

# The gender gap in income and the Covid-19 pandemic

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*Karina Doorley  
Cathal O'Donoghue  
Denisa M Sologon*

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# Introduction



# Introduction

- Gender income gap is largely the result of the gender wage gap (explained & unexplained) and the gender work gap (extensive & intensive)
- Wages of men and women converging but significant gap remains (raw gap of 15% in 2019)
- Gender differences in labour force participation (75 vs. 87%) and hours of work (34 vs. 40 per week) still sizable in the EU in 2019.
- Implications for poverty, inequality & bargaining power during working life and into retirement



# Introduction

- Previous research has shown that the gender income gap is cushioned by the tax-benefit system
  - Figari et al (2011) find variation in the level of within-couple equalisation by country
  - Doorley & Keane (2020) estimate that the tax-benefit system cushions the gender income gap in the EU by about 1/5.
  - Avram & Popova (2021) find that benefits equalise income more than taxes.



# How might the pandemic affect the gender gap in income?



- Women disproportionately
  - in low-paying and insecure jobs
  - engaging in child and elder care
  - Working in both locked-down sectors (hospitality) and essential sectors (healthcare)
- While tax-benefit systems do not discriminate between men and women, traditional divisions of work and caring mean they are not gender-neutral
  - Automatic stabilisers and new policies



## Related literature

- Most research suggests that women suffered more job and income loss due to the pandemic (Adams-Prassl et al, 2020; Andrew, et al., 2020; Fabrizio et al, 2021)
- Important cross-country differences
  - Women lost their jobs less than men in Japan, South Korea and the UK (Dang & Nguyen (2021))
  - Ireland was one of the few countries which saw a slight increase in women's labour supply relative to men's (Alon et al, 2021)



# This paper

- Estimate the gender income gap in Ireland prior to and during the three waves of the pandemic
- Isolate the components of the gender income gap (labour supply, wages, occupational structure)
- Estimate the cushioning effect of the tax-benefit system on the gender income gap before and during the pandemic



