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BANK ĊENTRALI TA' MALTA  
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A photograph of the interior of the Central Bank of Malta building. The space is characterized by a high ceiling with a dramatic, colorful sky (orange, red, and blue) projected onto it. The walls are made of light-colored stone or concrete, and the floor is dark. In the foreground, there are long, curved, light-colored reception desks. To the right, there are rows of white, rectangular, three-dimensional blocks arranged in a grid pattern. In the background, there is a large, arched opening in the wall, and a sign that reads "BANK CENTRALI" is visible on a wall. The overall atmosphere is modern and architectural.

# CENTRAL BANK OF MALTA WORKING PAPER



BANK ĊENTRALI TA' MALTA  
EUROSISTEMA  
CENTRAL BANK OF MALTA

# The Impact Of Malta's Tapering Of Benefits Scheme On Employment

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WP/07/2023

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The views expressed are those of the author and do not necessarily reflect the views of the Central Bank of Malta. Any errors are the author's own.

## **Abstract**

Before 2014, Malta's labour market policy took a passive approach. However, in 2014 government made a paradigm shift through several Active Labour Market Policies aimed at "Making Work Pay". This article analyses the Tapering of Benefits (TOB) scheme, aimed at unlocking the poverty trap stalemate and led to stable employment for Unemployment Assistance (UA), Social Assistance (SA) and Single Unmarried Parents (SUP) beneficiaries. Its introduction coincided with a sharp drop in registered beneficiaries. Survival analysis and Cox proportional hazard models are employed to analyse the impact that the scheme had on the job-finding rate amongst such beneficiaries. Secondly, this paper analyses the impact on the chances of successfully retaining employment once individuals previously on benefits find a job. These analyses are based on high-quality national data on the whole population of beneficiaries and their employment history in Malta. Results show that the TOB doubles the job-finding probability, with SUP and SA beneficiaries enjoying the scheme the most and the least, respectively. The impact declines with age and has no gender effect. The chance of job termination drops by 11.8 pp for eligible individuals. Furthermore, its impact once the scheme ends is not different from the first 36 months, showing that its impact is robust in the medium term.

## Contents

Introduction.....	4
Empirical Framework .....	8
Data .....	11
Dataset 1 .....	12
Dataset 2 .....	14
Results.....	16
The impact of the TOB scheme on the job-finding rate of UA, SA and SUP beneficiaries .....	16
The impact of the TOB scheme on retaining employment once an individual finds a job .....	19
Conclusion .....	22
Bibliography .....	24

## Introduction

There is an increasing consensus amongst policymakers that supporting the unemployed in their job search is preferred to simply providing them passive income support (Lalive et al, 2008), since the latter may reduce work incentive and job-search effort. This is especially the case since unemployed individuals seeking a new job might be subject to a poverty trap. The poverty trap arises when individuals are discouraged from employment since remuneration is offset by a loss of social benefits, with the net monetary gain being negligible or even negative. Indeed, studies in Europe show that many people are not substantially better off in monetary terms while employed when compared to them being unemployed (Matsaganis and Figari, 2016). Studies show that compared to higher income individuals, the poor need “*a big push to get them out of a rut and onto the sunlit uplands*” (Banerjee and Duflo, 2011). Harkness et al. (2012) highlights that the poverty trap may be exacerbated through the culture of dependency. The policy approaches in response to the culture of dependency issue need to emphasise welfare dependency as a root of poverty, and advocate a reduction of benefit entitlements, imposition of maximum periods on welfare receipts as well as introducing behavioural requirements.

Over the past years, discussions intensified on how welfare states can offer adequate poverty relief while maintaining work incentives (OECD, 2005) and overcoming the poverty trap. In this context, Active Labour Market Policies (ALMPs) are an essential component not only in the fight against unemployment, but also against poverty (Kluve, 2016). ALMPs are government initiatives aimed at assisting individuals find gainful employment, retain employment, enhance productivity and/or earnings, as well as improving the general functioning of the labour market. Contrary to Passive Labour Market Policies, ALMPs are policies designed to integrate or re-integrate individuals into the labour market. Their goal is to bring jobseekers closer to the labour market by eliminating or diluting the poverty trap, as well as helping individuals find stable employment in the longer term.

Although such programmes, in various shapes and forms, have been around for a long period of time, there is an enhanced interest on the need to develop empirically justified programmes based on their effectiveness. This is especially true following the 2008 global financial crisis and the subsequent European sovereign debt crisis, which saw the long-term unemployment rate in the EU climb to 11.4% of total labour force in 2013 (for comparison, in 2019 this stood at 6.9%) (Eurostat, 2021). This forced long-term unemployment to the fore of economic agendas of countries (Martin, 2015). Individuals in prolonged unemployment suffer from a snowball effect: their skills, confidence, motivation, and networks will depreciate, and their re-integration into the labour market becomes increasingly difficult.

A few of long-enacted policies also highlight the importance of in-work benefits and “*Making Work Pay*” policies, designed to give low-income individuals a push out of the poverty trap without benefit reductions. Two examples are the Earned Income Tax Credit (EITC) introduced in the US in 1975 and the Working Tax Credit (WTC) introduced in the UK in 1970 (OECD, 2005). The EITC had led to substantial positive employment effects, especially for single mothers. For example, between 1984 and 1996, their employment rates increased by 4-7 p.p. (Meyer and Rosenbaum, 2001). They also find that mothers of young children and mothers with low education experienced the most significant employment gains. Similarly, Grogger (2003) concludes that the EITC led to a 34% increase in employment for this group between 1993 and 1999. Meanwhile, the UK WTC scheme resulted in similar employment gains amongst single parents (Blundell et al., 2000, Blundell and Hoynes, 2004). They find that the introduction of the WTC led to a direct increase in employment rates by 10% (Brewer et al., 2006). As for the EITC, Brewer et al. (2006) also finds that gains were largest for single mothers with young children. The main critique against in-work benefit schemes is that they are hard and/or expensive to manage (Immervoll & Pearson, 2009). Hotz and Sholz (2000) notes that non-compliance is the largest threat to a policy’s sustainability, and in fact finds an elevated level of fraudulent claims in the EITC scheme. On the other hand, the WTC is characterised by large compliance burdens on recipients. Unfortunately, this has led to low take-up rates, meaning that employment and anti-poverty gains were well below the hoped-for levels (Callan *et al.*, 2006).

Evidence from other countries provides a mixed bag of evidence. In France, many studies (Choné, 2002; Laroque and Salanié, 2002; Fugazza et al., 2003; Bargain, 2004; Vermare et al., 2008) find positive, but very small employment effects. However, Stancaelli (2005) finds no significant gains for non-married women. In Germany, the mini jobs scheme was found to produce a small positive effect on participation but was outweighed by a reduction in working hours by those already in work. Consequently, Steiner and Wrohlich (2005) conclude that the total impact of the policy on hours worked appears to be negative. In a study of alternative reform scenarios for Germany and the UK, Blundell et al. (2007) find that introducing a UK-style benefit in Germany would have substantial positive effects on employment among non-married individuals. Similar to the UK, employment gains would be particularly strong among lone parents. However, the reform would lead to a much larger reduction in labour supply among married individuals. The limited employment effects in Germany are confirmed by another study evaluating the hypothetical introduction of a WFTC-type payment in Germany and in two other continental-European countries: Finland and France (Bargain and Orsini, 2006). Hence it is clear that program design is fundamental to achieving the desired goals.

