

**Aggregate demand  
and  
inequalities:  
wealth,  
income distribution  
and  
gender**

**Özlem Onaran**



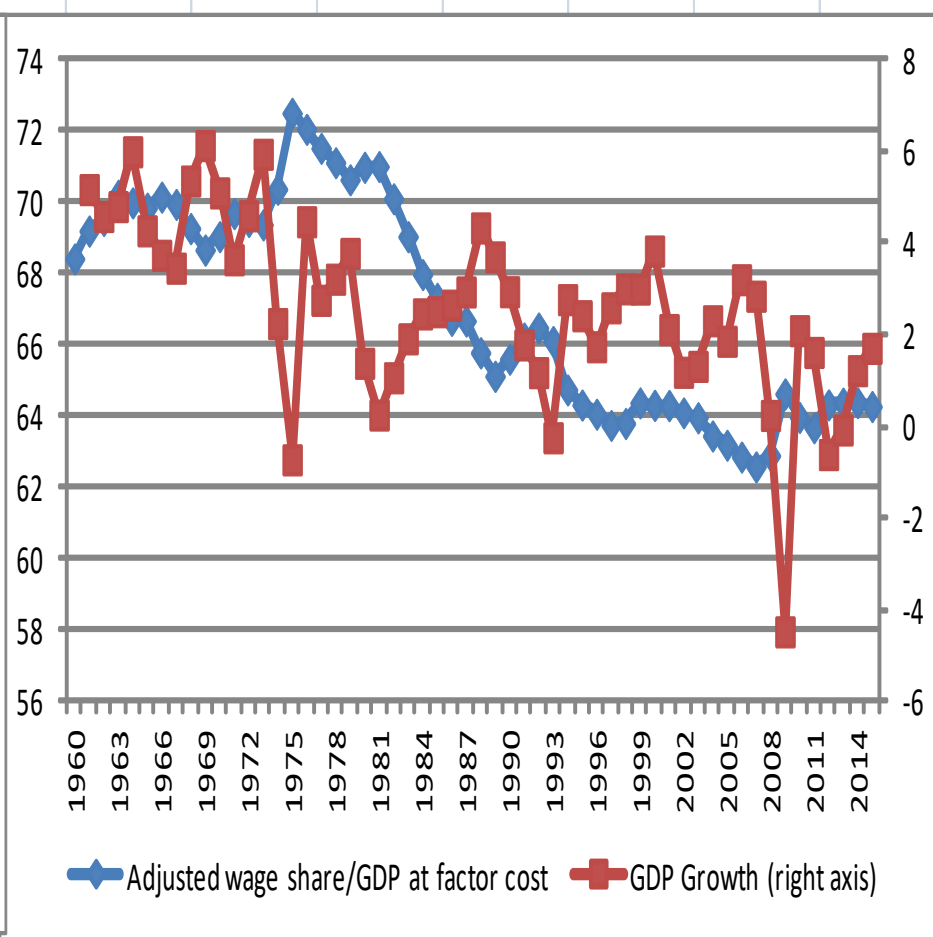
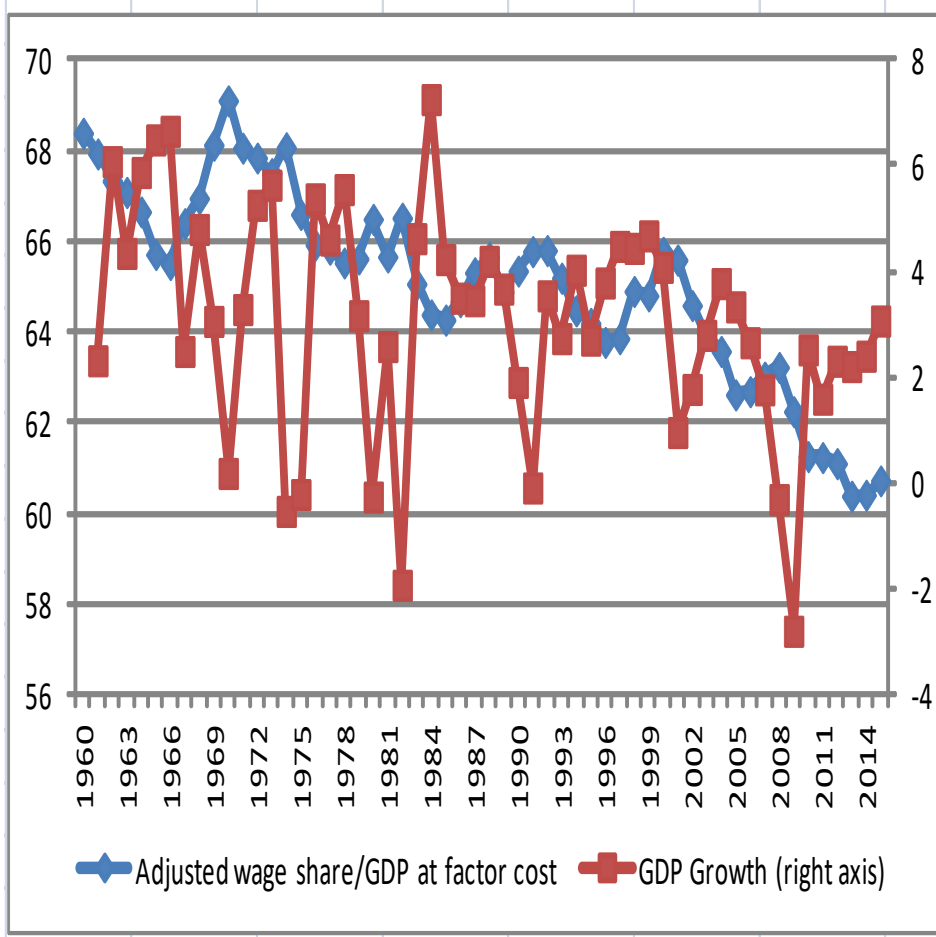
## Outline

- Context and stylized facts
- Theoretical framework
  - A Post-Keynesian/Kaleckian feminist macro model
  - with demand and supply side interaction
  - effects of inequalities
- Empirical findings
- Policy implications

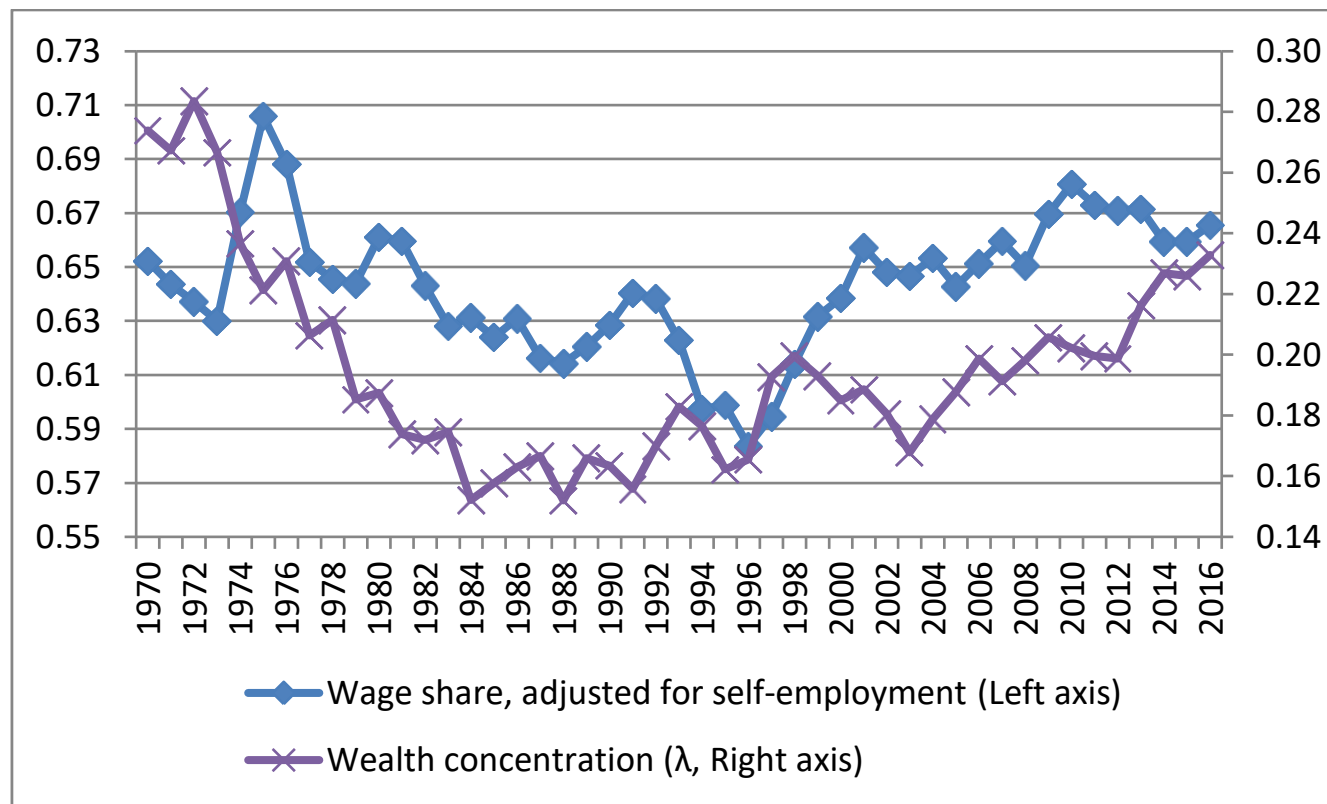
## Wage share vs. growth

US, 1960-2015

EU15, 1960-2015

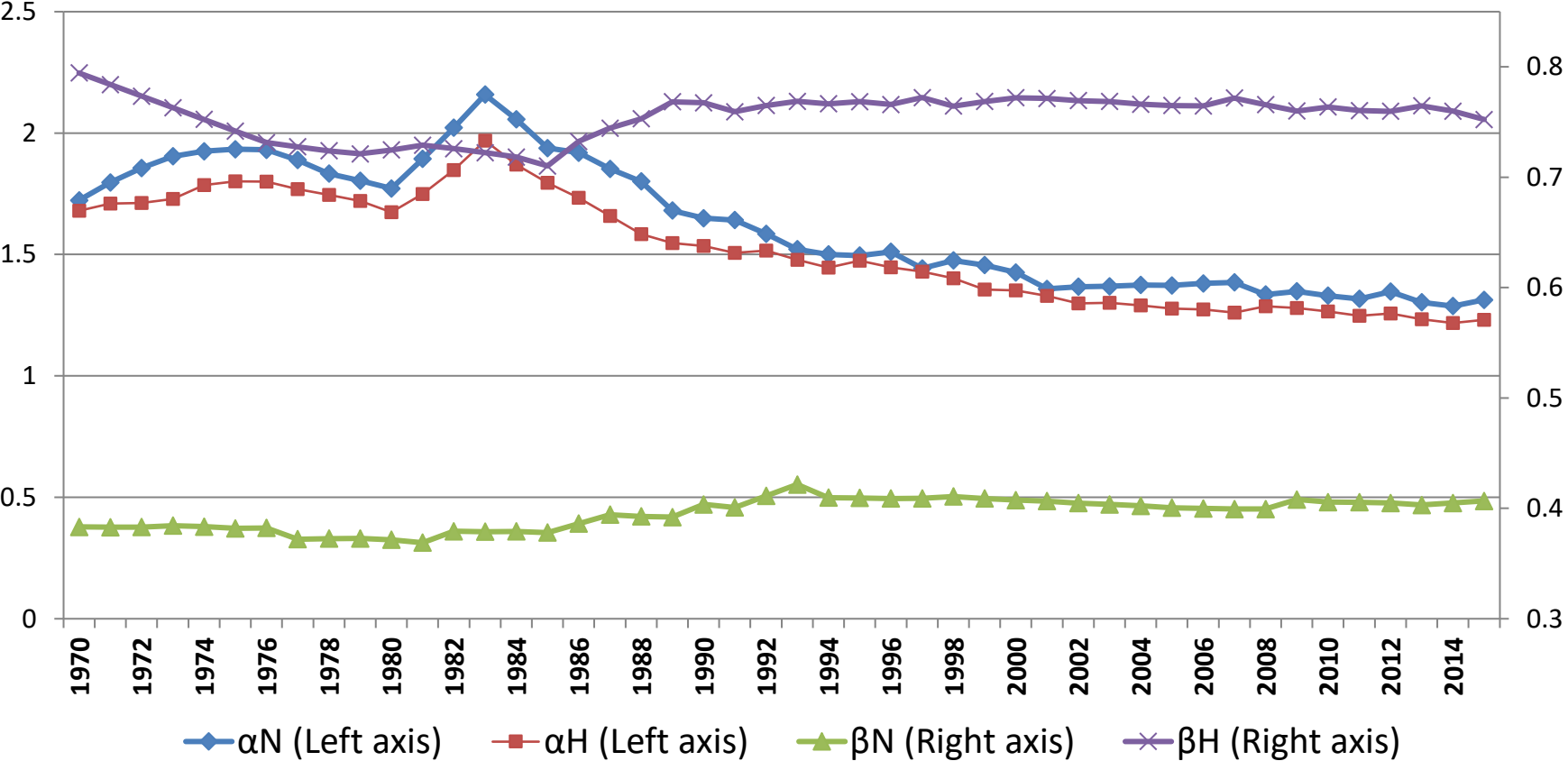


**Figure 9: The share of wages in GDP (adjusted, at factor cost) and wealth concentration (share of top 1% in total net wealth,  $\lambda$ ) in the UK**



Source: AMECO for wage share and WIID for wealth concentration

# The ratio of hourly wage rate of men/women ( $\alpha$ ) and share of women in hours worked ( $\beta$ ) in the social sector (H) and the rest of the economy (N) in the UK



# Capital gobbles labour's share, but victory is empty

## The big picture

**Steve Johnson** looks at the wider negative implications of falling wages

In 1958, Walter Reuther, a powerful US union leader was taken on a tour of a newly automated Ford Motor plant. "Aren't you worried about how you're going to collect union dues from all these machines?" he was asked by a (no doubt smug) company manager.

"The thought that occurred to me," Mr Reuther replied, "was how are you going to sell cars to these machines?"