# The COVID-19 pandemic in Ireland



# Three waves

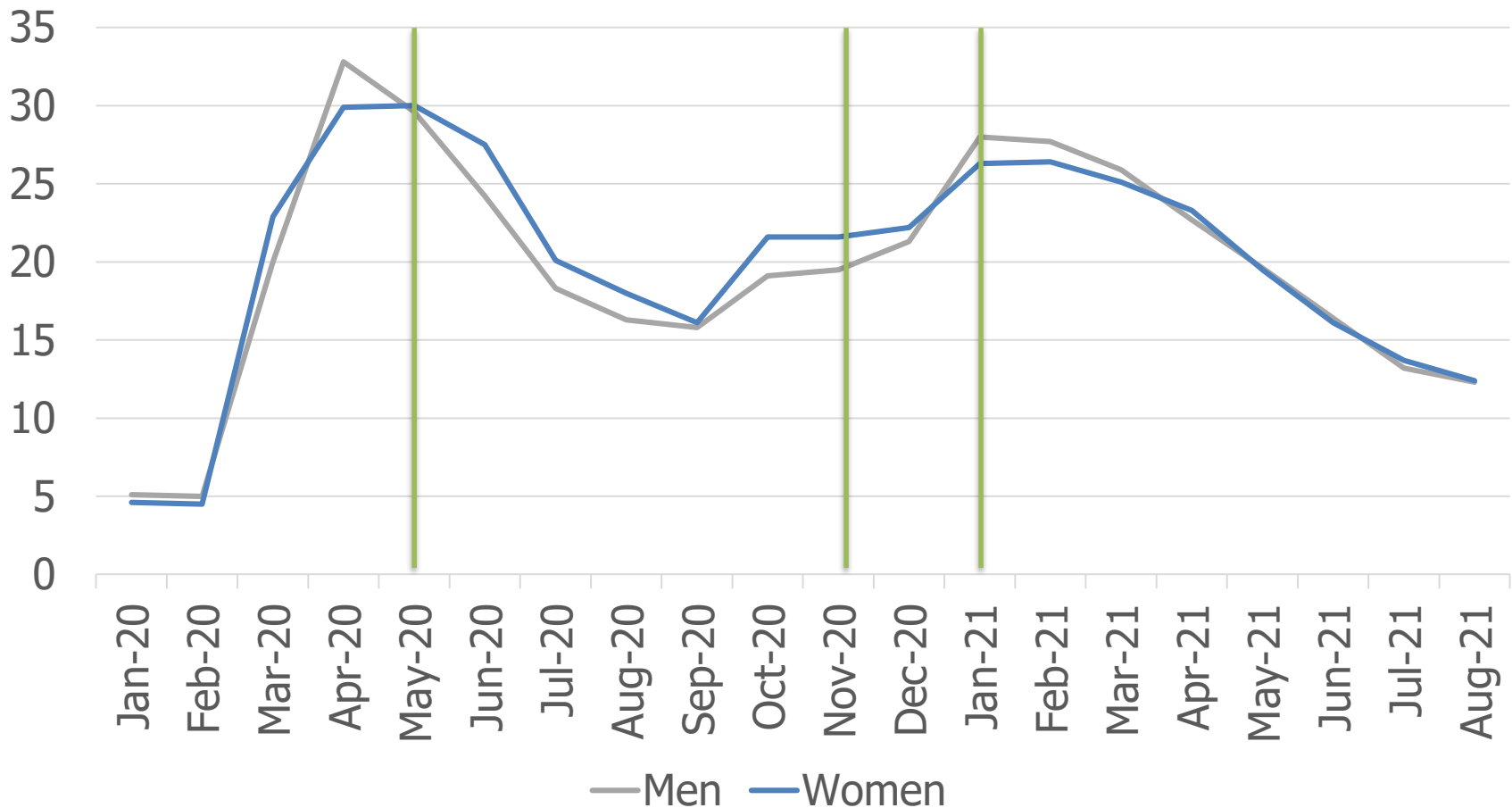
- May 2020: full lockdown
- November 2020: schools, childcare facilities and construction sector remained open
- January 2021: childcare for essential workers remained open



# Unemployment rates were reasonably similar for men and women...



Unemployment rate (15-74 yrs)