Evidence on transitional-style in-work benefits in the form of cash transfers conditional on employment – whether targeted or not – is harder to come by and are less well-studied (Immervoll and Person, 2009). However, they have been in place at least in seven different countries, including Australia, Belgium, Canada, Ireland, Japan, Korea and Slovakia (Immervoll and Person, 2009). In Canada, Michalopoulos et al. (2005) finds that the Self Sufficiency Project (SSP) increased employment and earnings of participants, with employment amongst new welfare recipients being about 28% higher than the ineligible control group. In Ireland, the Back to Work Allowance (BTWA) scheme was found to impact long-term unemployment in a two-fold manner: firstly, it incentivised individuals who had become discouraged from working, and secondly, it enabled the long-term unemployed to find stable employment, since the scheme provided a financial boost to those who found it difficult to integrate or re-integrate into the labour market. In fact, Ochel (2001) found that the impact of the BWTA appears to be enduring, with almost two-thirds of beneficiaries remaining in employment after three years of transition from unemployment to employment.

Since its independence, Malta has relied on a passive social welfare system, focused on a robust safety net. While this was successful in alleviating the social burdens associated with poverty during the 1970s, subsequent recessions in the 1980s and the persistence of benefit dependence after that, despite rising economic growth, put into question the fiscal sustainability of such a system, especially as fiscal deficit ratios approached double digit figures in the 1990s. Yet, until the early 2010s, Malta's labour market policy remained biased in favour of a passive approach, with the welfare state extended to cover various social issues, with the unintended effect being a new culture of dependency which penalised work effort (Ministry for Education and Employment, 2014).

Following the Commission's *Europe 2020* goals, the Maltese government committed to a paradigm shift and announced a number of Active Labour Market Policies (ALMPs) in 2014 aimed at '*Making Work Pay*'. These include free childcare for working parents, *Breakfast Clubs*, tax incentives for take-up of work and the *Tapering of Benefits (TOB)* scheme. The latter is the focus of this study. Acting on the advice of the Employment Policy (MEDE, 2014), and following Ireland's *BTWA*, the TOB scheme was targeted at *Unemployment Assistance (UA)*, *Social Assistance (SA)* and *Social Assistance for Single Unmarried Parents (SUP)* beneficiaries, that is, individuals judged to be considerably prone to fall into a poverty trap.

The Maltese *TOB* scheme is granted for three years, and at inception in addition to the salary in their newly found job, individuals received 65% of their benefit in the first year, 45% of their benefits in the second

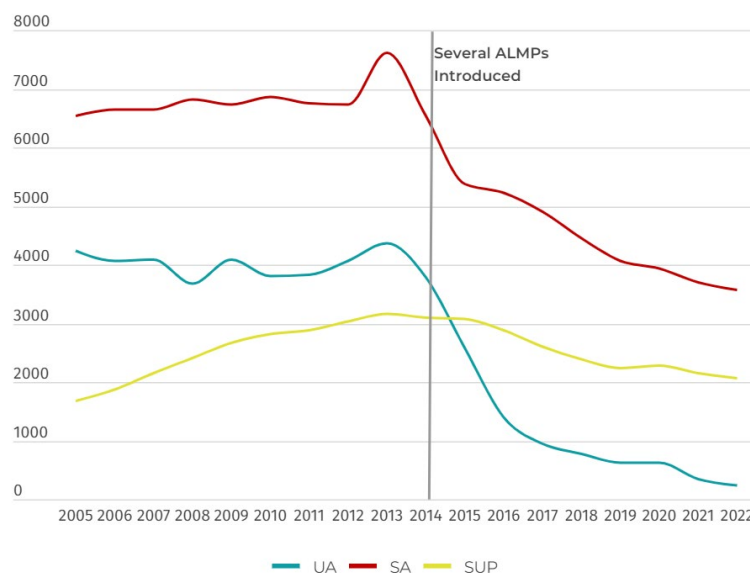


year, and 25% of their benefit in the third year.<sup>2</sup> This contrasts with the situation without the *TOB* scheme, whereby they would lose all their benefits upon finding a job. Hence, the *TOB* scheme works by increasing the opportunity cost of inactivity, making employment more enticing.

Individuals were eligible for *TOB* if they benefited from *SA*, *UA*, and *SUP* for at least 24 months in the last 36 months and find full-time employment. If beneficiaries did not benefit from the total 36 months of tapering allowance, they may continue benefiting from the remaining months whenever another employment is achieved. The beneficiaries are paid a percentage based only on the main benefit while other ancillary benefits are halted. The tapered benefit is paid in arrears every four weeks, directly deposited to their bank account and is non-taxable.

These reforms coincided with consistent economic growth and increases in the labour force through higher participation rates (driven by increases in female participation rate and inward migration). During this period, long-term unemployment rate fell much more strongly than the short-term unemployment rate (Borg & Fearn, 2021), while Ellul (2018) found that the job-finding rate increased sharply post-2014. Still, there are currently no studies that conclusively pin down the direction of causation between labour market improvements and the introduction of ALMPs in Malta. Indeed, the contemporaneous drops in unemployed (most importantly a drop in *UA*, *SA* and *SUP* beneficiaries, see Figure 1), the increases in labour supply and participation rate and the acceleration in economic growth, considerably complicates the identification of the effects of ALMPs.

**Figure 1 – Number of Beneficiaries: SA, SUP, UA and TOB in Malta**



Source: (NSO, 2022)

<sup>2</sup> The scheme was later improved by 10 percentage points at each year. The impact of this improvement is not studied in this paper, as it was made in the Budget for 2023, while this study focuses on the period to 2019.

In this view, the aim of this study is twofold. Firstly, it analyses the impact that the *TOB* scheme had on the job-finding rate amongst those on *UA*, *SA* and *SUP*. This will test whether the scheme was successful in bringing jobseekers closer to the labour market and to which extent the poverty trap has been diluted. Secondly, it aims to analyse the impact on the chances of successfully retaining employment once an individual previously on *UA*, *SA* or *SUP* finds a job. This will test how much the *TOB* scheme has successfully led to stable employment for such individuals.

Thus, this study seeks to contribute to literature in several unique ways. Firstly, it aims to identify the effect of a novel *ALMP* on the Maltese labour market by exploiting a new administrative dataset. This dataset, obtained through the Maltese *Ministry for Social Justice and Solidarity, the Family and Children's Rights*, consists of high-quality national data on all beneficiaries of specific benefits, as well as their detailed employment history in Malta. Secondly, it contributes to literature in a unique manner by quantifying the impacts not only based on the typical characteristics of individuals (such as age and gender), but also differentiates between those employed in different occupations and also the self-employed. The dataset also allows one to compare results for those living on the main island of Malta versus those living on the smaller island of Gozo. Thus, the study provides a rare insight into how the same national policy can have a different impact on the employment possibilities of those individuals residing in different islands within an archipelago, especially for those islands – like Gozo – with fewer job opportunities and an increased connectivity burden to jobs located in the larger islands.

