

# Channels Affecting the Labour Market Outcomes of Older Resident Workers

## Introduction

Singapore's population is rapidly ageing. By 2030, one in four Singaporeans will be aged 65 and older, from one in eight in 2015 (Department of Statistics, 2022). This could result in a heavier economic burden on a smaller base of working-age residents (Ministry of Trade & Industry, 2007). Improving the labour market outcomes (e.g., employment rates, wages) of older Singaporeans and extending their working lives has therefore become increasingly important.

A deeper understanding of the effects and channels of ageing on labour market outcomes can contribute to the design of policies aimed at supporting older workers as they age.

## Ageing can influence individuals' labour market outcomes through four channels

### 1) Human capital

First, older workers gain more skills and knowledge through work or training (i.e. human capital) with age, with those who remain with the same employer also developing firm-specific human capital. Such human capital accumulation will help to raise older workers' productivity (Becker, 1962). However, there may also be countervailing forces. For instance, as individuals age, they may face greater risks of skills obsolescence (de Grip & van Loo, 2002). Older individuals might also choose to reduce their skills upgrading efforts since there is a shorter runway to benefit from them (Ben-Porath, 1967).

### 2) Health

Second, workers' health might deteriorate with age (Skirbekk, 2008). This can in turn lead to a decline in productivity, and hence, the employment rates and wages of older workers.

Ageing can be accompanied by human capital accumulation



Ageing may coincide with worse health



Older workers may have increased preferences for retirement



Job characteristics can mediate the effect of ageing on labour market outcomes







### 3) Retirement

Third, as individuals age, they may be more likely to retire. Their retirement decision could be influenced by the norms set by the statutory retirement or re-employment age (Lee, Huang & Guo, 2017). On the other hand, instead of completely stopping work, older workers may choose to partially retire by taking on fewer responsibilities and reducing hours worked (Siegenthaler & Brenner, 2001).

### 4) Job characteristics

Lastly, the effect of ageing on labour market outcomes can be mediated by job characteristics such as the type of employment (e.g., employee, employer, own account worker<sup>1</sup>). Job characteristics can also interact with the first three channels above. For example, flexible work arrangements (FWAs) may help to meet some older workers' preferences to partially retire (Vanajan, Bültmann & Henkens, 2020).

## Four labour market outcomes are constructed using three waves of RHS data

 <b>Probability of employment</b>	 <b>Monthly real wages</b>
Reported by respondents	Reported by working respondents. Commensurate with the broad definition of employment, wages include salary and all other forms of income from work
 <b>Monthly hours worked</b>	 <b>Hourly real wages</b>
Derived from working respondents' responses on their usual hours worked; Reported data is converted to actual hours worked by accounting for sick leave, public holidays and annual leave	Obtained by dividing monthly real wages by monthly hours worked

Note: Wages are adjusted to 2019 dollars using the Consumer Price Index (CPI) for all items

<sup>1</sup> These are persons who operate their own business without employing any paid workers in the conduct of his business or trade.



Ageing is associated with a decline in the probability of employment

Ageing is associated with an increase in wages



Poorer health is associated with lower employment probability



Partial retirement is associated with lower wages

## Ageing is associated with a decline in the probability of employment...

Each year of ageing is associated with a 4.7 percentage-point (pp) decline in the probability of employment (Figure 1), holding other factors constant<sup>2</sup>.

## ...though workers who remain employed experience real wage growth

Monthly real wages rose (0.8%) with each year of age for those who were still employed. This was due to a rise in hourly real wages (1.7%), which more than offset a decline in hours worked (-0.9%).

As these findings pertain to those who were still employed, they suggest that older workers accumulate human capital as they work, which then translates to real wage growth. The results also show that each additional year of tenure within the same firm is associated with increased monthly real wages (0.7%) and hourly real wages (0.5%), potentially reflecting firm-specific human capital accumulation.

## Poorer health and partial retirement reduces employment and wages

Poorer self-reported health is correlated with a decline in employment probability (-2.2pp) as well as hourly real wages (-2.5%). This is true for other health measures from the RHS survey, and suggest that health is an important factor that determines whether individuals are productive at work.

