The effects of inequalities on macroeconomic performance

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Outline

- Post-Keynesian/Post-Kaleckian feminist political economy vs. mainstream macroeconomics
- Empirical research
- Policy implications

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Post Keynesian/ post-Kaleckian growth

- Long run is a succession of short-run equilibria
- no fundamental difference between short and long run
- Role of institutions
- I=S also at the centre of long run analysis with I→S
- Animal spirits in the long run
  - In contrast: there is no behavioural investment function in the neoclassical Solow growth model.
- Saving rate depends on demand and income distribution
- Dual role of wages
  - Income distribution and demand-led growth
  - wage-led vs profit-led growth

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Income distribution: Glossary

- Personal income distribution: High vs. low income groups
- Functional income distribution
  - source of income - class
  - profit income (capital) vs. wage income (labor)
    - Value added (Y)=profit (R) + wage (W)
    - Profit: gross operating surplus
    - Wage: labour compensation
    - Wage share=wage/value added
    - Profit/value added=1- wage/value added
    - High profit share in income (high profitability)= low wage share
- Wage share vs. unit labor cost
- Wage share=(wage per employee*No of employees)/Value added
  =real unit labor cost
- Wage share=wage per employee/(Value added/No of employees)
  =wage per employee/productivity

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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?
- Keynes
  - Demand-led growth; excess capacity; involuntary unemployment
  - Inequality → negative effect on consumption (underconsumption)
  - Not much effect on investment (demand driven, animal spirits)
- Marx/Goodwin cycle
  - Positive effect on investment
  - High growth, depleting the reserve army of labour: profit squeeze
  - Investment falls
  - Large reserve army of labour; low wages→Realization crisis
- Post-Keynesian/Post-Kaleckian: Synthesis of Marx and Keynes

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) $\rightarrow$

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 labour costs $\downarrow \rightarrow$ higher international competitiveness
   - the sensitivity of net exports to unit labor costs; price elasticity of exports and imports; labour intensity of exports

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…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)
- social and historical framework determining the parameters
- An empirical research question?
  - Onaran and Galanis, 2012/2014; Onaran et al 2011;2019;2021, 2022, 2023; Onaran and Stockhammer 2005; Stockhammer, Onaran, Ederer 2009; Stockhammer and Onaran 2004; Onaran and Obst 2015; Hein and Vogel 2009; Naastepad and Storm, 2007; Bowles and Boyer, 1995…

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A structuralist **post-Keynesian/Kaleckian feminist** macro model

- Synthesizing **post-Keynesian/Kaleckian** **feminist** **ecological** macroeconomics →**ecofeminist** post-Keynesian macroeconomics
- demand-led growth model
  - Onaran, Oyvat Fotopoulou (2022a,b, 2023); Onaran & Oyvat (2026a,b, 2023,2022)
    - synthesizes and furthers feminist structuralist macro
      - Braunstein, van Staveren, Tavani (2011) and Seguino (2010, 2012)
    - IO analysis: İlkkaracan et al,2015; İlkkaracan & Kim, 2019/ILO; De Henaou et al 2016,2017
- demand-side constraints→excess capacity, involuntary unemployment: Post-Keynesian
  - "non-employment" is NOT a voluntary labour supply choice for "leisure" by the utility maximising working women or men
- Different types of public spending: **care**, **green**, **other infrastructure**

→multiplier effects on demand, income distribution, employment

→ supply side and demand interact: productivity and labour supply

- the dual effects of wages on costs and demand: Post-Keynesian/Kaleckian
- distribution of wealth, income and gender gaps →demand and supply side
- structural features of the economy matter
  - Bargaining power
  - Oligopoly power
  - Gendered structure
  - Sectoral
  - import dependency
  - Public infrastructure

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A structuralist **post-Keynesian/Kaleckian feminist** model

- Three Sectors of the economy
  - Care economy: health, social care, education, childcare (H)
    - Social infrastructure
  - rest of the market economy (N)
  - unpaid domestic care sector

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…model: distribution

- Two income groups: profit (R) and wages (WB), different gender (F, M)

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

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

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

- Wage bargaining: function of employment/labour force (of men & women and each other's wages)

…model : distribution

- after tax private net wealth (PW) function of after tax women's & men's 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=λ= PW of top1% / PW (PW1/ PW)
  - Hourly wage rate↑→wage share↑ → wealth concentration↓
  - Wages, gender gap, taxes → functional income & wealth distribution
  - gender pay gap↓ and upward convergence ↑→wage share↑, wealth concentration↓
  - Tax on capital income & wealth → wealth concentration↓

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

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

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

A structuralist post-Keynesian/Kaleckian feminist macro model: Demand side

- Consumption in care (H) & rest of the economy (N) functions of
  - after-tax women's & men's wage & profit income, wealth of 1% & 99%, gov spending

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

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

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A structuralist post-Keynesian/Kaleckian feminist macro model: Demand side

- Private Investment function of
  - after-tax profit share, output, wealth of 1% & 99%, gov spending, public debt/GDP

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

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

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

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κ_t^H

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…Model: Demand side

- Exports: function of profit share, Yworld, 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↑→ real unit labour cost ↓→ nominal unit labour cost ↓

$$logX_t = x_0 + x_1 logY_t^{World} + x_2 log\pi_t + x_3 log\varepsilon_t$$

$$logM_t = n_0 + n_1 logY_t^N + n_2 log\pi_t + n_3 log\varepsilon_t$$

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A structuralist post-Keynesian/Kaleckian feminist macro model: Demand side

- Public spending: target as a ratio to GDP
- green
  - renewable energy (solar, wind, hydro, geothermal),
  - energy efficiency (insulation, industry, grid),
  - public transport (excluding air transport)

  =REEEPT
- care economy/social infrastructure (Y^H)
  - education, childcare
  - health, social care
- Other infrastructure (GFCFC, I^G):
  - e.g. social housing, schools, hospitals

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A structuralist post-Keynesian/Kaleckian feminist macro model: Demand side

- Taxes are collected on wage and capital income, wealth, & C
- Debt/GDP depends on government spending, taxes and Y

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

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A structuralist post-Keynesian/Kaleckian feminist macro model: Demand side

- Unpaid domestic care function of
  - public and private household spending in care and demographic structure

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

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κ_t^H

...Model: Supply side

- Productivity (output/hour)
  - endogenous in the medium run in the rest of the economy
  - Positive function of
    - wages, output, public spending, private investment, C_H, unpaid care

$$\log T_t^N = t_0 + t_1 \log \frac{(G_{t-1}^H + C_{t-1}^H)}{N_{t-1}} + t_2 \log \frac{I_{t-1}^G}{N_{t-1}}$$

$$+ t_3 \log Y_{t-1}^N + t_4 \log w_{t-1}^{NF} + t_5 \log(\alpha_{t-1}^N w_{t-1}^{NF}) + t_6 \log \frac{U_{t-1}}{N_{t-1}}$$

- labour force participation of women & men depend on
  - wages, social infrastructure, unpaid care

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

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

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

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

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

…Model: price setting

- Prices: mark-up on unit labour costs and other input costs
  - Medium run: effects of wages on productivity → moderate price effects

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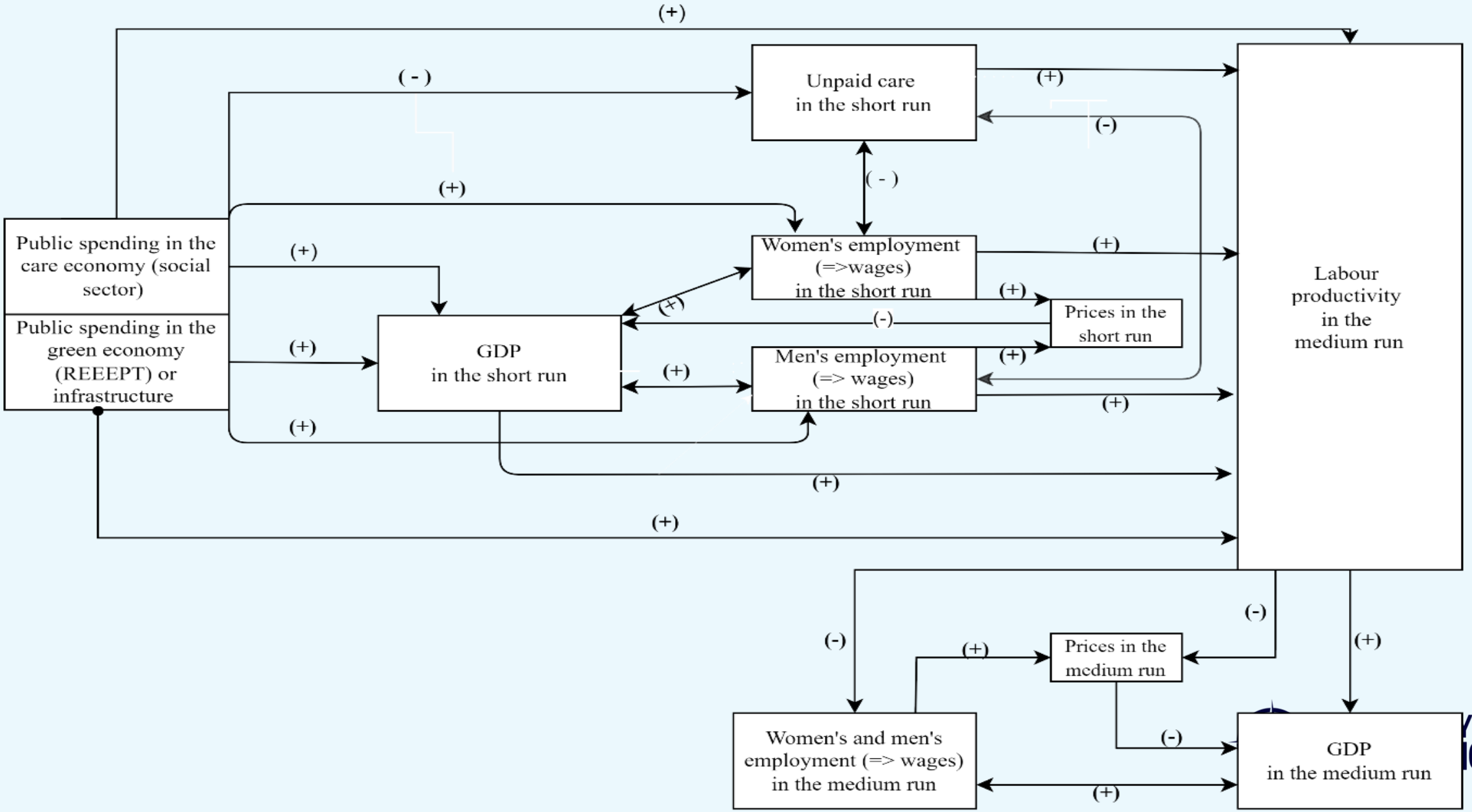
The effect of public spending on employment, output and labour productivity



