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# The ageing of the Maltese workforce and the impact of pension age changes

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Policy Note

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## **Abstract**

In recent years the share of the Maltese labour force aged over fifty fell, reflecting migratory flows and rising female employment. However, ageing is still evident when looking at specific sectors and occupations. In these parts of the labour market, pension age changes have been very beneficial in sustaining activity. Contrary to expectations, workers in manual and arduous jobs have not resorted disproportionately to the early exit age, and career lengths have converged across occupations, and somewhat less so across sectors. Older working women have tended to extend their careers more readily than men did. By 2018 the behavioural response to pension age changes is estimated to have boosted GDP by as much as 1.3 percentage points. In sectors like public administration, agriculture and fisheries, water distribution and financial services longer working lives may have accounted for a tenth in the growth in value added registered between 2013 and 2018.

**JEL Classification:** J18, J26, H55.

**Keywords:** ageing, pension age, economic growth, Malta.

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## Executive Summary

When reviewing the Maltese economy, many observers point to ageing as a key challenge, arguing in favour of a number of policies – such as a quicker increase in the pension age. Yet in-depth research on how ageing is affecting the Maltese economy is somewhat lacking. In this light, this policy note attempts to answer three questions:

- **Is the Maltese workforce ageing?**

Whilst in the EU the proportion of the labour force that was aged fifty and over rose from 29% in 2014 to 32% in 2018, Malta was one of only two EU countries where the relative share of the older workforce fell. The substantial rise in the labour participation of Maltese women masked the ageing of its working age population. This effect was complemented by very strong inward migration flows of young workers. However, while at present ageing is not affecting the Maltese labour market on aggregate, at a disaggregated level there have been some notable impacts. For instance, the share of older workers in public administration, in wholesale and retail, and in administrative and support services has grown by 4 percentage points over a decade. A larger relative increase was observed in the agricultural and fisheries workforce, while the complement of manufacturing, construction and financial services has also aged. By contrast the workforce in relatively new services sectors, such as remote gaming, information and communication and professional services has got younger. Looking at occupational categories, relatively more manual workers are aged fifty and over than a decade ago. Conversely the age profile of skilled non-manual workers has shifted somewhat to younger ages. The workforce aged over fifty is much more likely to occupy the two ends of the occupational spectrum, i.e. to be in a managerial position or have an elementary job. Younger workers, by contrast, are more concentrated in professional, clerical and sales categories.

- **Have pension age changes helped boost activity rates?**

Data from the national employment register suggests that in 2018 the registered labour supply in the age brackets directly affected by the pension age was nearly 3,000 higher than in 2011, a rise of 113%. Nearly 60% of women and 56% of men born in 1951 – that is persons unaffected by the pension age rise - who had been active at ages 60 and 61 left the labour force by the time they reached age 63. For those born in 1956 the labour force dropout rates declined to 14% for women and 36% for men. If age-specific labour force exit rates had remained unchanged as at the last year before the pension age changes, the labour force aged fifty and over would have been nearly 3,500 (or 8%) less than it actually

was. The bulk of the difference was in men and women aged 61 and 62. In 2018 there were 1,920 more persons of this age group than if the labour exit rates had remained the same as in 2012. Data on full-time employment by age and occupation suggests that whereas less than a third of male professionals born in 1951 were still working in the same occupation at age 63, the proportion rose to 74% for those born in 1956. Similarly, amongst male workers of the same birth cohorts who worked as plant and machine operators, the rise was from 38% to 63%. The trends observed for female workers are even more significant. Even before the pension age rise, the occupational category gradient in labour drop-out rates was already smaller for women than it was for men. After the changes, women employed in the more manual occupational categories are tending to remain more in employment than those working in non-manual full-time jobs. Data on full-time employment by sector suggests that full-time employment after the age of 61 has improved substantially in many sectors, ranging from construction to public administration. However, the gap between sectors narrowed by much less than the narrowing observed amongst different occupations. This could imply that the employment culture in a sector may be a more important determinant of career length than the type of occupation that one has.

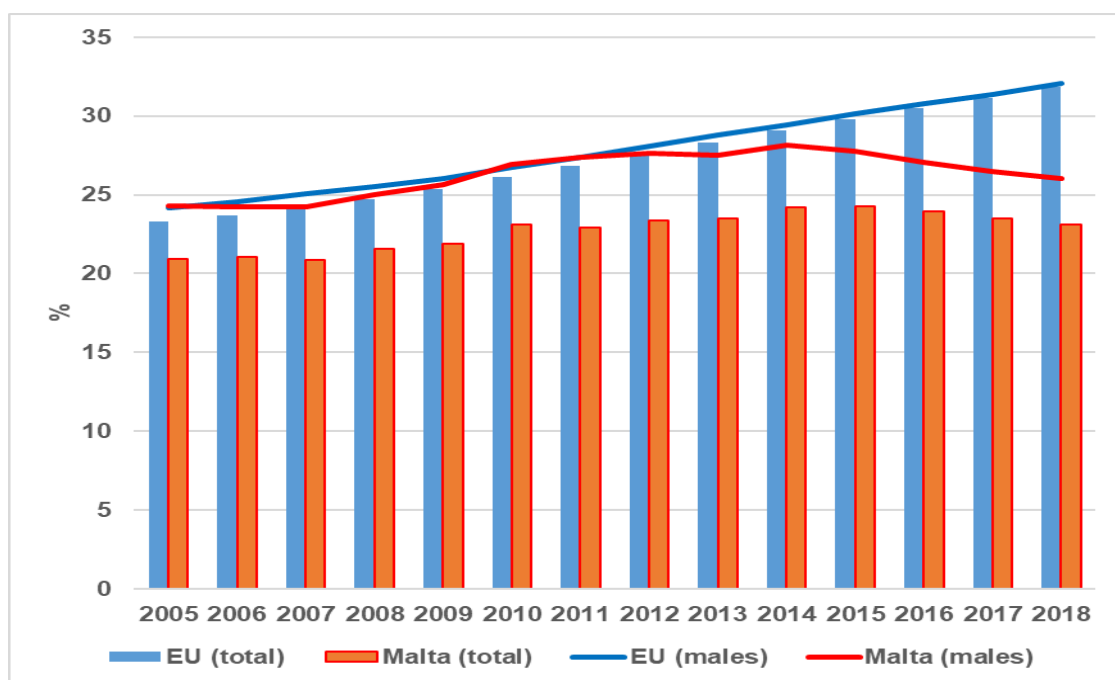
- **What was the economic impact of pension age changes?**

