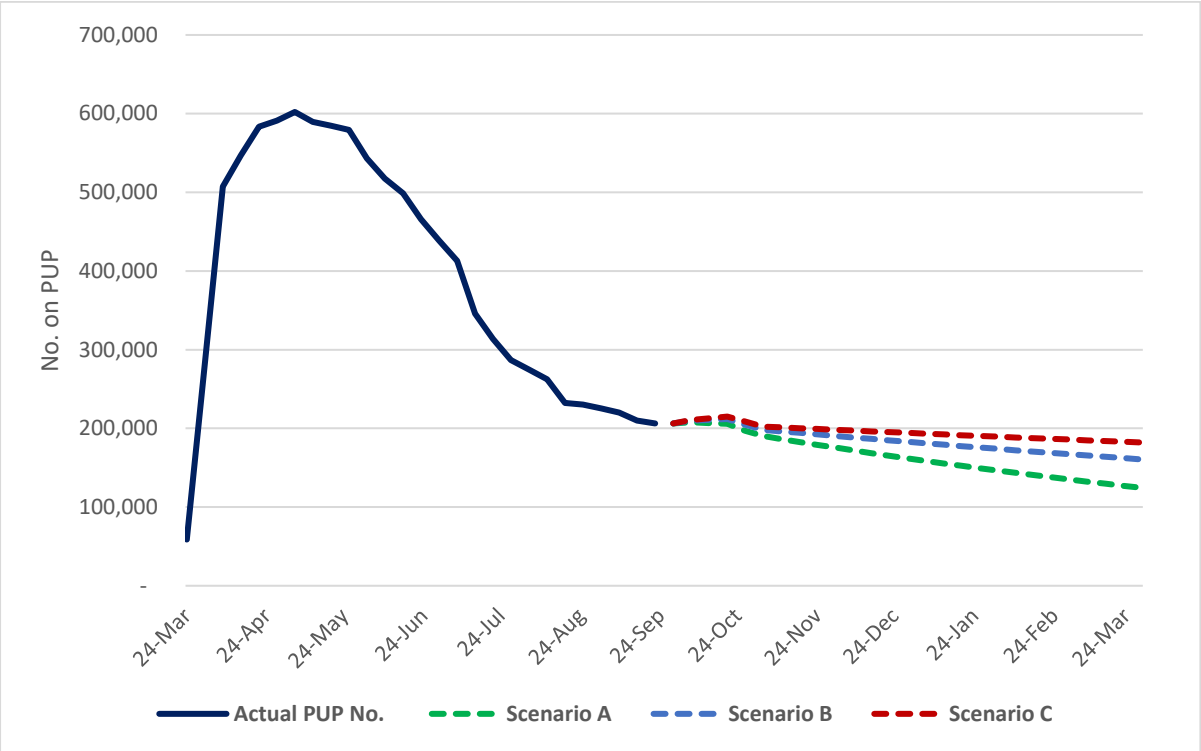
Scenario Reduction Rate	End 2020 PUP Estimated No.	*Reduction from PUP No.(5th Oct)*	PUP Estimated No. at 1 April 2021	*Reduction from PUP No.(5th Oct)*
Scenario A: Static (2%)	158,681	*46,912*	122,029	*83,564*
Scenario B: Mid (1%)	181,069	*24,524*	158,891	*46,702*
Scenario C: Slowdown (0.5%)	193,324	*12,269*	181,128	*24,465*

Source: Author's own calculations

These scenarios estimate a range of April 2021 PUP figures of between **181,128** (Slowdown Scenario C) and **122,029** (Static Scenario A) .The reductions in PUP numbers associated with each of these scenarios range from just under **84,000** reduction in PUP recipients to just over a **25,000** reduction in PUP recipients over **the next seven month period (October 2020 to 1 April 2021)**.

[5] These PUP estimates have factored in the Dublin and Donegal Level 3 restrictions however have not factored in nationwide Level 3 restrictions for the impact on PUP numbers.

Figure 2: PUP Estimated Scenarios (A-C) for End 2020 to April 2021



Source: DEASP admin data and Author's own calculations

PUP Expenditure 2020 & 2021

Based on the PUP Scenarios, it is estimated that PUP will have an expenditure requirement for 2020 of between **€4,500m** and **€4,322m** in 2020. This includes an estimate **€250m** in PUP arrears[6] that in payable in 2020. The PUP has an estimated expenditure requirement of **€437m** and **€589m** in 2021. The expenditure requirements under each PUP scenario are outlined in **Table 2** below.

Table 2: PUP Estimated Expenditure 2020 and 2021

Current Spend (21 Sept) €m	3,564		
PUP Expenditure	**Scenario A**	**Scenario B**	**Scenario C**
Additional Expenditure 2020 €m	686	733	758
Estimated PUP Arrears payable	250	250	250
Outturn for 2020 €m	4,500	4,547	4,572
2021 Estimate €m	437	533	589

Source: Author's own calculations

Each of these PUP scenario estimates are used to estimate the number of persons on the LR in 2021 and the expenditure requirements in 2020 and 2021.

[6] These relate to backdating weekly PUP payments for persons eligible for PUP earlier this year.

Estimated Jobseeker Numbers and Expenditure for 2020

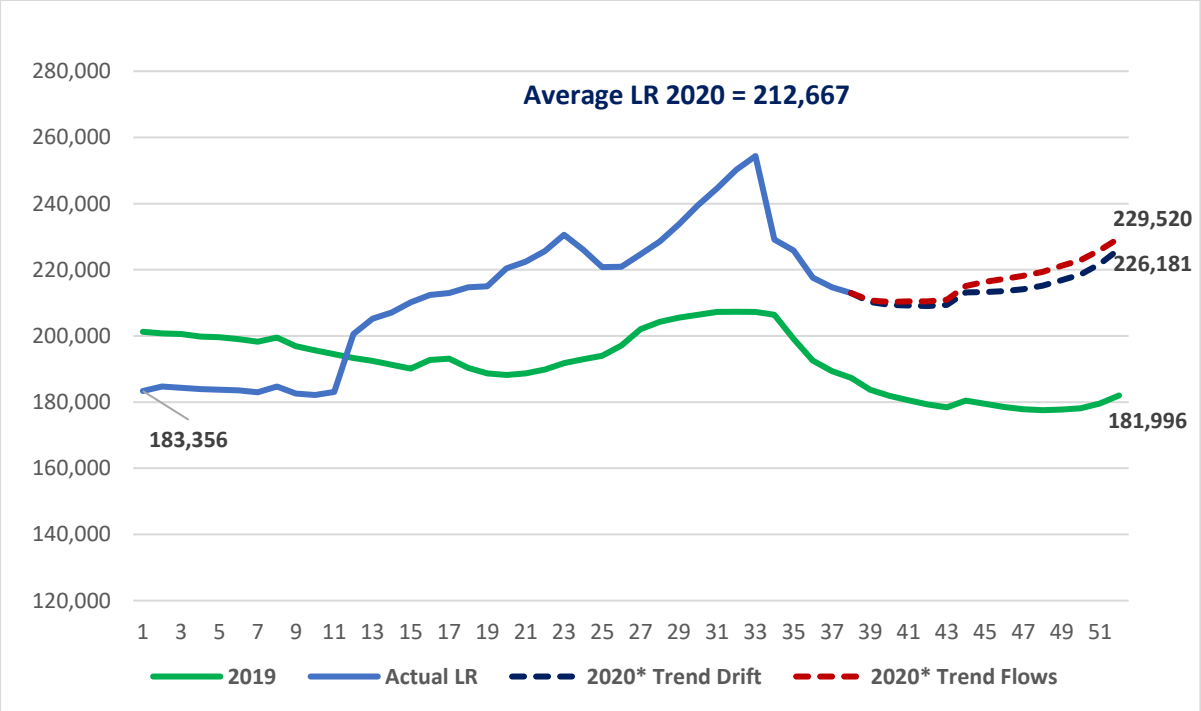
The 2020 end year average LR using the Trend Drift Method is estimated to be **212,295** and using the Trend Flow Method the average LR for 2020 is estimated to be **213,039**. The average of these two estimates is **212,667**. This would mean an estimated LR average for 2020 that is **23,684** above the LR profile estimate for 2020 of **188,860** and represents a year on year increase of **20,422** or **11%.**

The actual end year LR figure estimates for 2020 has greater variance between the Trend Drift and Flow Methods than the average LR for 2020, with the Trend Flow method estimating an end year LR of approximately **229,500** which is 3,300 more than the end year estimate of **226,200** for the Trend Drift method.