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

Hire more care workers and pay decent wages, close gender gaps

Demand side:

(+) consumption: demand from employees in care

labour intensive, higher share of women's employment

more income in the hands of women →C on education, health, care↑

gender equality ↑ → Social infrastructure ↑

(+) investment: rising demand

(-) effects of public debt/GDP on I: small

Public debt/GDP: Direct + effect, but - effects through rising output

- **Supply side:**
  - labour productivity in the rest of the economy↑ (GH, CH, Y↑)

  ⇒investment and net exports ↑
- **Employment of women and men**↑ both in the short and medium run
  - output effect is very strong and more than offsets the productivity effect
  - high multiplier effects
  - Women's share of employment↑

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Effects of increasing wages and closing gender gaps

General model: Dual role of wages →demand & cost
Wages & gender gap → Income distribution → demand → output
Short-run: (+) & (-) effects on aggregate demand

- Consumption ↑; not just the level but also composition change
  - Marginal propensity to consume in H out of women's wages>men's w>profit
  - Marginal propensity to consume in N out of men & women's w>profit
  - more income in the hands of women→C education,health, care↑ → productivity↑
- Private investment:
  - w ↑ → profit share↓ →I↓
  - wealth concentration↓ & demand↑ →I↑
  - productivity↑ in Medium Run →I↑
- Net export effects small (-): 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
•Impact on inflation modest
•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 women's wages ↑ + gender gap ↓ →output↑
•Equality-led = Wage-led + gender equality-led

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Empirical Literature

- Strong effects of public investment on GDP and employment
- Care economy
  - İlkkaracan et al, 2015; İlkkaracan and Kim, 2019/ILO, 2020; ITUC, 2016, 2017; Onaran, Oyvat, Fotopoulou, 2022, 2023; Oyvat and Onaran, 2022 , Onaran and Oyvat 2023, 2026a,b
- Green economy
  - Batini et al, 2021; Dafermos and Nikolaidi, 2019; Pollin et al, 2009; 2015; 2022; IRENA 2020; Onaran and Oyvat 2023, 2026a,b
- Infrastructure
  - IMF 2020; Wildauer et al, 2022; Onaran, Oyvat, Fotopoulou, 2023, 2022, Onaran and Oyvat 2023, 2026a,b

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Estimation Methodology

- Onaran, Oyvat, and Fotopoulou 2023, 2022a, b
  - UK
  - Single equation estimations for C in H & N I, X, M, PW, PW1/PW
  - 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
  - Instrumental Variables - GMM
    - IV: α, β in H and N, t_R, t_W, t_{PW}, G^H/Y, PW1/PW, Yworld, strike days/E, union density, capital account openness, in t, t-1, t-2, +sectoral VA in US, EU12 for productivity
    - Robustness check: OLS
  - Systems estimation: Seemingly Unrelated Regression for C in H & N
  - Data: EUKLEMS, AMECO, WWID, EC, ONS 1970-2016

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Policy simulation, UK

- Fiscal policy
  - government spending in **social purple care** vs **physical green** infrastructure/GDP ↑ 1%-point
    - E.g. increasing employment, hiring nurses, social care workers, teachers or investing in renewable energy, energy efficiency, public transport
    - increasing wage rates: e.g. paying higher wages to care workers, nurses…
    - closing gender wage gap via upward convergence: e.g. increase the wage at the bottom of the scale more, enforce equal pay legislation →2%↑ in women's and 1%↑ in men's wages
- progressive income and wealth taxation
  - tax rate on wealth ↑ 1%-point (doubling of tax on wealth)
  - tax rate on profit income ↑ 1%-point
  - tax rate on wages ↓ 1%-point
- Labour market policies: Increase hourly real wage rate and close gender gaps via upward convergence in the rest of the economy

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…Policy simulation, UK

- higher output in both short run and medium run
  - output ↑ 10.9% in the UK (in medium run)
- A strong productivity effect of public spending
- Employment of both women & men↑ in short & medium run
  - E_{female} ↑ 9.6%, E_{male} ↑ 5.8% (in medium run)
- Improved public finance
  - public debt/GDP ↓ 10.3%-point (in medium run)
  - public spending is partly self-financing
  - taxing of wealth in particular and profits have a strong effect on tax revenues
  - **Tax wealth**, invest in **a caring** and **sustainable** society
  - Space for phasing out fossil fuels

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Effects of increasing wages, closing gender gaps, UK

- 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 H
- Net export effects small
- Impact on inflation modest: 1%-point↑ in wage share→2%↑in P, UK (1.5%↑ EU OON16)
- but output effects overall small, in Medium Run strong productivity effects
- → Employment↑ in SR but in Medium Run employment ↓
  - Etot ↓ 0.5% if w ↑ in N
  - if w ↑ in H, in MR Ef ↑ (0.02%) but Em ↓ (0.07%)
- Full employment requires public investment, in particular in the medium run

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What are the effects of taxation, UK?

- tax rate on wealth↑
  - wealth concentration↓ →financialization and market concentration ↓ →Investment↑
  - very strong + impact on output, employment of women and men and the budget balance in both the short and medium run
  - Key for a needs-based fiscal policy to tackle multiple challenges
- An increase in the progressivity of income taxation
  - tax rate on profit income ↑
  - tax rate on wages ↓
  - output, employment of women and men↑, and public debt/GDP↓ in both the short and the medium run.
  - Because in the UK higher wages and gender equality lead to higher output
  - the UK economy is wage-led and equality-led

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National and global multiplier effects

- National multiplier
  - private demand changes → changes in
    - Investment
    - Consumption
    - imports
- Global effects of a simultaneous fall in the wage share
  - Effects of changes in trade partners' wage share via changes in
    - import prices
    - trade partners' GDP

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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

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Summary of the results
(Onaran & Galanis 2012/4, UN/ILO; Onaran and Obst 2016)

- Domestic demand (consumption+investment) is wage-led
- Large/relatively closed economies are wage-led
  - ↑wage share : egalitarian; does not harm growth potential
  - EU as a whole, US, Japan, as well as Turkey, Korea
- although some individual states have a profit-led regime- e.g. if a small country, Belgium or Mexico, is the only one who decreases labor share, it can grow, but if every country does the same, they all contract
- Global race to the bottom: a 1%-point fall in the wage share
  - global GDP↓ by 0.36%; EU15 GDP↓ by 0.27%; UK GDP↓ by 0.2%
- Conversely a global wage-led recovery scenario:
  - Global GDP↑ by 3.05%, EU GDP ↑ by 2.4%; UK GDP ↑ by 1.9%
- Fallacy of composition
- Planet earth is wage-led, unless we trade with Mars!

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Wage-led development in the age of globalization?

- Globalization is not a barrier to egalitarian development
- 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
- Europe and the UK is one of the main beneficiaries of coordinated wage-led growth.
  - Hence potentially policy leader

Planet earth has not traded with Mars but still grew despite declining wage share until the Great Recession. How?

- Potential crisis of aggregate demand deficiency
- The expected outcome should have been a stagnation of global demand and growth
- This was mainly circumvented by two distinct growth models
  - a root cause of the great recession

	Debt-led growth	*Export-led growth*
Center	**US, UK**, **Australia**, New Zealand	**Germany, Japan, Netherlands**, Norway, Sweden, Austria, Canada, Finland, Belgium, Denmark
Periphery	**Spain, Greece, Turkey, Portugal**, South Africa, Ireland, Hungary, Czech Rep., Slovakia, Estonia, Cyprus, Slovenia	**China**, Korea

Fragile → Great Recession 2008-2013

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Conclusions and policies for a purple green just transition

- Public investment for a purple green just transition leading the way: urgent and large scale
  - needs-based fiscal policy
  - green economy
  - Purple care economy / social infrastructure
  - other infrastructure
- Purple and green jobs are complementary
  - Care jobs: More jobs with lower Carbon emissions
    - labour intensive services
    - Substantial effect on productivity
    - Redefine infrastructure and fiscal rule
- Green and care jobs for redeployment from the fossil fuel-based sectors
- hiring and training policies going beyond the existing occupational segregation patterns

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…Data and empirical methodology