Though the estimate of the impact of pension age changes on employment appears to conform with the projections made in Grech (2017), considering the specific economic sectors and occupations where workers continued to work suggests that the impact on GDP may have been more pronounced than originally thought. The new estimates point towards an impact close to 1.3 percentage points of GDP by 2018, nearly 45% higher than previous estimates. On average, the pension age rise is thought to have contributed 0.22 percentage points to the annual growth in gross value added that occurred between 2013 and 2018. While expansion in value added in some sectors, such as online gaming, was relatively unaffected, in others, like public administration, agriculture and fisheries, water distribution and financial services the lengthening of careers following the pension age changes may have accounted for about a tenth in the growth in value added registered during this period. Moreover, the sectors where the impact of the pension age rise was most pronounced tend to be ones with strong income multiplier effects and linkages with other sectors. This could suggest even stronger economic impacts than estimated here.

## Is the Maltese workforce ageing?

A simplistic reading of labour supply data for Malta would suggest that contrary to the rest of the EU, the Maltese workforce is not ageing. Chart 1, in fact, shows that whilst in the EU the proportion of the labour force that was aged fifty and over rose from 29% in 2014 to nearly 32% in 2018, in Malta the relative share of the older workforce fell from 24% to 23%. Malta and Luxembourg were the only countries in the EU that saw a decline, as against countries such as Italy and Greece where during the same period the proportion of the labour force aged fifty and over rose by 5 percentage points.

**Chart 1: Share of those aged 50+ in the labour supply**



*Source: Author's estimates using Eurostat data*

This divergence is due to two factors. On the one hand, in recent years there has been a very sharp rise in female participation in the Maltese workforce. In 2005 the activity rate of Maltese women aged below 40 stood at 50%, well below the 63% rate observed in the EU. By 2013 this gap had disappeared and by 2018 73% of Maltese women aged below 40 were active in the labour force, compared to just 65% of EU women in the same age bracket. From being the country with the lowest female activity rate, Malta now boasts the fifth-highest rate in the EU. This transformation was driven by changing demographic and educational attainment characteristics, but also reflected several policy initiatives (see Micallef, 2018).

The entry of a considerable number of young women in the labour force was a key factor that masked the underlying ageing of the Maltese workforce. However, as can be seen from Chart 1, even if one looks at just the male workforce, in recent years the proportion of older workers has fallen significantly. Till 2012, the relative share of the 50+ in the male workforce in Malta mirrored that in the EU. Since then a very large gap has emerged, with the share of young men in the Maltese male workforce increasing very rapidly. This was due to the very strong inward migration flows and which resulted in the share of the foreign workforce more than doubling (see Rapa, 2019a).

These two factors, rising female participation and large migrant inflows, are likely to continue affecting the Maltese economy in the near future. Rapa (2019b) suggests that even if one assumes much lower migration flows and no labour market policy changes, the growth in the participation rate would only slow down and start reversing in 2030. That said, even if this did not materialise, while ageing may not seem to be overly affecting the Maltese labour market on aggregate, it is definitely affecting some important economic sectors.

Table 1 shows the proportion of full-time employees who are aged fifty and over broken down by sector and by occupational category. These data indicate that the share of older workers in the public administration sector, in wholesale and retail, and in administrative and support services has grown by 4 percentage points over a decade. A larger relative increase was observed in the agricultural and fisheries workforce. Manufacturing, construction and financial services have also experienced an ageing full-time workforce. By contrast relatively new services sectors, such as remote gaming, information and communication and professional services have witnessed a decline in the proportion of older workers.

Turning to occupational categories, relatively more manual workers are aged fifty and over than a decade ago. Conversely the age profile of skilled non-manual workers has shifted somewhat to younger ages. That said, it is important to emphasise that when one looks at absolute numbers there has been a very substantial rise in the older workforce in all sectors and in all occupational categories. The number of male full-timers aged fifty and over has risen from approximately 26,000 in 2008 to nearly 33,000 in 2018, while the female workforce in that age bracket more than doubled from 7,000 to over 14,000. Thus while the share of the 50+ in the professional category dropped by two percentage points in the decade to 2018, in absolute numbers older professionals increased by nearly 70%. By contrast the actual number of plant and machine operators aged over fifty fell, even though their relative share within that occupational category rose.

**Table 1: Share of full-timers aged fifty and over by sector and occupational category**

	<b>2008</b>	<b>2018</b>
<b>Sectors</b>		
Agriculture, Forestry & Fishing	37%	44%
Mining & Quarrying	35%	29%
Manufacturing	20%	21%
Construction	28%	29%
Wholesale & Retail Trade; Repair	21%	24%
Transportation & Storage	26%	25%
Accommodation & Food Service Activities	22%	20%
Information & Communication	14%	11%
Financial & Insurance Activities	14%	16%
Real Estate Activities	25%	26%
Professional, Scientific & Technical Activities	15%	14%
Administrative & Support Service Activities	21%	25%
Public Administration, Defence & Social Security	25%	29%
Education	23%	22%
Human Health & Social Work Activities	24%	23%
Arts, Entertainment & Recreation	15%	7%
Other Service Activities	25%	22%
<b>Occupational categories</b>		
Armed Forces	13%	4%
Managers	32%	31%
Professionals	21%	19%
Technicians and Associate Professionals	16%	19%
Clerks and support workers	15%	15%
Services and sales workers	19%	20%
Skilled Agricultural, fishery and forestry workers	38%	40%
Craft and related trades workers	27%	28%
Plant and machine operator and assemblers	21%	23%
Elementary Occupations	29%	31%
<b>Overall</b>	<b>23%</b>	<b>22%</b>

*Source: Author's estimates using Jobsplus data*

The distribution of older workers across sectors and occupational categories is similar to that of the overall workforce. However, there are some differences (see Table 2). The workforce aged over fifty is much likelier to occupy the two ends of the occupational spectrum, i.e. to be in a managerial position or have an elementary job. Younger workers, by contrast, are more concentrated in professional, clerical and sales categories. Older workers are more likely to work in public administration and construction, while a larger share of younger employees are engaged in information, communication and remote gaming.