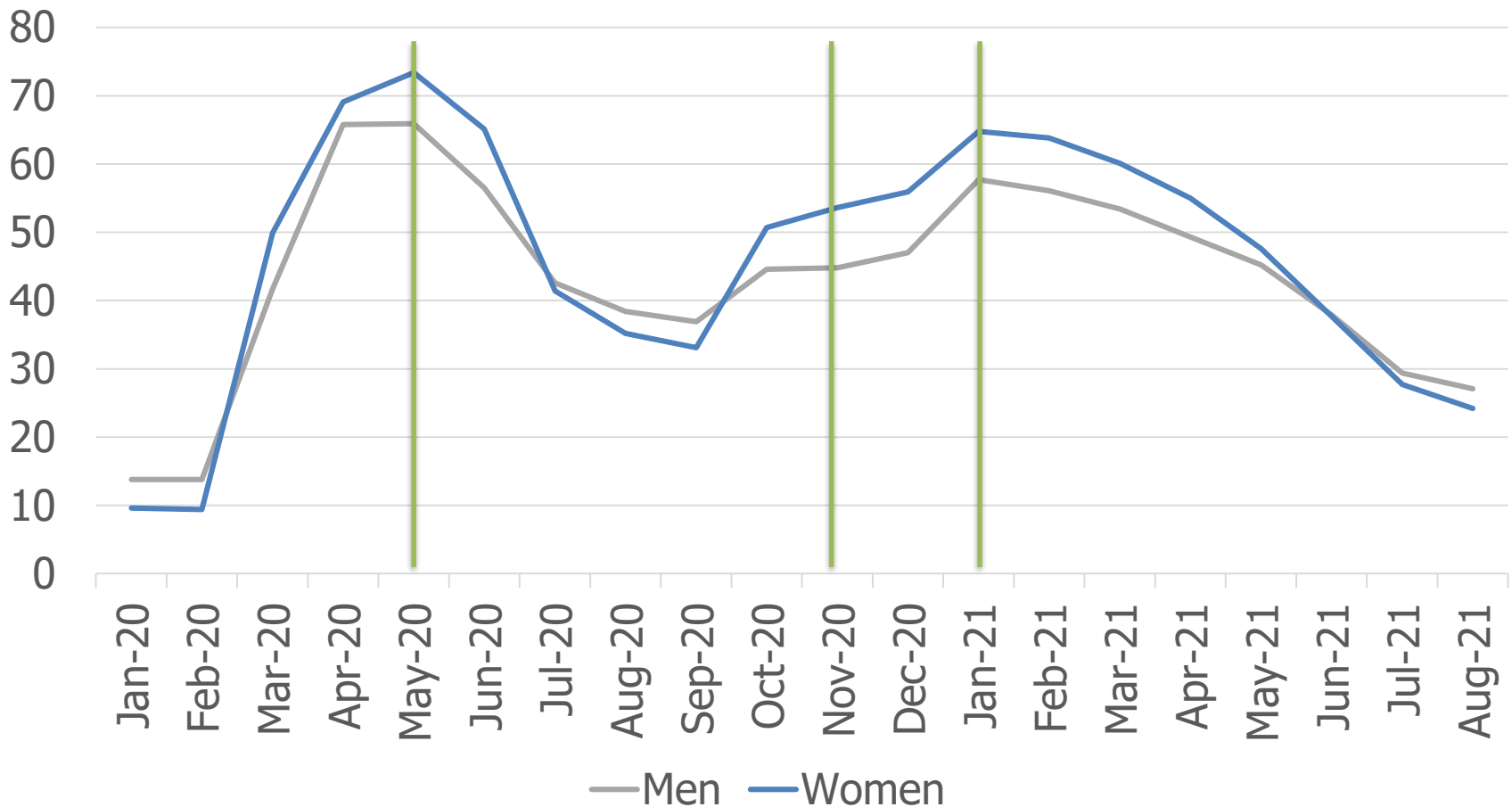




# ...but relatively higher among young women



Youth Unemployment Rate (15-24 yrs)





## Policy response

- Pandemic Unemployment Payment (PUP) – not contribution-based or means-tested. Initially, flat rate of €350 p.w., then tiered system based on previous earnings
- Wage subsidy scheme – proportion of net wage paid as subsidy to employers, rate similar to PUP, employer could pay top-ups. Employees could still work and be eligible.
- Enhanced Illness Benefit – waiting period abolished and payment increased to level of PUP



# Method



# Overview

- Use a nowcasting technique based on microsimulation (O'Donoghue & Loughrey, 2014)
  - Income distribution in December 2019, May 2020, November 2020, January 2021
- Estimate the gender income gap, it's evolution over the pandemic and the relative contributions of the market and tax-benefit system using a decomposition technique (Doorley & Keane, 2020).



## Method:

Household Income Generation Model (IGM)  
(O'Donoghue et al., 2020; Sologon et al. 2020).