The LR starting position in 2020 was **183,356,** the significant higher end year estimates for the LR in 2020 represents a real LR increase in 2020 of almost **45,000**.

These higher end year positions means that the average LR starting position for 2021 will be significantly higher with equivalent expenditure implications for each method.

Figure 3: Live Register Trajectory and Forecast for 2020



Source: DEASP Admin data & Author' own calculations

Live Register Average Costs

Average costs per 1,000 on the LR have a number of drivers which make them challenging to forecast. The average LR costs are influenced by the composition of the LR i.e. the number of persons who have dependants versus a single claimant and the number of persons on the Non-Live Register[7] i.e. persons who are not on the LR but who are paid from the jobseeker allowance expenditure, this cohort will increase average costs. Younger Jobseekers not living independently are entitled to a lower payment rate, an increase in the volumes of these jobseekers will decrease the average payment value of the LR. The introduction of new Budget measures will increase average costs, for example consecutive social welfare rate increases have driven up average costs in recent years and the introduction of Jobseeker Benefit for the self-employed in November 2019 also impact average costs.

The trends in average cost data indicates that the number on the LR has a non-linear negative relationship with jobseeker expenditure, meaning that reductions in the number on the LR will not result in an equal reduction in LR related expenditure. The non-linear negative relationship between the LR and average cost per 1,000 means that as the number on the LR decreases, the average cost per 1,000 increases and vice versa. The large declines in the LR in recent years has contributed to the annual increases in the average costs shown in **Table 3**. The average cost per 1,000 as of June 2020 is €9.89m, which €0.48m or 4.6% below the 2020 profile.

Table 3: Average Cost per 1,000 on the LR, 2012 - 2020

	2012	2013	2014	2015	2016	2017	2018	2019	2020 Profile	2020 June
Average cost per 1,000 (€m)	**8.67**	**8.74**	**8.66**	**8.69**	**9.23**	**9.39**	**9.73**	**10.29**	**10.37**	**9.89**
Annual change (€m)		**0.07**	**-0.08**	**0.03**	**0.54**	**0.16**	**0.34**	**0.56**	**0.08**	**-0.48**
Annual change (%)		*0.8%*	*-0.9%*	*0.3%*	*6.2%*	*2%*	*3.6%*	*5.7%*	*0.7%*	*-4.6%*

Source: DEASP Admin Data

[7] Over 65s are those who were in receipt of a jobseekers payment and are in transition for qualifying for the state pension at age 66 years. These individuals are not on the official LR but are paid from the Jobseekers expenditure allocation.

The LR average cost is influenced by the percentage share of the LR number in payment, as not all those on the LR receive a payment[8].

The number of persons on the LR in payment has decreased on average by **2%** in 2020 compared to the same period in 2019, falling from an average of **92%** to **90%,** which means less percentage of people on the LR are in payment, despite the greater overall LR number. A regression analysis was conducted to establish the elasticity between the average cost per 1,000 on the LR and the percentage share of the LR that are in payment. This found a positive statistically significant relationship, with every **1%** change in the percentage share of the LR in payment changing the average cost by **1.21%.** Regression analysis results on average costs can be found in ***Appendix C***.

Between 2018 and 2019, there was a **2%** change in the pay share which was equivalent to a **28,421** average year on year reduction. Based on these figures, it is assumed that a **1%** change in the LR pay share relates to **14,210** decrease in the LR number. This relationship is used to estimate the average cost per 1,000 on the LR for each method/scenario outlined in the paper.

2020 LR Expenditure

Using the parameters from the regression analysis conducted, the average cost of the LR for 2020 is estimated to be **€9.75m** per 1,000, which is a reduction of €0.14m or 1.42% from current average cost of €9.89m as of June 2020.

Table 4: Estimated Average Cost per 1,000 on the LR, 2020

Average Cost per 1,000	Parameters	
Baseline 2019	**192,122**	**2020 Estimate**
Increase in LR No.	14,601	20,422
Percentage Change on LR Pay Share	1.0%	1.40
Pay Share to Average Cost	1.2%	1.42
Percentage change %		*1.42%*
Average Cost per 1,000 on LR	9.89	9.75

Source: Author' own calculations using DEASP Admin data

[8] This may be due to payment sanction and suspension and people who are signing on LR for PRSI credits only.

Based on the estimate LR average number of 212,667 for 2020 and an estimated average cost per 1,000 on the LR of €9.75m, the total expenditure for the LR in 2020 is estimated to be **€2,072m** which is **€106m** or 5.3% over the €1,966m pre COVID allocation for 2020.

Based on the PUP scenarios estimated to end 2020, the additional cost of the PUP is estimated to be between **€686m** and **€758m**.

As of 21 September, the expenditure PUP stood at €3,564m, which means that total PUP 2020 expenditure estimated to range between **€4,500m** and **€4,572m**.

Total jobseeker expenditure (PUP and LR expenditure) is estimated to range between **€6,572m** and **€6,644m** for 2020.

Table 5: 2020 Estimated Expenditure Outturn

	2020 Pre-COVID Allocation	2020 Estimated Outturn	*Variance*
Average LR No.	188,860*	212,667	*23,807*
LR Expenditure €m	1,966	2,072	*106*
PUP 2020			
Scenario	**A**	**B**	**C**
Est. PUP No. End 2020	158,681	181,069	193,324
Additional Cost to end 2020 €m	686	733	758
Total PUP 2020 Expenditure €m	4,500	4,547	4,572
Total Jobseeker Expenditure 2020 (LR+PUP) €m	6,572	6,619	6,644

*This is based on DPER LR estimate for 2020

Results of Forecasting Methodologies for 2021

Macro Forecasts 2021

Method 1: Conversion Rate Method

The Central Bank of Ireland unemployment rate scenarios have an average unemployment rate of **15.6%** for 2020 and 10.8% for 2021, representing a year on year decline of **4.8** percentage points. The Department of Finance forecasts estimate unemployment to be on average **16.05%** in 2020 and **10.73%** in 2021, with estimates from each organisation broadly similar.

Table 3 below sets out the LR for each of the UE forecasts using the average conversion number of **34,343**[9].

[9] This is an average conversion number taking the current conversion number between the standard UE rate and the LR and the LR & PUP and the COVID adjusted unemployment rate.

Using this average conversion number of 34,343, the average of the related LR estimates under the average forecasts for unemployment rates is **539,179** for 2020 and **370,099** for 2021.

Table 6: Estimates for LR 2021 Conversion Method

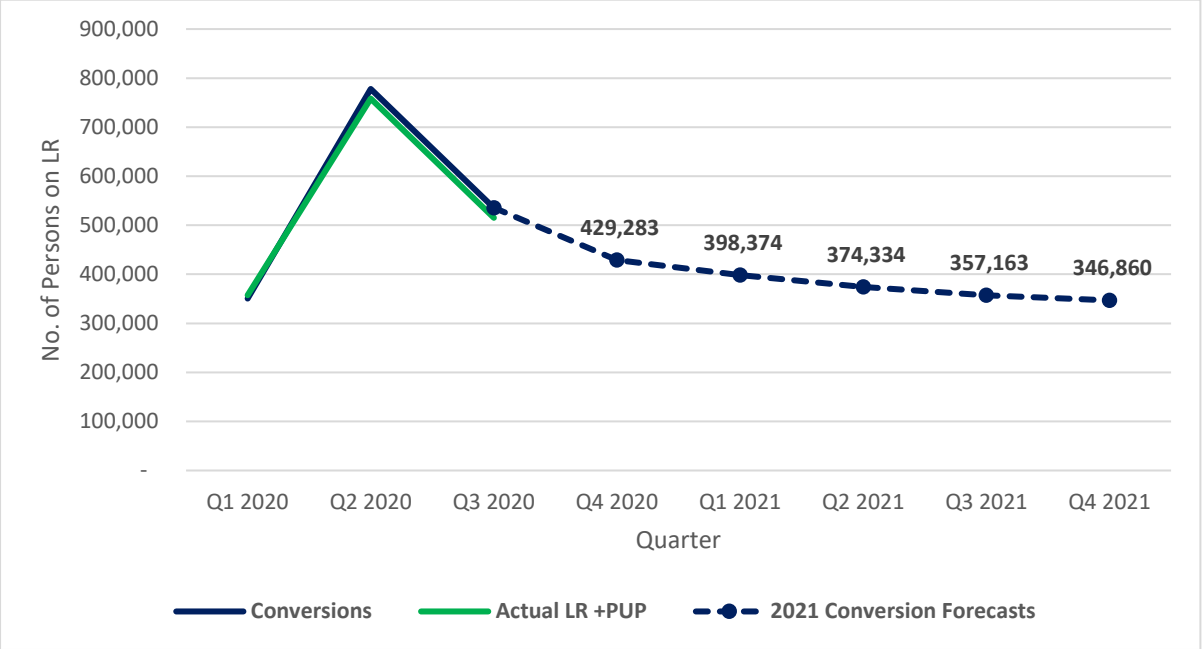
Average Conversion Number	**34,343**			
	2020	***2021***	***Annual Reduction***	***% Reduction***
LR (CBI Severe)	*570,087*	*425,848*	*- 144,239*	*-25%*
LR (CBI Baseline)	*497,968*	*315,952*	*- 182,016*	*-37%*
LR (CBI Average)	534,027	370,900	*- 163,127*	*-31%*
DOF	549,482	368,496	*- 180,986*	*-33%*
Average	**539,179**	**370,099**	***- 169,080***	***-31%***