**Table 2: Shares by age of full-timers (by sector and occupational category) in 2018**

	<b>50 and over</b>	<b>All ages</b>
<b>Sectors</b>		
Agriculture, Forestry & Fishing	2%	1%
Mining & Quarrying	0%	0%
Manufacturing	10%	10%
Construction	8%	6%
Wholesale & Retail Trade; Repair	14%	13%
Transportation & Storage	6%	5%
Accommodation & Food Service Activities	6%	7%
Information & Communication	2%	4%
Financial & Insurance Activities	4%	5%
Real Estate Activities	1%	1%
Professional, Scientific & Technical Activities	5%	7%
Administrative & Support Service Activities	10%	9%
Public Administration, Defence & Social Security	19%	15%
Education	4%	4%
Human Health & Social Work Activities	4%	4%
Arts, Entertainment & Recreation	2%	5%
Other Service Activities	2%	2%
<b>Occupational categories</b>		
Armed Forces	0%	1%
Managers	13%	9%
Professionals	15%	18%
Technicians and Associate Professionals	12%	13%
Clerks and support workers	10%	14%
Services and sales workers	14%	16%
Skilled Agricultural, fishery and forestry workers	1%	1%
Craft and related trades workers	10%	8%
Plant and machine operator and assemblers	6%	6%
Elementary Occupations	20%	14%

*Source: Author's estimates using Jobsplus data*

This suggests that even if recent developments in female participation and migration continue, there are particular sectors of the Maltese economy where ageing will impact activity. In fact, the data in Tables 1 and 2 suggest that it is likely that some sectors such as public administration, agriculture, construction and manufacturing will face significant labour shortages once their older workforce retires. Similarly, the supply of manual workers could worsen, in the absence of higher migration or policies that counter the effects of ageing.

## Have pension age changes helped boost activity rates?

Policymakers have tried to counter the impact of ageing on the labour supply by lengthening working lives, primarily by raising pension ages. In 2006, the Maltese Government enacted an increase in the pension age from 61 for men and 60 for women to 65 for both genders by 2026. The effects of this policy were studied in Grech (2017) on the basis of labour market data available after the first increase in the pension age in 2012. The study had estimated that by 2026, the pension age rise would have boosted the labour supply by 3.6 percentage points. It makes sense to revisit these estimates now that there are labour market data covering the period after the second increase in pension age in 2017. Moreover, given the previous observation regarding the different distribution of older workers by occupation and sector, it may be more appropriate to study the impact of pension age changes at a more disaggregated level than that in Grech (2017).

Chart 2 shows the number of registered employed and unemployed at the ages affected by the change in pension legislation, namely 60, 61 and 62 for women and 61 and 62 for men. Contrary to Grech (2017) these data from the national employment register also cover persons with just a part-time job. This reveals an interesting trend. The number of men working part-time tends to spike in the year subsequent to reaching pension age (e.g. in 2016 there were 98, 258, and 272 men aged 61, 62 and 63 respectively working only part-time; in 2017 after the pension age rose there were 105, 103 and 334 part-time men aged 61, 62 and 63 respectively<sup>2</sup>). This could either be because men retire from their full-time job but keep their existing part-time jobs, or else because some of them shift to part-time work. This phenomenon is not observed for women.

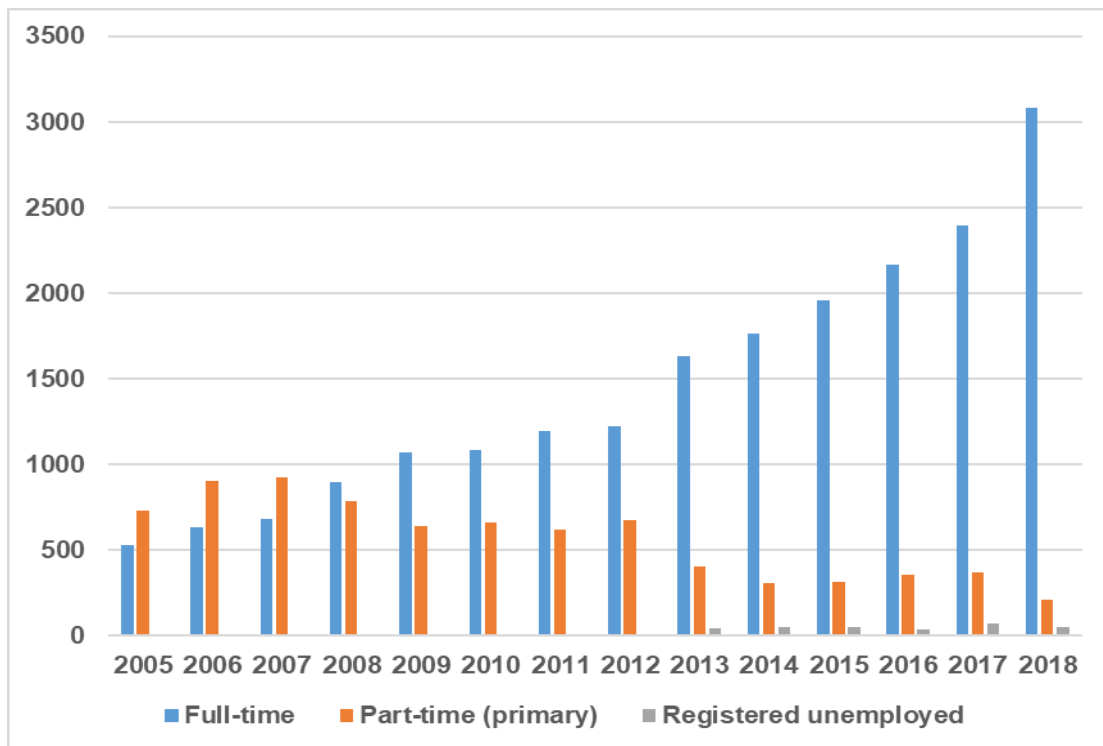
Thus when one focuses on these age brackets, between 2011 and 2018 there was a decline of 413 men working only part-time (-67%), as against a rise of 407 women (+88%). Turning to full-time workers, there was a rise of 1,892 for men (+59%) and 1,369 (+97%) for women. The rise in the pension age also meant that some people started to register for work at these new ages (51 men and 56 women). Taking these trends together, the registered labour supply in the age brackets directly affected by the pension age was nearly 3,000 higher than in 2011, a rise of 113%. The number of persons aged 60, 61 and 62 who were active in 2018 were 2.6% of the labour force, as against 1.6% in 2011. This age bracket, in fact, accounted for 5% of the entire rise in the labour supply during these years.