The next section provides a discussion of the empirical framework. Section 3 discusses the results while the final section concludes.

## **Empirical Framework**

To estimate the effects that the *TOB* scheme has had on the job-finding rate in Malta, a set of models known as survival models are used. Such models are ideal for the analysis of data possessing three major characteristics (Rodriguez, 2021). Firstly, the dependent variable is defined as *time* until occurrence of a well-defined event. Secondly, the data may involve censoring. Finally, we wish to control time through the effect of some predictors. Furthermore, we use Kaplan-Meier curves to visualise survival functions, as well as Cox proportional hazard models (Cox, 1972), which enable the estimation of likelihood of events, depending on individual characteristics of the population.

In this paper, benefit and unemployment durations are applied to survival models. Consequently, to achieve the first objective of the study, the survival model event is defined as '*finding a job exactly after a UA*,

*SA or SUP spell ends*'. Time  $t_b$  is defined as the number of months between the benefit start date and the job-finding date. Thus, the survival function,  $S(t_b)$ , represents the probability of an individual surviving  $t_e$  months on benefits without finding a job. This survival function is equivalent to the probability that an individual has not found a job by time  $t_b$ , given they are on benefits. Consequently, the hazard rate,  $h(t_b)$ , is the instantaneous risk of finding a job at time  $t_b$ , given that an individual is still on benefits until that point. To analyse the likelihood of the event occurring whilst taking account individual characteristics of observations, several cox regressions are constructed as follows:

$$\log h_i(t_b | \tau, X) = \alpha + \beta X_i + \Psi(t_b) + \varphi(\tau) + \delta * I(\tau \geq 2014) * I(t_b > 24) \quad (i)$$

Where for an individual  $i$  and elapsed time  $t_b$ ,  $h_i(t_b)$  is the individual's transition rate. This transition rate is conditional on calendar time  $\tau$  and the matrix of covariates  $X$  (see Table 1).  $\Psi(t_b)$  represents the baseline function which is estimated non-parametrically, while  $\varphi$  represents the dummy variables for calendar time  $\tau$ .

Subsequently, after controlling for the baseline elapsed duration as well as year effects as explained above, the effect that the TOB scheme had on the hazard of finding employment is identified through a difference-in-difference procedure. The TOB effect  $\delta$  is therefore multiplied by an indicator function which takes a value of 1 if calendar time  $\tau$  is a date from 2014 onwards, as well as another indicator function which takes the value of 1 if elapsed time  $t_b$  is greater than 24 months. Thus, these indicator functions are considering the fact that the TOB came into effect in 2014 for those with 24 months of elapsed duration or more. The TOB Effect  $\delta$  thus provides the difference-in-difference estimate of the scheme, since it is differentiating between those observations of persons who are not eligible and able to receive the TOB versus those who are eligible and able to receive the TOB.

Furthermore, the study then adds interactions of the *TOB* effect with other covariates. Four different samples are used: a full sample including observations on all beneficiaries, and subsequently, samples focusing solely on each type of benefit. Regressions for the first part of the analysis are summarised in Table 1.

**Table 1 – Regressions analysing impact of *TOB* on job-finding rate of *UA*, *SA* and *SUP* beneficiaries**

	Full Sample			UA Sample			SA Sample			SUP Sample		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Age Groups	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sex	✓	✓	✓	✓	✓	✓	✓	✓	✓	X	X	X
Benefit Type	✓	✓	✓									
Origin	✓	✓	✓	✓	✓	✓	✓	✓	✓	X	X	X
ISCO-08	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Self-Employed	✓	✓	✓	✓	✓	✓	X	X	X	X	X	X
Age Group x Sex	✓	✓	✓	✓	✓	✓	✓	✓	✓	X	X	X
Age Group x Benefit Type	✓	✓	✓									
Age Group x Self-Employed	✓	✓	✓	✓	✓	✓	X	X	X	X	X	X
Sex x Benefit Type	✓	✓	✓									
Years $\tau$	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
TOB Effect		✓	✓		✓	✓		✓	✓		✓	✓
TOB Effect x Age Group			✓			✓			✓			X
TOB Effect x Sex			✓			✓			✓			X
TOB Effect x Benefit Type			✓									
TOB Effect x Origin			✓			✓			✓			X
TOB Effect x ISCO-08			✓			✓			✓			✓
TOB Effect x Self-Employed			✓			✓			✓			X

Note: ✓: covariate is included. X: covariate is not included. Blank: covariate is not relevant (thus not included).

To achieve the second objective of the study and test whether the ALMP policies are successful in maintaining a worker in employment, the event in the survival model is redefined as ‘losing employment after being a *UA*, *SA* or *SUP* recipient’, given that such recipients had successfully found a job. The time  $t_e$  in this case is defined as the number of months between the job commencement date and the job termination date. Thus, the survival function  $S(t_e)$  represents the probability of an individual surviving  $t_e$  units of time into the job without experiencing a job termination. In other words, this is the probability that an individual has not experienced a job termination by time  $t_e$ . Consequently, the hazard rate  $h(t_e)$  in this case is the instantaneous risk of experiencing a job termination at time  $t_e$ , given that an individual has retained the job up till that point. Another set of cox regressions are constructed as follows:

$$\log h_i(t_e|\tau, X) = \alpha + \beta X_i + \Psi(t_e) + \varphi(\tau) + \delta * I(\tau \geq 2014) * I(t_b > 24) + \eta * I(t_b > 24) + \rho * I(t_e > 36) \quad (ii)$$

To obtain the *TOB* impact on the hazard of experiencing a job termination, the *TOB* effect  $\delta$  is identified analogously as in equation (i). However, a qualification dummy variable  $\eta$  is now added to the regression, which is multiplied by an indicator function which takes a value of 1 if elapsed time on benefits  $t_b$  is greater than 24 months. This captures those individuals who would be eligible for the *TOB* throughout the whole period under consideration (2004-2019), irrespective of whether the *TOB* scheme is in place or not. Thus, the difference between qualification dummy variable  $\eta$  and *TOB* effect  $\delta$  shows the impact of the *TOB* scheme on job duration.

Finally, the “*TOB Long-Term Dummy*”  $\rho$  is multiplied by an indicator function taking a value of 1 if elapsed time  $t_e$  is greater than 36 months. This allows us to analyse whether the impact of the *TOB* on job

terminations change over the longer-term. The period of 36 months was chosen in order to establish whether an individual is more likely to experience a job-termination once the monetary benefit arising from the *TOB* scheme expires, since this is the maximum period a person can enjoy the *TOB* scheme. Regressions for the second part of our analysis are summarised in Table 2. Only the full sample is used due to data considerations.