Fifty-five years on, such a debate may be even more pertinent. In the innocent days of 1958, wages accounted for half of America's gross domestic product.

labour's share of the pie than the US or UK.

Richard Lewis, head of global equities at Fidelity Worldwide Investment, who has studied this trend, believes it to be structural rather than cyclical, and therefore unlikely to reverse.

Mr Lewis says globalisation has "lowered the power of labour to bargain," resulting in de-unionisation and the "emasculat[i]on" of workers.

Simultaneously, companies have been able to optimise their tax regimes and can engage in both "financial expense" arbitrage (borrowing in the cheapest countries) and regulatory arbitrage.

Most importantly, however, he says globalisation and a move towards supranational corporate entities has made it possible for companies to consolidate their industries more effectively.

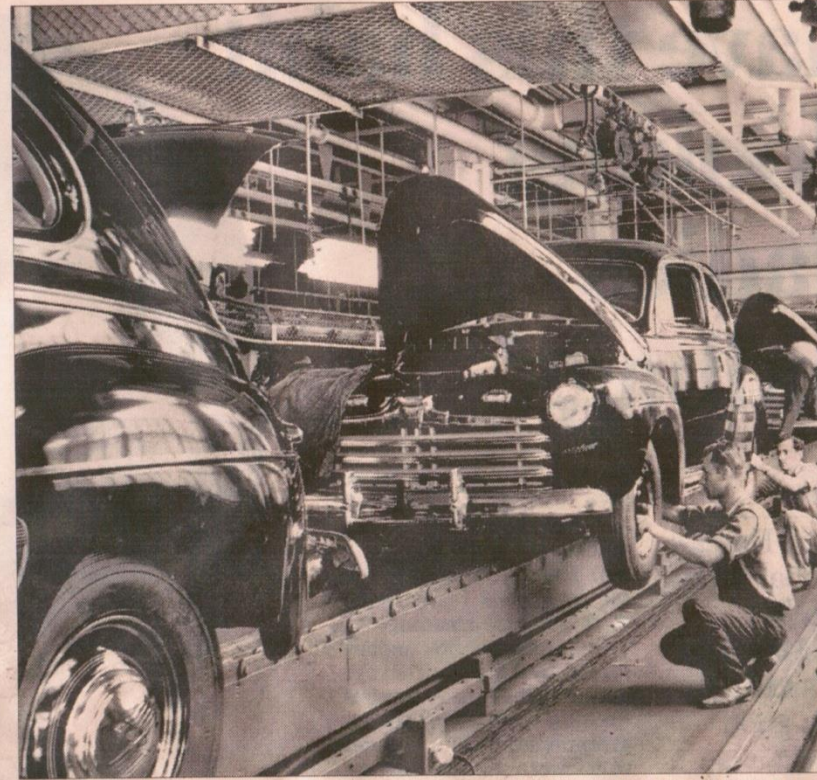
What all this means for the investment community is perhaps a little less clear-cut. Onaran and Galanis

labour will continue to be squeezed.

Frances Hudson, global thematic strategist at Standard Life Investments, believes this geographic divide opens the way for relative value trades that favour companies in countries that are becoming more competitive.

To complicate matters further, the academics found the global effect of a squeeze on labour was negative, as the heightened export competitiveness enjoyed by countries with weak wage growth simply reduced the competitiveness of its trading partners - a form of "beggar thy neighbour". A one percentage point fall in labour's share was found to reduce global GDP by 0.36 points.

With this in mind, Mr Greenberg believes we may have to start thinking about a "post-growth" world. "The revenue numbers of the S&P 500 are basically stagnant. Is that going to reverse any time soon? I don't see how it



In 1958, labour's share of economic output accounted for half of US GDP, but this has fallen to 42% today. Increasing globalisation and technology, this has fallen to 42%

right all along, and that capitalism ultimately sows the seeds of its own destruction, "when there is no consumer demand and it all falls over".

Mr Greenberg paints a picture of a bleak future

with, barring a "mass uprising", "McJobs" increasingly the norm.

"One thing that does need to change is the idea of shareholder value being the only responsibility of a company," he says, alluding

to the 19th century workers, "who took responsibility for their communities. They sense that your responsibility for them is a double-edged sword. Mr Reuther and I doubt have con-



경제

2017년 10월13일 금요일 한겨레

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|                 |              |                |              |                   |
|-----------------|--------------|----------------|--------------|-------------------|
| 코스피             | 코스닥          | 금리(국고채 3년, 연%) | 환율(원/달러)     | 유가(WTI 선물, 달러/배럴) |
| 2,474.76 +16.60 | 666.54 +4.23 | 1,900 -0.029   | 1,133.2 -2.0 | 51.30 +0.38       |

# “분배는 성장의 결과가 아니라 원천이다”

한겨레경제사회연 '소득주도 성장' 좌담

참석자

- 스톡헤머 영국 킹스톤대 교수
- 오나란 영국 그리니치대 교수
- 이상현 ILO 사무차장 정책특보
- 최명준 연세대 교수 (사회)
- 정해주 고려대 교수
- 주상영 건국대 교수
- 김연명 중앙대 교수

최근 정치권과 학계에선 문재인 정부의 '소득주도 성장' 정책을 둘러싼 논쟁이 뜨겁다. '소득주도 성장론'은 가계의 처분가능소득을 키워 성장을 도모하는 전략이다. 대기업 감세나 규제 완화를 위주로 한 성장 전략을 취해온 역대 정부의 경제정책과는 접근 방식이 확연히 다르다. 하지만 주류 경제학계에선 '국가경제를 상대로 한 검증되지 않은 정책 실험'이라는 의구심을 쏟아낸다. "소득주도 성장론은 소득주도 성장론이 아니라 분배론이다"는 지적도 나온다.



11일 오후 서울 마포구 공덕동 (한겨레) 회의실에서 '소득주도 성장론의 좌파와 성장 소득주도 성장의 경제·사회정책적논의' 좌담이 열려 참석자들이 발언하고 있다. 이번 좌담회는 한겨레경제사회연구원, 비판과 대안을 위한 사회복지학회, 칼폴라니사회경제연구소 주최로 열렸다. 신소영 기자 viator@hani.co.kr

왜야 한다는 점을 꼽았다. 그는 "이 두가지는 모두 다 '나랏돈'이 들지 않는다. 정부의 의지가 더 중요한 셈이다. 앞서 말한 재정 지출 확대도 주거나 교육, 건강, 보건, 그런이어서 동 사회 투자를 늘려가는 것도 중요하다. 이 과정에서 정부가 사회서비스 분야에 공공일자리를 적극적으로 만들어 갈 필요도 있다. 이는 여성과 남성 간 임금 격차를 줄이는 데도 기여한다"고 설명했다.

이 특보는 "노동과 자본 간의 분배뿐만 아니라 자본 내부의 격차, 노동 내부의 격차를 줄이는 정책도 소득주도 성장의 핵심 과제"라고 말했다. "한국은 기업 규모에 따라 기업의 실적에 큰 차이가 있고, 근로형태에 따라 노동 내부에서도 거대한 차이가 존재한다. 이런 차이는 앞서 말한 지대가 한국 경제에 크게 존재한다는 뜻이기도 하다. 그런 점에서 공정한 경쟁 구조를 만들기 위한 정책도 소득주도 성장 정책의 중요한 부분이다."

Interview at South Korean daily newspaper, Hankyoreh, 13 Oct 2017

*"Distribution is not the result of growth, but the source of growth."*

*"When wage is raised, productivity will also be raised".*

[http://www.hani.co.kr/arti/economy/economy\\_general/814287.html](http://www.hani.co.kr/arti/economy/economy_general/814287.html)

## Effect of income distribution on growth: Contesting theories

- Effect of increasing profit share (falling wage share, rising inequality) on growth?
- Neoclassical
  - wage=cost
  - positive effect on investment
  - Positive effect on exports
- Puzzle
  - Why is growth lower despite a rise in the profit share?
- Post-Keynesian/Post-Kaleckian feminist
  - Synthesis of Marxist, Keynesian and feminist economics



## Post-Keynesian/Post-Kaleckian models

- Wages are
  - Cost item: lower wages=
    - higher profitability
    - higher international competitiveness
  - Source of domestic demand
- Lower share of wages in national income (higher profit share) →
  1. lower domestic consumption
    - Marginal propensity to consume (mpc) out of wages > mpc out of profits
  2. A positive partial effect on investment
    - Investment depends on profitability, but also demand
    - the sensitivity of investment to profits (partial)?
  3. higher foreign demand (Net exports=Exports-Imports)
    - Unit labor costs ↓ → higher international competitiveness
    - the sensitivity of net exports to unit labor costs; price elasticity of exports and imports; labor intensity of exports

## ...Post-Keynesian/Post-Kaleckian models

- Increase in the profit share: + & - effects on aggregate demand
  - if total effect is -: wage-led demand
  - if total effect is +: profit-led demand
  - Bhaduri and Marglin (1990)
- a flexible/synthesis distribution and growth model
- “Particular *models* such as that of ‘cooperative capitalism’ enunciated by the left Keynesian social democrats, the Marxian model of ‘profit squeeze’ or even the conservative model relying on ‘supply-side’ stimulus through high profitability and a low real wage... become particular *variants* of the theoretical framework presented here.” (Bhaduri/Marglin 1990, p. 388)’
- social and historical framework determining the parameters
- An empirical research question?
- Onaran and Obst 2015; Onaran and Galanis, 2014; Onaran, Stockhammer , Grafl 2011; Stockhammer, Onaran, Ederer 2009; Stockhammer and Onaran 2004; Onaran and Stockhammer 2005; Hein and Vogel 2009; Naastepad and Storm, 2007; Bowles&Boyer, 1995...

## A Post-Keynesian/Kaleckian feminist macro model: Onaran, Oyvatt, Fotopoulou, 2020

- Different dimensions of inequalities

- Functional income distribution

Bhaduri & Marglin, 1990; Onaran & Galanis, 2014; Onaran & Obst, 2016; Onaran et al 2011; Stockhammer et al., 2009; Hein & Vogel 2008; Naastepad & Storm 2006; Stockhammer & Onaran, 2004

- Gender gaps -Gendering macroeconomics

- Feminist structuralist/Kaleckian

Braunstein et al. 2011, 2018; Seguino 2010, 2012); Pollitt et al 2017 ; Bargawi & Cozzi 2017; Antonopoulos et al., 2010; Ilkcaracan et al., 2015; Ilkcaracan & Kim 2018; De Henau et al. 2016

- Supply-side/real business cycle

Becker et al. 1990; Doepke & Tertilt 2009, 2014, 2016; Aгенor & Aгенor, 2014; Aгенor & Canuto, 2015; Cavalcanti & Tavares, 2016; Fukui et al. 2019; Benhabib et al. 1991, Greenwood & Hercowitz 1991; Lundberg & Pollak 1996; Phipps & Burton, 1998; Esteve-Volart, 2000; Knowles et al. 2002; Morrison et al., 2007; Klasen & Lamanna 2009; Amin, et al., 2015; Gonzales et al., 2015; Cuberes & Teignier 2014

- Wealth concentration

Theoretical aggregate wealth effects: Boyer 2000, Lavoie & Godley 2001-2, van Treeck 2009, Skott & Ryo 2008, Ryo & Skott 2013; Hein 2018

Theoretical wealth inequality: Taylor et al, 2015, 2018; Petach & Tavani, 2018; Palley 2012b; 2017; Ederer & Rehm, 2018, Zamparelli 2016; Botta et al 2019

Empirical aggregate wealth effects: Onaran et al., 2011; Stockhammer & Wildauer, 2016; Stockhammer et al., 2018; Kim et al. 2015; Zezza, 2009

- Demand side effects of inequality

- Supply side effects: medium run effects on productivity

New Political Economy: Galor & Zeira 1993; Alesina & Rodrik 1994; Persson & Tabellini 1994; Alesina & Perotti 1996; IMF 2009; Berg et al. 012; Cingano 2014

PK: Palley, 1996, 2012, 13, 14; Casetti, 2003; Dutt, 2006, 10, 11, 13, Naastepad, 2006; Setterfield, 2006; Hein & Tarassow, 2010; Tavani & Zamparelli, 2017

- **Government spending and taxes:** Blecker, 2002; Mott & Slattery, 1994; Hein, 2018; Palley, 2009, 13, 14, You & Dutt, 1996;

Dutt, 2013; Tavani & Zamparelli 2017; Allain 2015; Ko, 2018; Commendatore et al. 2011; Obst et al. 2017

- Employment effects not just output

## What is the effect of an **increase in female and male wage rate**?

- General model: Dual role of wages → demand & cost
- Wages & gender gap → Income & wealth distribution → demand → output
- **Short-run:** (+) & ( - ) effects on aggregate demand
  - (+) consumption:
    - Marginal propensity to consume in H out of female wages > male w > profit
    - Marginal propensity to consume in N out of male & female w > profit
    - (-) investment: profit share ↓ → I ↓ but wealth concentration ↓ & demand ↑ → I ↑
    - (- ) net exports: the sensitivity of net exports to unit labor costs  
(price elasticity of exports & imports; labour intensity of exports)
- **medium run:** labour productivity ↑: moderates the effect of wages on profits
- Total effect on demand is ambiguous in the short-run and medium-run
  - : profit-led economy (mainstream policy assumption)
  - +: wage-led economy
- **Gender equality led if female wages ↑ + gender gap ↓ → output ↑**
- **Equality-led = Wage-led + gender equality-led**

## What is the effect of an increase in public **social** infrastructure?

- **Short-run:**
  - (+) consumption: demand from employees in H  
labour intensive, higher share of female employment
  - (+) investment: rising demand
  - (-) effects of public debt/GDP: likely to be small
- **medium run:** labour productivity in the rest of the economy  $\uparrow$  ( $G_H, Y \uparrow$ )  
 $\Rightarrow$  investment and net exports  $\uparrow$
- **Employment:** Depends on the effect on output and productivity (MR)
  - female share of employment  $\uparrow$  with greater share of social sector
- **Public debt/GDP:**
  - Direct + effect, but - effects through rising output and productivity