Using 2017 SILC:

- Estimate parametric structure of the labour market for men and women separately
- Estimate parametric structure of income components for men and women separately
  - Simulated market income distribution



# Nowcasting

- Using calibration statistics from LFS; Live Register and Central Statistics Office, nowcast market income distribution in:
  - Dec 2019 (pre-pandemic)
  - May 2020 (wave 1)
  - Nov 2020 (wave 2)
  - Jan 2021 (wave 3)



# Estimate the gender income gap

- Using simulated market income distributions and microsimulation, estimate the gender gap in market ( $M$ ) and disposable ( $D$ ) income.

$$Gap_M = \bar{M}_m - \bar{M}_f$$

$$Gap_D = \bar{D}_m - \bar{D}_f$$

- Income sharing assumption that only family level benefits are shared between members of a couple
- We define the cushioning effect ( $C$ ) of the tax-benefit system on the gender income gap:

$$C = Gap_M - Gap_D.$$



# Counterfactual female income distributions



Construct counterfactual income distributions for women if

- They have male labour market participation; hours and wage structure
- They have male labour market participation; hours; wage structure and occupation/industry structure



# Decompose the gender gap in market income

- Using simulated and counterfactual market income distributions, the source of income differences between men and women can be identified

$$\bar{M}_m - \bar{M}_f = \underbrace{(\bar{M}_f^* - \bar{M}_f)}_{\text{work and wages}} + \underbrace{(\bar{M}_f^{**} - \bar{M}_f^*)}_{\text{occupation/industry}} + \underbrace{(\bar{M}_m - \bar{M}_f^{**})}_{\text{other}}$$

- $\bar{M}_f^*$  is the market income distribution of women if their employment, hours and wage followed the male structure
- $\bar{M}_f^{**}$  additionally adjusts the occupation and industry structure of women so that it follows that of men



# Decompose the cushioning effect of the tax-benefit system

- The source of the cushioning effect (taxes or benefits) can also be identified:

$$C = \underbrace{(Gap_M - Gap_{D^b})}_{benefits} + \underbrace{(Gap_M - Gap_{D^t})}_{taxes}$$

where  $Gap_{D^b}$  is the gender gap in market income plus benefits and  $Gap_{D^t}$  is the gender gap in market income net of tax.



# Results



# Men lost more employment while women saw larger wage decreases



	Men				Women			
	Pre-Covid	Wave 1	Wave 2	Wave 3	Pre-Covid	Wave 1	Wave 2	Wave 3
<b>Employment rate</b>	0.79	0.52	0.62	0.61	0.67	0.47	0.54	0.53
		<b>-34%</b>	<b>-22%</b>	<b>-23%</b>		<b>-30%</b>	<b>-19%</b>	<b>-21%</b>
<b>Weekly employee hours (predicted)</b>	31.3	20.5	24.7	24.6	21.2	15.3	17.3	17.2
		<b>-35%</b>	<b>-21%</b>	<b>-21%</b>		<b>-28%</b>	<b>-18%</b>	<b>-19%</b>
<b>Employee hourly wage (predicted)</b>	19.2	18.18	17.14	17.94	19.01	16.36	16.82	16.66
		<b>-5%</b>	<b>-11%</b>	<b>-7%</b>		<b>-14%</b>	<b>-12%</b>	<b>-12%</b>