Source: Author's calculations based on CBI & DOF forecasts

Figure 4 below shows the estimated LR and PUP, for 2020 and 2021 using the average conversion number which are estimated from the DOF quarterly forecasts for unemployment[10]. The 2020 conversions broadly reflect the actual LR and PUP numbers to date. The DOF forecast conversions estimate the LR falling from an average of 429,200 for Q4 2020 to 346,860 in Q4 2021, which represents a year on year decline of 82,340 or 19%.

[10] No quarterly UE forecasts available for CBI estimates.

Figure 4: Forecasts using Conversion Method and DOF UE forecasts



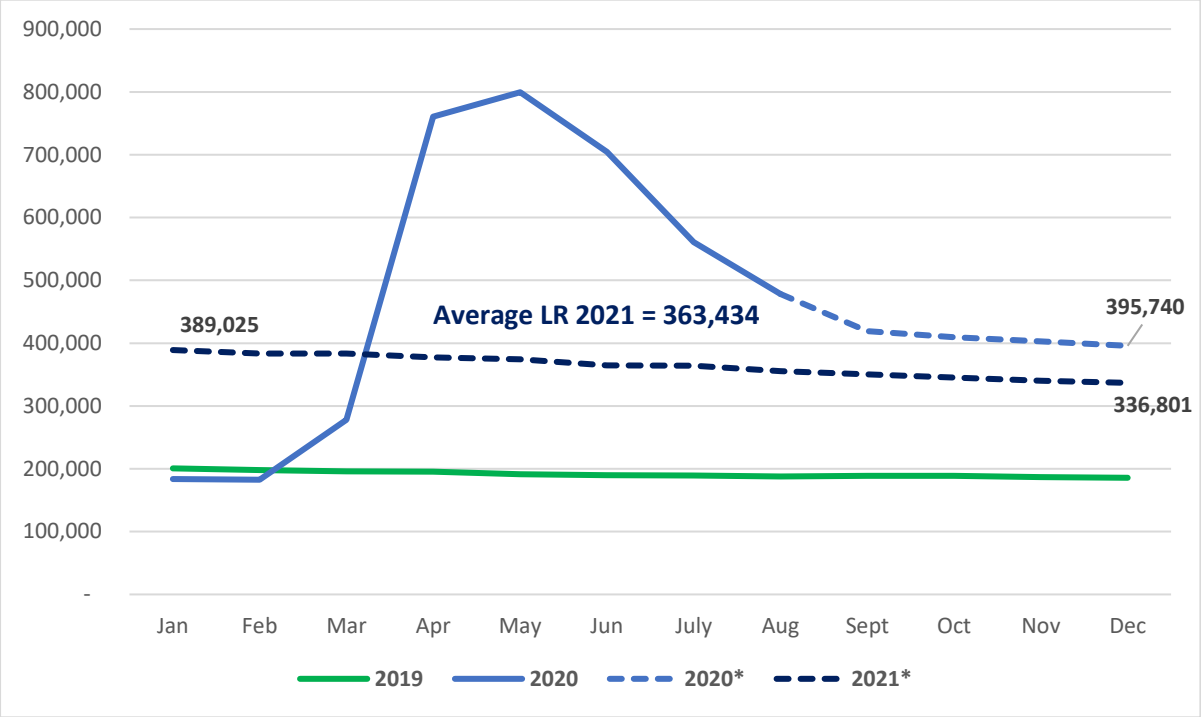
Source: Department of Finance unemployment rate estimates & Author's calculations

Method 2: Average Method with No Seasonality (ARIMA[11] model)

Method 2 is the second macro level approach which uses an ARIMA model which estimates the monthly trajectory of the collective LR and PUP for the remainder of 2020 and 2021. The model estimates an average LR for 2021 of **363,643**. This would represent a year on year increase of 150,976 or 71% from the estimated average 2020 LR. However, the overall number supported on LR and PUP is expected to fall over the course of 2021.

[11] Auto-Regressive, Integrated, Moving Average Model. The forecast was estimated using Stata software which ran 600 models and specification tests to ensure the most appropriate model was applied to the LR data.

Figure 5: Method 2 ARIMA LR estimates 2021



Source: Authors own calculations using Stata

Using estimated average costs set out in ***Appendix D***, the average LR expenditure for 2021 for the Conversion Method estimates is **€3,258m**, which represents an increase of €1,292m from pre COVID 2020 allocation. Using the Mid Scenario (B) PUP expenditure estimate of €533m would mean a 2021 expenditure requirement of **€3,791m**, which is **€1,825m** or 93% over the pre COVID 2020 allocation.

The estimated LR expenditure using the ARIMA Method estimates is **€3,220m** for 2021. Using the Mid Scenario (B) the PUP would cost an additional €533m in 2021 resulting in a total jobseeker expenditure for 2021 of **€3,753,** which is **€1,787m** or **91%** over the pre COVID 2020 allocation.

Table 4 & 5 shows the range of estimates for expenditure in 2021 under each PUP scenario for each Macro Method.

Table 7: Macro Level Estimates for 2021 Live Register & PUP Expenditure, Conversion Rate Method

	PUP	Conversion Rate		
PUP Scenario	***Est. PUP Expenditure €m***	***Average LR 2021***	***LR Expenditure €m***	***Total Estimated Expenditure €m***
A - Static Scenario	437	370,099	3,258	3,695
B - Mid Scenario	533	370,099	3,258	3,791
C - Slowdown	589	370,099	3,258	3,847

Source: Author's own calculations

Table 8: Macro Level Estimates for 2021 Live Register & PUP Expenditure, ARIMA Method

	PUP	ARIMA		
PUP Scenario	*Est. PUP Expenditure €m*	*Average LR 2021*	*LR Expenditure €m*	*Total Estimated Expenditure €m*
A- Static Scenario	437	363,643	3,220	3,657
B – Mid Scenario	533	363,643	3,220	3,753
C – Slowdown	589	363,643	3,220	3,809

Source: Author's own calculations

Micro Forecasts 2021

Method 3: Trend Drift Method

Method 3 shown in **Figure 18** with an overview in **Table 13** below, estimates an average baseline LR before PUP transfers of **226,217,** with PUP transfers increasing the average LR to range between **316,787** and **361,620,** with a mid-scenario LR average of **344,751** in 2021.

However, because the LR average was significantly lower for 3 months prior to PUP transfer this deflates the average which masks the real increases in the LR.

The end year LR estimates demonstrates the real impact of the PUP transfers, with estimated LR numbers on the LR by end 2021 of between 327,504 (under PUP Scenario A) and 383,083 (under PUP Scenario C).