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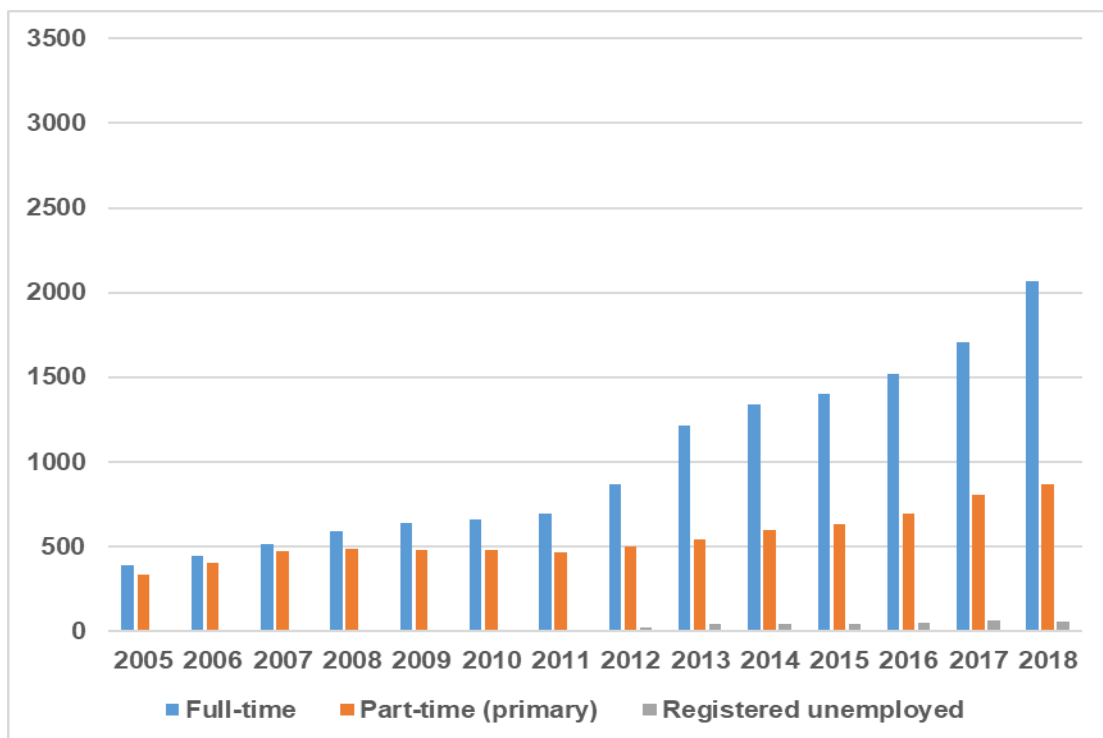
<sup>2</sup> A similar shift occurred when the pension age was first increased.

**Chart 2: Registered employed and unemployed**

**Men (age 61 and 62)**



**Women (age 60,61 and 62)**

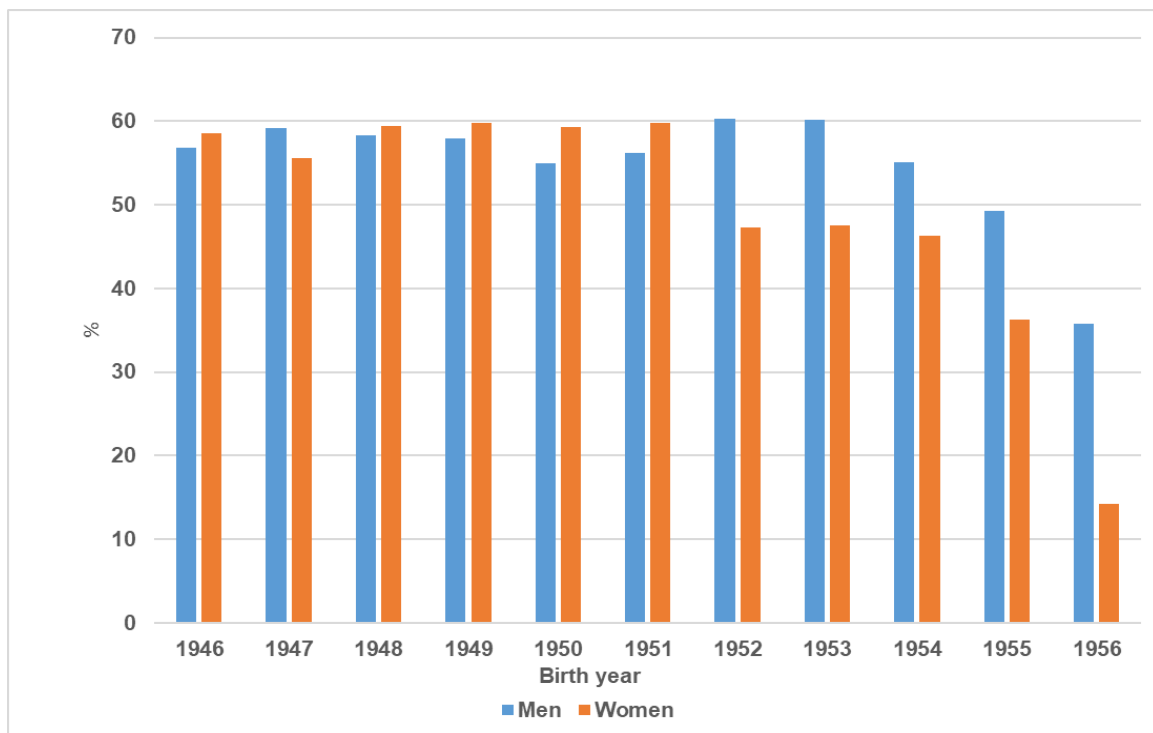


Source: Author's estimates using Jobsplus data

Looking at the rise in the number of those working beyond the pre-reform pension ages may, however, not be an appropriate measure of the impact of the change in legislation. As the Maltese population is ageing and participation rates, particularly of women, are rising, even if the pension age had remained unchanged it is likely the number of workers aged over 60 would still have risen. To account for this, one can look at how the labour market behaviour of specific birth cohorts differ. For women born on or before 1951, the pension age was 60, while for men born in those years it was 61. The pension age rose to 62 for members of both genders born between 1953 and 1955, and to 63 for those born between 1956 and 1958.