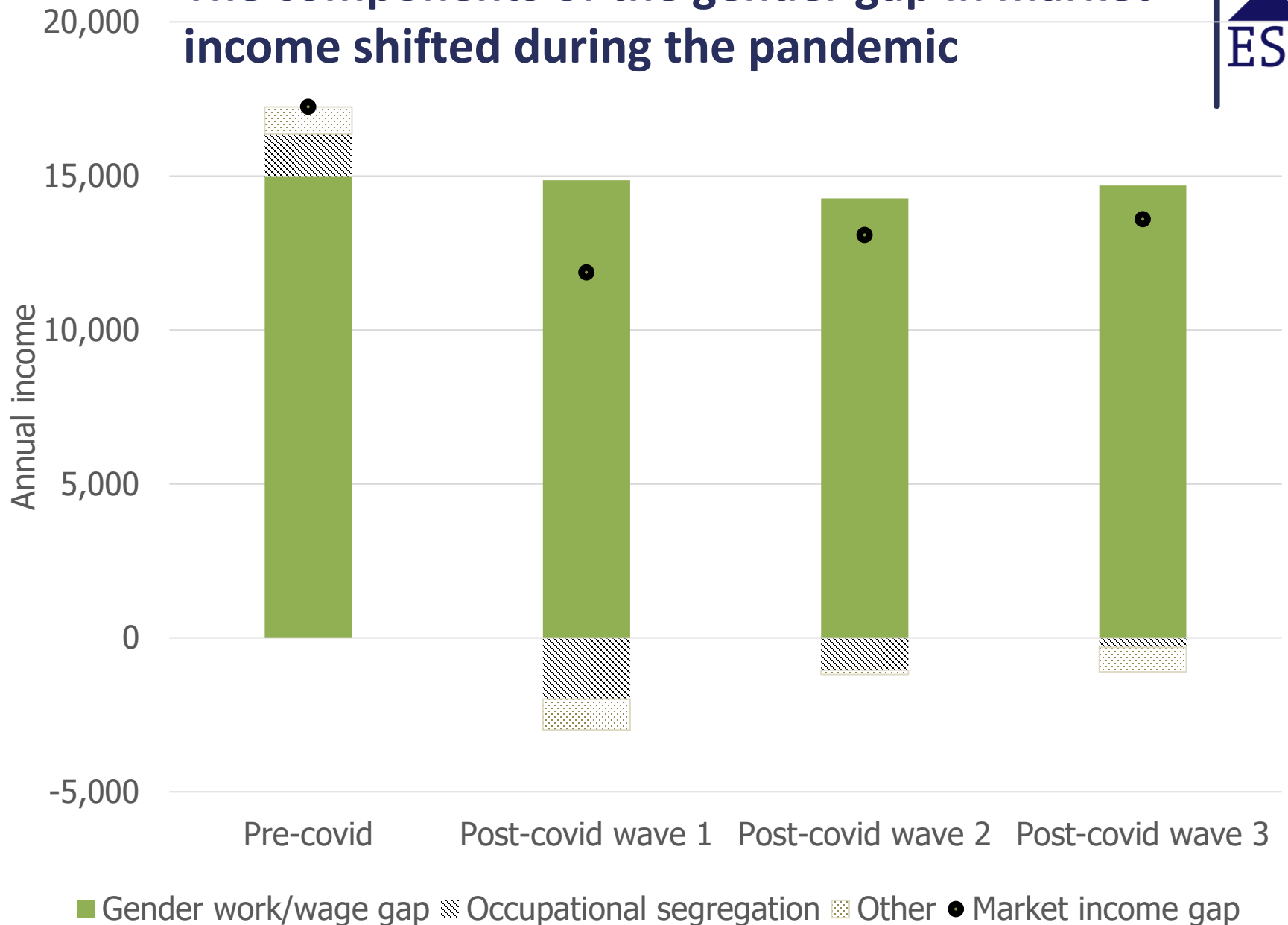
# Men benefited more from benefits during the pandemic



	Men				Women			
	Pre-Covid	Wave 1	Wave 2	Wave 3	Pre-Covid	Wave 1	Wave 2	Wave 3
<b>Market Income</b>	43,047	29,188	32,944	33,224	25,806	17,322	19,865	19,634
<b>Gender gap in Market Income</b>					<b>40%</b>	<b>41%</b>	<b>40%</b>	<b>41%</b>
<b>Benefits</b>	5,845	12,166	10,792	10,770	7,100	12,530	11,287	11,305
<b>Tax + Social security</b>	13,076	10,281	11,399	11,356	9,456	7,831	8,401	8,372
<b>Disposable income</b>	35,816	31,073	32,336	32,638	23,450	22,022	22,751	22,566
<b>Gender gap in Disposable income</b>					<b>35%</b>	<b>29%</b>	<b>30%</b>	<b>31%</b>