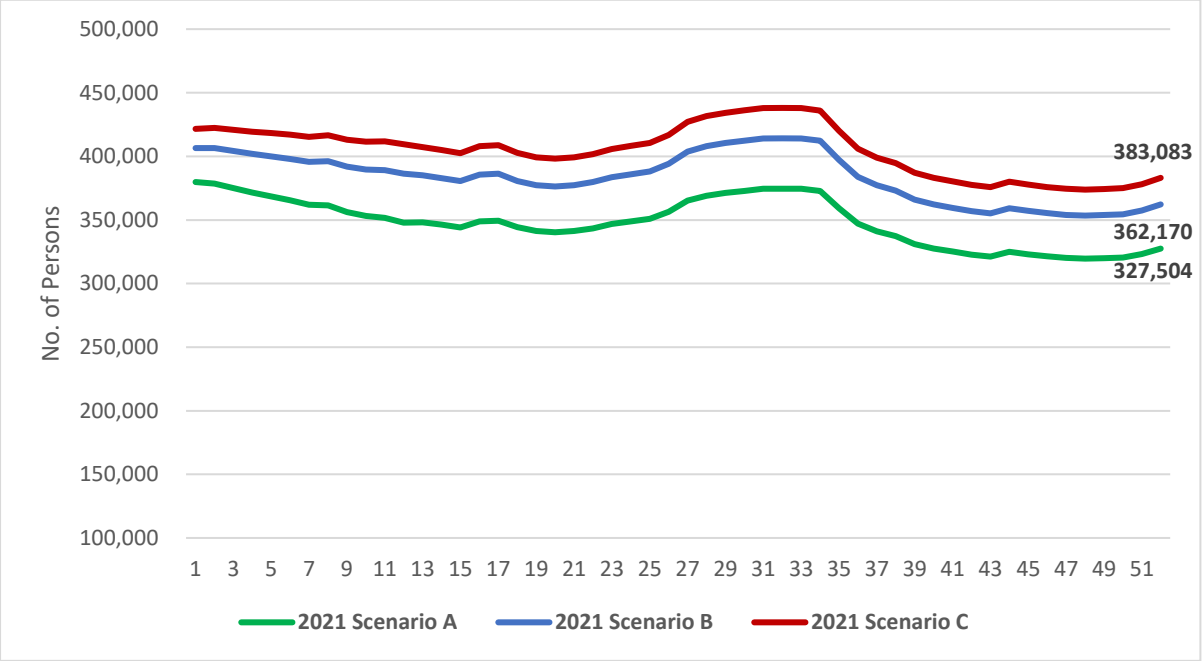
These represent significant volumes increases in the number of persons on the LR in 2021 representing increases in the average LR year on year of between 49% and 70%.

Table 9: Overview of Trend Drift 2021 Estimate

Baseline Average LR 2021 (Pre PUP Transfer)	**226,217**				
PUP Scenario	**PUP Transfer Estimate**	**LR Average 2021**	**2021 End Year**	**Increase in Average LR**	**Increase %**
A	122,029	316,787	327,504	104,120	49%
B	158,891	344,751	362,170	132,084	62%
C	181,128	361,620	383,083	148,953	70%

Source: Author's own calculations

Figure 6: Method 3 Trend Drift Method; Baseline Scenario's (A-C) 2021[12]



Source: Author's own calculations

The average cost of the LR for the Trend Drift Method under each of the PUP Scenarios are outlined in **Appendix D**.

For the Trend Drift Method, the LR and PUP expenditure is estimated to be **€3,630m** under the Mid Scenario B, which is **€1,664m or 85%** more than the 2020 Pre COVID allocation.

Table 10: Estimates for 2021 Live Register & PUP Expenditure for Trend Drift Method

	Live Register	PUP Expenditure	Total Expenditure
	No.	***€m***	***€m***
Scenario A	2,907	437	**3,344**
Increase from 2020 Original REV	*941*		***1,378***
Scenario B	3,097	533	**3,630**
Increase from 2020 Original REV	*1,131*		***1,664***
Scenario C	3,172	589	**3,761**
Increase from 2020 Original REV	*1,206*		***1,795***

Source: Author's own calculations

[12] Figure 6 above provides visual representation of the collective LR and PUP aggregate over the course of 2021. This does not represent the actual average LR estimate which accounts for the LR only from Jan to March and LR and PUP from April to end year 2021. This also explains why the average LR reported is lower than the end year LR figure.

Method 4: Inflows and Outflows Trend

The Trend Flows Method shown **Figure 14** with an overview of in **Table 10** below, estimates an average LR baseline before PUP transfers of **223,655,** with the PUP transfer estimates under each scenarios resulting in an average LR range of between **332,927** and **377,251,** with a mid-scenario LR average of **360,574**. These scenario estimates represent an increase in the average LR year on year of between 57% and 77%.

The average LR for these estimates as discussed above is significantly lower than the actual end year LR number due to the LR pre PUP transfer for the beginning of 2021.

The actual LR number is estimated to be significantly higher than the LR average, with between 371,222 and 430,321 persons estimates to be on the LR by end 2021 under the PUP Scenarios.

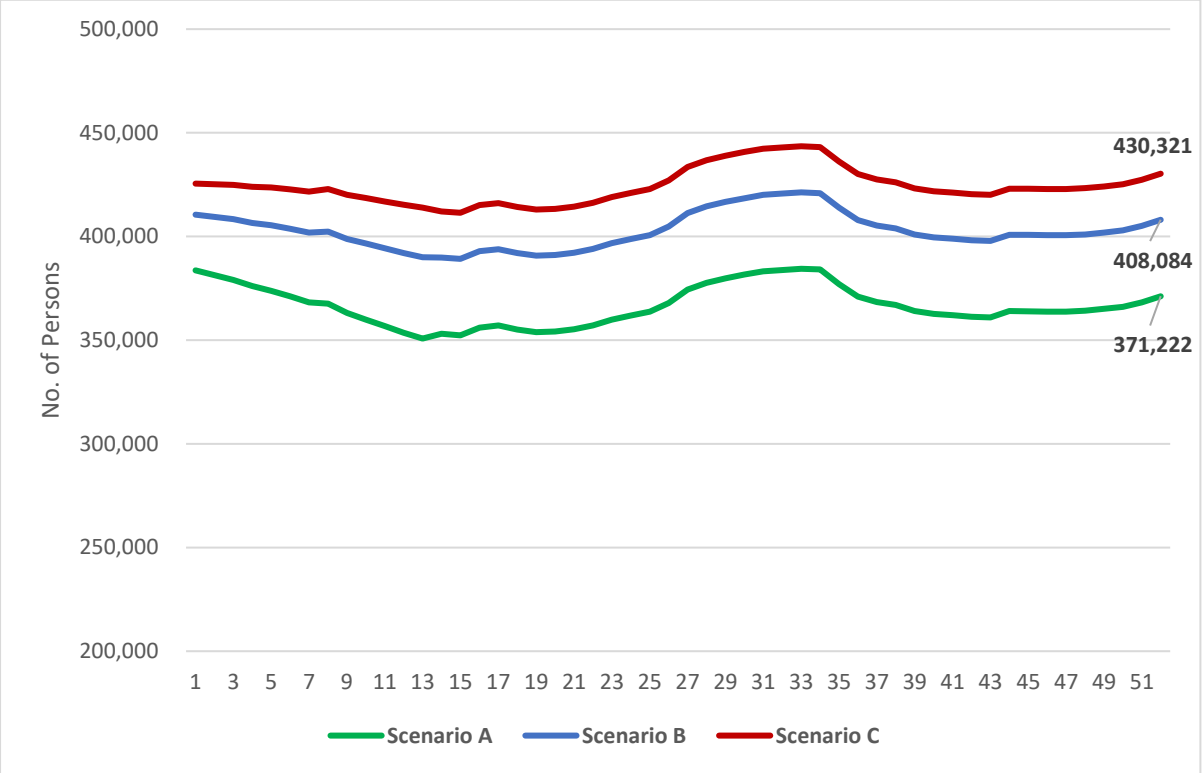
This would represent a significant year on year increase in the volume of people on the LR and would also mean **that the 2022 LR number is starting from a very high base level and will result in very high levels of expenditure in 2022 for jobseekers**.

Table 11: Overview of Trend Flows 2021 Estimate

Baseline Average LR 2021 (Pre PUP Transfer)	223,655				
PUP Scenario	**PUP Transfer Estimate**	**LR Average 2021**	**2021 End Year**	**Increase in Average LR**	**Increase %**
A	122,029	332,927	371,222	120,250	57%
B	158,891	360,574	408,084	147,907	69%
C	181,128	377,251	430,321	164,584	77%

Source: Author's own calculations

Figure 7: Method 4 Trend Inflows and Outflows; (Scenario A-C) 2021 Estimates



Source: Author's own calculations

The average cost of the LR for the Trend Flow Method for each scenario estimates is outlined in ***Appendix D***.