Chart 3 shows that nearly 60% of women and 56% of men born in 1951 – that is persons unaffected by the pension age rise - who had been active at ages 60 and 61 left the labour force by the time they reached age 63. For those born in 1956 the labour force dropout rates declined to 14% for women and 36% for men. This indicates that the pension age changes had a very significant impact on labour market behaviour. If labour force exit rates had remained unchanged after 2012, the labour force aged fifty and over would have been nearly 3,500 (or 8%) less than it actually was. The bulk of the difference was in men and women aged 61 and 62. In 2018 there were 1,920 more persons of this age group working than if the labour exit rates had remained the same as in 2012.

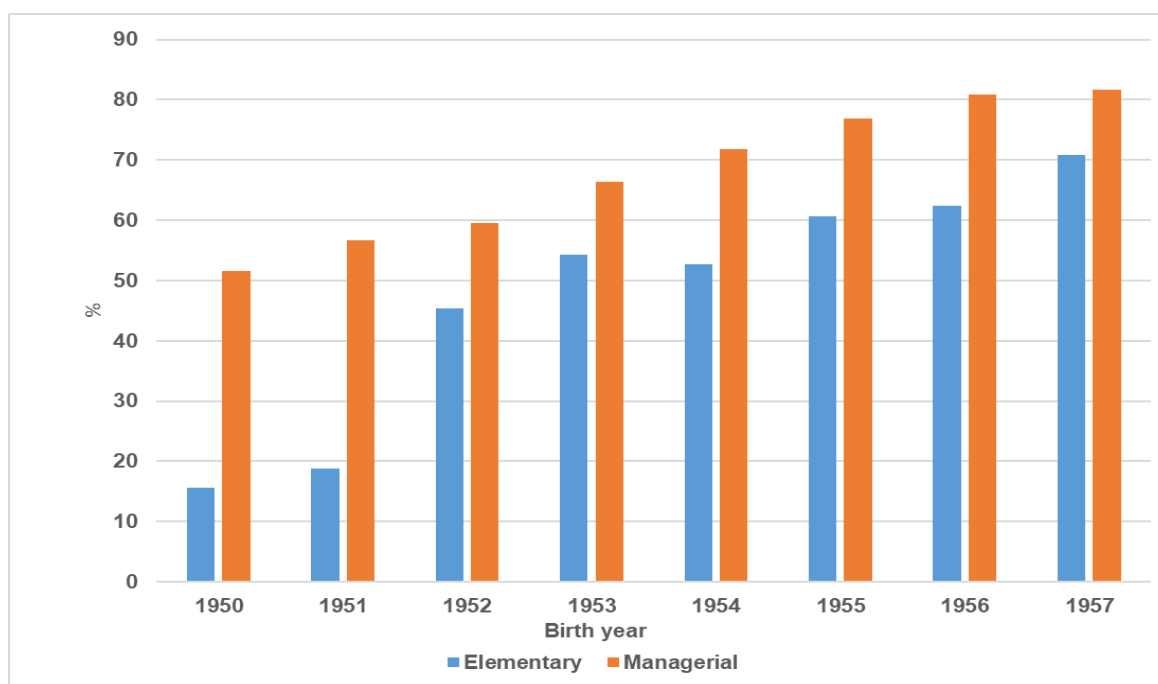
**Chart 3: Proportion by birth year cohort of those active one year before pre-reform pension age who drop out of labour force by age 63**



Source: Author's estimates using Jobsplus data

The provision of an early exit age in the 2006 pension reform, and its retention after the 2016 changes, was based on the consideration that workers in certain occupations and sectors would find it very hard to adjust to rises in the pension age. In particular, policymakers felt that manual workers and those employed in sectors such as construction would end up leaving their jobs before they reached pension age.

**Chart 4: Proportion by birth year cohort of men active at age 55 who remain in full-time employment after age 61 (selected occupations)**



*Source: Author's estimates using Jobsplus data*

Chart 4 shows that looking at men born in 1951, of those who were working in elementary occupations at age 55, only 19% remained in full-time employment after they reached age 61. By contrast of the cohort born in 1957, 71% remained in employment after they reached age 61. Turning to men born in 1951 who were working as managers at age 55, only 57% stayed in this kind of full-time employment after they reached age 61. For the cohort born in 1957, the proportion stood at 82%. This confirms that while the labour market drop-out rates for the two ends of the occupational spectrum was very pronounced before the pension age rises took place, standing at 38 percentage points, in just a few years this difference fell to 11 percentage points. The 1957 cohort working in elementary occupations had a much higher participation rate at age 61 than the 1951 cohort who worked as managers. Even stronger results are observed when focusing on women working in the same occupations.

If one looks at full-time employment beyond the early exit age, the narrative is similar. Table 3 shows the proportion by birth cohort of those working as full-timers one year before the pre-reform pension age who leave full-time employment in the same occupational category by age 63. Whereas less than a third of male professionals born in 1951 continued to work in the same occupation when they reached age 63, the proportion rose to 74% for those born in 1956. Similarly, amongst male workers of the same birth cohorts who worked as plant and machine operators, the rise was from 38% to 63%. The trends observed for female workers are even more significant. Even before the pension age rise, the occupational category gradient in labour drop-out rates was already smaller for women than it was for men. After the changes, women employed in the more manual occupational categories are tending to remain more in employment than those working in non-manual full-time jobs.