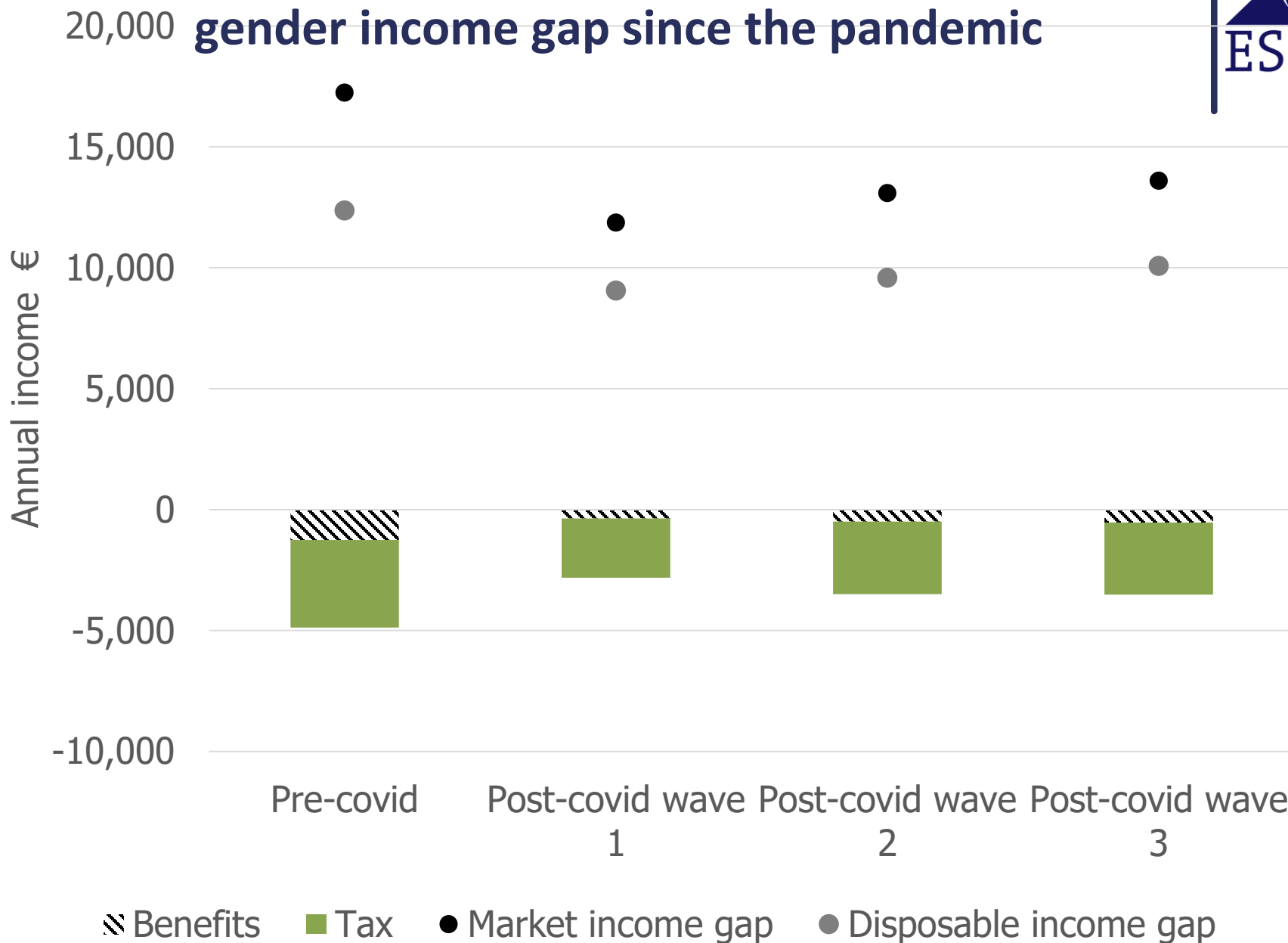


# The components of the gender gap in market income shifted during the pandemic





# Tax does relatively more cushioning of the gender income gap since the pandemic





# Conclusions



# Conclusions

- The gender gap in market income in Ireland was stable during the pandemic although men lost more employment than women and women saw larger wage losses than men
  - The main source of the gender income gap remained wage/work gaps
  - Occupational segregation worked in favour of women during the pandemic