**Table 2 – Regressions analysing *TOB* impact on retaining employment once an individual finds a job**

	Full Sample			
	(13)	(14)	(15)	(16)
Age Groups	✓	✓	✓	✓
Sex	✓	✓	✓	✓
Benefit Type	✓	✓	✓	✓
Origin	✓	✓	✓	✓
ISCO-08	✓	✓	✓	✓
Self-Employed	✓	✓	✓	✓
Age Group x Self-Employed	✓	✓	✓	✓
Years	✓	✓	✓	✓
Tapering of Benefit Effect		✓	✓	✓
Qualification Dummy		✓	✓	
<i>TOB</i> Effect x Age Group			✓	
<i>TOB</i> Effect x Sex			✓	
<i>TOB</i> Effect x Benefit Type			✓	
<i>TOB</i> Effect x Origin			✓	
<i>TOB</i> Effect x ISCO-08			✓	
<i>TOB</i> Effect x Self-Employed			✓	
<i>TOB</i> Long-Term Dummy				✓

Note: ✓: covariate is included. ✗: covariate is not included. Blank: covariate is not relevant (thus not included).

## Data

The study uses two different raw datasets obtained through a request with the Maltese *Ministry for Social Justice and Solidarity, the Family and Children's Rights*. The first raw dataset includes official records on all *Unemployment Assistance (UA)*, *Social Assistance (SA)* and *Social Assistance for Single Unmarried Parents (SUP)* recipients, with benefit start and benefit end dates, as well as some other covariates such as age and gender. The second raw dataset contains official employment records for those individuals receiving any benefits at any point in time within the first dataset, including employment start and employment end dates, occupations and working arrangements. All data is fully anonymised and different observations are distinguished through the use of randomly generated reference ID codes.

The timeframe of this study is 2004-2019, with 2004 being the year of Malta's accession into the EU, and 2019 chosen as the cut-off date in order to avoid any impact which the COVID-19 pandemic may have had on the labour market. After cleaning the data, a rigorous data transformation was carried out, whereby the raw datasets were matched in a way that is required by the empirical framework. The result after these steps are two different matched datasets which will be used to analyse the two main objectives of the study.

## Dataset 1

The first matched dataset (hereafter, *Dataset 1*) will be used to evaluate the impact of the *TOB* scheme on the job-finding rate of *UA*, *SA* and *SUP* beneficiaries. This dataset links all spells to their employment records. Importantly, those individuals who flow into employment exactly after the end of a benefit spell – hence individuals for whom the event *has occurred* - are distinguished from those who flow out of benefits, but not directly into employment – that is, individuals for whom the event *has not occurred*. Furthermore, the time (in months) spent receiving such benefits before dropping out – either into employment or otherwise – is calculated. Subsequently, in order to gauge the *TOB* effect on finding employment, observations who were eligible and able to benefit from the *TOB* were distinguished from those who were not eligible and unable to benefit from the *TOB*. The descriptive statistics of Dataset 1 are provided in Table 3.

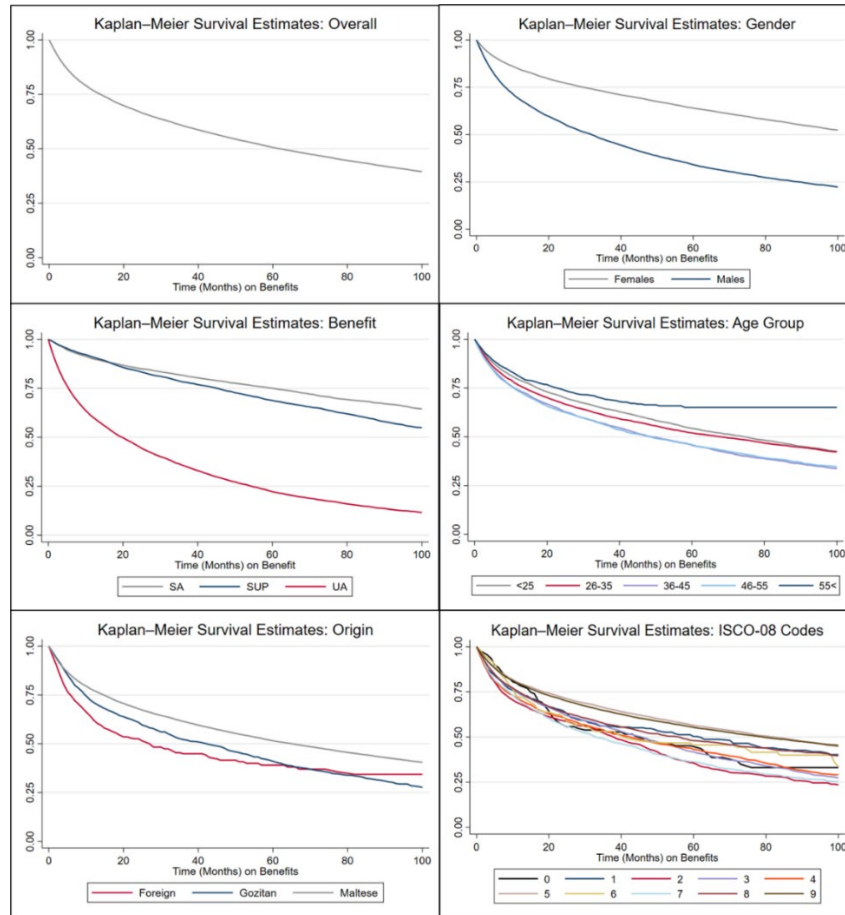
**Table 3 - Descriptive Statistics of Dataset 1: UA, SA and SUP beneficiaries between 2004 and 2019**

	Frequency	Percentage
<b>Benefit Type</b>		
SA	13,176	34.2%
SUP	6,391	16.6%
UA	18,934	49.2%
<b>Gender</b>		
Female	17,950	46.6%
Male	20,551	53.4%
<b>Maltese vs Foreign</b>		
Foreign	1,436	3.7%
Maltese	37,065	96.3%
<b>Maltese vs Gozitan vs Foreign</b>		
Foreign	1,436	3.7%
Gozitan	1,992	5.2%
Maltese	35,073	91.1%
<b>Age Groups</b>		
<25	9,490	24.6%
26-35	10,755	27.9%
36-45	8,453	22.0%
46-55	6,988	18.2%
56+	2,815	7.3%
<b>ISCO-08</b>		
0 – Armed Forces Occupations	206	0.5%
1 – Managers	878	2.8%
2 – Professionals	1,403	3.6%
3 – Technicians and AP	2,528	6.6%
4 – Clerical Support Workers	2,478	6.4%
5 – Services and Sales Workers	9,377	24.4%
6 – Skilled Agriculture, Forestry & Fishery	333	0.9%
7 – Craft and Related Trades	3,459	9.0%
8 – Plant & Machine Operators	4,612	12.0%
9 – Elementary Occupations	13,233	34.4%
<b>Self-Employed</b>		
Not self-employed	34,565	89.8%
Self-employed	3,936	10.2%
<b>Total</b>		
Total	38,501	100%

Figure 2 depicts Kaplan-Meier curves from Dataset 1. The mean time spent on either *UA*, *SA* or *SUP* is 26 months, with the least being 0 months (some days less than one month) and the maximum being 100 months, after restricting lengthy observations to such a maximum. This was done in order to remove the bias from such

lengthy observations, which may be ridden with administrative errors or entail very unique long-term beneficiaries. Observations are skewed towards the lower end, with over 50% of the observations having a time on benefits of 12 months or less.