For the Trend Flow Method, the LR and PUP expenditure is estimated to be **€3,735m** under the Mid Scenario B, which is €1,768m or 90% more than the 2020 Pre COVID allocation.

Table 12: Estimates for 2021 Live Register & PUP Expenditure for Trend Flows Method

	Live Register	PUP Expenditure	Total Expenditure
	No.	***€m***	***€m***
Scenario A	3,018	437	**3,455**
Increase from 2020 Original REV	*1,052*		***1,489***
Scenario B	3,201	533	**3,734**
Increase from 2020 Original REV	*1,235*		***1,768***
Scenario C	3,305	589	**3,894**
Increase from 2020 Original REV	*1,339*		***1,928***

Source: Author's own calculations

Overview 2021 LR Expenditure

The simple overview of the estimated Average LR and expenditure for 2021 for both the Macro and Micro approaches are outlined below.

Table 13: Simple Overview of 2021 Estimates

Macro Level	PUP	Conversion Rate		ARIMA	
PUP Scenario	*Est. PUP Expenditure €m*	*Average LR 2021*	*Total Estimated Expenditure €m*	*Average LR 2021*	*Total Estimated Expenditure €m*
A - Static Scenario	437	370,099	3,695	363,643	3,657
B - Mid Scenario	533	370,099	3,791	363,643	3,753
C - Severe Slowdown	589	370,099	3,847	363,643	3,809
Micro Level	**PUP**	**Trend Drift**		**Trend Flows**	
PUP Scenario	*Est. PUP Expenditure €m*	*Average LR 2021*	*Total Estimated Expenditure €m*	*Average LR 2021*	*Total Estimated Expenditure €m*
A - Static Scenario	437	316,787	3,344	332,927	3,455
B - Mid Scenario	533	344,751	3,630	360,574	3,734
C - Severe Slowdown	589	361,620	3,761	377,251	3,894

Source: Author's own calculations

1. Under the Mid Scenario B, the Macro approach using the Conversion Method estimates an average LR of **370,099** in 2021. This is estimated to have an expenditure requirement of **€3,791m** which includes a PUP cost estimate of €**533m**. This would be **€1,825m** above the 2020 Pre COVID 2020 allocation.
2. Under the Mid Scenario B, the Macro approach using the ARIMA method estimates an average LR of **363,643** in 2021 under the ARIMA Method. This is estimated to have an expenditure requirement of **€3,753m** which includes a PUP cost estimate of €**533m**. This would be **€1,768m** above the 2020 Pre COVID 2020 allocation
3. Under the Mid Scenario B, the Micro approach using the Trend Drift method estimates an LR average of **344,751** in 2021. This is estimated to cost **€3,630m,** which includes a PUP 2021 cost of €**533m**. This would be an increase of **€1,664m** on the 2020 Pre COVID allocation.
4. Under the Mid Scenario B, the Micro approach using the Trend Flows method estimates an LR average of **360,574** in 2021. This is estimated to cost **€3,734m,** which includes a PUP 2021 cost of €**533m**. This would be an increase of **€1,768m** on the 2020 Pre COVID allocation.

Taking the average LR and expenditure for the Mid Scenario across all methods would mean an estimated average LR of 359,767 and a total jobseekers expenditure of €3,727m, of which €533m is estimated to be PUP expenditure in 2021.

PUP Estimates under Resilience and Recovery 2020-2021

i) Baseline Estimates

The baseline PUP estimates an end 2020 PUP number of 181,069 with an estimated 2020 cost of €4,547m. The end March 2021 PUP baseline number is estimated at 158,891, with an expenditure estimate for 2021 to 1 April of €533m. The PUP baseline estimate is based on decisions up to 28 September and includes the impact of Level 3 restrictions on Co. Dublin and Co. Donegal. As of 5 October, the weekly PUP cost is €55m.

Table 14: PUP Baseline Estimate 2020 and 2021

PUP Baseline	PUP Estimated No.	Estimated Cost €m
2020 Estimate (end year)	181,069	4,547
2021 Estimate (end March 2021)	158,891	533

Employment Wage Support Subsidy (EWSS)

The TWSS/ EWSS schemes have provided unprecedented support for enterprise and employment since the COVID outbreak in March 2020. These supports will continue to play a significant role in supporting jobs and businesses up to Spring 2021.

As of September 2020, there are almost 37,900 employers who have registered for the EWSS. The September EWSS payment to 31,700 employers amounted to €250m for 335,000 employees.

The Department of Finance have estimated that an average of 350,000 employees will avail of the EWSS scheme until it lapses 1 April 2021 with an estimated 2020 cost of €936m (September to December) and an estimated cost of €1,207m in 2021 to 1 April. These estimates are based on a no policy change position, however it is likely that increased Government Restrictions will mean that additional persons will enter PUP which may offset the numbers supported on EWSS for that duration. The estimates do not provide for any potential impact of persons entering the LR when the EWSS scheme lapses on 1 April 2021.

- If 25% of EWSS employees (87,500) transfer to the LR from 1 April 2021 it is estimated to cost an additional €649m in 2021. This will see the number of Jobseekers rise to an estimated 458,000 persons on the Live Register in 2021.
- If 50% of EWSS employees (175,000) transfer to the LR from 1 April 2021 it is estimated to cost an additional €1,299m in 2021.

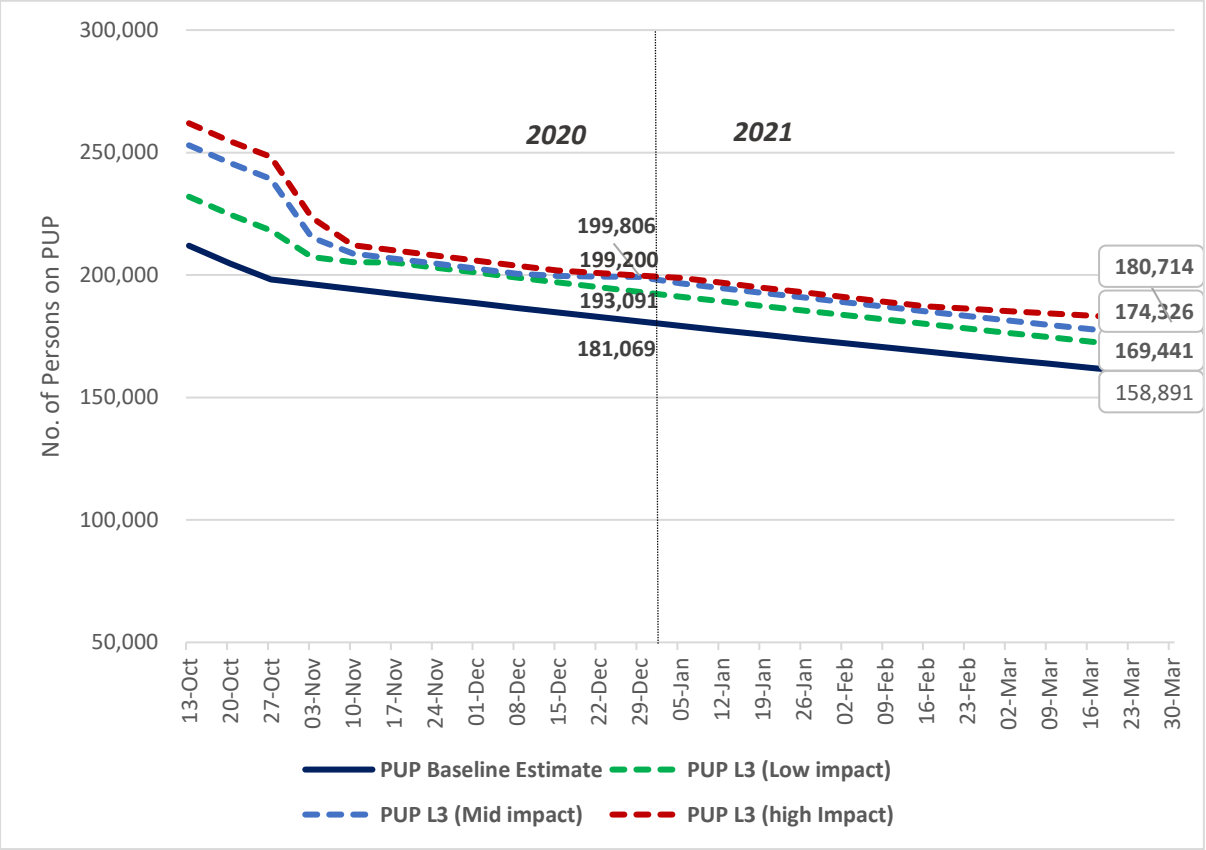
DoF Forecast of Average No. Employees on EWSS	**350,000**	
% of Employees transfer to EWSS	**Transfer to LR** ***No.***	**Additional Cost on LR 2021** ***€m***
25%	**87,500**	**649**
50%	**175,000**	**1,299**

ii) PUP under Government Decisions as of 7th October

The additional Level 3 restrictions introduced from 7th October will result in additional inflows into PUP. Using sectoral assumptions and data trends from the previous PUP peak in early May, a range of estimated scenario impacts from the national Level 3 restrictions are produced.