## ... A Post-Keynesian/Kaleckian feminist macro model

- Sectors of the economy
  - social: health, social care, education, child care (H)
  - Physical (rest of the economy, N)
  - unpaid domestic care sector (reproductive)
- Two income groups: profit and wages -different gender (female and male)
  - Wage income by male and female workers, and capital income

$$Y_t = WB_t^M + WB_t^F + R_t$$

$$WB_t^F = w_t^{HF} E_t^{HF} + w_t^{NF} E_t^{NF}$$

$$WB_t^M = w_t^{HM} E_t^{HM} + w_t^{NM} E_t^{NM}$$

## ...model

- Private net wealth (PW) function of after tax female & male wage and profit income and its past value

$$\log(PW_t(1 - t_t^{PW})) = a_0 + a_F \log(WB_t^F(1 - t_t^W)) + a_M \log(WB_t^M(1 - t_t^W)) + a_R \log(R_t(1 - t_t^R)) + a_c \log(PW_{t-1}(1 - t_{t-1}^{PW}))$$

- Wealth concentration= $\lambda$ =PW1/PW
  - Hourly wage rate $\uparrow$ →wage share $\uparrow$  → wealth concentration $\downarrow$
  - gender pay gap $\downarrow$  and upward convergence  $\uparrow$ →wage share $\uparrow$ , wealth concentration $\downarrow$
  - Tax on capital income & wealth → wealth concentration $\downarrow$

$$\log(\lambda_t) = s_0 + s_1 \log[\pi_t(1 - t_t^R)] + s_2 \log(t_t^{PW}) + s_3 \log(\alpha_t^N) + s_4 \log(\alpha_t^H) + s_5 \log(\lambda_{t-1})$$

$$\log(PW1_t(1 - t_t^{PW})) = \log(PW_t(1 - t_t^{PW})) + \log(\lambda_t)$$

$$\log(PW99_t(1 - t_t^{PW})) = \log(PW_t(1 - t_t^{PW})) + \log(1 - \lambda_t)$$

## ...Model: Demand side

- Consumption in H & N ( $C_H$  and  $C_N$ ) functions of:
  - after-tax female & male wage & profit income, PW1 &PW99

$$\begin{aligned} \log C_t^N = & c_0 + c_R \log[R_t(1 - t_t^R)] \\ & + c_F \log[(w_t^{NF} E_t^{NF} + w_t^{HF} E_t^{HF})(1 - t_t^W)] \\ & + c_M \log[(w_t^{NM} E_t^{NM} + w_t^{HM} E_t^{HM})(1 - t_t^W)] + c_{PW1} \log(PW1_t(1 - t_t^{PW})) \\ & + c_{PW99} \log(PW99_t(1 - t_t^{PW})) \end{aligned}$$

$$\begin{aligned} \log C_t^H = & z_0 + z_R \log[R_t(1 - t_t^R)] \\ & + z_F \log[(w_t^{NF} E_t^{NF} + w_t^{HF} E_t^{HF})(1 - t_t^W)] \\ & + z_M \log[(w_t^{NM} E_t^{NM} + w_t^{HM} E_t^{HM})(1 - t_t^W)] \\ & + z_{PW1} \log(PW1_t(1 - t_t^{PW})) + z_{PW99} \log(PW99_t(1 - t_t^{PW})) \end{aligned}$$



## ...Model: Demand side

- Private Investment function of:
  - after-tax profit share, PW1 & PW99, output, public debt/GDP

$$\log I_t = i_0 + i_1 \log Y_t + i_2 \log [\pi_t (1 - t_t^R)] + i_3 \log \left( \frac{D}{Y} \right)_t + i_4 \log (PW1_t (1 - t_t^{PW})) + i_5 \log (PW99_t (1 - t_t^{PW}))$$

- The profit share in N ( $\pi$ ) ↓ if w of men or women in N ↑ and ↑ if productivity (T) in N ↑

$$\pi_t = \frac{Y_t^N - w_t^{NF} E_t^{NF} - w_t^{NM} E_t^{NM}}{Y_t^N} = 1 - \frac{(\beta_t^N + \alpha_t^N - \beta_t^N \alpha_t^N) w_t^{NF}}{T_t^N}$$

## ...Model: Demand side

- 3 type of government spending:
  - social infrastructure ( $G_H$ ), physical, other
- Taxes are collected on wage and capital income, wealth & C
- Debt/GDP depends on government spending, taxes and Y

$$Y_t^H = G_t^H = \kappa_t^H Y_t$$

$$G_t^C = \kappa_t^C Y_t$$

$$I_t^G = \kappa_t^G Y_t$$

$$D_t = (1 + r_{t-1}) D_{t-1} + G_t^H + G_t^C + I_t^G - t_t^W (WB_t^F + WB_t^M) - t_t^R R_t - t_t^{PW} PW_t - t_t^C (C_t^N + C_t^H)$$

## ...Model: Demand side

- Exports: function of profit share,  $Y_{world}$ , exchange rates
- Imports: function of profit share,  $Y_N$ , exchange rates
- Reduced form: prices: mark-up on nominal unit labour costs, imperfect competition
  - profit share  $\uparrow \rightarrow$  real unit labour cost  $\downarrow \rightarrow$  nominal unit labour cost  $\downarrow$

$$\log X_t = x_0 + x_1 \log Y_t^{World} + x_2 \log \pi_t + x_3 \log \varepsilon_t$$

$$\log M_t = n_0 + n_1 \log Y_t^N + n_2 \log \pi_t + n_3 \log \varepsilon_t$$

## ...Model: Demand side

- Unpaid domestic care: function of per capita  $G_H$  and  $C_H$ , and exogenous demographic structure

$$\log \frac{U_t}{N_t} = q_0 + q_G \log \frac{(G_t^H + C_t^H)}{N_t}$$

## ...Model

- Supply side:
  - Productivity (output/hour):
  - endogenous in the medium-run in the rest of the economy
  - function of
    - wages, output, private & public investment,  $C_H$ , unpaid care

$$\log T_t^N = t_0 + t_1 \log \frac{(G_{t-1}^H + C_{t-1}^H)}{N_{t-1}} + t_2 \log \frac{I_{t-1}^G}{N_{t-1}} \\ + t_3 \log Y_{t-1}^N + t_4 \log w_{t-1}^{NF} + t_5 \log(\alpha_{t-1}^N w_{t-1}^{NF}) + t_6 \log \frac{U_{t-1}}{N_{t-1}}$$

$$\log T_t^N = h_0 + h_1 \log \left( \frac{G_{t-1}^H + C_{t-1}^H}{N_{t-1}} \right) + h_2 \log \left( \frac{I_{t-1}^G}{N_{t-1}} \right) \\ + h_3 \log Y_{t-1}^N + h_4 \log w_{t-1}^{NF} + h_5 \log \alpha_{t-1}^N$$

## ... Model

- Employment of men & women in hours
  - Determined by output and productivity
  - Subject to occupational segregation in N and H

$$E_t^{NF} = \frac{(1 - \kappa_t^H) Y_t}{T_t^N} \beta_t^N = \frac{Y_t^N}{T_t^N} \beta_t^N$$

$$E_t^{NM} = \frac{(1 - \kappa_t^H) Y_t}{T_t^N} (1 - \beta_t^N) = \frac{Y_t^N}{T_t^N} (1 - \beta_t^N)$$

$$E_t^{HF} = \frac{\beta_t^H \kappa_t^H Y_t}{w_t^{FH} (\beta_t^H + \alpha_t^H - \beta_t^H \alpha_t^H)}$$

$$E_t^{HM} = \frac{(1 - \beta_t^H) \kappa_t^H Y_t}{w_t^{FH} (\beta_t^H + \alpha_t^H - \beta_t^H \alpha_t^H)}$$

## Purple green red new deal

- public **social** and **physical** infrastructure investment/GDP  $\uparrow$  1%-point
- **increase wages** & close **gender gap** via upward convergence
  - 2%  $\uparrow$  in female wages and 1%  $\uparrow$  in male wages
- **progressive income and wealth taxation**
  - tax rate on profit income  $\uparrow$  1%-point
  - tax rate on wages  $\downarrow$  1%-point
  - tax rate on wealth  $\uparrow$  1%-point
- higher output in both short run and medium run
  - output  $\uparrow$  10.9% in the UK (in Medium Run)
- Employment of both women & men  $\uparrow$  in both short & medium run
  - $E_{\text{female}} \uparrow 9.6\%$ ,  $E_{\text{male}} \uparrow 5.8\%$  (in Medium Run)
- Improved public finance
  - public debt/GDP  $\downarrow$  10.3%-point (in Medium Run)
- **Tax wealth**, invest in **a caring** and **sustainable** society

## ... Summary of the results in the UK: labour market policies

- **Equality-led = Wage-led + gender equality-led**
- 1%↑ wage in social sector → output↑ in both short (0.5%) & medium run (0.3%)
- 1%↓ gender pay gap in H → output↑ in both short (0.3%) & medium run (0.2%)
- 1%↑ wage in the rest of the economy → output↑ in short (0.2%) & medium run (0.1%)
- 1% ↓gender pay gap in N → output↑ in both short (0.1%) & medium run (0.03%)
  - Smaller than effects of w in N
- Consumption ↑; not just the level but also composition change
  - more income in the hands of women → C on education, health, care ↑
  - gender equality ↑ → Social infrastructure
- Private investment↑: w ↑ → profit share ↓ → I ↓ but PW1/PW ↓ & PW1 ↓ & demand ↑ → I ↑
  - productivity ↑ in MR → I ↑
- Net export effects small
- **but output effects overall small, in MR strong productivity effects**
- → Employment ↑ in SR but in MR employment ↓
  - $E_{tot} ↓ 0.5%$  if w ↑ in N
  - if w ↑ in H, in MR  $E_f ↑ (0.02%)$  but  $E_m ↓ (0.07%)$
- **Full employment requires public investment, in particular in the medium run**



...Purple green red new deal: international policy coordination

- Effects are strongest when coordinated across countries
- fiscal policy effects are still very strong even when applied in a single country
  - EU wage and fiscal pol:
    - Obst, T., Onaran, Ö., Nikolaidi, M. 2020 “The effects of income distribution and fiscal policy on aggregate demand, investment and the budget balance: the case of Europe”, Cambridge Journal of Economics
  - G20 wage policies
    - Onaran, Ö. and Galanis, G. 2014 “Income distribution and aggregate demand: National and global effects” Environment and Planning A
- estimations for South Korea
  - Oyvat, C., Onaran, O, 2020. The effects of public social infrastructure and gender equality on output and employment: the case of South Korea. [CWE-GAM Working Paper](#): Program on Gender Analysis in Economics (PGAE)

## Fallacy of composition: Inconsistency of the Macro vs. Micro rationale

- Firm vs. aggregate/national
- National vs. regional/global level
- Economic globalization may make small open economies more likely to be profit-led
- But political globalization → race to the bottom in labour share
  - international competitiveness effects are eliminated
  - makes economies more likely to be wage-led
  - Planet earth is wage-led, unless we trade with Mars!

## Purple green red new deal and rebuilding an economy for all in the aftermath of the Covid19 crisis

- National/collective/municipal/cooperative ownership, democratic participatory planning in key industries
  - Health, social care, education, child care, transport, energy, housing, banking, food, municipal services
- Universal free basic services
- Permanent shorter working hours with wage compensation (for lower wage earners)
  - Downward convergence in hours
  - Travel time part of working time with social distancing? Work from home?
- Unions and collective bargaining; ban zero hours contracts, false self-employment practices,
- Financial support for firms must come with conditionality/equity ownership
  - no workers are to be laid off; trade union representation
  - Ecological
  - No dividends, bonuses for CEOs, share buybacks
  - No tax evasion
- Debt moratorium, restructuring/linking to income/cancellation
  - Secured and unsecured debt, utility, tax payments of households, SMEs / rent controls / developing and emerging countries

# Conclusion

- Equitable and sustainable development needs **green** and **purple** public investment and **pay rise** for both women and men and **shorter hours**!
- Advice:
- Take care of full employment, decent pay for women and men, equality, and ecological sustainability, and the budget will take care of itself.

## PEGFA/GPERC Webinars

- **21st May, Dr. Alberto Botta:** Debt monetization and EU recovery bonds: fighting the Covid-19 crisis
- **28th May, Prof. Ozlem Onaran:** Investing in social infrastructure and equality: lessons for macroeconomic policy from the pandemic
- **4th June, Dr. Robert Calvert Jump:** Covid-19 and the public finances: Another ten year of austerity?
- **11th June, Ben Tippet:** Class in the time of Covid-19: How the crisis has exposed class divides
- **18th June, Dr. Maria Nikolaidi:** Greening the Bank of England Covid-19 QE
- **June 22, Dr Adotey Bing-Pappoe** Cooperatives, democracy, equality and efficiency
- **2nd July, Prof. Mehmet Ugur:** Reflections on innovation policy after Covid-19: What does the econometric evidence tell us?
- **9th July, Dr. Alexander Guschanski:** The political economy of income distribution: Why is income inequality increasing and what can we do about it?
- **14th July, Dr. Rafael Wildauer:** Is the European Green Deal ambitious enough?
- **16th July, Dr. Jeff Powell:** Covid-19: is this the end of financialization?

Register at <https://www.gre.ac.uk/business/research/centres/gperc/news/events>

## Pluralist economics at MSc Economics, UG and PhD at University of Greenwich

- <https://www.gre.ac.uk/postgraduate-courses/bus/econ>
- Tackle economic issues relevant to the real world in the post-2008 Great Recession and post-Covid era; to think outside conventional boundaries
- Develop a critical perspective about economic theories by comparing different theories and their policy implications in a pluralistic fashion
- Mainstream: Classical, monetarist, new classical, real business cycle, new Keynesian
- Heterodox: Keynesian, post-Keynesian, Marxist, feminist

## Suggested Readings

Bhaduri, A. and Marglin, S. (1990). Unemployment and the real wage: the economic basis for contesting political ideologies. *Cambridge Journal of Economics*, 14(4): 375-93.

Onaran, O, Oyvat, C., Fotopoulou, F. 2019. The effects of gender inequality, wages, wealth concentration and fiscal policy on demand, productivity, employment and public finance., ESRC/Rebuilding Macroeconomics Project.