- 8 emerging economies:
  - Chile, Colombia, India, Indonesia, Philippines, South Korea, South Africa, Turkey
- Green economy –REEEPT
  - 50% allocated to renewable energy, Pollin et al. (2015)
    - equally among wind, solar, geothermal and hydropower.
  - 20% allocated to energy efficiency, Pollin et al. (2015)
    - 50% →weather proofing/energy efficiency in buildings;
    - 25% → industrial energy efficiency,
    - 25% →grid upgrades.
  - 30% allocated to public transport, APTA (2020)
    - 10% → rail transport vehicles (investment)
    - 18% → construction (infrastructure)
    - 72% → transport services
- spending in REEEPT by 1%-point as a ratio to GDP →
  - REEE based on I-O analysis in Pollin et al. (2015), PT: APTA (2020)
  - manufacturing sub-industries 0.46%-point/GDP (Y^{MRE})
    - Sum of plastic, glass, cement, plaster, concrete, non-ferrous metals, fabricated metal, general purpose machinery, special purpose machinery, domestic appliances, electrical machinery and apparatus, electronic valves, tubes, locomotives & rolling stock, other transport equipment
  - Construction: 0.33%-point/GDP (Y^{C})
  - transport services: 0.21%-point/GDP (Y^{PT})

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Green caring just transition with full employment with decent jobs

- higher output in both short run and medium run
  - multiplier effects on GDP in most countries in all spending categories >1 in the medium run (end of 5 years)
- A strong productivity effect of public spending
- Public spending is partly self-financing
- differences in the magnitude of the multipliers depending on
  - import dependency
  - informality
  - Composition/targeted nature of spending

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Policy simulation -emerging economies: effects of a **one-off** increase in **the green economy,** the **care economy** and **public physical infrastructure** by 1%-point/GDP on GDP and e

GREEN ECONOMY (REEEPT)

	GDP (% CHANGE)		TOTAL EMPLOYMENT (NON-AGRICULTURAL) (% CHANGE)		WOMEN'S EMPLOYMENT (NON-AGRICULTURAL) (% CHANGE)		MEN'S EMPLOYMENT (NON-AGRICULTURAL) (% CHANGE)	
	YEAR 0	IN FIVE YEARS (CUMULATIVE)	YEAR 0	IN FIVE YEARS (CUMULATIVE)	YEAR 0	IN FIVE YEARS (CUMULATIVE)	YEAR 0	IN FIVE YEARS (CUMULATIVE)
CHILE	1,93	1,54	1,86	0,53	1,52	0,00	2,12	0,56
COLOMBIA	0,91	4,10	0,00	7,25	0,00	7,79	0,00	6,79
INDIA	3,07	1,46	0,17	0,99	0,21	1,80	0,16	0,84
INDONESIA	0,25	1,39	0,00	0,48	0,00	0,92	0,00	0,19
PHILIPPINES	0,13	0,40	0,35	0,13	0,74	0,00	0,04	0,23
SOUTH AFRICA	0,95	0,73	1,76	1,77	1,61	1,97	1,94	1,52
SOUTH KOREA	1,13	1,08	0,73	1,22	1,00	1,34	0,53	1,14
TURKEY	0,80	4,51	0,12	1,43	-0,14	2,16	0,22	1,13
AVERAGE	1,15	1,90	0,62	1,73	0,62	0,00	0,63	1,55

CARE ECONOMY

	GDP (% CHANGE)		TOTAL EMPLOYMENT (NON-AGRICULTURAL) (% CHANGE)		WOMEN'S EMPLOYMENT (NON-AGRICULTURAL) (% CHANGE)		MEN'S EMPLOYMENT (NON-AGRICULTURAL) (% CHANGE)	
	YEAR 0	IN FIVE YEARS (CUMULATIVE)	YEAR 0	IN FIVE YEARS (CUMULATIVE)	YEAR 0	IN FIVE YEARS (CUMULATIVE)	YEAR 0	IN FIVE YEARS (CUMULATIVE)
CHILE	2,22	3,07	1,46	0,00	0,70	0,00	2,06	0,00
COLOMBIA	0,05	0,26	0,25	0,26	0,30	0,50	0,20	0,06
INDIA	1,99	2,80	0,12	1,09	0,36	1,79	0,07	0,95
INDONESIA	0,84	3,59	0,51	3,17	0,26	3,83	0,68	2,72
PHILIPPINES	0,04	0,00	0,01	0,04	-0,00	0,05	0,02	0,04
SOUTH AFRICA	-0,09	1,55	0,55	1,90	1,04	2,89	0,15	1,11
SOUTH KOREA	1,21	4,50	1,52	3,41	2,16	4,02	0,89	2,80
TURKEY	0,10	1,56	0,16	0,91	0,29	1,17	0,11	0,81
AVERAGE	0,80	2,17	0,57	1,35	0,64	1,78	0,52	1,06

PUBLIC SPENDING IN PHYSICAL INFRASTRUCTURE (GFCF)

	GDP (% CHANGE)		TOTAL EMPLOYMENT (NON-AGRICULTURAL) (% CHANGE)		WOMEN'S EMPLOYMENT (NON-AGRICULTURAL) (% CHANGE)		MEN'S EMPLOYMENT (NON-AGRICULTURAL) (% CHANGE)	
	YEAR 0	IN FIVE YEARS (CUMULATIVE)	YEAR 0	IN FIVE YEARS (CUMULATIVE)	YEAR 0	IN FIVE YEARS (CUMULATIVE)	YEAR 0	IN FIVE YEARS (CUMULATIVE)
CHILE	1,83	3,73	1,95	3,44	1,74	3,49	2,00	3,20
COLOMBIA	0,26	1,92	0,37	1,04	0,36	2,18	0,37	0,07
INDIA	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
INDONESIA	0,97	3,02	0,54	2,23	0,46	2,51	0,59	2,05
PHILIPPINES	0,37	0,92	-0,22	0,38	-0,50	0,00	0,00	0,67
SOUTH AFRICA	1,30	2,41	2,32	5,33	2,63	6,81	2,07	4,14
SOUTH KOREA	1,57	4,63	1,53	3,60	1,09	3,22	1,86	3,88
TURKEY	0,14	4,14	0,33	3,19	0,67	4,50	0,19	2,65
AVERAGE	0,80	2,60	0,85	2,40	0,81	2,84	0,89	2,08

GDP multiplier in 5 yrs, cumulative (one-off increase)

care: 1.6 in Turkey & South Africa to 4.6 in South Korea

Exception: Colombia and Philippines 0.2

Green: 1.1 in South Korea to 4.5 in Turkey

sum of effects of sectors providing input to REEEPT

Exception: Philippines 0.4

physical infrastructure: 1.9 in Colombia to 4.6 in South Korea

Exception: Philippines 0.9, India insignificant

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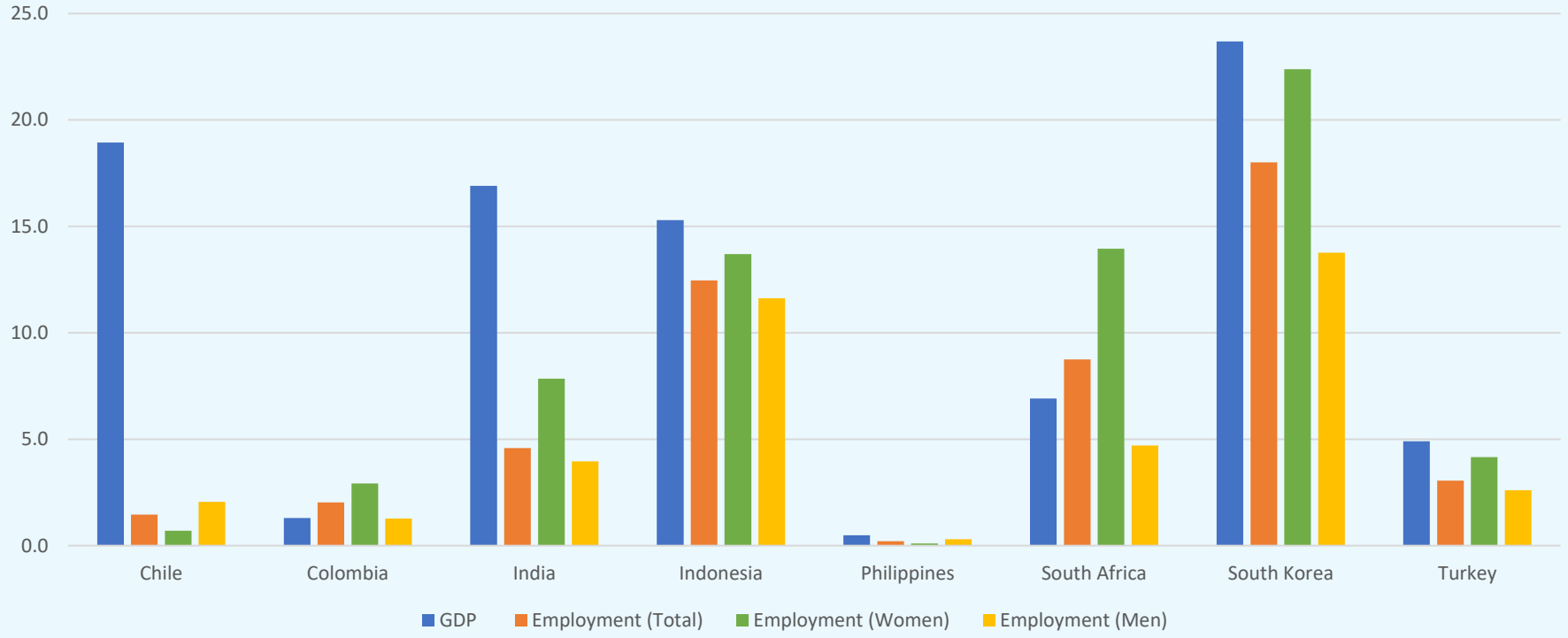
The cumulative % change in GDP and employment (non-agricultural) at the end of **five years** in response to increasing spending in **care economy** by 1%-point/GDP **every year**



- GDP average: 11.0%
  - 1.3% Colombia, 4.9% Turkey, 15.3% Indonesia, 16.9% India, 23.7% Korea
- Employment average:6.3%
  - 1.5% in Chile, 3.1% Turkey, 12.5% Indonesia, 4.6% India, 18.0% Korea
- jobs for both women and men, albeit at a faster rate for women.