**Table 3: Proportion (%) by birth year cohort of those active one year before pre-reform pension age who remain active by age 63 (by occupational category)**

**Men**

	'46	'47	'48	'49	'50	'51	'52	'53	'54	'55	'56
Armed Forces	0	8	0	0	0	0	0	0	0	0	100
Managers	35	53	49	46	54	51	56	58	66	65	81
Professionals	28	29	35	40	35	30	39	34	42	46	74
Technicians	25	20	32	23	32	27	32	34	41	45	68
Clerks and support	19	21	27	28	20	20	27	23	27	34	55
Services and sales	15	26	41	33	40	38	43	35	35	48	58
Skilled agriculture/fishery	35	47	17	37	30	63	20	78	32	67	67
Craft & related trades	18	22	15	23	28	22	23	27	34	34	58
Plant/machine operators	9	20	18	18	26	38	27	29	36	37	63
Elementary Occupations	10	15	13	16	18	20	17	19	23	31	61

**Women**

	'46	'47	'48	'49	'50	'51	'52	'53	'54	'55	'56
Armed Forces	0	0	0	0	0	0	0	0	0	0	0
Managers	45	35	51	52	40	43	74	62	56	63	80
Professionals	9	17	18	15	19	14	26	19	20	34	74
Technicians	30	17	13	15	33	25	45	63	42	55	83
Clerks and support	22	21	31	33	27	37	38	44	54	60	86
Services and sales	35	43	36	41	30	34	51	57	74	68	100
Skilled agriculture/fishery	100	33	33	25	0	0	0	0	0	67	100
Craft & related trades	40	20	50	50	33	43	33	20	41	90	100
Plant/machine operators	10	8	7	30	12	67	60	33	60	89	91
Elementary Occupations	24	30	30	27	22	35	46	48	45	55	90

Source: Author's estimates using Jobsplus data

**Table 4: Proportion (%) by birth year cohort of those active one year before pre-reform pension age who remain active by age 63 (by economic sector)**

**Men**

	'46	'47	'48	'49	'50	'51	'52	'53	'54	'55	'56
Agriculture & Fishing	15	33	62	60	52	72	41	59	75	69	55
Mining & Quarrying	25	29	25	45	71	50	50	50	40	0	25
Manufacturing	15	19	19	24	26	25	23	28	29	37	58
Construction	15	19	13	13	18	14	20	24	29	33	61
Wholesale & Retail Trade	27	46	40	46	46	49	47	46	51	53	65
Transportation & Storage	13	25	35	32	25	32	33	34	44	40	66
Accommodation & Food	17	31	34	33	49	37	34	34	41	43	50
Info. & Communication	15	12	23	41	24	33	53	19	52	46	66
Financial & Insurance	30	30	38	29	53	38	57	50	53	53	85
Real Estate Activities	27	30	50	50	64	37	36	50	55	60	90
Professional, Scientific	35	52	65	62	65	60	56	68	68	83	83
Administrative & Support	41	41	36	37	58	41	37	41	43	88	73
Public Administration	19	17	17	13	13	14	16	17	17	28	66
Education	45	60	29	30	50	58	31	72	58	46	63
Health & Social Work	8	4	47	53	45	35	58	30	32	35	81
Arts, Entertainment	35	29	31	29	35	30	37	35	33	65	91
Other Service Activities	25	35	36	46	46	19	70	47	65	39	86

**Women**

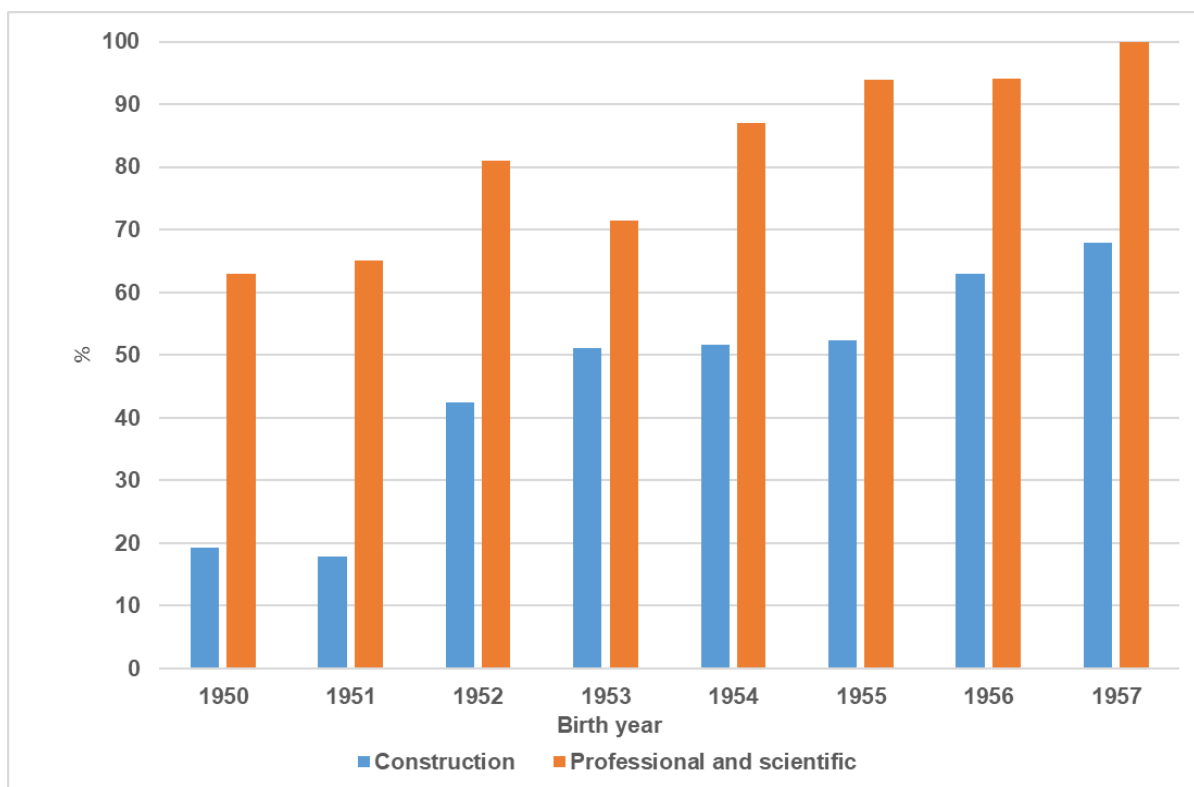
	'46	'47	'48	'49	'50	'51	'52	'53	'54	'55	'56
Agriculture & Fishing	67	30	50	20	44	43	67	57	67	50	100
Mining & Quarrying	0	0	0	0	0	0	0	100	0	0	100
Manufacturing	23	31	25	32	21	78	48	49	45	60	90
Construction	25	17	30	67	25	50	67	100	67	100	100
Wholesale & Retail Trade	45	33	59	65	41	48	59	69	62	65	87
Transportation & Storage	20	13	29	10	43	40	25	27	64	100	87
Accommodation & Food	15	28	43	38	26	31	64	44	46	53	88
Info. & Communication	0	25	0	17	100	80	33	17	33	43	100
Financial & Insurance	17	40	50	27	38	21	56	70	50	31	65
Real Estate Activities	27	100	67	0	20	25	0	100	33	75	100
Professional, Scientific	14	64	45	25	75	44	64	44	64	79	82
Administrative & Support	67	35	27	47	45	56	57	70	85	100	100
Public Administration	14	14	18	11	11	10	23	20	18	27	68
Education	25	25	20	25	23	28	43	32	53	45	83
Health & Social Work	13	13	11	26	32	23	32	36	43	43	82
Arts, Entertainment	33	50	38	100	0	20	43	0	57	100	100
Other Service Activities	60	52	41	50	50	67	87	67	59	79	100