**Figure 2 - Kaplan-Meier curves for Dataset 1: UA, SA and SUP beneficiaries (2004-2019)**



Source: Author

The overall Kaplan-Meier curve shows that after 14 months on benefits, one is 25% likely to go into employment whilst after 62 months, one is 50% likely. The probability of males finding a job is higher than that of females: while males are 25% likely to go into employment after 8 months on benefits, for females this stands at 30 months. Individuals on *UA* are 25% likely of going into employment after only 6 months on benefits. For *SUP*, this rises to 46 months, while for *SA* this rises further to 61 months. With regards to age, the 56+ category have a lower probability of going into employment, after which they completely drop out since they reach retirement age and shift to pension schemes. Age groups 2 (36-45) and 3 (46-54) have higher probability of going into employment, with both 50% likely of doing so after 49 months on benefits. On the other hand, age group 0 (<25) and 1 (26-35) are less likely to find employment, with the figures standing at 75 and 68 months respectively.

Low skilled jobs such as elementary occupations (category 9) and services and sales workers (category 5) exhibit a lower chance of finding employment. In fact, they are 50% likely to do so after 80 months on benefits.

In contrast, this stands at only 37 months for professionals (category 2) and 34 months for craft and related trade workers (category 7). Finally, foreigners are much more likely to flow into employment, with the probability standing at 50% after just 27 months. For Gozo residents, this rises to 43 months, while for Maltese individuals this stands at 66 months.

## Dataset 2

The second matched dataset (hereafter, *Dataset 2*) will be used to analyse the impact of the *TOB* on retaining employment once an individual previously on benefits finds a job. This dataset builds upon dataset 1, but restricts the observations to those who successfully found a job. Importantly, those individuals which subsequently experienced a job termination, hence individuals for whom the event *has occurred* – are distinguished from those who do not experience a job termination – that is, individuals for whom the event *has not occurred*. Furthermore, the time (in months) between the job start date and the job termination date is calculated. To be able to gauge the *TOB* effect, observations who were eligible and able to benefit from the *TOB* were distinguished from those who were not eligible and unable to benefit from the *TOB*. The descriptive statistics of Dataset 2 are provided in Table 4.

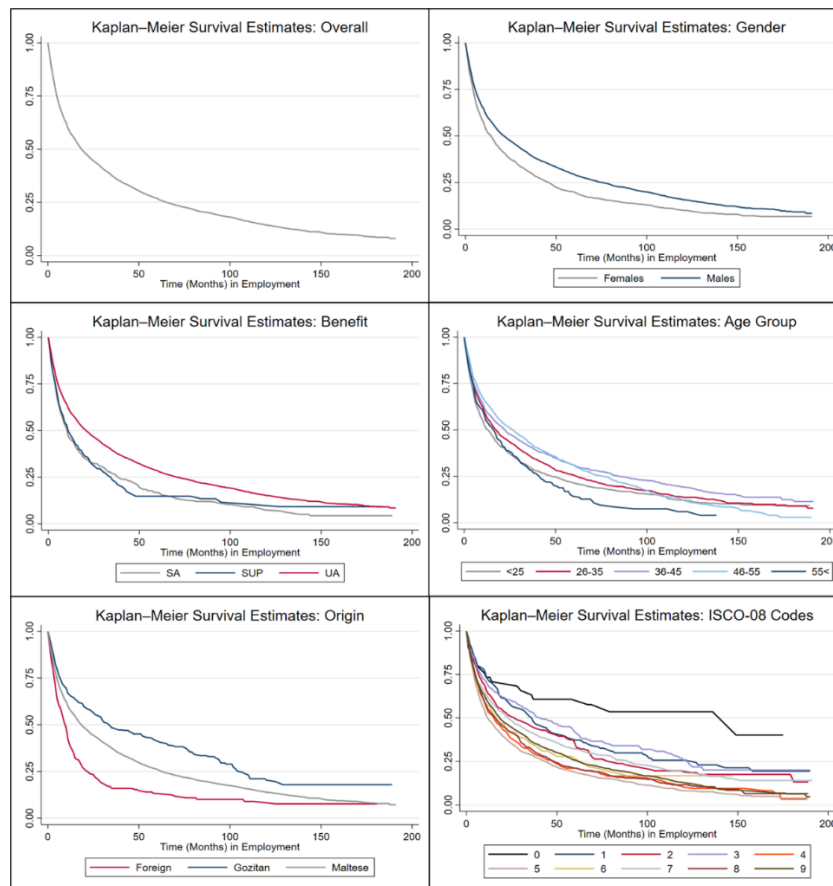
**Table 4 - Descriptive Statistics Dataset 2: UA, SA and SUP beneficiaries finding employment (2004-2019)**

	Frequency	Percentage
<b>Benefit Type</b>		
SA	738	10.05%
SUP	365	4.97%
UA	6,239	84.98%
<b>Gender</b>		
Female	2,085	28.40%
Male	5,257	71.60%
<b>Maltese vs Foreign</b>		
Foreign	242	3.30%
Maltese	7,100	96.70%
<b>Maltese vs Gozitan vs Foreign</b>		
Foreign	242	3.30%
Gozitan	532	7.25%
Maltese	6,568	89.46%
<b>Age Groups</b>		
<25	1,571	21.40%
26-35	2,064	28.11%
36-45	1,877	25.57%
46-55	1,532	20.87%
56+	298	4.06%
<b>ISCO-08</b>		
0 – Armed Forces Occupations	43	0.59%
1 – Managers	191	2.60%
2 – Professionals	333	4.54%
3 – Technicians and AP	605	8.24%
4 – Clerical Support Workers	488	6.65%
5 – Services and Sales Workers	1,361	18.54%
6 – Skilled Agriculture, Forestry & Fishery	81	1.10%
7 – Craft and Related Trades	919	12.52%
8 – Plant & Machine Operators	860	11.71%
9 – Elementary Occupations	2,461	33.52%
<b>Self-Employed</b>		
Not self-employed	6,392	87.06%
Self-employed	950	12.94%
<b>Total</b>		
Total	7,342	100%



Figure 3 depicts Kaplan-Meier curves from Dataset 2. The mean time to experience a job termination is 32 months, with the least being 1 month and the maximum being 191 months. Observations are again skewed towards the lower end, with 46% of those experiencing a job loss doing so in less than 12 months.

**Figure 3 - Kaplan-Meier curves for Dataset 2: UA, SA and SUP beneficiaries finding employment (2004-2019)**



Source: Author

After 5 months from job start, the likelihood of the event stands at 25%. This reaches 50% after 19 months and 75% after 65 months. The probability of females experiencing a job termination is higher than that of males throughout. In fact, while males are 50% likely to experience the event after 22 months, for females this stands at 15 months.

Individuals previously on SA and SUP have a higher probability of experiencing the event. They are 50% likely to experience a job termination after 11 months. For UA beneficiaries, this stands at 21 months. The youngest age group experiences a job termination more swiftly, with the probability standing at 50% after 13 months. Those 56+ experience high job terminations since they reach retirement age and shift to pension schemes. Age groups 2 (36-45) and 3 (46-55) have the most stable employment, having a 50% probability of job termination after 23 months and 27 months respectively.