It is estimated that an additional 20,000 persons in a low impact scenario, up to 41,000 in a mid-impact scenario and 50,000 in a worst case high impact scenario will enter the PUP for a 3 week duration. Scarring effects are factored into the PUP trajectory once the restrictions are eased. Scarring effects occur when people lose their job and consequently do not return to employment. Taking the mid impact scenario, it is expected that the restrictions will result in higher PUP numbers at end 2020 of approximately 199,000 persons on PUP by end March 2021. The scenarios for the PUP trajectory with Level 3 restrictions imposed for 3 weeks are illustrated in **Figure 8** below.

Figure 8: Estimated Impacts of Level 3 Restrictions on PUP Number and Expenditure



The additional PUP inflows as a result of the 3 week duration Level 3 nationwide restrictions are estimated to cost an additional €72m in 2020 under the Mid Impact Scenario and €159m in 2021 from the carryover cost of higher PUP numbers with the additional expenditure split between PUP and Live Register costs in 2021.

Table 15: Estimated Impacts of Level 3 National Restrictions on PUP & LR in 2020 and 2021.

Impact of Level 3	Additional Inflows to PUP No.	PUP Additional Cost €m	Additional Cost €m (PUP + LR carryover)
Range	Oct. 2020	*2020*	*2021 €m*
Low	20,000	**47**	**103**
Mid	41,000	**72**	**159**
High	50,000	**87**	**195**

iii) Impact of Further Restrictions on the Labour Market

A sensitivity impact analysis is conducted to estimate the impact of restrictions on the PUP numbers for each of the Levels in the Resilience and Recovery strategy. These estimates illustrate the additional impacts on PUP numbers and on weekly expenditure for each week that restrictions are imposed.

Accommodation & Food, Wholesale & Retail and other sectors including Arts, Entertainment & Recreation are assumed to suffer the largest impact by the restrictions under the current Resilience and Recovery plan. A full lockdown scenario is also included which assumes a reversion to March 2020 lockdown restrictions and includes closures of additional sectors including Construction, Education and Childcare. Workers in these sectors had a high level of PUP take up during the March 2020 lockdown, and under the current Resilience and Recovery Plan are not required to close.

The impact of the restrictions for the estimated additional numbers on PUP and weekly expenditure are outlined in **Table 16**. These estimates illustrate the additional costs per week on the PUP from additional persons requiring the income support. However, the full consequences of increased restrictions for any period of time have significant future implications from scarring effects on the labour market. This will result in additional carryover costs on the PUP and Live Register from increased numbers in the future which have not been captured in the additional weekly costs presented here.

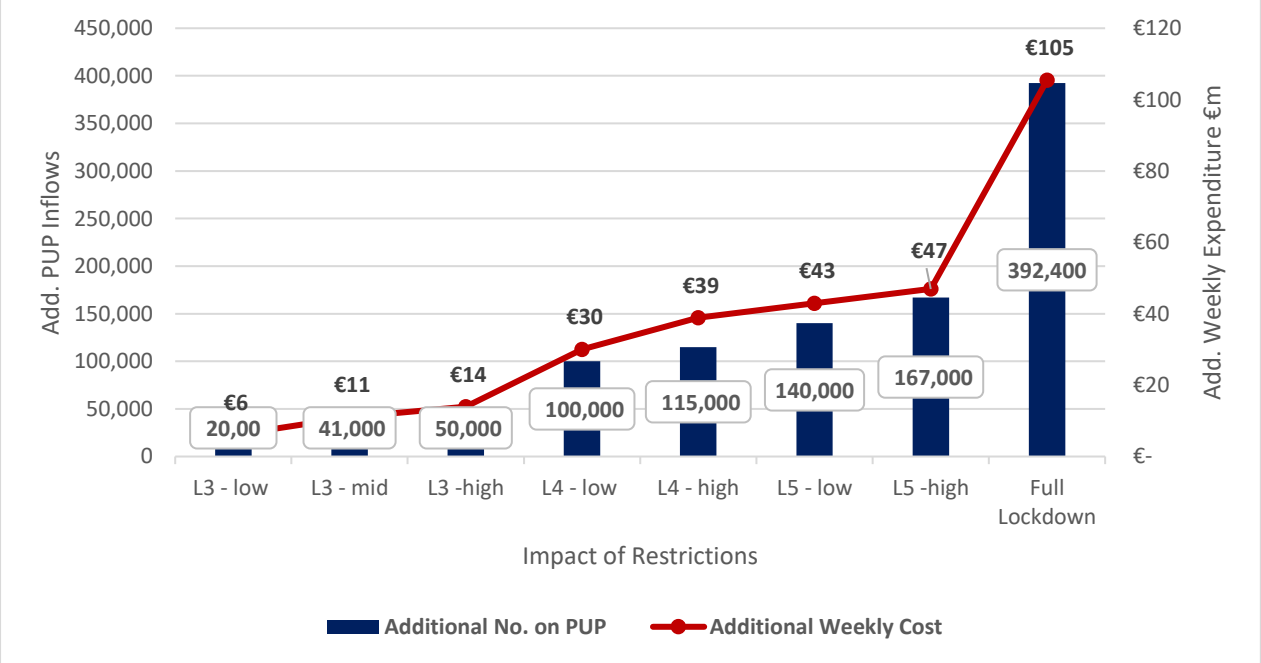
- If Level 4 restrictions are imposed, this is estimated to result in up to 115,000 additional persons on PUP which would cost an additional €39m per week on the PUP for the duration of the restrictions. This would mean a weekly PUP cost of €94m per week.
- If Level 5 restrictions are imposed, this is estimated to result in up to 167,000 additional persons on PUP which would cost an additional €47m per week on the PUP for the duration of the restrictions. This would mean a weekly PUP cost to €102m per week.

- If a full lockdown is imposed, it is estimated that an additional 392,400 persons would enter the PUP, which is estimated to cost an additional €105m per week for PUP for the duration of the restrictions. This would mean a weekly PUP cost to €160m per week.

Table 16: Estimated Impact of Level Restrictions on PUP Numbers and Weekly Expenditure

Impact of Restrictions	Additional Persons on PUP	PUP Additional Weekly Cost €m	Total Weekly PUP Cost €m
Range	*Number*	*€m*	*€m*
L3 - Low	20,000	**6**	61
L3 - Mid	41,000	**11**	66
L3 - High	50,000	**14**	69
L4 - Low	100,000	**30**	85
L4 -High	115,000	**39**	94
L5 - Low	140,000	**43**	98
L5 - High	167,000	**47**	102
Full Lockdown	392,400	**105**	160

Figure 9: Estimated Impact of Restrictions, Additional PUP Number and Additional Weekly Expenditure



Conclusion

The analysis in this paper demonstrates that a very large number of Jobseekers will continue to require supports for the remainder of 2020 and into 2021. It has also been demonstrated that without a shift in the labour market rapid, there will continue to be very high numbers of people on the Live Register and in need of unemployment payments at the end of 2021 and into the beginning of 2022. The expenditure implications from the volume of people that require Jobseeker support is very significant and will place high burdens on exchequer funds for several years in the future.

Increased number of jobseekers also has significant expenditure implications for other areas with increased demand for other supports, including fuel allowance, back to school clothing and footwear, but also rental and housing supports, childcare and education supports and medical cards. The increased demands for other (non-jobseeker) expenditure has not been captured in this analysis but will require consideration for other areas of Government expenditure in the years ahead.

The estimates presented in the paper as based on a No Policy Change basis, which account only for Government decisions taken to date. This includes the impact of recent decisions taken on imposing Level 3 restrictions nationwide and its implications on PUP numbers and expenditure.