Report <https://gala.gre.ac.uk/id/eprint/24018/> and Policy Brief <https://gala.gre.ac.uk/id/eprint/24735/>

Onaran, Ö. and Galanis, G. (2014). Onaran, Ö. and Galanis, G. "Income distribution and aggregate demand: National and global effects" *Environment and Planning A*, 46 (2), 373-397

Obst, T., Onaran, Ö. and Nikolaidi, M. (2017), " The effect of income distribution and fiscal policy on growth, investment, and budget balance: the case of Europe", *Cambridge Journal of Economics*, <https://doi.org/10.1093/cje/bez045>

Available at Greenwich Papers in Political Economy, University of Greenwich, #GPERC43

Kalecki, M. 1943. "Political Aspects of Full Employment" *Political Quarterly*, <http://mrzine.monthlyreview.org/2010/kalecki220510.html>

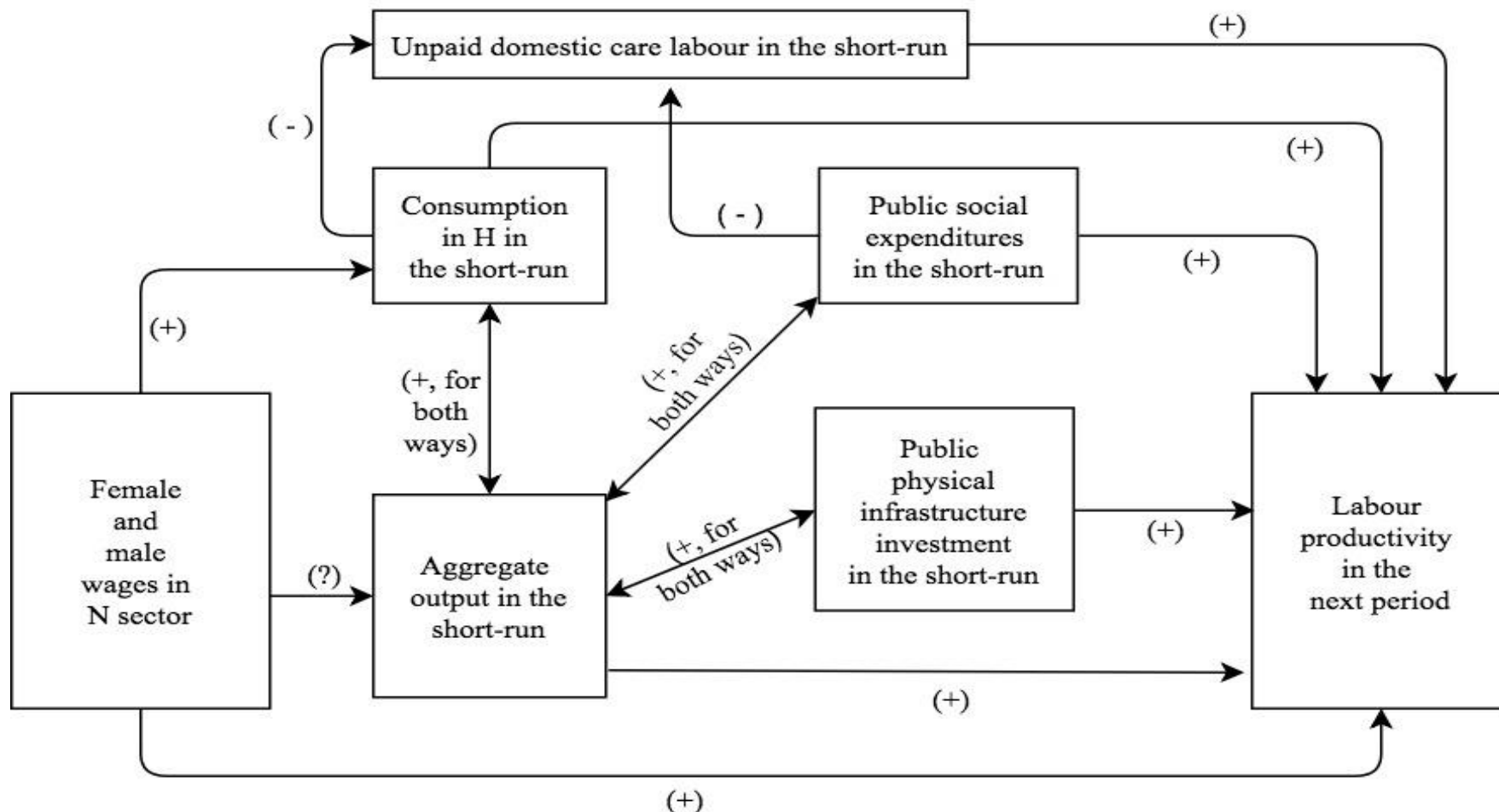
- Appendix



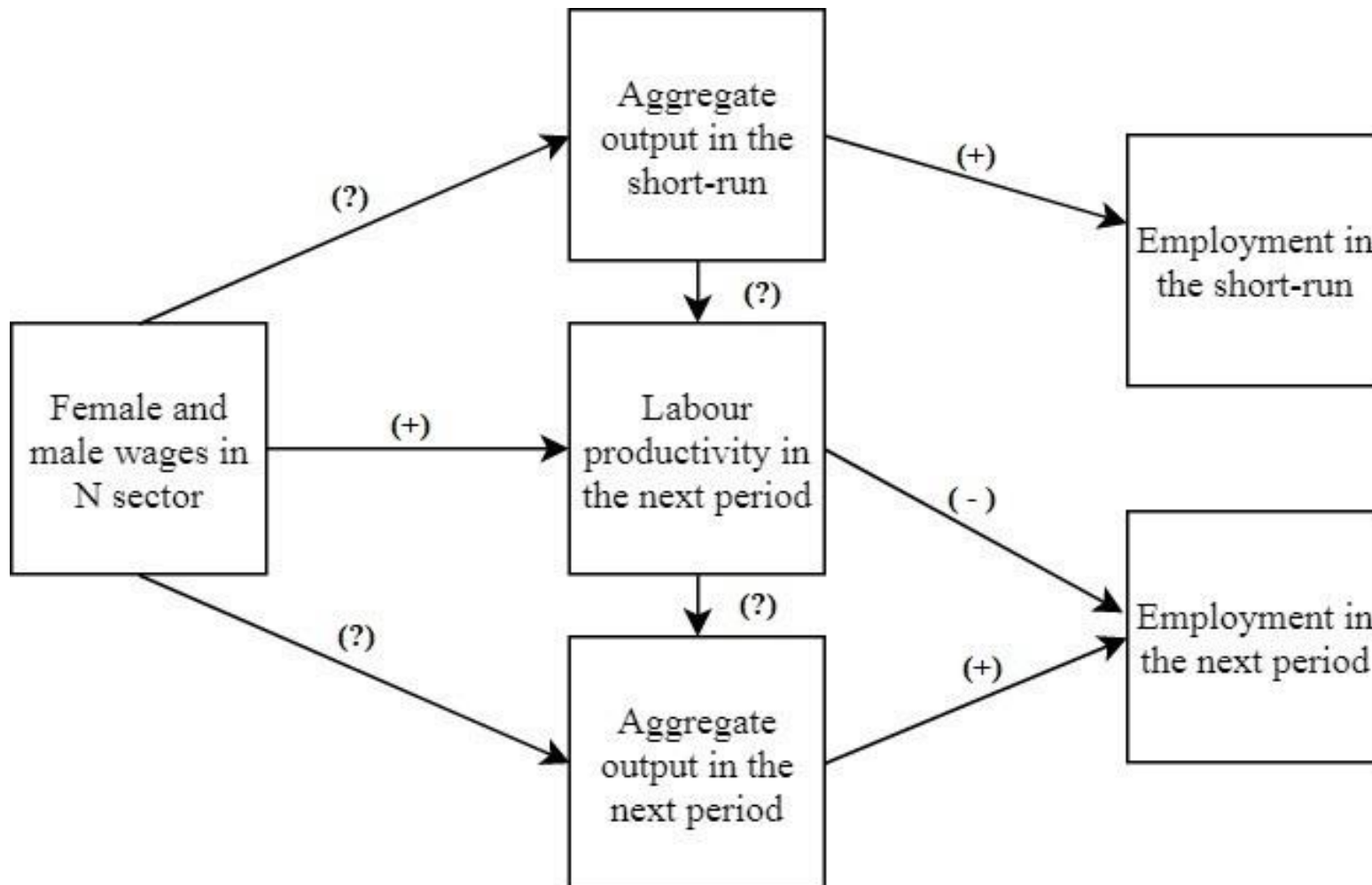
# The demand regimes in the short-run

|  | <b>Wage-led in the short run</b>  | <b>Profit-led in the short-run</b>  |
|--|---|---|
| <b>Female wage-led/<br/>gender equality-led<br/>in the short-run</b> | Impact of $w_t^{NF}$ & $w_t^{NM}$ (constant $\alpha_t^N$ ) on total consumption <br>><br> Impact of $w_t^{NF}$ & $w_t^{NM}$ (constant $\alpha_t^N$ ) on investment + net exports <br>&<br> Impact of $w_t^{NF}$ on total consumption <br>><br> Impact of $w_t^{NF}$ on investment + net exports | Impact of $w_t^{NF}$ & $w_t^{NM}$ (constant $\alpha_t^N$ ) on investment + net exports <br>><br> Impact of $w_t^{NF}$ & $w_t^{NM}$ (constant $\alpha_t^N$ ) on total consumption <br>><br> Impact of $w_t^{NF}$ on total consumption <br>><br> Impact of $w_t^{NF}$ on investment + net exports |
| <b>Gender inequality-led in the short-run</b>                        | Impact of $w_t^{NF}$ & $w_t^{NM}$ (constant $\alpha_t^N$ ) on total consumption <br>><br> Impact of $w_t^{NF}$ & $w_t^{NM}$ (constant $\alpha_t^N$ ) on investment + net exports <br>><br> Impact of $w_t^{NF}$ on investment + net exports <br>><br> Impact of $w_t^{NF}$ on total consumption | Impact of $w_t^{NF}$ & $w_t^{NM}$ (constant $\alpha_t^N$ ) on total consumption <br><<br> Impact of $w_t^{NF}$ & $w_t^{NM}$ (constant $\alpha_t^N$ ) on investment + net exports <br>&<br> Impact of $w_t^{NF}$ on total consumption <br><<br> Impact of $w_t^{NF}$ on investment + net exports |

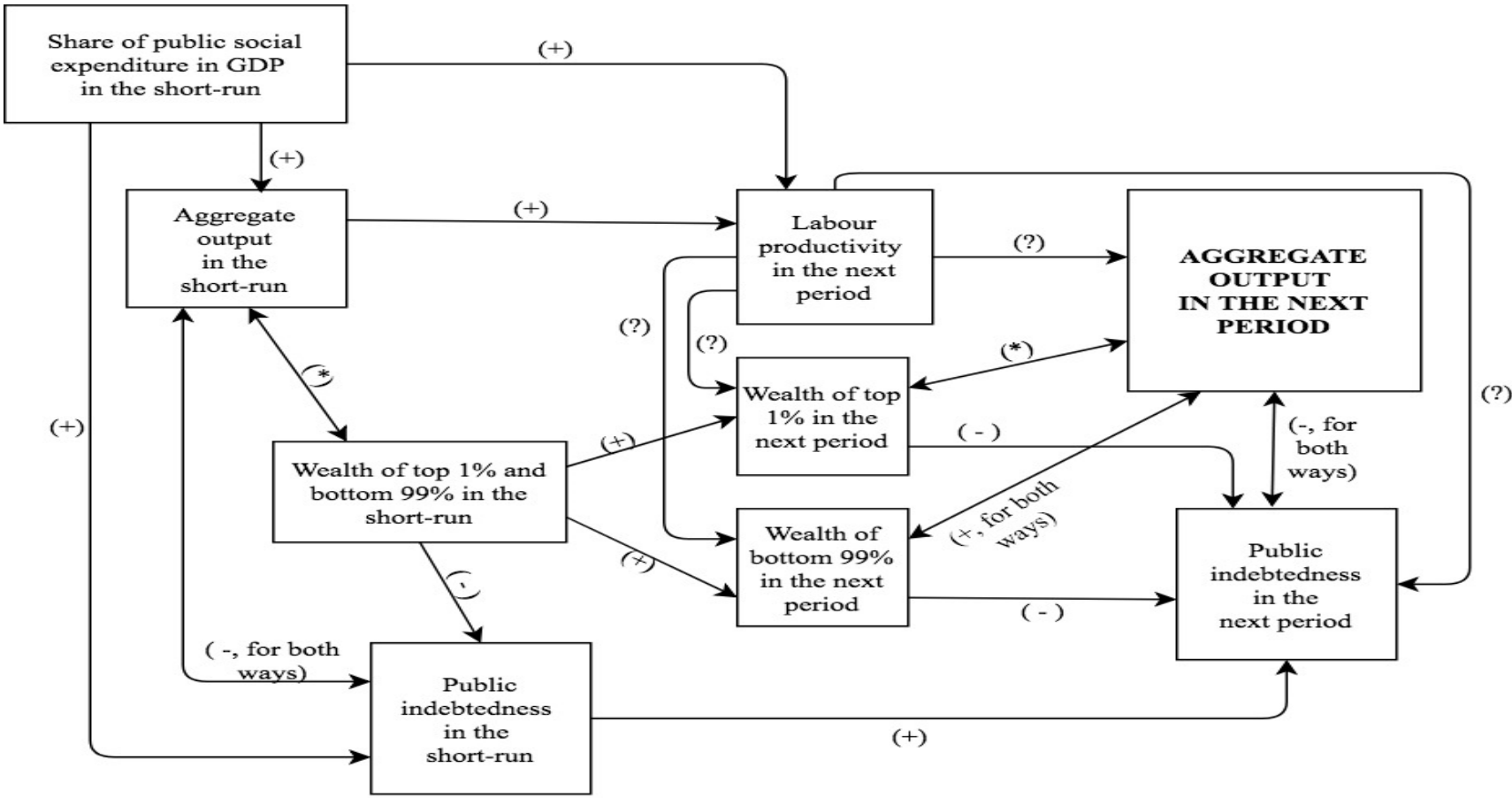
# The effects of female and male wages in N on labour productivity in the next period