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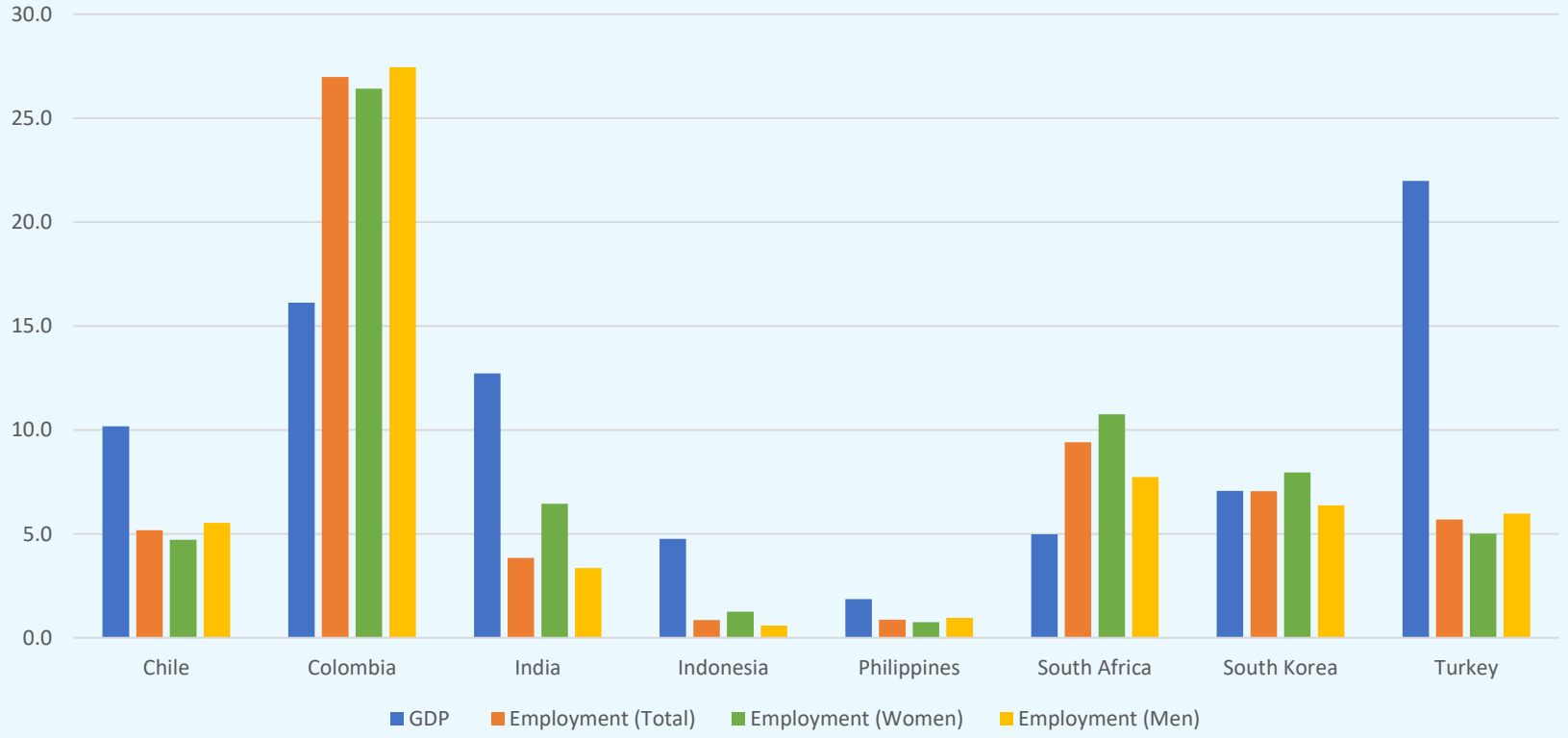
The cumulative % change in GDP and employment (non-agricultural) at the end of **five years** in response to increasing spending in the **green economy** (sum of effects of sectors providing input to REEEPT) by 1%-point/GDP **every year**



- GDP average: 10.0%
  - 1.9% Philippines, 4.8% Indonesia, 12.7% India, 22.0% Turkey.
- total employment average: 7.5%
  - 0.9% Philippines and Indonesia, 5.7% Turkey, 27% Colombia

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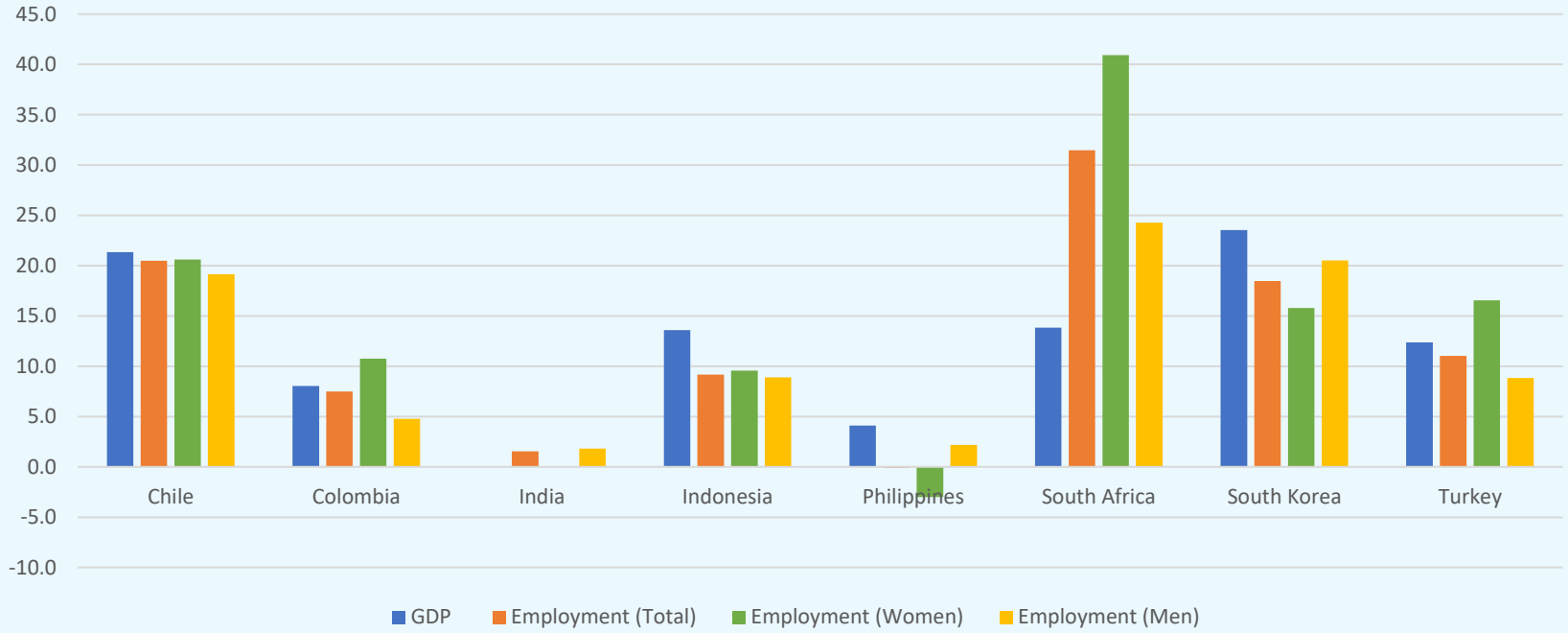
The cumulative % change in GDP and employment (non-agricultural) at the end of **five years** in response to increasing spending in **public physical infrastructure** by 1%-point/GDP **every year**



- GDP average: 12.1%
  - 4.1% in Philippines - 23.5% in South Korea
- total employment average: 12.4%
  - 1.5% in India - 31.5% in South Africa.
- in 6 countries employment of both men and women increase
- Chile, Colombia, Indonesia, South Africa, Turkey: %↑E_{women}>E_{men}
- importance of gender mainstreaming in assessing the employment impact