Jobs with the lowest skillset (*Elementary Occupations*, category 9 and *Services and Sales workers*, category 5) exhibit a higher probability of job-termination, standing at 50% after 19 months and 12 months respectively. In contrast, this occurs after 37 months and 41 months for *Managers* and *Technicians & Associate Professionals*. Foreigners are more likely to experience a termination, with the probability standing at 50% after 10 months from *TOB* spell end. In contrast, this stands at 34 months and 19 months for Gozitan and Maltese individuals, respectively.

## Results

Results presented in the tables below represent hazard ratios and should be interpreted as the risk of the event occurring when compared to the baseline category, keeping other variables constant. All baseline categories are listed below the result tables for ease of interpretation. Hazard rates above (below) 1 mean that the job-finding event for the variable in question is more (less) likely to occur when compared to the baseline category. Moreover, since such deviations from the numeraire (1) represent changes in percentage probabilities of the events occurring, the below discussion of results translates such hazard ratios into percentage changes of the respective probabilities for ease of interpretation.

### **The impact of the TOB scheme on the job-finding rate of UA, SA and SUP beneficiaries**

Table 5 shows the hazard rates for the Cox regressions for the full sample and the three benefit samples. The results for the regressions based on solely the individual characteristics mirror the information depicted by the Kaplan-Meier curves. When the TOB effect is added, results show that it delivers a powerful improvement in the chance of the event occurring for individuals who are able to benefit from the scheme, as shown by the '*TOB Effect*' variable. For the full sample, the *TOB* enhances the chance of the event occurring by 99.6% to those eligible – essentially doubling the probability of those eligible to find a job at each time horizon.

The interactions yield interesting results with regards whom the *TOB* is impacting – or not impacting – the most. Gains from the TOB are largest for SUP recipients, with the chances of the event occurring more than doubling. This shows that the TOB was particularly successful in incentivising single parents to overcome their obstacles. This is in line with findings for the EITC scheme in the US (Meyer and Rosenbaum, 2001, Grogger 2003) and the WTC scheme in the UK (Blundell et al., 2000, Blundell and Hoynes, 2004). The effect is least powerful for SA recipients, although the improvement is still considerable, standing at 67.3%. This shows that certain individuals with medical issues have specific impediments that are not easily compensated through financially generous policies such as the TOB. This implies that, future policy aiming at the employability of such

individuals might have limited effectiveness. Policy should focus on improving their health, although this in practice may not always be, if at all, feasible.

Being in the youngest age group means that you are more likely to enjoy the benefits of the scheme. In fact, being an eligible individual in the 46-55 and 56< age cohort means that you have a 22.9% and 49.5% less probability of returning to unemployment when compared to eligible individuals in the youngest cohort. This result is similar across all samples, although not significant in the *SA* sample. The *TOB* does not impact any particular gender differently when analysed in the full sample. However, for the *UA* sample, the *TOB* improves the chance of the event for eligible males by 19.3% more than that of eligible females. On the other hand, for beneficiaries on *SA* benefits, it is the eligible females who are experiencing the benefits of the *TOB* most, having an 82.9% more chance of event occurring, when compared to eligible males.

Meanwhile, foreigners are experiencing less of an improvement from the *TOB* scheme when compared to Maltese individuals. This holds throughout all samples, although not significant in the *UA* sample. On the other hand, Gozo residents are experiencing higher event occurrence for eligible individuals when compared to eligible Maltese individuals. However, this effect is significant at the 5% level, and is not robust across different types of beneficiaries, with the coefficient turning negative in the *SA* sample.

The *TOB* is especially effective for *Technicians & Associate Professionals*. In fact, eligible individuals in these jobs are twice as likely to flow into employment when compared to eligible individuals in *Elementary Occupations*. This holds for all samples, except for the *SUP* sample which finds a positive effect which is however insignificant. *Managers* – the category with the highest skilled jobs – are enjoying the benefits of the scheme the least, with results showing a 67.8% lower effect when compared to the baseline category. This negative effect holds across all samples considered. These results thus show that there is a clear skill premium to finding employment. This is in line with findings from literature. In this view, policymakers should focus their efforts on longer-term strategies aimed at improving the education and quality of labour, especially in view that Malta has one of the highest early school leaving rates in Europe.

For the full sample the *TOB* appears to have boosted the chances of the event occurring for self-employed individuals more than that for the employed by 26.8%. Although for the *UA* sample there is no significant difference on the *TOB* impact between the two, in the *SA* sample, the *TOB* boosted the chances for the self-employed individuals by 57.4% more than that of the non-self-employed. Furthermore, the interactions show that older self-employed individuals have a lower chance of finding employment. Thus, it appears that elder, self-

employed individuals at some point experience a decline in effort in terms of remaining in employment. This could be evidence towards a preference to live on benefits in the last few years before qualifying for a pension. Although some existing policies aimed at elder workers – such as the Mature Workers Scheme introduced in 2014 – are already in place, these are targeted at employed workers. Given the findings of this study, future policy has scope for improvement by prioritising elder, self-employed individuals, through making it worthwhile for them to remain in employment even in the years close to retirement.