# The impact of an increase in female and male wages on employment

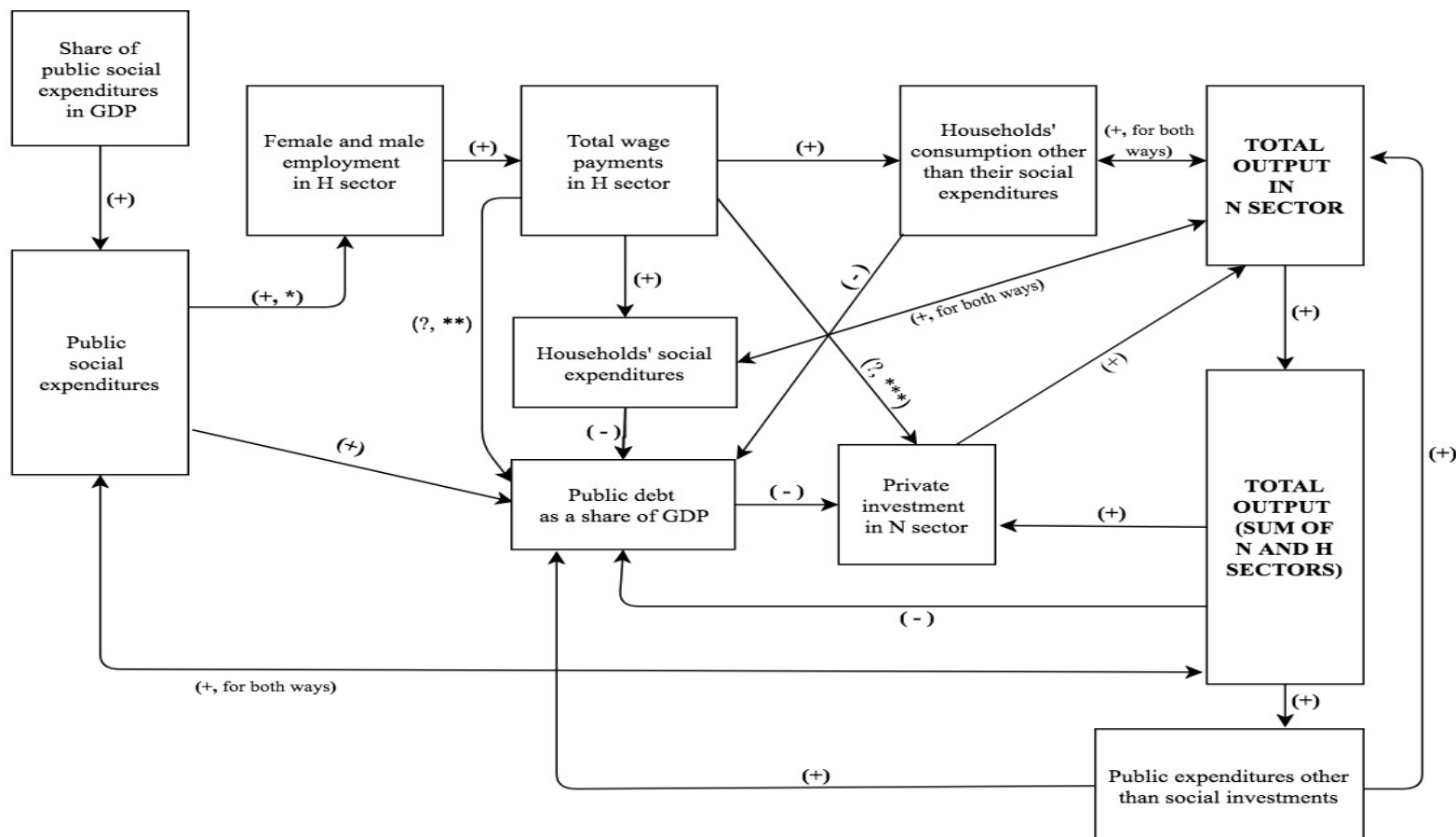


# The effects of an increase in public social infrastructure investment on total output in the short and medium run



\* The effects from the wealth of top 1% on aggregate output is ambiguous and the impact of aggregate output on the wealth of top 1% is positive.

**Figure 4: The effects of an increase in public social infrastructure investment on total output in the short-run**

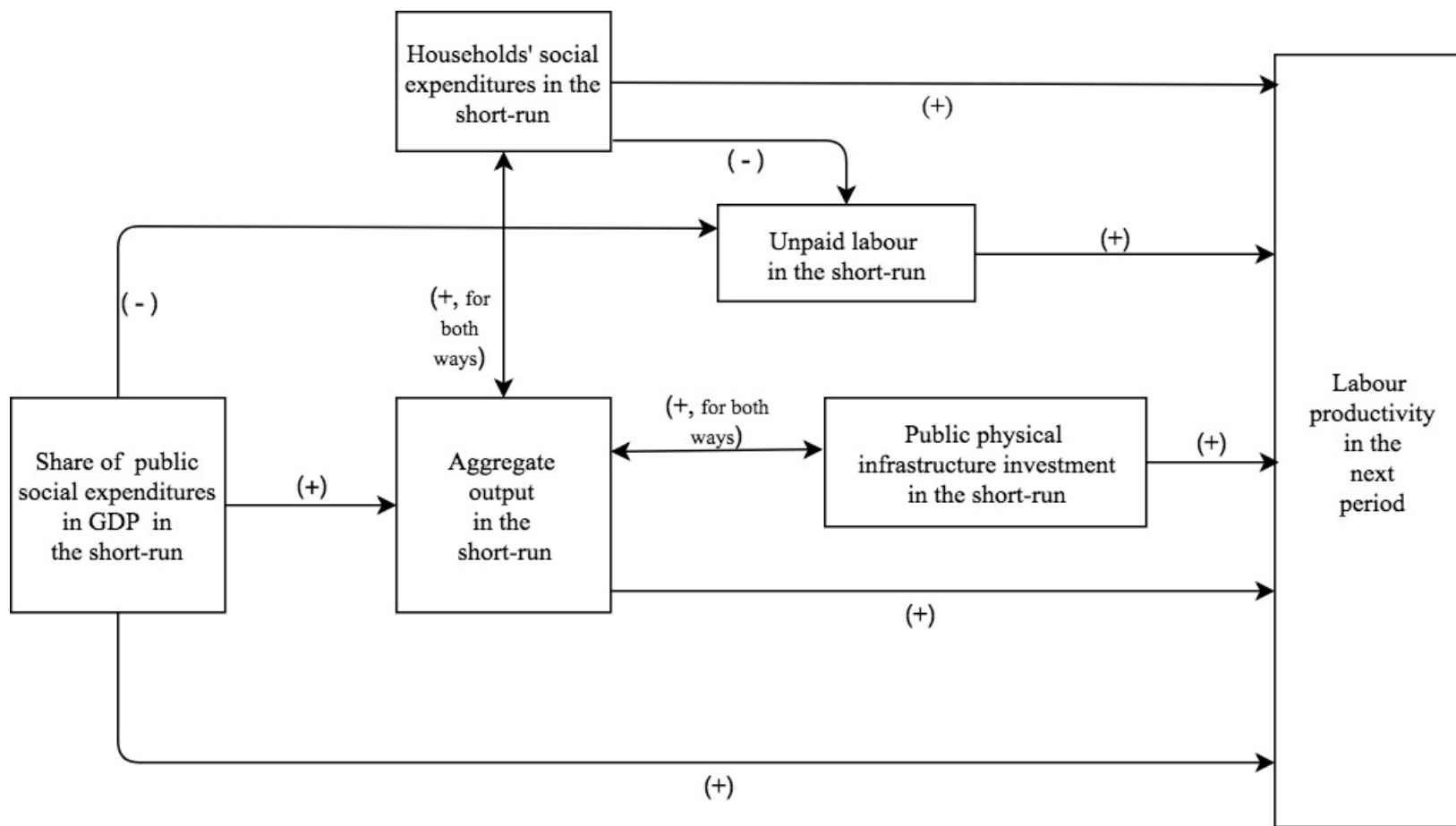


\* Based on Figure 1, the positive partial impact of public social expenditures is expected to be relatively larger for female employment compared to the partial impact from expenditures in N sector.

\*\* The impact of total wage payments in H sector is through their impact on wage and wealth taxes.

\*\*\* The impact of total wage payments in H sector is through their impact on the wealth of top 1% and bottom 99%.

**Figure 5: The effects of an increase in public social infrastructure investment on labour productivity in the next period**



**Figure 7: The effects of public social infrastructure investment on total employment in the short-run and in the next period**

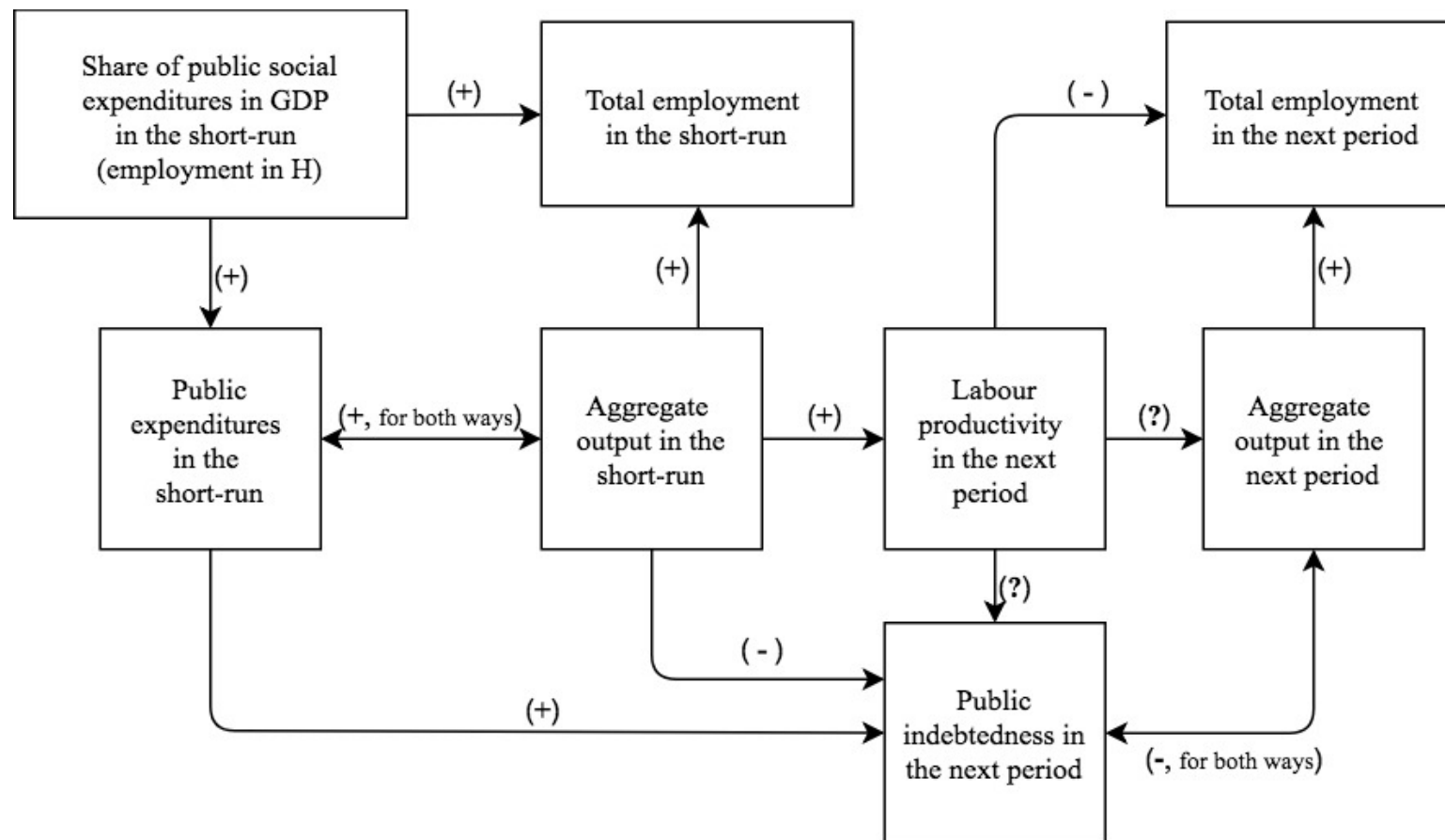
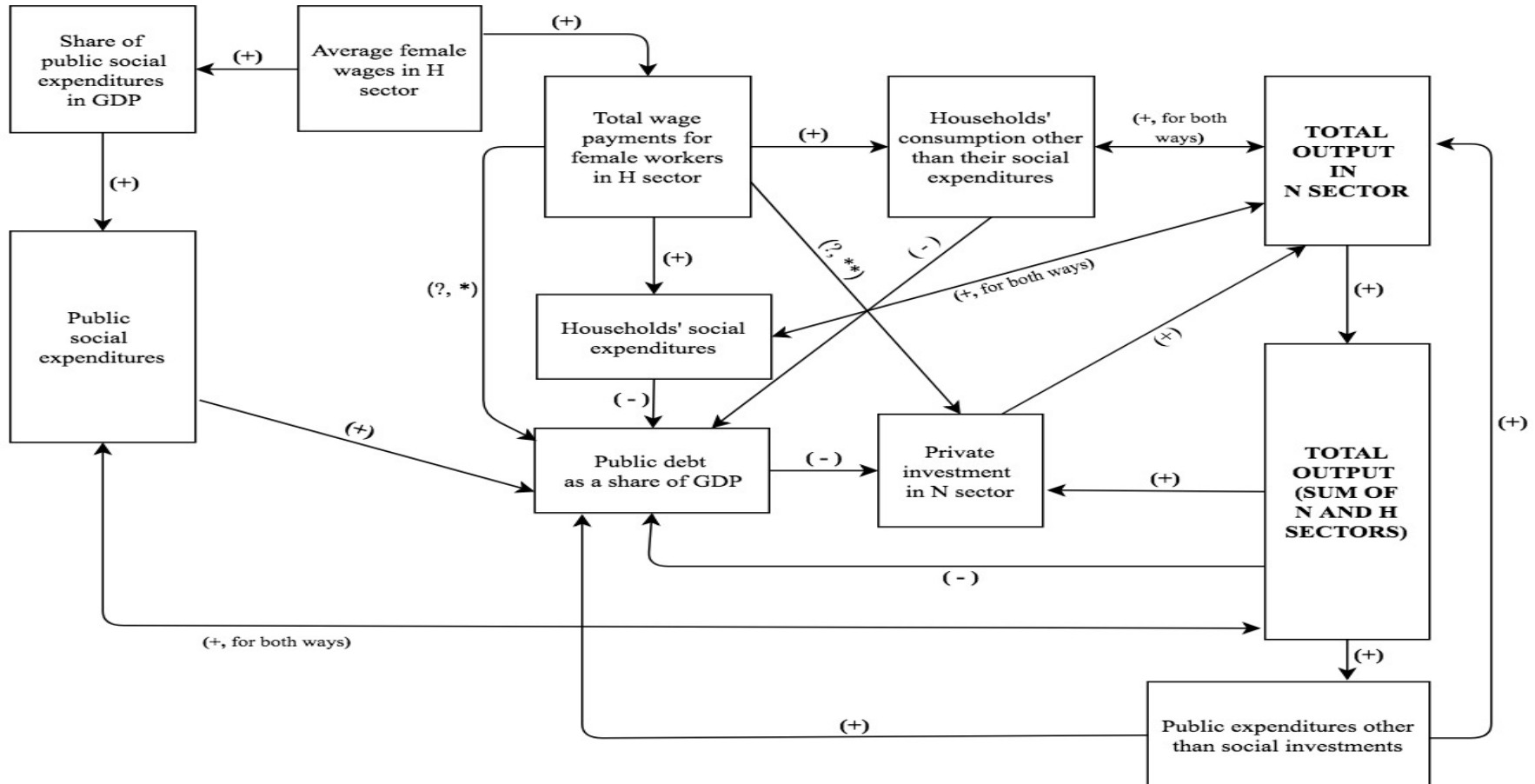