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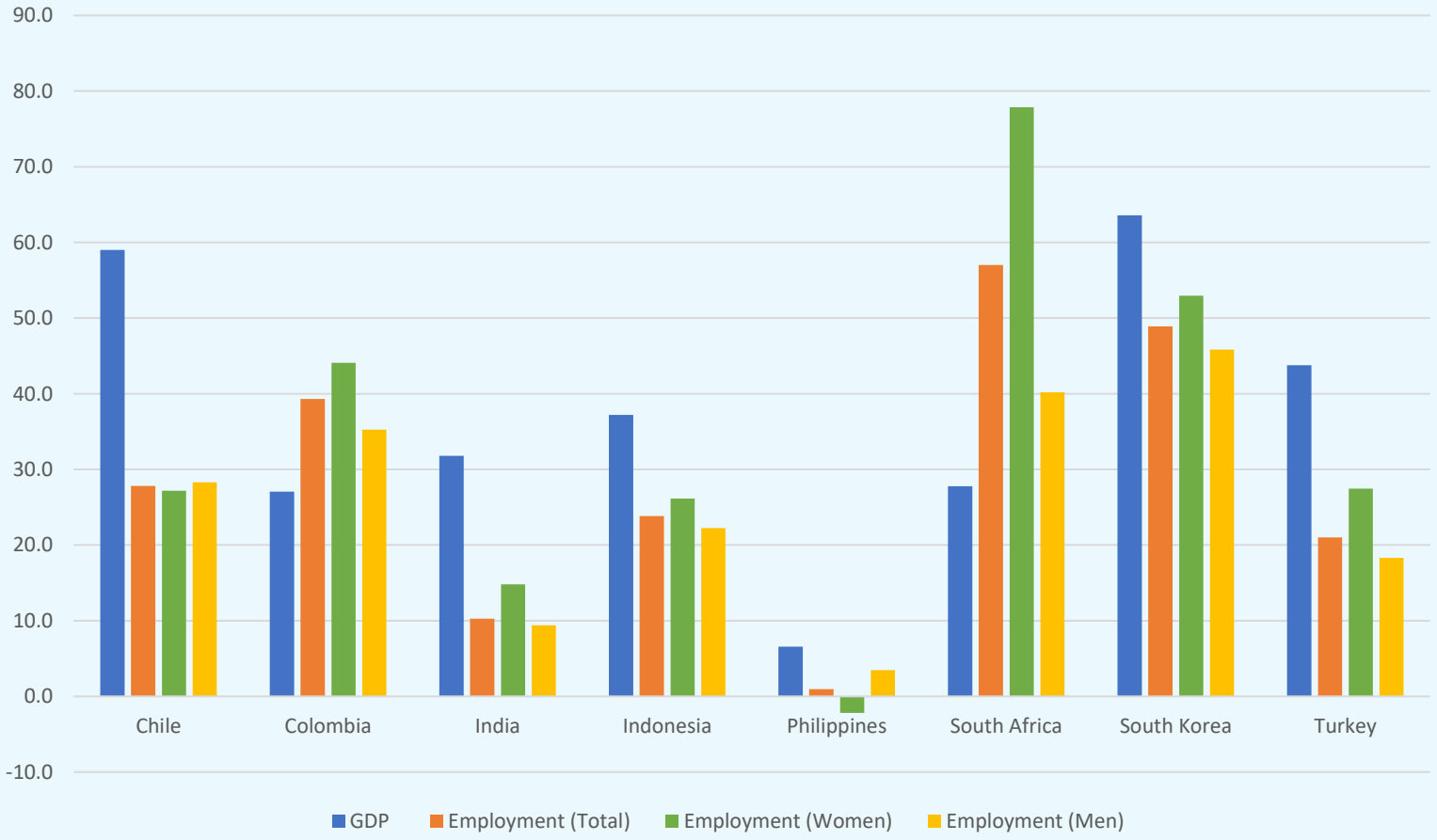
Green caring just transition: Policy mix

- public spending in the **care** + **green** economy + other **infrastructure**
- repeated annual ↑ for 5 years, by 1%-point as a ratio to GDP



new jobs:
320k Philippines,
2.1m Chile
4.9m Turkey
7.9m Colombia
9m South Africa
12.6m South Korea
27.6m India
22.4m Indonesia

→Space for redeployment from fossil-fuels

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…Conclusions and policies for a green caring just transition

- How can we fund?
  - partly self-financing; high multipliers; there is money!
  - borrowing
    - Redefine infrastructure and fiscal rule
  - progressive taxation of not just income but also wealth
  - national investment bank (networked with public banks, cooperative banks)
  - Accommodating monetary policy: target full employment & inflation
    - CBs to buy government bonds in primary markets
    - higher weight on employment & inflation target consistent with full emp: eg 4-5% rather than as low as possible
    - monetary policy should accommodate an expansionary fiscal policy

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…Conclusions and policy implications

- Fiscal policy effects are very strong even when applied in a single country
- Fiscal and labour market policies enhance each other, Obst, Onaran, Nikolaidi, 2020
  - Collective bargaining, regulation, minimum wages, equal pay legislation, formalization
  - recognize, reduce, redistribute unpaid care (Elson)
    - Universal free child care and social care,
    - Equal incentives for both men and women regarding parental leave
  - Shorter hours with wage compensation for the lower wage earners

  → gender equality in paid and unpaid work↑ Onaran & Calvert Jump 2021
- A strong productivity effect of public spending +green transition
  - relaxes balance of payments constraint
- Embedded in a democratic participatory plan at least covering the key sectors
  - publicly owned enterprises (central, local, cooperatives)
- International policy coordination
  - effects are stronger when coordinated across countries
    - EU: Obst, Onaran, Nikolaidi, 2020; G20: Onaran 2016, Onaran and Galanis 2014
  - development aid and technology transfer

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Summary

- Equitable and sustainable development needs green and purple public investment and pay rise for both women and men and shorter hours!
- Advice (rewriting Keynes for the 21st century):
- Take care of full employment, decent pay for women and men, equality, and ecological sustainability, and the budget will take care of itself.

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Conclusion

- A synthesis of Post-Keynesian/Post-Kaleckian feminist ecological Marxist political economy
- The importance of demand for the level of output and unemployment;
- and within demand the significance of investment
- the significance of income, wealth and gender inequalities;
- Changes in the balance of economic power
- Ecological limits

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Long run?
Michal Kalecki on
“Political Aspects of Full Employment,” 1943

- “the maintenance of full employment would cause social and political changes which would give a new impetus to the opposition of the business leaders. Indeed, under a regime of permanent full employment, the 'sack' would cease to play its role as a 'disciplinary’ measure. The social position of the boss would be undermined, and the self-assurance and class-consciousness of the working class would grow. ... It is true that profits would be higher under a regime of full employment than they are on the average under *laissez-faire*... But 'discipline in the factories' and 'political stability' are more appreciated than profits by business leaders. *Their class instinct tells them that lasting full employment is unsound from their point of view, and that unemployment is an integral part of the 'normal' capitalist system*.”

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In the long run?

- Keynes: “in the long run we are all dead”
  - Short run unstable: save capitalism from capitalism itself
- Can policy save capitalism from capitalism itself?
- **Marx**: profit squeeze? Limits to capitalism?
- Kalecki: Full employment not consistent with capitalism
  - similar to Marx & Stiglitz?
- **Ecological economists** (e.g. Victor): Limits to growth?
  - Managing with lower growth?
    - shorter working hours? Onaran and Calvert Jump 2022
      - Keynes, 1930, “Economic Possibilities for our Grandchildren”: “Three-hour shifts or a fifteen-hour week may put off the problem for a great while.”
  - Green jobs
- **Feminist economics:** Care crisis and ecological crisis needs purple jobs
  - ➢ Social infrastructure (eg care): More labour intensive; more jobs with lower growth; way to solve also gender inequality crisis
- Synthesis and policy informed by multiple theories in political economy

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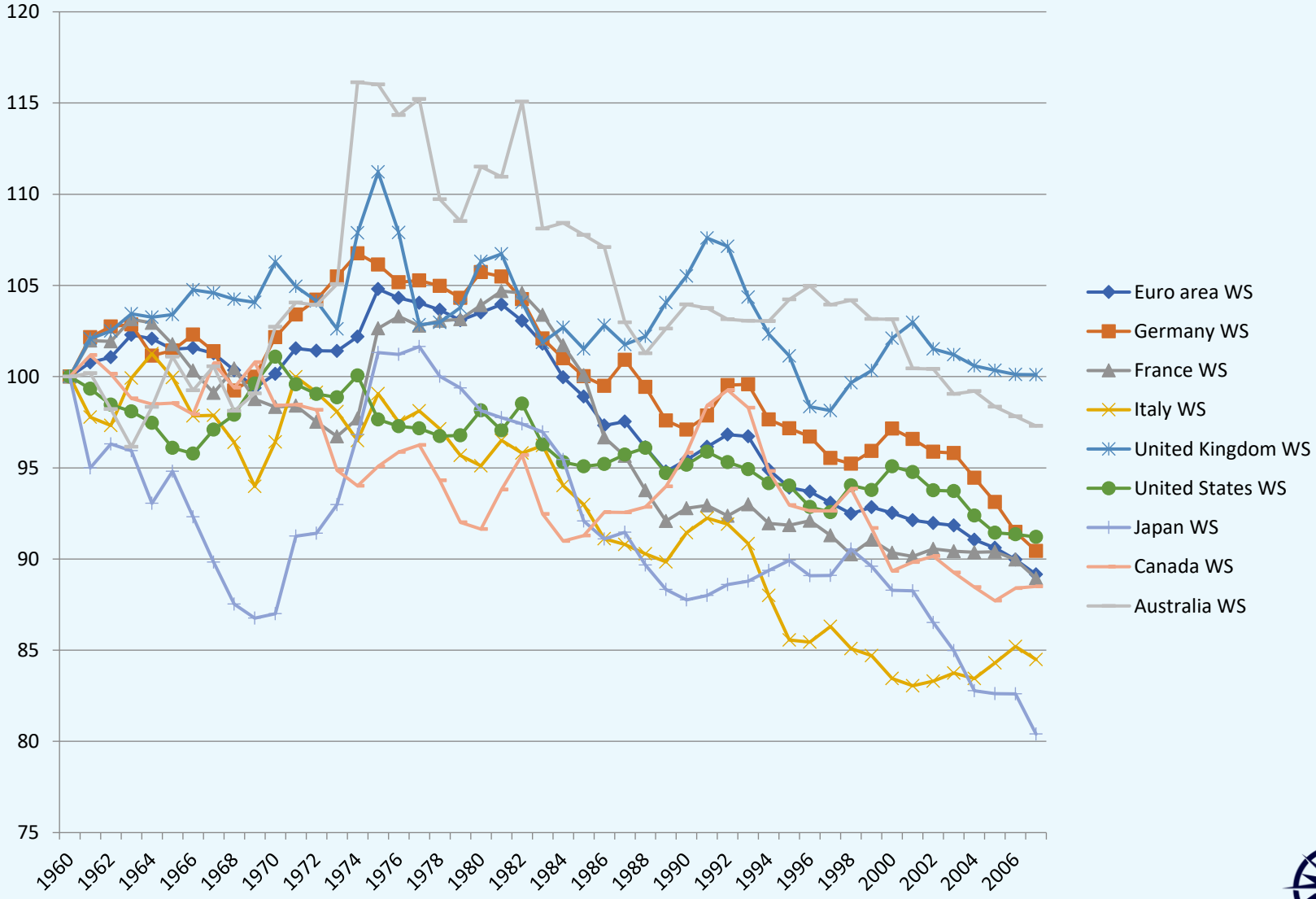
Wage share in national income (1960=100)