**Table 5 – Results: Hazard Ratios for regressions 1-12**

	Full Sample		UA Sample		SA Sample		SUP Sample	
	Hazard	S.E.	Hazard	S.E.	Hazard	S.E.	Hazard	S.E.
	(1)		(4)		(7)		(10)	
SUP	0.392***	(0.071)						
UA	2.602***	(0.179)						
Age 26-35	0.586***	(0.046)	0.849***	(0.034)	0.544***	(0.054)	0.756***	(0.043)
Age 36-45	0.501***	(0.039)	0.830***	(0.034)	0.325***	(0.035)	0.650***	(0.074)
Age 46-55	0.330***	(0.029)	0.774***	(0.032)	0.194***	(0.023)	0.388**	(0.148)
Age 56<	0.120***	(0.018)	0.686***	(0.044)	0.075***	(0.014)	0.000	(.)
Female	0.655***	(0.042)	0.975	(0.052)	0.453***	(0.049)	X	
Foreign	1.279***	(0.064)	1.047	(0.069)	1.851***	(0.161)	X	
Gozitan	0.871***	(0.032)	0.845***	(0.035)	0.951	(0.120)	X	
Armed Forces (ISCO08=0)	1.426***	(0.163)	1.228	(0.169)	1.771**	(0.480)	3.442***	(1.112)
Managers (ISCO08=1)	1.324***	(0.080)	1.173**	(0.083)	1.324*	(0.199)	4.074***	(0.738)
Professionals (ISCO08=2)	1.739***	(0.077)	1.392***	(0.077)	1.886***	(0.215)	5.682***	(0.612)
Technicians & Associate Professionals (ISCO08=3)	1.289***	(0.044)	1.026	(0.043)	1.773***	(0.146)	4.114***	(0.391)
Clerical Support Workers (ISCO08=4)	1.828***	(0.064)	1.564***	(0.073)	1.937***	(0.155)	4.129***	(0.355)
Services and Sales Workers (ISCO08=5)	1.254***	(0.031)	1.156***	(0.036)	1.308***	(0.073)	2.261***	(0.162)
Agricultural, Forestry & Fishery (ISCO08=6)	0.949	(0.092)	0.882	(0.092)	1.131	(0.319)	1.118	(1.121)
Craft & Related Trades (ISCO08=7)	1.240***	(0.041)	1.149***	(0.041)	1.239**	(0.127)	1.935**	(0.516)
Plant and Machine Operators (ISCO08=8)	1.141***	(0.034)	1.094***	(0.038)	1.213***	(0.090)	1.619***	(0.169)
Self-Employed	0.850**	(0.066)	0.832*	(0.080)	X		X	
Age Group # Sex	✓		✓		✓		X	
Age Group # Benefit type	✓						X	
Age Group # SE	✓		✓		X		X	
Sex # Benefit type	✓							
Year	✓		✓		✓		✓	
	(2)		(5)		(8)		(11)	
TOB Effect	1.996***	(0.065)	1.951***	(0.096)	1.673***	(0.139)	2.316***	(0.216)
	(3)		(6)		(9)		(12)	
TOB Effect # SUP	1.339***	(0.114)						
TOB Effect # UA	0.843***	(0.056)						
TOB Effect # Age 26-35	0.882*	(0.063)	0.882	(0.097)	1.280	(0.232)	X	
TOB Effect # Age 36-45	0.910	(0.071)	0.867	(0.094)	1.228	(0.221)	X	
TOB Effect # Age 46-55	0.771***	(0.064)	0.840	(0.090)	0.762	(0.159)	X	
TOB Effect # Age 56<	0.505***	(0.097)	0.554***	(0.120)	0.466	(0.232)	X	
TOB Effect # Female	1.080	(0.068)	0.807**	(0.070)	1.829***	(0.230)	X	
TOB Effect # Foreign	0.641**	(0.125)	0.638	(0.219)	0.408**	(0.161)	X	
TOB Effect # Gozitan	1.234**	(0.110)	1.314**	(0.147)	0.598*	(0.184)	X	
TOB Effect # ISCO08=0	1.594	(0.505)	1.676	(0.733)	0.941	(0.726)	0.620	(0.409)
TOB Effect # ISCO08=1	0.322***	(0.082)	0.207***	(0.087)	0.425*	(0.191)	0.108***	(0.054)
TOB Effect # ISCO08=2	1.046	(0.117)	0.661**	(0.116)	0.888	(0.249)	0.701	(0.155)
TOB Effect # ISCO08=3	2.024***	(0.155)	1.504***	(0.156)	1.962***	(0.359)	1.135	(0.232)
TOB Effect # ISCO08=4	1.068	(0.087)	0.613***	(0.099)	1.172	(0.213)	0.757	(0.137)
TOB Effect # ISCO08=5	1.055	(0.061)	0.614***	(0.065)	1.210	(0.155)	1.015	(0.157)
TOB Effect # ISCO08=6	0.978	(0.251)	0.958	(0.262)	0.415	(0.436)	3.273e+08	(.)
TOB Effect # ISCO08=7	0.805**	(0.085)	0.656***	(0.081)	1.030	(0.277)	1.545	(0.927)
TOB Effect # ISCO08=8	0.710***	(0.058)	0.620***	(0.071)	0.861	(0.149)	0.396***	(0.085)
TOB # Self-Employed	1.268***	(0.097)	1.082	(0.112)	1.574**	(0.281)	X	
Observations	36568		17418		12854		6296	

Age baseline category = 25>; Sex baseline category = Male; Benefit type baseline category = SA; Origin baseline category = Maltese; ISCO08 baseline category = ISCO08=9 (Elementary Occupations); Self-Employed baseline category = non-self-employed  
Standard errors in parentheses (\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ )

Finally, the SUP sample show significant and strongly positive annual effects. This shows that along the years the economic environment became favourable for SUP recipients to find employment. Hence, other initiatives such as tax breaks for women returning into employment, lower parental income tax rates, and free childcare for working parents, amongst others, are likely to have had a notable impact in boosting their employment prospects.

### **The impact of the TOB scheme on retaining employment once an individual finds a job**

Table 6 shows the hazard rates for the Cox regressions for the full sample. The negative (lower than one) estimated coefficient of the *Qualification Dummy* shows that those who qualify for the scheme have a lower probability of experiencing a return to unemployment, indicating that the long-term unemployed are not in employment at that point in time. Subsequently, after taking the difference between the *TOB Effect* and *Qualification Dummy* hazard ratios, the *TOB* scheme shows a powerful effect in terms of reducing the chance of the event occurring for those individuals who are eligible and able to benefit from the scheme. In fact, the chance of job termination drops by 11.8 percentage points for those individuals falling within the *TOB* regime.

With regards to results by beneficiary type, we see that once *SUP* beneficiaries who are eligible for the *TOB* scheme move into employment, they experience a 48.8% elevated chance of job termination when compared to their *SA* counterparts. Thus, although job-finding rate for *SUP* individuals improved drastically (Table 5), once in employment, *SUP* beneficiaries experience a higher probability of job termination. Hence, although the policy was successful in aiding *SUP* beneficiaries into employment, future policy initiatives ought to assist such individuals to remain in employment over the longer-term.

Meanwhile, there is no statistically significant difference between age groups, showing that the *TOB* scheme impacted different age groups similarly in terms of job tenure. The same can be said for gender, with the *TOB* scheme having no particularly different impact on job tenure between males and females.

Compared to Maltese counterparts, foreigners eligible for the *TOB* scheme are experiencing remarkably high termination rates. Although this may reflect the fact that foreign workers are more mobile and have a short length of stay in Malta (Borg, 2019), policy needs to ensure that foreign workers enjoy adequate labour market protection policies and that local employers adhere to such practices. On the other hand, Gozo residents are not only experiencing an improvement in their job-finding rate, but they are also experiencing a 30.1% lower job-termination probability when compared to eligible Maltese individuals, implying that Gozo residents are also

increasingly enjoying the benefits of the TOB scheme in terms of job tenure. However, this effect is only significant at the 10% level. Gozo is characterised by several drawbacks given its geographical and transportation constraints, with Gozo residents facing higher travel costs to employment. The TOB appears to have improved the incentive for Gozo residents to seek employment, even if such employment is located in Malta. Therefore, future policy targeted at Gozo residents should continue its pursuit in overcoming their specific obstacles.

Looking at results by sector, the TOB scheme is also improving the job tenure of *Technicians & Associate Professionals*, with such individuals having 36.8% less chance of the event occurring when compared to the eligible baseline category. On the other hand, eligible *Plant and Machine Operators & Assemblers* experience a higher probability of the event occurring when compared to the eligible baseline population. Hence, Technicians & Associate Professionals seem to enjoy quite a healthy environment in terms of labour market, especially after the introduction of the TOB scheme. In this view, future policy need not focus on such individuals, but rather aim at improving the duration of jobs within the unskilled manufacturing industry as well as elementary occupations. Finally, non-self-employed individuals eligible for the *TOB* experience better job-tenure effects than their self-employed counterparts.