However, in light of the heightened uncertainty and the sensitivity of the PUP number to restrictions imposed, a sensitivity analysis provides broad estimated impacts of further public health restrictions under the Resilience and Recovery strategy. These estimates illustrate the additional costs per week on the PUP from additional persons requiring the income support. However, the full consequences of increased restrictions for any period of time have significant future implications from scarring effects on the labour market. This will result in additional carryover costs on the PUP and Live Register from increased numbers in the future which have not been captured in this analysis.

Appendix

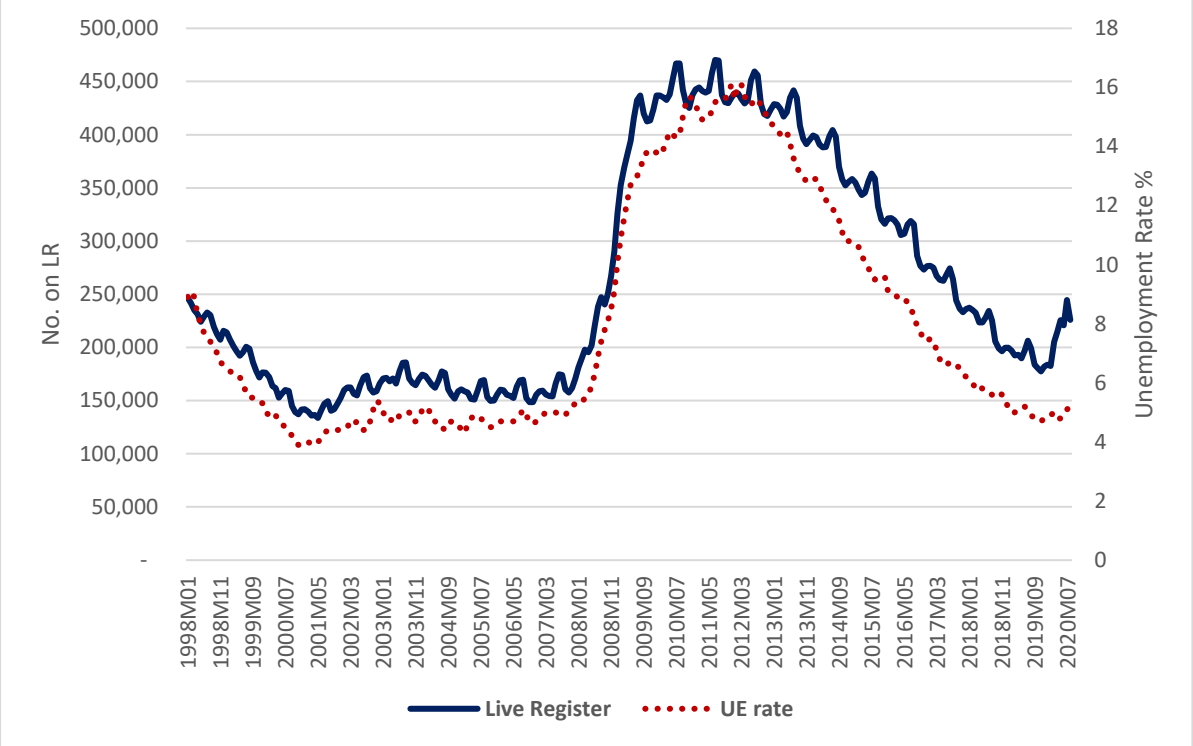
Appendix A –Conversion Rate Number

Table 17: Monthly Conversion Rate Number, 2019 M01 – 2020 M08

Time	LR No. (Monthly)	UE Rate %	Conversion No.	PUP No. (Monthly)	COVID Adj. UE Rate %	
2019M01	199,627	5.1	39,143			
2019M02	196,934	5	39,387			
2019M03	192,407	5	38,481			
2019M04	193,118	5.1	37,866			
2019M05	189,867	5.2	36,513			
2019M06	197,108	5.2	37,905			
2019M07	206,396	5.1	40,470			
2019M08	199,093	4.9	40,631			
2019M09	183,783	4.8	38,288			
2019M10	180,459	4.7	38,396			
2019M11	177,554	4.7	37,777			
2019M12	181,996	4.8	37,916			
2020M01	**183,755**	**4.9**	**37,501**			
2020M02	182,616	4.9	37,269			
2020M03	205,209	5	41,042	488,338	16.5	29,596
2020M04	214,741	4.8	44,738	816,848	29.1	28,070
2020M05	225,662	4.8	47,013	768,826	28.5	26,976
2020M06	220,871	5	44,174	659,804	24.5	26,931
2020M07	244,562	5.1	47,953	519,140	17.6	29,497
2020M08	225,844	5.2	43,432	450,800	15.4	29,273
Average Conversion No.			**40,295**			**28,391**
Average of Both Rates	**34,343**					

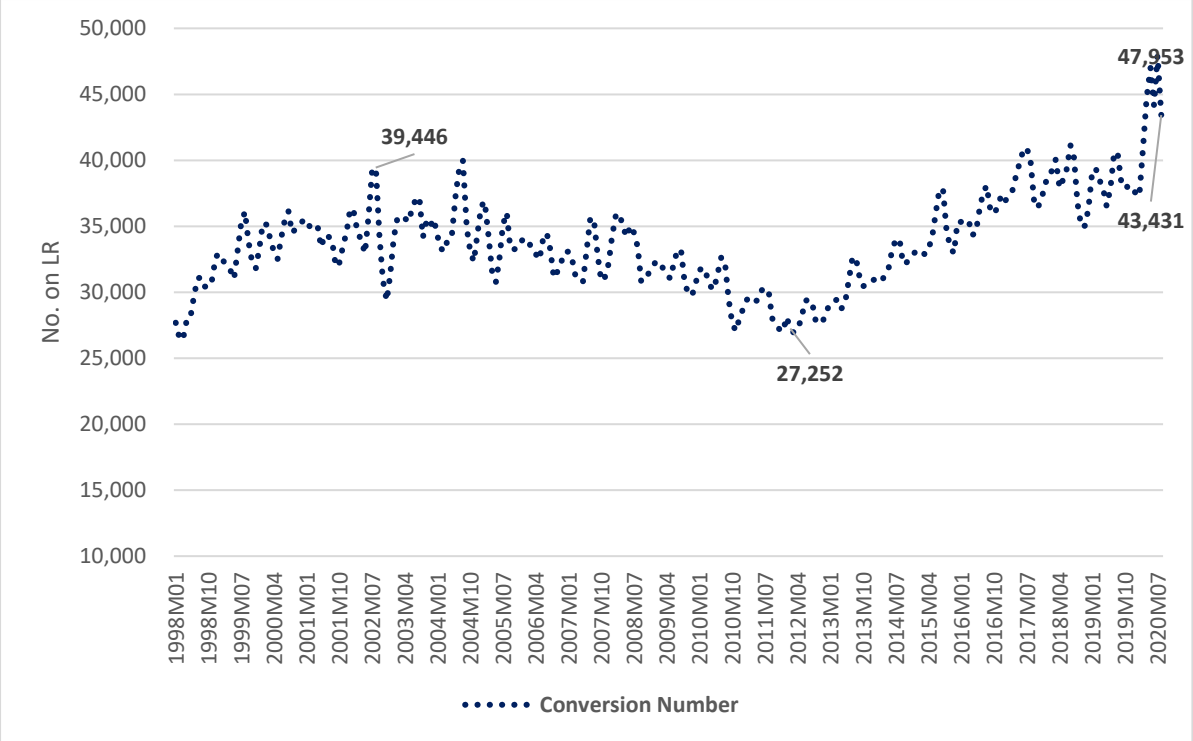
Appendix B – Relationship between LR and Unemployment