Source: Author's estimates using Jobsplus data

Table 4 shows a breakdown by economic sector of full-time employment rates post the pre-reform pension age. This confirms that typically men working in construction had the lowest tendency to remain in full-time employment after they became 61. Interestingly men working in public administration had the same rate. This was only slightly higher than the proportion of women working full-time in the same sector, indicating that the practise in this sector was to retire at pension age. In the following years, the drop-out rates of both construction and public administration workers declined significantly. Post-61 full-time employment rates improved substantially in many other sectors, ranging from manufacturing to financial services to real estate and to health.

However, Chart 5 indicates that while there was a considerable rise in the proportion of men who continued working past the early pension age in both construction and professional and scientific sectors, the gap narrowed at a less pronounced pace than the trend observed amongst occupations. This suggests that certain sectors have been e prone to have an increase in post-61 activity than others. The employment culture within a sector may be a more important determinant of longer careers than the type of occupation that one has.

**Chart 5: Proportion by birth year cohort of men active at age 55 who remain in full-time employment after age 61 (selected sectors)**



*Source: Author's estimates using Jobsplus data*



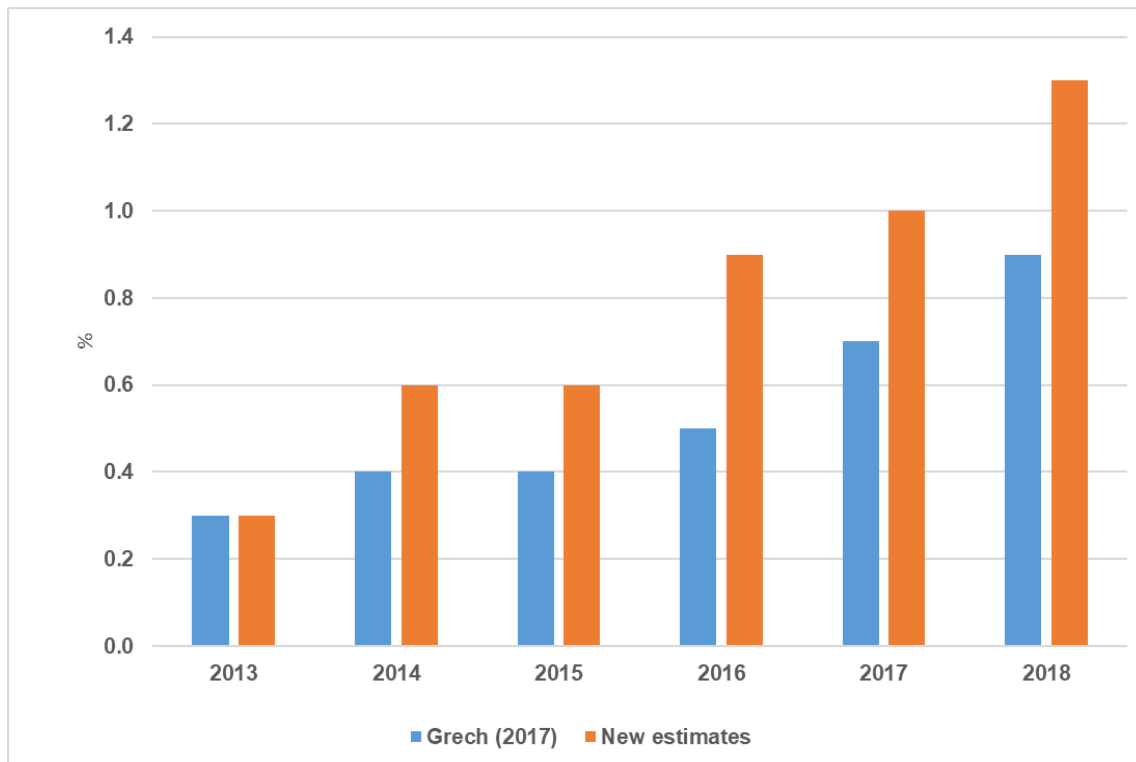
## **What was the economic impact of pension age changes?**

Grech (2017) had projected that if the changes that had accompanied the first rise in pension age continued, by 2018 the labour supply would be boosted by 1.6%. This is equivalent to slightly less than 3,500. This is essentially the same as the estimate made in this policy note. On that basis one could assume that the predictions of the economic impact of pension age changes made in Grech (2017) remain valid. However, the latter study assumed that the productivity of each person who stayed active was the same and stood at the average for the rest of the population. With the type of disaggregated labour data that are now available, this assumption can be modified substantially to reflect the type of sectors in which the affected workers operate.

The first step was to assume that in each sector dropout rates for persons aged 55 and above remained stable at their level in 2012. The resulting difference in the number of employed by sector was then multiplied by the value added per employee in that respective sector. To refine this measure further, the value added per employee in each sector was adjusted to reflect the relative shares of the different occupational categories (also taking into consideration gender differences in wages). Labour Force Survey data were used to compare the average wages of the different occupational categories and thereafter come up with adjustment factors for value added per employee on the basis of the assumption that a difference in wages is reflective of a different level of productivity. For instance, if the wages of female managers amount to 164% of the average overall wage across the economy, the value added per employee attributed to women in this category in a particular sector was adjusted upwards accordingly.