# Conclusion

- The tax-benefit system cushioned the gender income gap by more during the pandemic than prior to the pandemic
  - Cushioning effect of benefits decreased (flat-rate and non means-tested PUP)
  - Automatic stabilisation by taxes contributed more



# Questions?

[karina.doorley@esri.ie](mailto:karina.doorley@esri.ie)



# The pandemic did not affect the relative gender gap in market income

			Employee hourly wage	Weekly work hours	Annual market income	Gender gap
<b>Pre-covid</b>	Men		19.2	31.3	43,047	
	Women	Predicted	19.0	21.2	25,806	40%
		Adjusted*	19.7	32.3	40,800	5%
		Adjusted**	19.0	32.3	42,172	2%
<b>Post-covid wave 1</b>	Men		18.2	18.2	29,188	
	Women	Predicted	16.4	15.3	17,322	41%
		Adjusted*	18.7	25.9	32,179	-10%
		Adjusted**	17.8	23.1	30,199	-3%
<b>Post-covid wave 2</b>	Men		17.1	24.7	32,944	
	Women	Predicted	16.8	17.3	19,865	40%
		Adjusted*	18.8	27.3	34,132	-4%
		Adjusted**	17.0	26.7	33,086	0%
<b>Post-covid wave 3</b>	Men		17.9	24.6	33,224	
	Women	Predicted	16.7	17.2	19,634	41%
		Adjusted*	19.0	27.4	34,323	-3%
		Adjusted**	17.4	26.7	34,014	-2%



# But it decreased the gender gap in disposable income by 5 ppt.

		Annual gross income	Annual market income - tax	Annual disposable income	Gender gap
<b>Pre-covid</b>	Men	48,892	29,971	35,816	
	Women Predicted	32,906	16,350	23,450	35%
	Adjusted*	47,262	26,901	33,363	7%
	Adjusted**	48,610	27,831	34,269	4%
<b>Post-covid wave 1</b>	Men	41,354	18,907	31,073	
	Women Predicted	29,852	9,491	22,022	29%
	Adjusted*	42,659	20,222	30,702	1%
	Adjusted**	41,911	18,359	30,071	3%
<b>Post-covid wave 2</b>	Men	43,736	21,544	32,336	
	Women Predicted	31,151	11,464	22,751	30%
	Adjusted*	44,293	21,699	31,859	1%
	Adjusted**	43,668	20,745	31,327	3%
<b>Post-covid wave 3</b>	Men	43,994	21,868	32,638	
	Women Predicted	30,938	11,262	22,566	31%
	Adjusted*	44,393	21,937	32,007	2%
	Adjusted**	44,612	21,401	31,998	2%



**MICRODATA FOR ESTIMATION AND SIMULATION: EU-SILC (2017)**

**EXTERNAL CALIBRATION STATISTICS**

Labour force  
survey

Live-Register  
data

CSO Official  
Statistics

Policy  
rules

**INCOME GENERATION MODEL**

**ESTIMATION: LABOUR MARKET  
MODULE**

Estimate parametric structure of  
the labour market (in work;  
employee; self-employed;  
occupation; industry; sector;  
prevalence of non-labour income)

Save parameter estimates and  
residuals – gender specific

**ESTIMATION: INCOME MODULE**

Estimate parametric structure of  
income components (wages; self-  
employment income; capital  
income; private pensions...)