Figure 8: The effects of closing the gender wage gap in H on total output in the short-run



\* The impact of total wage payments in H sector is through their impact on wage and wealth taxes.

\*\* The impact of total wage payments in H sector is through their impact on the wealth of top 1% and bottom 99%.



## The regimes and their conditions in the case of an increase in female and male wages in N with a constant gender wage gap

| Case  | Growth Regime                | Condition   |
|---|------------------------------|---|
| $\Psi_{tt}^{NF} > 0$                        | Wage-led in the short-run    | $\left( \left  \frac{\partial C_t^N}{\partial w_t^{NF}} \right _{Y_t, \alpha_t^N} + \left  \frac{\partial C_t^H}{\partial w_t^{NF}} \right _{Y_t, \alpha_t^N} \right) >$ $- \left( \left  \frac{\partial I_t}{\partial w_t^{NF}} \right _{Y_t, \alpha_t^N} + \left  \frac{\partial X_t}{\partial w_t^{NF}} \right _{Y_t, \alpha_t^N} - \left  \frac{\partial M_t}{\partial w_t^{NF}} \right _{Y_t, \alpha_t^N} \right)$ |
| $\Psi_{tt}^{NF} < 0$                        | Profit-led in the short-run  | $\left( \left  \frac{\partial C_t^N}{\partial w_t^{NF}} \right _{Y_t, \alpha_t^N} + \left  \frac{\partial C_t^H}{\partial w_t^{NF}} \right _{Y_t, \alpha_t^N} \right) <$ $- \left( \left  \frac{\partial I_t}{\partial w_t^{NF}} \right _{Y_t, \alpha_t^N} + \left  \frac{\partial X_t}{\partial w_t^{NF}} \right _{Y_t, \alpha_t^N} - \left  \frac{\partial M_t}{\partial w_t^{NF}} \right _{Y_t, \alpha_t^N} \right)$ |
| $(\Psi_{tt}^{NF} + \Psi_{t(t-1)}^{NF}) > 0$ | Wage-led in the medium-run   | Ambiguous due to effects on productivity  |
| $(\Psi_{tt}^{NF} + \Psi_{t(t-1)}^{NF}) < 0$ | Profit-led in the medium-run | Ambiguous due to effects on productivity  |

## ... Model

- Female & male labour force participation depend on wages, social infrastructure, unpaid care
- If  $E > LF$  for a particular type of worker, unemployment ↓
- e.g. a low female labour supply (lack of public social infrastructure)  
→ exogenous migration
  - or change in gender norms & occupational segregation
- for simplicity we ignore the effects of unemployment on wage rates
- occupational segregation exogenous,
  - determined by gendered social norms
- fertility and mortality rate exogenous

## Estimation methodology

- Data: EUKLEMS, AMECO, WWID, EC, ONS 1970-2015(16)
- Systems estimation using Seemingly Unrelated Regression for C in H and N
- Single equation estimations for I, X, M, PW, PW1/PW
  - Using ECM if relevant
- Panel fixed effects using 5 year averages for productivity
  - 18 sectors other than education, health, care
  - five year non-overlapping average of explanatory variables starting from 1970 and of the dependent variable starting from 1971
- Robustness check with instrumental variables
  - IV:  $w_F$ ,  $\alpha$ ,  $\beta$  in H and N,  $t_R$ ,  $t_W$ ,  $t_{PW}$ , and  $Y_{world}$ , all in t, t-1, t-2

**Table 3: Estimation results for consumption in N and H**

| Dependent variable                | $\Delta \log C_t^N$ |         | $\Delta \log C_t^H$ |         |
|-----------------------------------|---------------------|---------|---------------------|---------|
| Variable                          | Coeff.              | P-value | Coeff.              | P-value |
| Constant                          | 0.007               | 0.003   | 0.011               | 0.081   |
| $\Delta \log(R_t(1-t^R_t))$       | 0.085               | 0.000   | 0.063               | 0.235   |
| $\Delta \log(WB_t^F(1-t^W_t))$    | 0.150               | 0.041   | 0.304               | 0.109   |
| $\Delta \log(WB_t^M(1-t^W_t))$    | 0.375               | 0.000   | 0.244               | 0.291   |
| $\Delta \log(PW99_t(1-t^{PW}_t))$ | 0.132               | 0.008   | -0.072              | 0.569   |
| $\Delta \log(PW1_t(1-t^{PW}_t))$  | 0.017               | 0.478   | -0.053              | 0.381   |
| Adj. R <sup>2</sup>               | 0.735               |         | 0.134               |         |
| DW statistic                      | 1.529               |         | 1.394               |         |
| Sample                            | 1971-2015           |         | 1971-2015           |         |

Estimation method: SUR

**Table 4: Estimation results for private investment**

| Dependent variable                | $\Delta \log I_t$ |         |
|-----------------------------------|-------------------|---------|
| Variable                          | Coeff.            | p-value |
| Constant                          | -0.947            | 0.004   |
| $\Delta \log(\pi_t(1-t^R_t))$     | 0.196             | 0.090   |
| $\Delta \log Y_t$                 | 1.282             | 0.039   |
| $\Delta \log(PW1_t(1-t^{PW}_t))$  | -0.058            | 0.503   |
| $\Delta \log(PW99_t(1-t^{PW}_t))$ | 0.389             | 0.031   |
| $\Delta \log(D/Y)_t$              | -0.289            | 0.016   |
| $\log I_{t-1}$                    | -0.276            | 0.000   |
| $\log Y_{t-1}$                    | 0.403             | 0.001   |
| $\log(PW1_{t-1}(1-t^{PW}_{t-1}))$ | -0.074            | 0.045   |
| Adj. R <sup>2</sup>               | 0.694             |         |
| DW statistic                      | 2.031             |         |
| Sample                            | 1971-2016         |         |

Estimation method: Error correction model

**Table 7: Estimation results for productivity in N**

| Dependent variable                    | $\log T_{it}$ |         |
|---------------------------------------|---------------|---------|
| Variable                              | Coeff.        | p-value |
| $\log Y_{i(t-1)}$                     | 0.231         | 0.011   |
| $\log I_{i(t-1)}/E_{it}$              | -0.100        | 0.149   |
| $\log w_{i(t-1)}^F$                   | 0.679         | 0.000   |
| $\log \alpha_{i(t-1)}$                | 0.564         | 0.000   |
| $\log(G_{t-1}^H + C_{t-1}^H)/N_{t-1}$ | 0.267         | 0.019   |
| $\log(I_{t-1}^G)/N_{t-1}$             | -0.029        | 0.293   |
| Constant                              | -0.534        | 0.230   |
| Adj. R <sup>2</sup>                   | 0.920         |         |
| Number of observations                | 162           |         |
| Number of sectors                     | 18            |         |
| Sample                                | 1971-2016     |         |

Estimation method: Fixed effects panel regression

Note: The time indicator t refers to five year non-overlapping average of explanatory variables starting from 1970 and of the dependent variable starting from 1971.

**Table 8: Estimation results for private net wealth**

| Dependent variable                      | $\Delta \log PW_t(1-t^{PW}_{t-1})$ |         |
|---|------------------------------------|---------|
| Variable                                | Coeff.                             | p-value |
| Constant                                | -0.002                             | 0.776   |
| $\Delta \log(WB^F_t(1-t^W_t))$          | 0.496                              | 0.016   |
| $\Delta \log(WB^M_t(1-t^W_t))$          | 0.420                              | 0.091   |
| $\Delta \log(R_t(1-t^R_t))$             | 0.213                              | 0.000   |
| $\Delta \log(PW_{t-1}(1-t^{PW}_{t-1}))$ | 0.333                              | 0.016   |
| Adj. R <sup>2</sup>                     | 0.606                              |         |
| DW statistic                            | 1.842                              |         |
| Sample                                  | 1972-2015                          |         |

Estimation method: OLS in first differences

**Table 9: Estimation results for private net wealth concentration**

| Dependent variable             | $\log\lambda_t$ |         |
|--------------------------------|-----------------|---------|
| Variable                       | Coeff.          | p-value |
| Constant                       | -0.081          | 0.671   |
| $\log(\pi_{t-1}(1-t_{t-1}^R))$ | 0.108           | 0.452   |
| $\log(\pi_{t-2}(1-t_{t-2}^R))$ | -0.229          | 0.227   |
| $\log(\pi_{t-3}(1-t_{t-3}^R))$ | 0.244           | 0.095   |
| $\log\lambda_{t-1}$            | 0.854           | 0.000   |
| $\log t_{t-1}^{PW}$            | -0.058          | 0.075   |
| Adj. R <sup>2</sup>            | 0.809           |         |
| DW statistic                   | 2.282           |         |
| Sample                         | 1973-2016       |         |

Estimation method: Autoregressive distributed lag model (ARDL)



**Table 5: Estimation results for exports**

| Dependent variable               | $\Delta \log X_t$ |         |
|----------------------------------|-------------------|---------|
| Variable                         | Coeff.            | P-value |
| Constant                         | -0.014            | 0.213   |
| $\Delta \log(\pi_t)$             | 0.124             | 0.299   |
| $\Delta \log Y^{\text{World}}_t$ | 1.741             | 0.000   |
| Adj. $R^2$                       | 0.418             |         |
| DW statistic                     | 1.778             |         |
| Sample                           | 1971-2016         |         |

Estimation method: OLS in first differences

**Table 6: Estimation results for imports**

| Dependent variable   | $\Delta \log M_t$ |         |
|----------------------|-------------------|---------|
| Variable             | Coeff.            | p-value |
| Constant             | -2.261            | 0.005   |
| $\Delta \log(\pi_t)$ | -0.182            | 0.129   |
| $\Delta \log Y_t^N$  | 1.591             | 0.000   |
| $\log M_{t-1}$       | -0.259            | 0.005   |
| $\log Y_{t-1}^N$     | 0.534             | 0.005   |
| Adj. R <sup>2</sup>  | 0.678             |         |
| DW statistic         | 2.615             |         |
| Sample               | 1971-2016         |         |

Estimation method: Error correction model

## The effects of policies

- Fiscal policy
  - government spending in **social** vs **physical** infrastructure↑
    - increasing E for a given wage rate
    - increasing wage rate for a given E
    - closing gender wage gap for a given E
  - Change tax rate on capital vs labour income and wealth
- Labour market policies
  - **Increase hourly real wage rate** of men and women in N &/or H
  - **close gender gaps** in N &/or H
    - Close gender gaps with constant male wage rate
    - Upward convergence

## Summary of the results in the UK: public spending

- Strong positive effects of public **social** infrastructure on output and employment in both short and medium run, and on productivity
  - Public **social** infrastructure/GDP  $\uparrow$  1%-point  $\rightarrow$
  - output  $\uparrow$  3.6% in SR, 2.7% in MR
  - Employment of both women and men  $\uparrow$  in both short & medium run
  - total E in MR  $\uparrow$  1.7%
  - $E_f$  in MR  $\uparrow$  3.3%
  - $E_m$  in MR  $\uparrow$  0.4%
  - Public debt/GDP  $\downarrow$  0.9%-point in SR, but  $\uparrow$  0.5%-point in MR
- Similar effects of public **physical** infrastructure on output and debt
  - But effects on  $E_f$  are smaller & similar to  $E_m$  (in MR  $\uparrow$   $\sim$ 1.6%)

## Summary of the results in the UK : taxation

- An increase in the progressivity of income taxation
  - tax rate on profit income  $\uparrow$  1%-point
  - tax rate on wages  $\downarrow$  1%-point
  - output, female and male employment  $\uparrow$ , and public debt/GDP  $\downarrow$  in both the short and the medium-run.
- tax rate on wealth  $\uparrow$  1%-point (doubling of  $t$  on wealth)
  - wealth concentration  $\downarrow$
  - the strongest + impact on output, employment and the budget
  - Output  $\uparrow$  0.9% in SR, 4.3% in MR
  - $E_f$  and  $E_m$  both  $\uparrow$   $\sim$  0.9% in SR, 4% in MR
  - public debt/GDP  $\downarrow$  4.3%-point in SR, 10.3%-point in MR