*Adjusted labour share= compensation per employee*Total employment/GDP at factor cost

Source: Onaran and Galanis 2012

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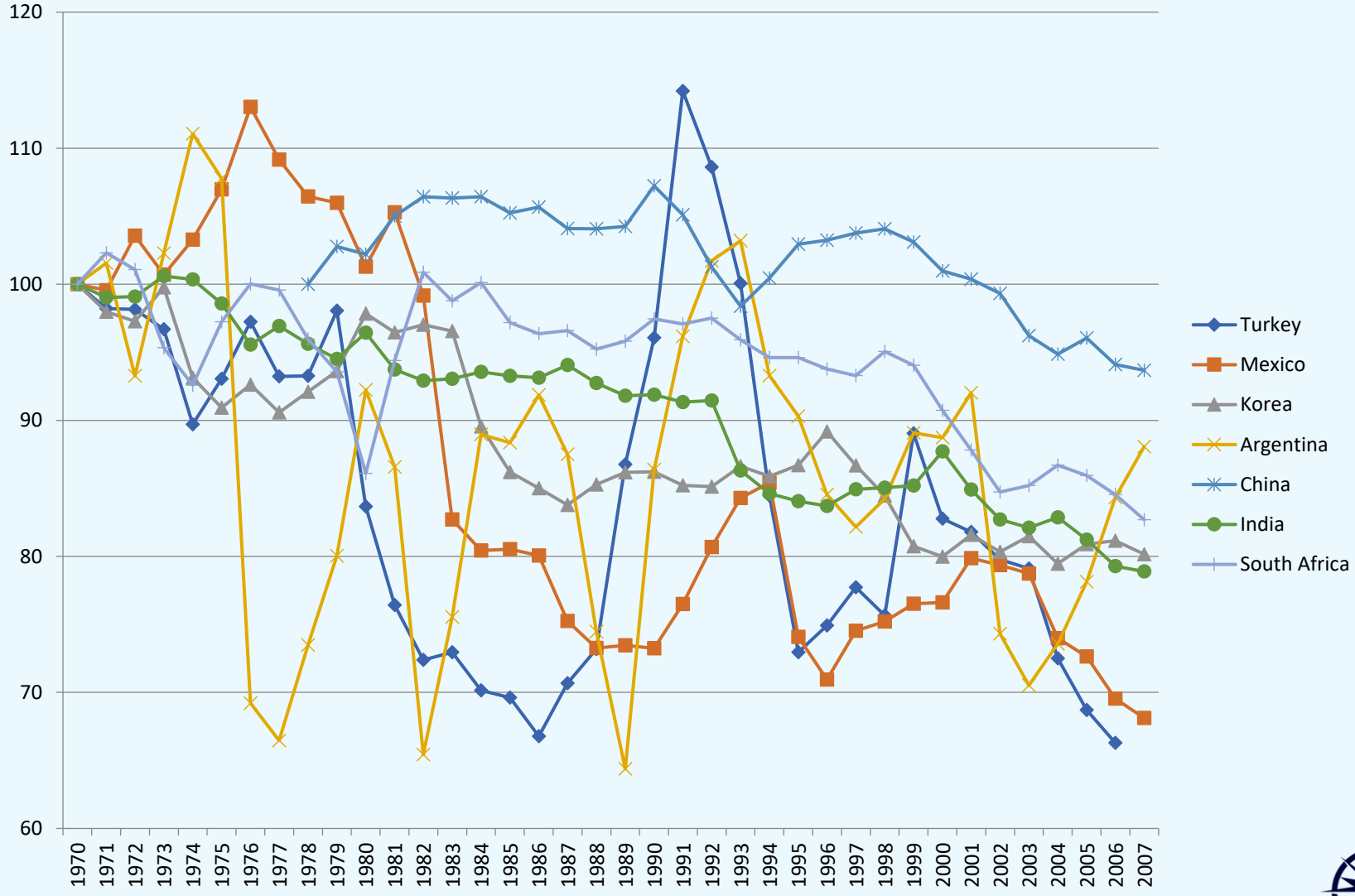
Wage share in national income (1970=100)



*Adjusted labour share= compensation per employee*Total employment/GDP at factor cost

Source: Onaran and Galanis 2012

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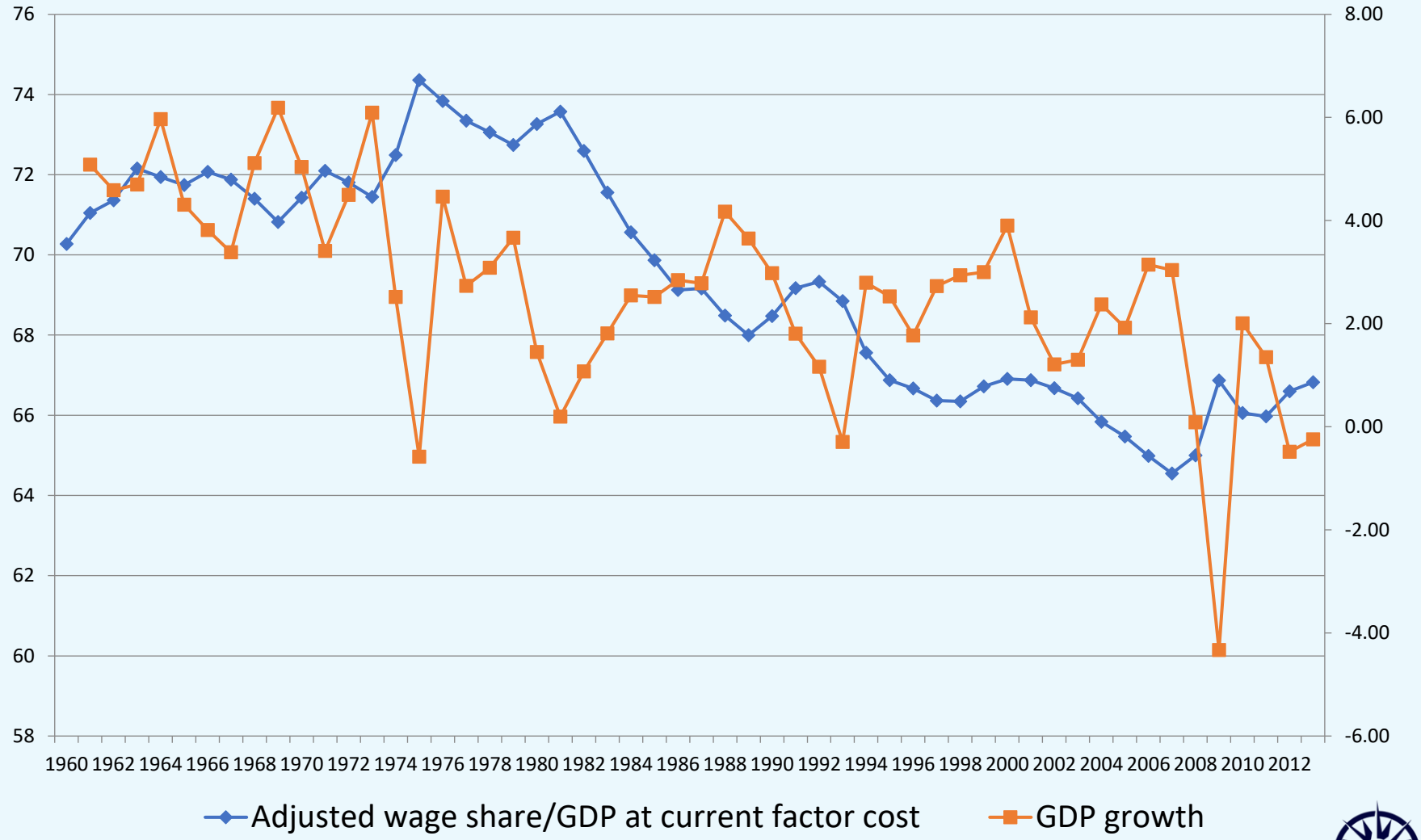
Wage share vs. growth, EU15, 1960-2013



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FT on Onaran and Galanis 2012

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. [illegible] 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 "emasculation" 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.