Save parameter estimates and  
residuals – gender specific

**SIMULATION  
LABOUR  
MARKET  
STRUCTURE**

**SIMULATION  
INCOME  
COMPONENTS**

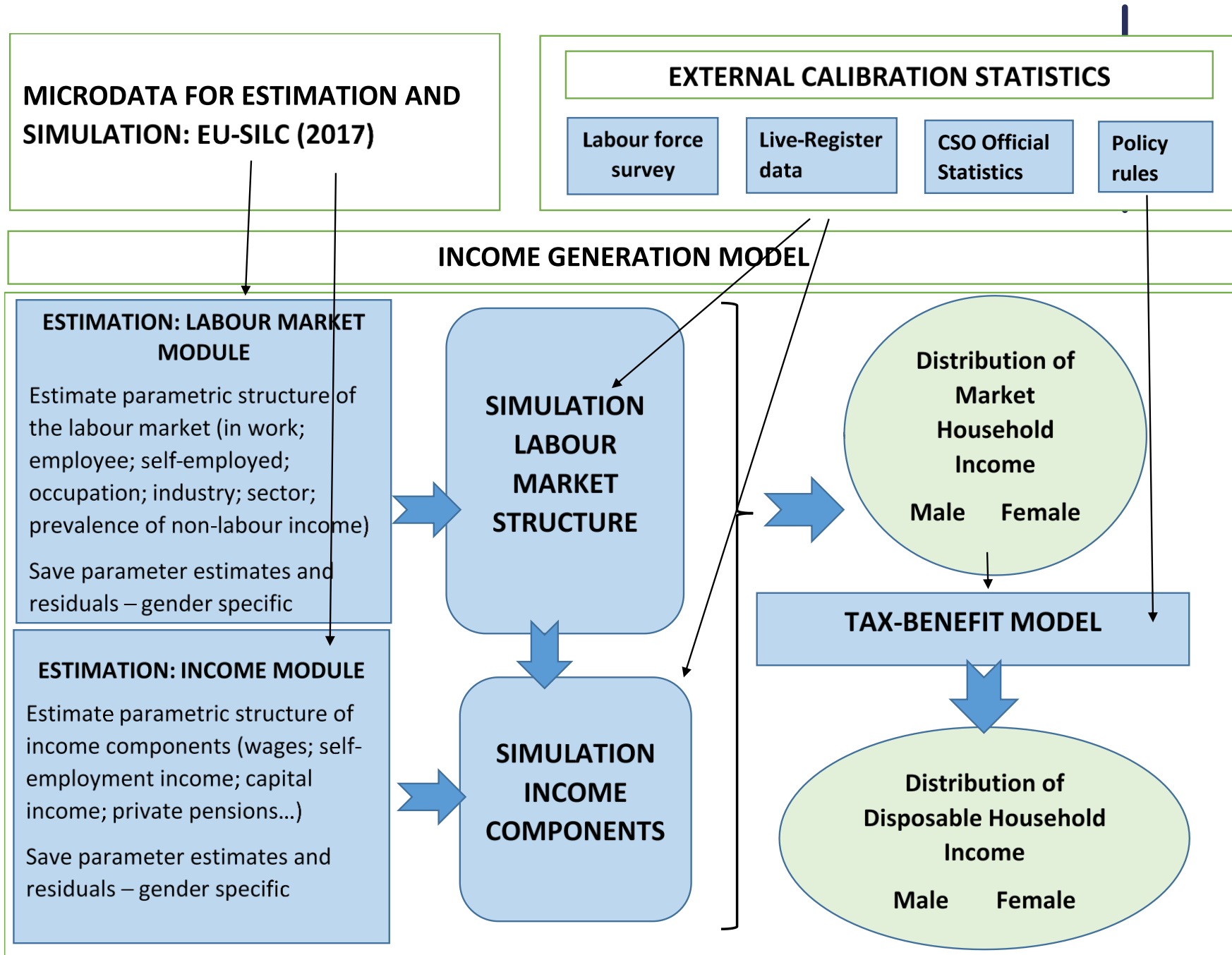
**Distribution of  
Market  
Household  
Income**

Male Female

**TAX-BENEFIT MODEL**

**Distribution of  
Disposable Household  
Income**

Male Female





# Female labour force participation dropped more than male