## The total (post-multiplier) effects of changes in wages and gender pay gap on the components of aggregate demand (as a ratio to GDP), GDP, employment and public debt/GDP

|   | %-point change in consumption in N /GDP | %-point change in consumption in H /GDP | %-point change in private investment /GDP | %-point change in exports /GDP | %-point change in imports in N /GDP | %-point change in public social infrastructure investment /GDP | %-point change in government current expenditure /GDP | %-point change in public physical infrastructure investment /GDP | % Change in GDP    | % change in total employment | % change in female employment | % change in male employment | %-point change in public debt /GDP |
|---|---|---|---|--------------------------------|-------------------------------------|--|---|--|--------------------|------------------------------|-------------------------------|-----------------------------|------------------------------------|
|   | $\Delta C^N/Y$                          | $\Delta C^H/Y$                          | $\Delta I/Y$                              | $\Delta X/Y$                   | $\Delta M/Y$                        | $\Delta G^H/Y$   | $\Delta G^C/Y$  | $\Delta I^G/Y$   | $\Delta Y/Y$       | $\Delta E/E$                 | $\Delta E^F/E^F$              | $\Delta E^M/E^M$            | $\Delta D/Y$                       |
|   | (1)                                     | (2)                                     | (3)                                       | (4)                            | (5)                                 | (6)  | (7)   | (8)  | (9) <sup>(i)</sup> | (10)                         | (11)                          | (12)                        | (13)                               |
| <b>A. The effects of a 1% increase in female and male wages in N</b>  |   |   |   |                                |                                     |  |   |  |                    |                              |                               |                             |                                    |
| <b>SR (ii)</b>  | 0.356                                   | 0.013                                   | 0.046                                     | -0.045                         | 0.188                               | 0.030  | 0.025   | 0.007  | 0.244              | 0.257                        | 0.263                         | 0.251                       | -0.184                             |
| <b>MR (ii)</b>  | 0.133                                   | 0.002                                   | 0.067                                     | -0.008                         | 0.085                               | 0.018  | 0.015   | 0.004  | 0.146              | -0.556                       | -0.472                        | -0.623                      | -0.208                             |
| <b>B. Closing gender pay gap in N by 1% : the effects of a 1% increase in only female wages in N (1% decline in <math>\alpha^N</math>)</b>  |   |   |   |                                |                                     |  |   |  |                    |                              |                               |                             |                                    |
| <b>SR</b>   | 0.091                                   | 0.006                                   | 0.013                                     | -0.014                         | 0.051                               | 0.007  | 0.006   | 0.002  | 0.062              | 0.065                        | 0.066                         | 0.063                       | -0.053                             |
| <b>MR</b>   | 0.048                                   | 0.003                                   | 0.011                                     | -0.011                         | 0.031                               | 0.003  | 0.003   | 0.001  | 0.027              | -0.105                       | -0.089                        | -0.118                      | -0.069                             |
| <b>C. The effects of a 1% increase in female and male wages in H</b>  |   |   |   |                                |                                     |  |   |  |                    |                              |                               |                             |                                    |
| <b>SR</b>   | 0.215                                   | 0.064                                   | 0.121                                     | 0.000                          | 0.163                               | 0.134  | 0.043   | 0.013  | 0.427              | 0.449                        | 0.461                         | 0.440                       | -0.170                             |
| <b>MR</b>   | 0.067                                   | 0.057                                   | 0.108                                     | 0.020                          | 0.086                               | 0.122  | 0.034   | 0.010  | 0.330              | -0.030                       | 0.022                         | -0.071                      | -0.119                             |
| <b>D. Closing gender pay gap in H by 1% : the effects of a 1% increase in only female wages in H (1% decline in <math>\alpha^H</math>)</b>  |   |   |   |                                |                                     |  |   |  |                    |                              |                               |                             |                                    |
| <b>SR</b>   | 0.148                                   | 0.051                                   | 0.086                                     | 0.000                          | 0.116                               | 0.090  | 0.030   | 0.009  | 0.298              | 0.314                        | 0.322                         | 0.308                       | -0.155                             |
| <b>MR</b>   | 0.044                                   | 0.046                                   | 0.079                                     | 0.014                          | 0.063                               | 0.082  | 0.024   | 0.007  | 0.232              | -0.024                       | 0.012                         | -0.054                      | -0.112                             |
| <b>E: The effects of a 1% increase in female and male wages in both N and H (iii)</b>   |   |   |   |                                |                                     |  |   |  |                    |                              |                               |                             |                                    |
| <b>SR</b>   | 0.571                                   | 0.077                                   | 0.167                                     | -0.045                         | 0.352                               | 0.163  | 0.068   | 0.020  | 0.670              | 0.706                        | 0.724                         | 0.691                       | -0.354                             |
| <b>MR</b>   | 0.200                                   | 0.059                                   | 0.175                                     | 0.011                          | 0.171                               | 0.140  | 0.049   | 0.014  | 0.476              | -0.586                       | -0.451                        | -0.694                      | -0.327                             |
| <b>F. Upward convergence: The effects of a 2% increase in female wages and 1% increase in male wages in both N and H (closing gender pay gaps by 1% ; 1% decline in <math>\alpha^H</math> and <math>\alpha^N</math> (iv))</b> |   |   |   |                                |                                     |  |   |  |                    |                              |                               |                             |                                    |
| <b>SR</b>   | 0.811                                   | 0.133                                   | 0.266                                     | -0.059                         | 0.519                               | 0.261  | 0.105   | 0.031  | 1.030              | 1.085                        | 1.113                         | 1.062                       | -0.562                             |
| <b>MR</b>   | 0.292                                   | 0.108                                   | 0.265                                     | 0.013                          | 0.265                               | 0.225  | 0.075   | 0.022  | 0.736              | -0.715                       | -0.528                        | -0.865                      | -0.507                             |
| Notes:(i) Column (9)=(1)+(2)+(3)+(4)-(5)+(6)+(7)+(8). In each column, the effects in Appendix 3 are multiplied by the wage rate in the relevant sector and divided by Y.  |   |   |   |                                |                                     |  |   |  |                    |                              |                               |                             |                                    |
| (ii) SR: short run. MR: medium-run, defined as the cumulative of the effects in the short-run and the next period when productivity in N changes endogenously.  |   |   |   |                                |                                     |  |   |  |                    |                              |                               |                             |                                    |
| (iii) Sum of the effects in simulations (A) and (C)   |   |   |   |                                |                                     |  |   |  |                    |                              |                               |                             |                                    |
| (iv) Sum of the effects in simulations (A), (B), (C) and (D)  |   |   |   |                                |                                     |  |   |  |                    |                              |                               |                             |                                    |

## The total (post-multiplier) effects of changes in fiscal policies on the components of aggregate demand (as a ratio to GDP), GDP, employment and public debt/GDP

|  | %-point change in consumption in N /GDP | %-point change in consumption in H /GDP | %-point change in private investment /GDP | %-point change in exports /GDP | %-point change in imports in N /GDP | %-point change in public social infrastructure investment /GDP | %-point change in government current expenditure /GDP | %-point change in public physical infrastructure investment /GDP | % Change in GDP    | % change in total employment | % change in female employment | % change in male employment | %-point change in public debt /GDP |
|--|---|---|---|--------------------------------|-------------------------------------|--|---|--|--------------------|------------------------------|-------------------------------|-----------------------------|------------------------------------|
|  | $\Delta C^N/Y$                          | $\Delta C^H/Y$                          | $\Delta I/Y$                              | $\Delta X/Y$                   | $\Delta M/Y$                        | $\Delta G^H/Y$   | $\Delta G^C/Y$  | $\Delta I^G/Y$   | $\Delta Y/Y$       | $\Delta E/E$                 | $\Delta E^F/E^F$              | $\Delta E^M/E^M$            | $\Delta D/Y$                       |
|  | (1)                                     | (2)                                     | (3)                                       | (4)                            | (5)                                 | (6)  | (7)   | (8)  | (9) <sup>(i)</sup> | (10)                         | (11)                          | (12)                        | (13)                               |
| <b>A. The effects of a 1% -point increase in public social infrastructure investment/GDP (<math>\kappa^H</math>)</b>   |   |   |   |                                |                                     |  |   |  |                    |                              |                               |                             |                                    |
| <b>SR (ii)</b>   | 1.847                                   | 0.071                                   | 0.960                                     | 0.000                          | 1.200                               | 1.435  | 0.365   | 0.107  | 3.585              | 5.454                        | 6.722                         | 4.437                       | -0.981                             |
| <b>MR (ii)</b>   | 0.649                                   | 0.018                                   | 0.753                                     | 0.148                          | 0.545                               | 1.328  | 0.276   | 0.081  | 2.707              | 1.674                        | 3.238                         | 0.420                       | 0.497                              |
| <b>B. The effects of a 1% -point increase in public physical infrastructure investment/GDP (<math>\kappa^G</math>)</b>   |   |   |   |                                |                                     |  |   |  |                    |                              |                               |                             |                                    |
| <b>SR</b>  | 0.985                                   | 0.034                                   | 0.512                                     | 0.000                          | 1.003                               | 0.249  | 0.208   | 1.061  | 2.046              | 2.154                        | 2.210                         | 2.109                       | -0.213                             |
| <b>MR</b>  | 0.916                                   | 0.027                                   | 0.472                                     | 0.023                          | 0.945                               | 0.243  | 0.204   | 1.060  | 1.999              | 1.660                        | 1.764                         | 1.576                       | 0.550                              |
| <b>C. The effects of a 1% -point increase in the tax rate on profit income (<math>t^R</math>)</b>  |   |   |   |                                |                                     |  |   |  |                    |                              |                               |                             |                                    |
| <b>SR</b>  | -0.194                                  | -0.006                                  | -0.057                                    | 0.000                          | -0.102                              | -0.025   | -0.021  | -0.006   | -0.208             | -0.219                       | -0.224                        | -0.214                      | -0.200                             |
| <b>MR</b>  | -0.230                                  | -0.005                                  | -0.009                                    | -0.005                         | -0.094                              | -0.025   | -0.021  | -0.006   | -0.207             | -0.127                       | -0.143                        | -0.114                      | -0.478                             |
| <b>D. The effects of a 1% -point increase in the tax rate on wealth (<math>t^W</math>)</b>   |   |   |   |                                |                                     |  |   |  |                    |                              |                               |                             |                                    |
| <b>SR</b>  | 0.298                                   | 0.015                                   | 0.802                                     | 0.000                          | 0.442                               | 0.110  | 0.092   | 0.027  | 0.902              | 0.949                        | 0.974                         | 0.930                       | -4.264                             |
| <b>MR</b>  | 1.986                                   | 0.066                                   | 3.199                                     | 0.020                          | 2.070                               | 0.521  | 0.436   | 0.128  | 4.285              | 4.134                        | 4.293                         | 4.006                       | -10.268                            |
| <b>E. The effects of a 1% -point increase in the tax rate on wage income (<math>t^W</math>)</b>  |   |   |   |                                |                                     |  |   |  |                    |                              |                               |                             |                                    |
| <b>SR</b>  | -1.080                                  | -0.038                                  | -0.321                                    | 0.000                          | -0.570                              | -0.142   | -0.119  | -0.035   | -1.164             | -1.226                       | -1.257                        | -1.200                      | 0.212                              |
| <b>MR</b>  | -1.156                                  | -0.034                                  | -0.394                                    | -0.027                         | -0.614                              | -0.162   | -0.136  | -0.040   | -1.335             | -0.888                       | -0.983                        | -0.812                      | 0.053                              |
| Notes: (i) Column (9)=(1)+(2)+(3)+(4)-(5)+(6)+(7)+(8). In each column, the effects in Appendix 4 are divided by Y.   |   |   |   |                                |                                     |  |   |  |                    |                              |                               |                             |                                    |
| (ii) SR: short run. MR: medium-run, defined as the cumulative of the effects in the short-run and the next period when productivity in N changes endogenously. |   |   |   |                                |                                     |  |   |  |                    |                              |                               |                             |                                    |