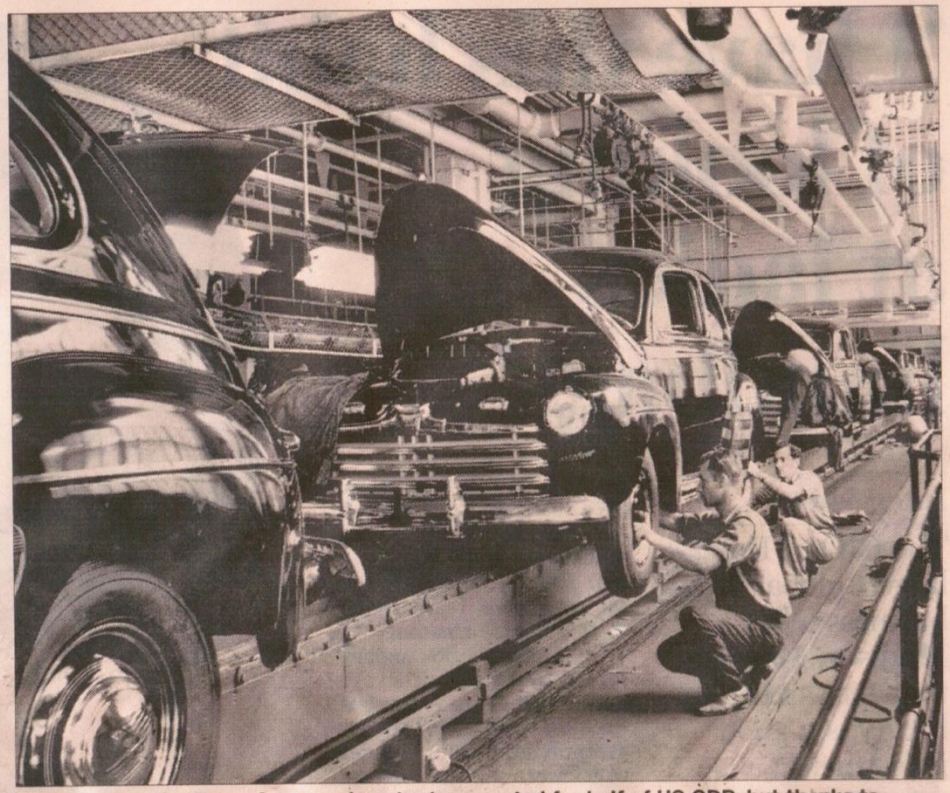
Most importantly, however, he says globalisation and a move towards supranational corporate entities has made it possible for companies to consolidate their industries more effectively.

What all this means for the investment community is perhaps a little less clear-cut. Özlem Onaran and 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 thanks to increasing globalisation and technology, this has fallen to 42% Corbis

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 Quakers, "who took responsibility for their employees and communities. There was a sense that you had a responsibility for society."

Mr Reuther would no doubt have concurred.

"분배는 성장의 결과가 아니라 원천이다"

한겨레경제사회연 '소득주도 성장' 좌담

참석자
스톡해머 영국 킹스턴대 교수
오나란 영국 그리니치대 교수
이상헌 ILO 사무차장 정책특보
최명준 연세대 교수 (사회)
정해주 고려대 교수
주상영 건국대 교수
김면명 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. "소득

11일 오후 서울 마포구 공덕동 〈한겨레〉 회의실에서 '소득주도 성장론의 좌표와 쟁점, 소득주도 성장의 경제·사회정책적 논의' 좌담이 열려 참석자들이 발언하고 있다. 이번 좌담회는 한겨레경제사회연구원, 비판과 대안을 위한 사회복지학회, 칼폴라니사회경제연구소 주최로 열렸다. 신소영 기자 viator@hani.co.kr

돼야 한다는 점을 꼽았다. 그는 "이 두가지는 모두 다 '(나랏)돈'이 들지 않는다. 정부의 의지가 더 중요한 셈이다. 앞서 말한 재정 지출 확대로 주거나 교육, 건강, 보건, 그린에너지 등 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

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- Appendix

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Principle of effective demand, multiplier and credit creation

- The importance of demand in determining output and employment
- the significance of investment and income distribution in determining demand
- Productive capacity of the right quantity and location required for full employment
- Changes in autonomous investment or consumption or government spending or export demand have multiplier effects
- Demand to become effective it has to be financed
- Demand is embedded in a monetary production economy
- Endogenous money and bank credit creation
- The interdependence of demand and supply
- Fundamental uncertainty and path dependency

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Investment

- What influences the level of investment?
- Capacity utilisation
- Profits and profitability
- Credit availability
- 'Animal spirits‘
  - Investment is the most volatile component of demand
- Technological opportunities
- The causal relationship runs from investment to savings

Employment and Unemployment

- Unemployment as an inherent feature of capitalist economies
- Cyclical fluctuations and persistence
- Mainstream macroeconomists largely dismiss these features with explanations of unemployment based on ‘market imperfections’
  - choice of leisure in new classical economics
- Involuntary unemployment in Keynes
- Post Keynesians have range of explanations of unemployment arising from:
  - Lack of demand; lack of productive capacity; political and social constraints
  - cyclical fluctuations (multiplier-accelerator type; Minsky cycles; Goodwin cycles etc)

The PK/Kaleckian models: fundamental elements of modern capitalism

- Oligopolistic/monopolistic goods and capital markets, NOT perfect competition
- Prices are set via active cost-plus pricing
- Inflation: Conflict theory approach based on competing claims on income
- the mark-up on unit variable costs: degree of price competition among firms, overhead costs, bargaining power of trade unions
- Functional income distribution: distributional conflict → the mark-up
- Labour supply is not a constraint to production or growth,
- involuntary unemployment, also in the long run.
- Excess capacity is the norm; capacity utilization adjusts in the long run too.
- The principle of effective demand applies to the short, medium and long run.
- Saving is not a precondition for investment, but adjusts to investment through income effects in the long run.
- → paradox of saving also in the long run
  - higher saving/lower consumption/lower demand →lower investment and growth

…Methodology

- Systems estimation: Public spending, output (Y), employment of women & men
  - GFCF (I^G) & care (Y^H)
  - manufacturing sub-sectors (Y^{MRE}), Construction (Y^C), transport services (Y^{PT})

$$X_t = \begin{bmatrix} \log(I_t^G) \\ \log Y_t^H \\ \log(Y_t) \\ \log(E_t^M) \\ \log(E_t^F) \end{bmatrix} \quad \text{or} \quad X_t = \begin{bmatrix} \log Y_t^C \\ \log Y_t^{PT} \\ \log Y_t^{MRE} \\ \log(Y_t) \\ \log(E_t^M) \\ \log(E_t^F) \end{bmatrix}$$

- Vector Auto Regression with Cholesky decomposition, one lag
- Estimation period 1972 (South Korea)-1994 (South Africa)→2018
- Alternatives:
  - total employment instead of employment of men and women
  - first differences
  - estimation period starting in 1980s (rather than 1970s)
  - alternative orders of public spending categories;
  - two or three lags
  - trend or other exogenous control variables:

  population (+15), informal economy/GDP, urbanization, real exchange rate, world GDP trade openness/GDP, oil rent/GDPworld, mineral rent/GDPworld…

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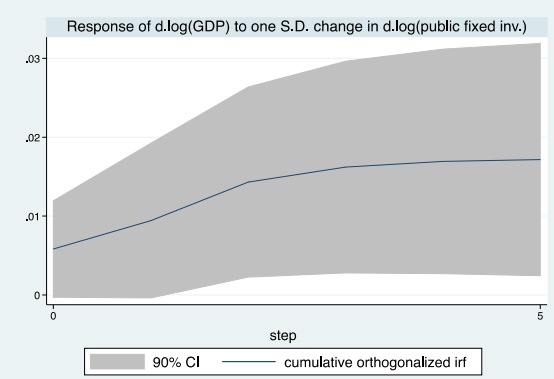

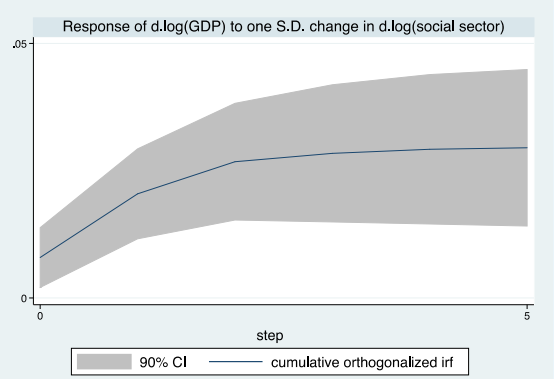

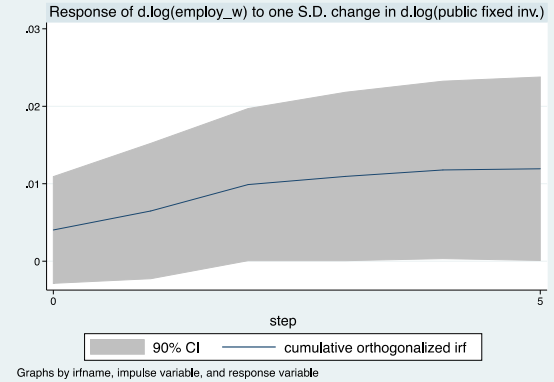

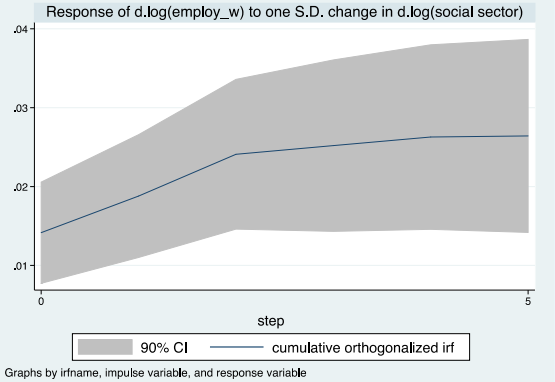

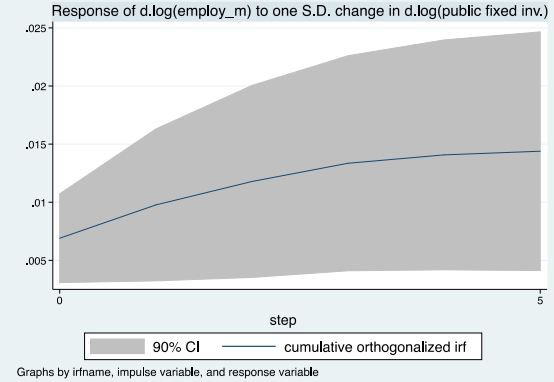

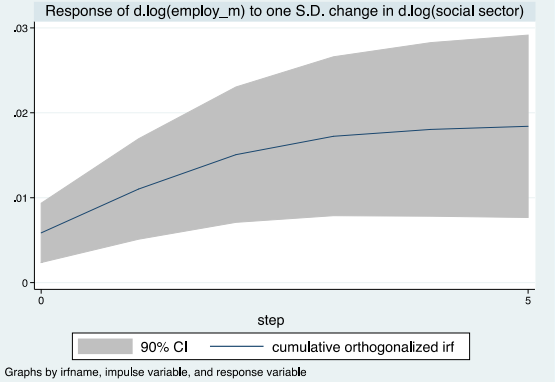

Cumulative impulse response functions: GDP and employment response to public spending in physical infrastructure and care