Moreover, transitioning into partial retirement is associated with a decline in monthly real wages, driven by a fall in the number of hours worked. These estimates are similar regardless of whether individuals entered partial retirement voluntarily or non-voluntarily.

<sup>2</sup> Controlling for individual fixed-effects removes birth cohort effects that would confound analyses using pooled-cross sectional data.



Figure 1: Results for Effect of Ageing on Labour Market Outcomes

	Employment	Log(Monthly Real Wage)	Log(Hours Worked)	Log(Hourly Real Wages)
Age	-4.7pp***	0.8%***	-0.9%***	1.7%***
Tenure	n.a.	0.7%***	0.3%***	0.5%***
Poor Health	-2.2pp***	-1.5%	1.1%	-2.5%*
Voluntary Partial Retirement	n.a.	-15.5%***	-16.8%***	1.3%
Non-voluntary Partial Retirement	n.a.	-19.8%***	-16.1%***	-3.7%

Statistical significance: \*\*\* p<0.01, \*\* p<0.05, \*p<0.10

Wages rose with age for employees and own account workers



Reaching the retirement age is associated with decline in wages



Reaching the re-employment age is associated with decline in employment probability



### Hourly real wages rose with age across all employment types

Delving deeper into the age effects by employment types, we find that the hourly real wages of older workers in all employment types rose with age, although the increases for contributing family workers and employers were statistically insignificant (Figure 2, Panel A). At the same time, employers and own account workers were most able to reduce their working hours.

### FWAs helped older workers reduce their work hours

Likewise, the availability of FWAs allowed older workers to reduce their work hours (-3.7%) without a fall in hourly real wages (Figure 2, Panel B). This suggests that FWAs could play an important role in supporting the continued employment of older workers by accommodating their preferences for reduced work hours.

### The retirement and re-employment ages influence wages and employment

Reaching the retirement age of 62 is associated with a discontinuous fall in monthly (-4.0%) and hourly (-3.4%) real wages, without any statistically significant impact on the probability of employment (Figure 2, Panel C). This could reflect a step-down in job responsibilities taken on by individuals upon reaching retirement age.

By contrast, reaching the re-employment age of 67 is associated with a decline in employment probability (-11.0pp). These results suggest that the re-employment age may have encouraged older workers to work until 67, possibly by setting a social norm around when individuals should retire (Lee, Huang & Guo, 2017).



**Figure 2: Results by Employment Types, FWAs and Retirement & Re-employment Age Cut-offs**

	Employment	Log (Monthly Real Wages)	Log (Hours Worked)	Log (Hourly Real Wages)
<b>Panel A</b>				
Age x Employee	-4.5pp***	1.0%***	-0.5%**	1.5%***
Age x Own Account Worker	-3.3pp***	0.4%	-2.9%***	3.3%***
Age x Employer	-6.2pp***	-2.2%**	-3.7%***	1.5%
Age x Contributing Family Worker	-8.1pp***	3.7%*	0.5%	3.2%
<b>Panel B</b>				
Age	-4.7pp***	0.8%***	-0.9%***	1.7%***
FWAs	n.a.	-3.5%***	-3.7%***	0.3%
<b>Panel C</b>				
Age	-4.4pp***	1.1%***	-0.8%***	1.9%***
I(Age ≥ 62)	-1.3pp	-4.0%**	-0.5%	-3.4%*
I(Age ≥ 67)	-11.0pp***	-3.4%	-0.5%	-2.9%

Statistical significance: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$

Note: For the employment outcome variable, health was added as a control in the regressions, while for wages and hours worked, health, partial retirement and tenure were added as controls.

## Conclusion

While the probability of employment declined with age, hourly real wages continued to increase if the older workers remained in employment, especially within the same firm. This suggests that policies that help workers to stay in employment, such as training and upskilling programmes, can allow both firms and workers to benefit from accumulated human capital.

As older workers may prefer to reduce their work intensity as they age, work arrangements that allow them to flexibly adjust their hours worked, such as FWAs, can support their continued participation in the labour market.

At the same time, the re-employment age may have encouraged older individuals to continue working beyond the retirement age. More broadly, to mitigate the impact of an ageing population, policymakers should continue to design inclusive and supportive policies that help older workers to continue to work if they are able and willing to.

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