## The total (post-multiplier) effects of mix of labour market and fiscal policies on the components of aggregate demand (as a ratio to GDP), GDP, employment and public debt/GDP

|   | %-point change in consumption in N/GDP | %-point change in consumption in H/GDP | %-point change in private investment /GDP | %-point change in exports /GDP | %-point change in imports in N /GDP | %-point change in public social infrastructure investment /GDP | %-point change in government current expenditure /GDP | %-point change in public physical infrastructure investment /GDP | % Change in GDP    | % change in total employment | % change in female employment | % change in male employment | %-point change in public debt /GDP |
|---|--|--|---|--------------------------------|-------------------------------------|--|---|--|--------------------|------------------------------|-------------------------------|-----------------------------|------------------------------------|
|   | $\Delta C^N/Y$                         | $\Delta C^H/Y$                         | $\Delta I/Y$                              | $\Delta X/Y$                   | $\Delta M/Y$                        | $\Delta G^H/Y$   | $\Delta G^C/Y$  | $\Delta I^G/Y$   | $\Delta Y/Y$       | $\Delta E/E$                 | $\Delta E^F/E^F$              | $\Delta E^M/E^M$            | $\Delta D/Y$                       |
|   | (1)                                    | (2)                                    | (3)                                       | (4)                            | (5)                                 | (6)  | (7)   | (8)  | (9) <sup>(i)</sup> | (10)                         | (11)                          | (12)                        | (13)                               |
| <b>A. Purple public investment and upward convergence in wages: The effects of a 1% -point increase in public social infrastructure investment/GDP (<math>\kappa^H</math>) and closing gender gaps via upward convergence in wages via 2% increase in female wages and 1% increase in male wages in both N and H (ii)</b>   |  |  |   |                                |                                     |  |   |  |                    |                              |                               |                             |                                    |
| SR  | 2.658                                  | 0.205                                  | 1.226                                     | -0.059                         | 1.719                               | 1.696  | 0.470   | 0.138  | 4.615              | 6.539                        | 7.835                         | 5.500                       | -1.543                             |
| MR  | 0.941                                  | 0.126                                  | 1.018                                     | 0.161                          | 0.809                               | 1.554  | 0.351   | 0.103  | 3.443              | 0.959                        | 2.710                         | -0.445                      | -0.010                             |
| <b>B. Purple and green public investment and upward convergence in wages: The effects of a 1% -point increase in public social and physical infrastructure investment/GDP (<math>\kappa^H</math> and <math>\kappa^G</math>) and closing gender gaps via upward convergence in wages via 2% increase in female wages and 1% increase in male wages in both N and H (iii)</b>   |  |  |   |                                |                                     |  |   |  |                    |                              |                               |                             |                                    |
| SR  | 3.643                                  | 0.239                                  | 1.738                                     | -0.059                         | 2.722                               | 1.945  | 0.678   | 1.199  | 6.661              | 8.693                        | 10.044                        | 7.609                       | -1.756                             |
| MR  | 1.856                                  | 0.153                                  | 1.490                                     | 0.184                          | 1.754                               | 1.797  | 0.554   | 1.163  | 5.443              | 2.619                        | 4.475                         | 1.132                       | 0.540                              |
| <b>C. Progressive income tax: The effects of a 1% -point increase in the tax rate on profit income (<math>t^R</math>) and a 1% -point decrease in the tax rate on wages (<math>t^W</math>) (iv)</b>   |  |  |   |                                |                                     |  |   |  |                    |                              |                               |                             |                                    |
| SR  | 0.887                                  | 0.032                                  | 0.264                                     | 0.000                          | 0.469                               | 0.116  | 0.097   | 0.029  | 0.956              | 1.007                        | 1.033                         | 0.986                       | -0.412                             |
| MR  | 0.926                                  | 0.029                                  | 0.385                                     | 0.022                          | 0.519                               | 0.137  | 0.115   | 0.034  | 1.129              | 0.761                        | 0.840                         | 0.698                       | -0.531                             |
| <b>D. Purple and green public investment, upward convergence in wages, and progressive income and wealth taxation: a 1% -point increase in public social and physical infrastructure investment/GDP (<math>\kappa^H</math> and <math>\kappa^G</math>) and closing gender gaps via upward convergence in wages via 2% increase in female wages and 1% increase in male wages in both N and H a 1% -point increase in the tax rate on profit income (<math>t^R</math>), a 1% -point decrease in the tax rate on wages (<math>t^W</math>) and a 1% -point increase in the tax rate on wealth (<math>t^{PW}</math>) (v)</b> |  |  |   |                                |                                     |  |   |  |                    |                              |                               |                             |                                    |
| SR  | 4.827                                  | 0.286                                  | 2.804                                     | -0.059                         | 3.632                               | 2.171  | 0.867   | 1.255  | 8.519              | 10.649                       | 12.051                        | 9.525                       | -6.431                             |
| MR  | 4.767                                  | 0.248                                  | 5.074                                     | 0.226                          | 4.344                               | 2.455  | 1.105   | 1.325  | 10.856             | 7.514                        | 9.607                         | 5.836                       | -10.259                            |
| Notes: (i) Column (9)=(1)+(2)+(3)+(4)-(5)+(6)+(7)+(8)   |  |  |   |                                |                                     |  |   |  |                    |                              |                               |                             |                                    |
| (ii) Sum of the effects in simulations (A) in Table 11 and (F) in Table 10.   |  |  |   |                                |                                     |  |   |  |                    |                              |                               |                             |                                    |
| (iii) Sum of the effects in simulations (A) and (B) in Table 11 and (F) in Table 10.  |  |  |   |                                |                                     |  |   |  |                    |                              |                               |                             |                                    |
| (iv) The effects in simulations (C) minus (E) in Table 11.  |  |  |   |                                |                                     |  |   |  |                    |                              |                               |                             |                                    |
| (v) The effects in simulations (A) plus (B) plus (C) plus (D) minus (E) in Table 11 plus (F) in Table 10.   |  |  |   |                                |                                     |  |   |  |                    |                              |                               |                             |                                    |



**Table 7.1 Regression results for Consumption in N and H**

| Dependent variable   | $\Delta \log C^N$ |         | $\Delta \log C^H$ |         |
|--|-------------------|---------|-------------------|---------|
|  | Coeff.            | p-value | Coeff.            | p-value |
| Constant   | 0.007             | 0.007   | 0.011             | 0.091   |
| $\Delta \log(R_t(1-t^R_t))$  | 0.058             | 0.052   | 0.001             | 0.993   |
| $\Delta \log(WB^F_t(1-t^W_t))$   | 0.139             | 0.092   | 0.292             | 0.168   |
| $\Delta \log(WB^M_t(1-t^W_t))$   | 0.373             | 0.002   | 0.224             | 0.452   |
| $\Delta \log(PW99_t(1-t^{PW}_t))$  | 0.172             | 0.009   | -0.089            | 0.586   |
| $\Delta \log(PW1_t(1-t^{PW}_t))$   | -0.005            | 0.861   | -0.016            | 0.834   |
| Adj. R <sup>2</sup>  | 0.681             |         | 0.067             |         |
| DW statistic   | 1.504618          |         | 1.406538          |         |
| Sample   | 1975 2015         |         | 1975 2015         |         |
| Note: Instruments are $w_F$ , $\alpha$ , $\beta$ in H and N, $t^R$ , $t^W$ , $t^{PW}$ , all in t, t-1, t-2 |                   |         |                   |         |
| Estimation Method: Three-Stage Least Squares   |                   |         |                   |         |

**Table 7.2 Regression results for private investment**

| Dependent variable                | $\Delta \log I$ |         |
|-----------------------------------|-----------------|---------|
| Variable                          | Coeff.          | p-value |
| Constant                          | -1.800          | 0.001   |
| $\Delta \log(\pi_t(1-t^R_t))$     | 0.081           | 0.543   |
| $\Delta \log Y_t$                 | 1.730           | 0.033   |
| $\Delta \log(PW1_t(1-t^{PW}_t))$  | -0.213          | 0.079   |
| $\Delta \log(PW99_t(1-t^{PW}_t))$ | 0.415           | 0.122   |
| $\Delta \log(D/Y)_t$              | -0.167          | 0.249   |
| $\log I_{t-1}$                    | -0.322          | 0.000   |
| $\log Y_{t-1}$                    | 0.6395          | 0.0002  |
| $\log(PW1_{t-1}(1-t^{PW}_{t-1}))$ | -0.161969       | 0.0078  |
| Adj. R <sup>2</sup>               | 0.714379        |         |
| DW statistic                      | 1.735481        |         |
| Sample                            | 1973 2015       |         |

Note: Instruments are  $w_F$ ,  $\alpha$ ,  $\beta$  in H and N,  $t^R$ ,  $t^W$ ,  $t^{PW}$ , all in t, t-1, t-2

Estimation Method: Two-Stage Least Squares

**Table 7.3 Regression results for exports**

| Dependent variable               | $\Delta \log X$ |         |
|----------------------------------|-----------------|---------|
| Variable                         | Coeff.          | p-value |
| Constant                         | -0.020          | 0.074   |
| $\Delta \log(\pi_t)$             | 0.100           | 0.422   |
| $\Delta \log Y^{\text{World}}_t$ | 1.992           | 0.000   |
| Adj. R <sup>2</sup>              | 0.494           |         |
| DW statistic                     | 1.643           |         |
| Sample                           | 1973 2015       |         |

Note: Instruments are  $wF$ ,  $\alpha$ ,  $\beta$  in H and N,  $tR$ ,  $tW$ ,  $tPW$ , and  $Y^{\text{world}}$ , all in  $t$ ,  $t-1$ ,  $t-2$

Estimation Method: Two-Stage Least Squares

**Table 7.4 Regression results for imports**

| Dependent variable   | $\Delta \log M$ |         |
|----------------------|-----------------|---------|
| Variable             | Coeff.          | p-value |
| Constant             | -1.915          | 0.048   |
| $\Delta \log(\pi_t)$ | -0.191          | 0.197   |
| $\Delta \log Y_t^N$  | 1.502           | 0.000   |
| $\log M_{t-1}$       | -0.241          | 0.038   |
| $\log Y_{t-1}^N$     | 0.470           | 0.043   |
| Adj. $R^2$           | 0.638           |         |
| DW statistic         | 2.409           |         |
| Sample               | 1973 2015       |         |

Note: Instruments are  $w_F$ ,  $\alpha$ ,  $\beta$  in H and N,  $t^R$ ,  $t^W$ ,  $t^{PW}$ , all in t, t-1, t-2

Estimation Method: Two-Stage Least Squares

## Gender and the economy: Feminist Economics

- gendered socialisation and asymmetric power relations between men and women
- Institutionally and historically-constructed gender-related norms, values, and behaviour
- Care work: Unpaid and invisible domestic female labour
  - unpaid activities amount to 70% of total world output valued at prevailing wages; 69% represents women's work (UNDP)
- Women's concentration in caring/nurturing work, both unpaid or paid service sector
- Women's educational achievements do not necessarily translate into labour market gains
- Occupational segregation and gender-based discriminatory practices reduce possible gains
- Gender pay gap almost 20% in the UK

# Structuralist features

- Real world structural features of the economy matter
  - the existence of excess capacity & involuntary unemployment
    - demand matters
  - income distribution → demand
  - social norms → gendered behavioural differences
  - gendered occupational segregation
  - gender pay gaps
  - oligopolistic market structure and price setting by firms
  - labour intensity of exports

## What is public infrastructure investment?

- public investment is required
  - where benefits do not just accrue to individual users but have a public good character and accrue to society as a whole.
  - goods and services, access to which is seen as human right but private supply/profit motive leads to undersupply /privileged access
- Physical infrastructure: **green** investment; Ecological deficit
  - Public transport, renewable energy, housing
- Social infrastructure: education, child care, health and social care,
  - care deficit: both direct and indirect impact on productivity
    - Educated and healthy workforce
    - Female labour force participation↑
      - » socializing the invisible, unpaid domestic care work
      - » Elson: recognize, reduce, redistribute
      - » Ilkkaracan: **Purple** investment
    - Social security → more innovative and productive workers

## ...social infrastructure as investment

- UK Women's Budget Group:
- Currently, public spending in education, childcare, health and social care are considered as current spending as opposed to public infrastructure investment
- these should be redefined as infrastructure spending in the public budget



## Gender-sensitive policy-making

- Equality is not only a desirable social goal in itself but may also contribute to economic development
- Complementarity between targets
  - gender equality
  - decent job creation
  - inclusive and sustainable development,
  - poverty alleviation
  - Ecological sustainability
  - Productive economy
- Complementing and not competing
- mobilize all the tools of economic policy

## How to finance?

- Progressive tax policy on income and wealth
- Borrowing
  - Borrow to spend in both physical and social infrastructure –redefine fiscal policy rule
- Monetary policy
  - Bank of England can use Quantitative Easing to buy government bonds to finance public investment
- National Investment Bank
- More equality –supports the budget too

## There are alternative policies: optimism of the will

- Aims: full employment, equality, ecological sustainability
  - gender equality
  - decent job creation
  - inclusive and sustainable development,
  - Rising share of labour in national income
- implications for policy in both developed and developing countries
- mobilize all the tools of policy
- a comprehensive mix of
  - fiscal and monetary policy
  - public investment in social and physical infrastructure
  - industrial policy
  - labour market policy
  - Financial regulation and corporate governance

## Fiscal Policies for an equality-led and sustainable development

- Public investment in social infrastructure
  - Universal public child care and social care, health care, education
    - improve pay and working conditions in these industries
    - Purple jobs for both men and women - (Ilkcaracan 2013)
    - Substantial effect on productivity
    - Redefine infrastructure and fiscal rule (Women's Budget Group)
    - More jobs with lower Carbon emissions
      - labour intensive services
      - Purple and green are complementary
      - Purple is the new green
- Public investment in physical infrastructure
  - Green investment in renewable energy, public transport, housing
- Impact on public budget –partly self-financing; there is money!
- Progressive taxation of income and wealth

## Labour market policies for an equality-led and sustainable development

- Representation and collective voice for both women and men
  - Collective bargaining coverage
  - inclusive trade unions
  - Labour market regulation, eg ban zero hours
- establishing sufficiently high minimum wages at living wage rate
- regulating high/executive pay via pay ratios
- Gender wage equality –enforce equal pay legislation
  - Higher rates of pay rise at the bottom end of the scale
- Recognize, reduce, redistribute unpaid care (Elson)
  - Universal child care and social care
  - Equal incentives for both men and women regarding parental leave
  - work-life balance as an essential component of decent jobs
  - shorter working hours
  - Downward convergence in hours
  - Shorter hours with wage compensation for the lower wage earners → a narrowing of gender wage gaps.

## ... policies for an equality-led and sustainable development

- Technological change?
  - Shorter working time in parallel with the growth in productivity with wage compensation for the lower income groups.
    - Compared to the 19th century, we are all working part-time today.
    - More equal countries have shorter working hours. (Schor, 2010)
    - shortening of hours → higher hourly productivity
- shorter working hours → gender equality
  - Shorter hours with wage compensation → a narrowing of gender wage gaps.
  - should address daily care responsibilities, and work-life balance based on gender equality in the division of labour in the household;
    - e.g. daily working hours as opposed to more holidays or longer weekends.

## Wage-led growth in the age of globalization?

- Inconsistency of the Macro vs. Micro rationale
  - Firm vs. aggregate/national
  - National vs. regional/global level
- the limits of strategies of international competitiveness based on wage competition in a highly integrated global economy
- Economic globalization may make small open economies more likely to be profit-led
- But political globalization → race to the bottom in labour share
  - international competitiveness effects are eliminated
  - makes economies more likely to be wage-led: India, Argentina, Mexico, Canada: can grow out of wage moderation alone, but contracts in race to the bottom
- The world as a whole is wage-led, because we do not trade with Mars
- Globalization is not a barrier to wage-led development policies.  
→ importance of wage and fiscal policy coordination
- Avoid beggar thy neighbour policies
- Space for domestic-demand led & more equal growth in the developing countries
- If developed economies do not cooperate: south-south cooperation
- Wage-led development is an option also in a single wage-led economy, but effects are stronger if coordinated ->BE POLICY LEADER