The “*TOB Long-Term Dummy*” hazard rate is statistically insignificant. This is a very reassuring finding, showing that once the scheme eligibility ends after the 36 months, job-terminations of previously eligible individuals do not increase significantly. Thus, the scheme appears to be successful in not only helping individuals finding employment, but also to re-integrate them into the labour force in the longer term – even once transfer payments by the government ends. This finding is in line with findings on the Irish BWTA scheme (Ochel, 2001).

**Table 6 – Results: Hazard Ratios for regressions 13-16**

	Full Sample	
	Hazard	S.E.
	(13)	
SUP	0.920	(0.075)
UA	0.863***	(0.043)
Age 26-35	0.917**	(0.039)
Age 36-45	0.833***	(0.038)
Age 46-55	0.807***	(0.038)
Age 56<	1.028	(0.082)
Female	1.134***	(0.040)
Foreign	1.443***	(0.110)
Gozitan	0.776***	(0.046)
Armed Forces (ISCO08=0)	0.344***	(0.080)
Managers (ISCO08=1)	0.619***	(0.057)
Professionals (ISCO08=2)	0.793***	(0.057)
Technicians & Associate Professionals (ISCO08=3)	0.758***	(0.047)
Clerical Support Workers (ISCO08=4)	0.955	(0.056)
Services and Sales Workers (ISCO08=5)	1.106**	(0.045)
Skilled Agricultural, Forestry & Fishery (ISCO08=6)	1.327*	(0.192)
Craft & Related Trades (ISCO08=7)	0.948	(0.046)
Plant and Machine Operators & Assemblers (ISCO08=8)	1.042	(0.049)
Self-Employed (SE=1)	0.532***	(0.069)
Age Group # SE	✓	
Year	✓	
	(14)	
TOB Effect	0.673***	(0.048)
Qualification Dummy	0.791***	(0.036)
	(15)	
TOB Effect # SUP	1.488**	(0.300)
TOB Effect # UA	0.903	(0.145)
TOB Effect # Age 26-35	1.220	(0.160)
TOB Effect # Age 36-45	1.043	(0.161)
TOB Effect # Age 46-55	1.111	(0.174)
TOB Effect # Age 56<	1.147	(0.403)
TOB Effect # Female	1.059	(0.138)
TOB Effect # Foreign	2.154**	(0.804)
TOB Effect # Gozitan	0.699*	(0.139)
TOB Effect # ISCO08=0	2.789	(1.600)
TOB Effect # ISCO08=1	0.000	(.)
TOB Effect # ISCO08=2	0.911	(0.231)
TOB Effect # ISCO08=3	0.632***	(0.111)
TOB Effect # ISCO08=4	1.100	(0.205)
TOB Effect # ISCO08=5	1.282*	(0.171)
TOB Effect # ISCO08=6	0.830	(0.329)
TOB Effect # ISCO08=7	1.329	(0.244)
TOB Effect # ISCO08=8	1.758***	(0.277)
TOB Effect # Self-Employed	1.537***	(0.235)
	(16)	
TOB Effect	0.533***	(0.000)
TOB Long-Term Dummy	1.195	(0.212)
Observations	6805	

Age baseline category = 25>; Sex baseline category = Male; Benefit type baseline category = SA; Origin baseline category = Maltese; ISCO08 baseline category = ISCO08 (Elementary Occupations); Self-Employed baseline category = non-self-employed  
 Standard errors in parentheses ( \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ )

## Conclusion

This study estimates the impact that the TOB scheme had on the job-finding rate amongst those on UA, SA and SUP. It also analyses the impact on the chances of successfully retaining employment once an individual previously on UA, SA or SUP finds a job. Based on an empirical framework characterised by survival analysis and Cox proportional hazard models, the main conclusion of the study is that the *TOB* scheme essentially doubles the probability of finding employment after a benefit spell for an eligible individual. The effect is least powerful for *SA* beneficiaries, although the improvement is still considerable – at 67.3%. Meanwhile, *SUP* beneficiaries experience the largest gains from the scheme with the probability of finding employment more than doubling. Furthermore, the positive job-finding effects from the *TOB* are mostly enjoyed by younger age cohorts, whilst no markedly different impact between males and females is found. Foreigners enjoy the benefits of the *TOB* less than Maltese individuals, whilst Gozo residents experience the largest improvement in terms of job-finding. After showing that there is a skill effect on the chance of finding employment, the study finds that the *TOB* scheme positively impacts job-finding rates of *Technicians & Associate Professionals* most, with the highest skilled individuals – *Managers* – enjoying the least benefits from the scheme. Meanwhile, whilst self-employed individuals tend to have lower chance of flowing into employment after a benefit spell, the *TOB* appears to have boosted the chances of them doing so by more than non-self-employed individuals.

The second part of the study concludes that the chance of job termination drops by 11.8 percentage points for eligible individuals. Furthermore, the impact once the scheme ends is not any different from its impact during the first 36 months, showing that its impact is robust in the medium term. Although *TOB* helped *SUP* beneficiaries the most to move into employment, the second part of the study shows that once such beneficiaries then experience a 48.8% higher chance of job terminations when compared to their *SA* counterparts. Meanwhile, there is no statistically significant difference between age groups or gender, showing that the *TOB* scheme impacted different age groups and genders similarly in terms of job tenure.

Furthermore, the second part shows that not only the *TOB* improves the chances of *Technicians & Associate Professionals* moving into employment, but it also improves their job tenure the most. On the other hand, eligible *Plant and Machine Operators & Assemblers* experience a higher probability of returning to unemployment when compared to the eligible baseline population. Finally, whilst it was found that self-employed individuals previously on benefits are more likely to remain in employment once they find such employment, employees eligible for the *TOB* experience better job-tenure effects than their self-employed counterparts.



In light of these results, given that the aim of the *TOB* scheme was to bring jobseekers closer to the labour market by eliminating, or at least diluting, the poverty trap and lead to stable employment, the scheme can be considered very successful. However, the study further highlights the importance for the *TOB* scheme to be complemented by other policies aimed at improving the job-finding rates and employment tenure of those individuals who have been impacted the least positively by the *TOB* scheme. Such policies should aim to be more holistic in nature, hence achieving the intended targets for all sections of society especially those who have benefitted the least from the current scheme. In turn, these policies should aim to improve the overall outlook and resilience of the Maltese labour market, and consequently, of the economy at large.

Against this backdrop, the potential for future research is vast. As shown by the time fixed-effects, from 2014 onwards all sections of society – especially single parents – experience an improvement in terms of finding employment. This coincided not only with favourable macroeconomic conditions, but also with a raft of other ALMPs introduced throughout the years. Hence, it is of national interest for future research to analyse by how much such newly introduced policies improved the job-finding rate and job durations for individuals, especially when compared to the *TOB* scheme. This may prove fundamental for policymakers in terms of focusing their strategies on the most efficient policies. Future research may also provide a cost-benefit analysis of the *TOB* scheme. Although the scheme is found to be very successful, it would be interesting to consider whether such success outweighs the fiscal cost of such a scheme. Finally, whilst this study found that the *TOB* effect does not change in the medium-term, this finding is constrained by a short post-*TOB* scheme sample period. Hence, future research may revisit this finding and check whether the medium-run effectiveness of *TOB* benefits is also valid when considering a longer time horizon.

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