Chart 6 compares the estimates of the impact on GDP of increased activity due to the first two pension age rises made in Grech (2017) with those that arise when one tries to take better into account the occupational and sectoral breakdown of those who lengthened their career. By 2018, while Grech (2017) was estimating an impact of 0.9 percentage points of GDP, the new estimates suggest something closer to 1.3 percentage points. If the latter estimates are correct, on average the pension age rise contributed 0.22 percentage points to the annual growth in gross value added that occurred between 2013 and 2018.

**Chart 6: Impact on GDP of increased activity due to pension age rise**

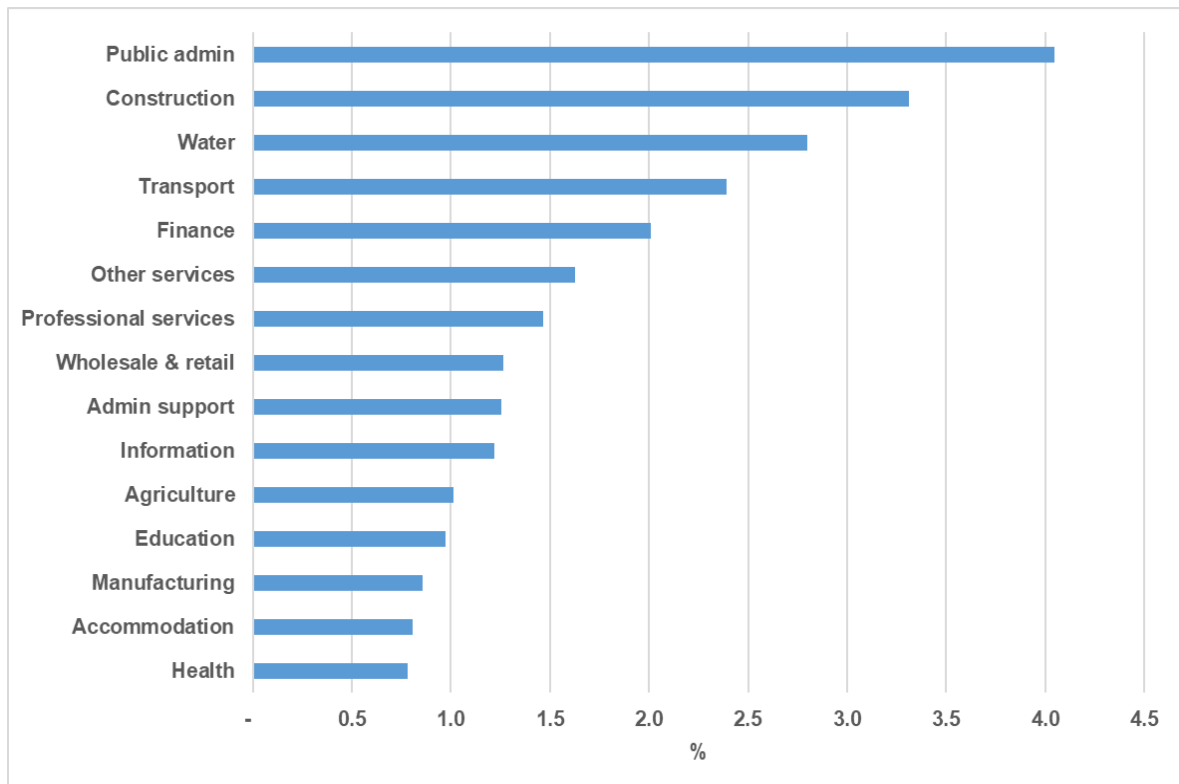


*Source: Author's estimates and Grech (2017)*

The increased labour supply had very different impacts on the output of the various sectors that constitute the Maltese economy (see Chart 7). As was shown in the previous two sections of this policy note, dependence on older workers varies across sectors, and the behavioural response to the pension age increases also differed. Growth in value added in a number of sectors, such as online gaming, was relatively unaffected. Conversely in several important areas, the lengthening of careers following the pension age changes was key. For instance, it is estimated that just over 4% of public administration value added in 2018 was due to public sector workers changing their behaviour and working beyond the early exit age of 61. The positive impact on construction, water distribution, transport and the financial sectors was also very pronounced, standing at between one and a half times and three and a half times the average impact estimated for the overall economy.

In some sectors the fact that more workers continued in employment beyond the age of 61 can explain a significant proportion in the growth in value added that occurred in the six years to 2018. In particular, this added work effort accounts for about a tenth in the growth in value added registered during this period for agriculture and fisheries, water distribution, construction, financial and insurance services and public administration.

**Chart 7: Proportion of sectoral value added due to the pension age rise**



*Source: Author's estimates*

Moreover, the sectors where the impact of the pension age rise appear to be most pronounced tend to be ones with strong income multiplier effects (see Rapa, 2017). They are also sectors with considerable backward and forward linkages.<sup>3</sup> Cassar (2017), for instance, shows that water distribution is the sector with the strongest forward linkages followed by transport, while construction has the second-strongest backward linkages. This suggests that the somewhat static analysis conducted in this policy note may possibly even underestimate the actual economic impact of the pension age changes.

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<sup>3</sup> A sector's backward linkages denote the fact that a sector purchases inputs from other industries for its production process while its forward linkage captures the fact that the same sector also supplies inputs to other industries. These linkages can be conceived as not just capturing flows of intermediate inputs but also reflecting subcontracting, service collaborations and the sharing of resources.

## References

Cassar, I.P. (2017), "Assessing structural change in the Maltese economy via the application of a hypothetical extraction analysis", Central Bank of Malta Working Paper WP/01/2017.

Grech, A.G. (2017), "The impact of pension age changes – The case of Malta", *Intereconomics*, 52(1): 57-62.

Micallef, B. (2018), "Estimating the impact of structural reforms to increase the female participation in Malta", *International Journal of Social Science Studies*, 6(8): 73-84.

Rapa, A.M. (2019a), "Developments in the foreign workforce in Malta", *Central Bank of Malta Quarterly Review*, 2019(4): 35-40.

Rapa, A.M. (2019b), "The effect of foreign workers and the pension reform on the participation rate: A cohort approach", *Central Bank of Malta Quarterly Review*, 2019(3): 30-35.

Rapa, N. (2017), "Estimates of industry specific multipliers", *Central Bank of Malta Quarterly Review*, 2017(2): 19-23.