Figure 10: Live Register Number and Unemployment Rate, 1998M01 – 2020M07



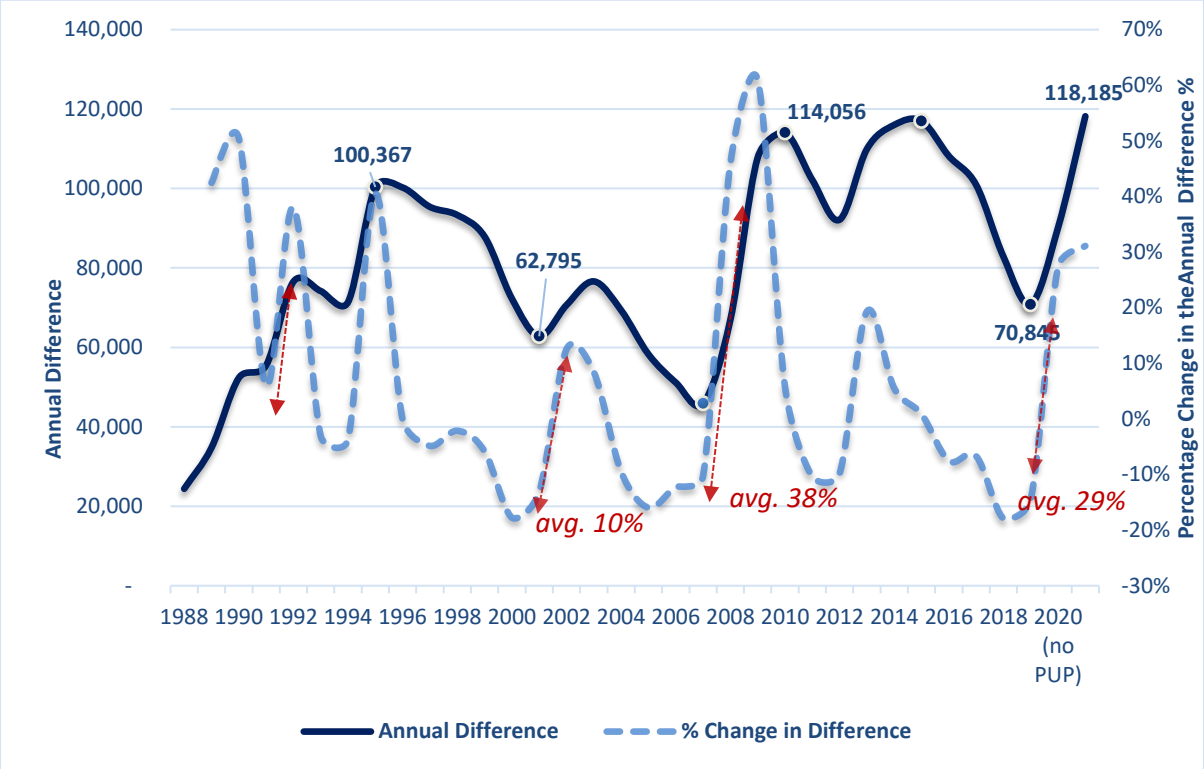
Source: CSO data

Figure 11: Conversion Number of the Live Register and Unemployment Rate, 1998M01 – 2020M07



Source: Author' Calculations using CSO data

Figure 12: Difference between LR Number and UE Number, %, 1998M01 – 2020M07



Source: CSO Live Register and LFS (1988-1997 series and 1998-2019 series) – Includes PUP and no PUP 2020

Table 18: Proportion of Persons on PUP by Payment Rate, 5th October

Weekly Payment Rate €	Proportion of PUP recipients %
203	23%
250	18%
300	59%

Source: DEASP admin data

Appendix C – Average Cost Regression Results

Table 19 : Regression Output for Average Cost and Number in Payment

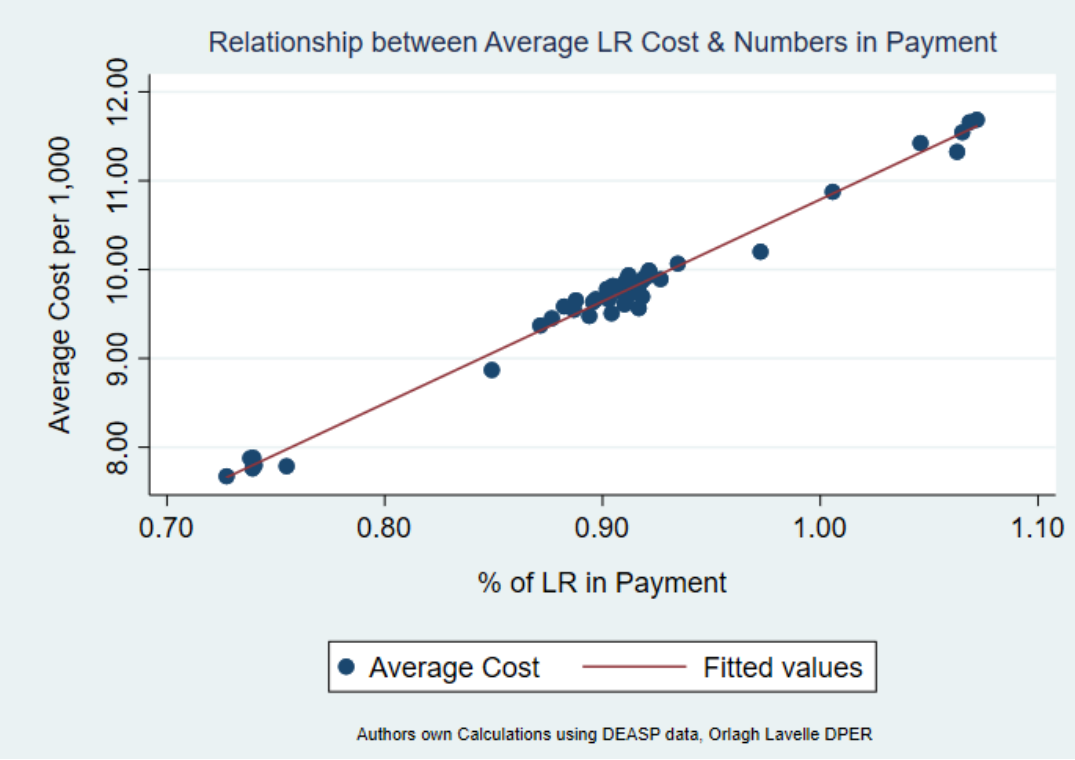
```
. regress log_AC PayShare
```

Source	SS	df	MS	Number of obs	=	47
				F(1, 45)	=	2262.25
Model	.460411007	1	.460411007	Prob > F	=	0.0000
Residual	.009158362	45	.000203519	R-squared	=	0.9805
				Adj R-squared	=	0.9801
Total	.469569369	46	.01020803	Root MSE	=	.01427

log_AC	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
PayShare	1.21173	.0254763	47.56	0.000	1.160419	1.263042
_cons	1.170463	.0231476	50.57	0.000	1.123841	1.217085

Source: Author's Own calculations using Stata

Figure 13: Average Cost and Pay Share Regression Fitted Values



Source: Author's Own calculations using Stata

Appendix D – Average Cost Results by Forecasting Method

Table 20: Estimated Average Cost per 1,000, 2021 (Conversion No. Method 1)

	Parameters	Unemployment Forecasts		ARIMA
Baseline 2020	**212,667**	**Central Bank**	**Dept. Finance**	
Increase in LR No.	14,601	158,356	155,952	150,976
Percentage Change on LR Pay Share	1.0%	10.85	10.68	10.34
Pay Share to Average Cost	1.2%	10.98	10.81	10.47
Percentage %		*10.98%*	*10.81%*	*10.47%*
Average Cost	**9.89**	**8.804**	**8.821**	**8.855**

Table 21: Estimated Average Cost per 1,000, 2021 (Trend Drift Method 3)

	Parameters	Scenarios		
Baseline 2020	**212,667**	**A**	**B**	**C**
Increase in LR No.	14,601	104,120	132,084	163,335
Percentage Change on LR Pay Share	1.0%	7.13	9.05	11.19
Pay Share to Average Cost	1.2%	7.22	9.16	11.32
Percentage %		*7.22%*	*9.16%*	*11.32%*
Average Cost per 1,000	**9.89**	**9.176**	**8.984**	**8.770**

Source: DEASP Admin Data and Author's own Calculations

Table 22: Estimated Average Cost per 1,000, 2021 (Trend Flows Method 4)

	Parameters	Scenarios		
Baseline 2020	**212,667**	**A**	**B**	**C**
Increase in LR No.	14,601	120,260	147,907	164,584
Percentage Change on LR Pay Share	1.0%	8.24	10.13	11.27
Pay Share to Average Cost	1.2%	8.34	10.25	11.41
Percentage %		*8.34%*	*10.25%*	*11.41%*
Average Cost per 1,000	**9.89**	**9.217**	**8.876**	**8.762**