South Korea

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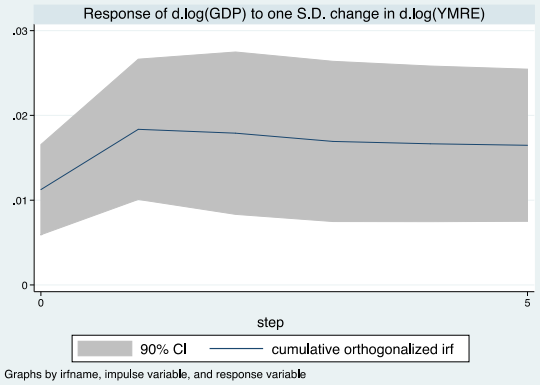
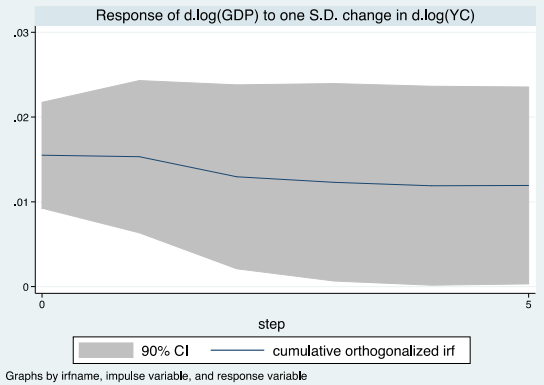
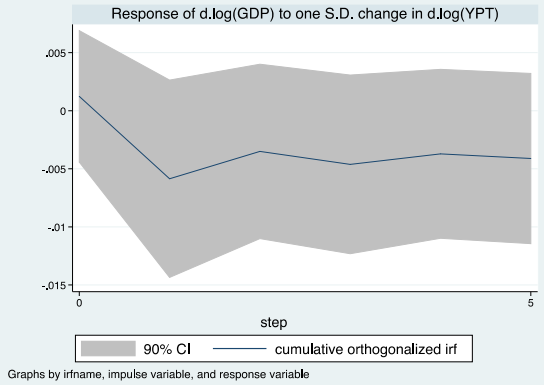
Cumulative Impulse Response Functions: GDP to REEEPT

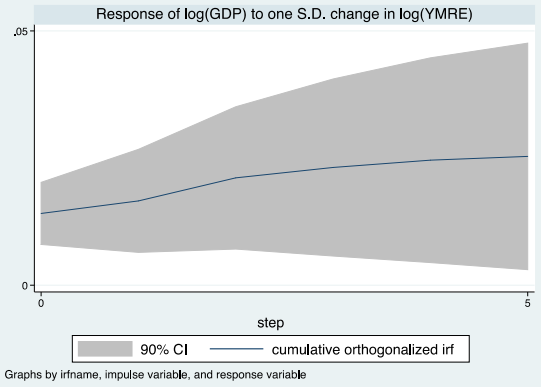
South Korea

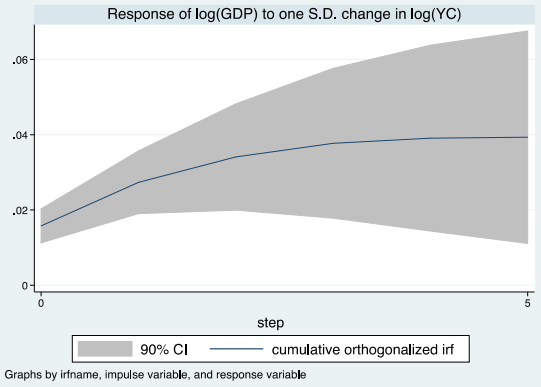


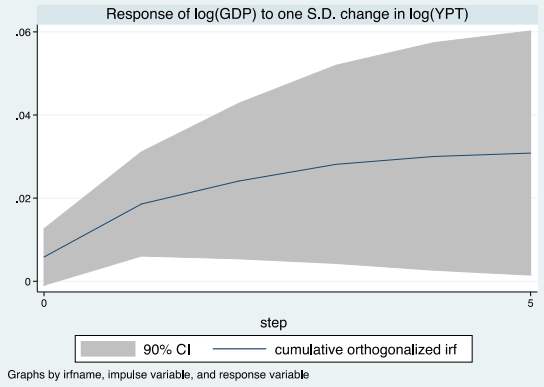




Turkey







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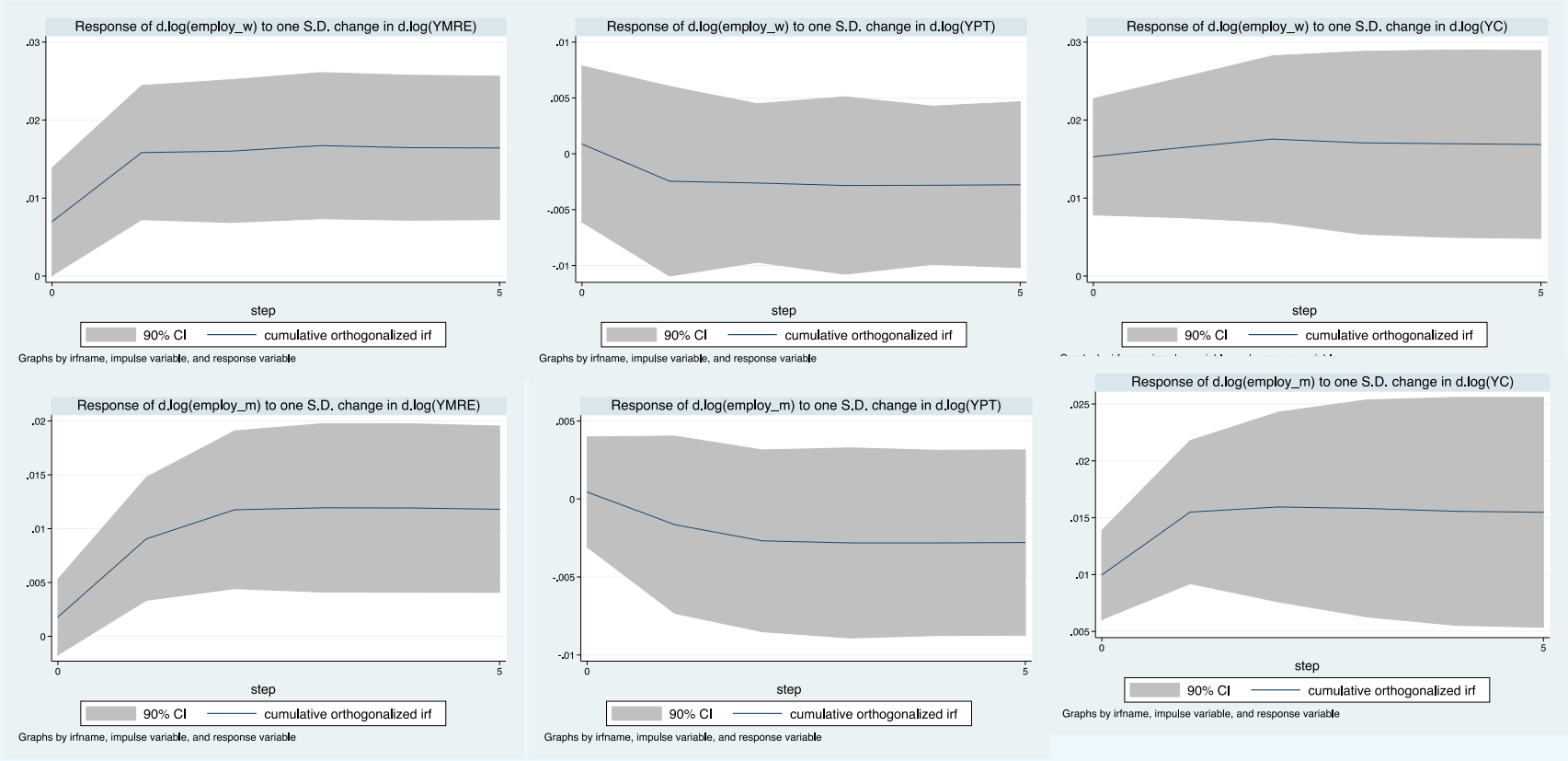
Cumulative Impulse Response Functions: employment to REEEPT

South Korea



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Summary of the effects of a **one-off** increase in the **care economy** by 1%-point/GDP on GDP and employment (non-agricultural).

CARE ECONOMY	GDP (% CHANGE)		TOTAL EMPLOYMENT (NON-AGRICULTURAL) (% CHANGE)		WOMEN'S EMPLOYMENT (NON-AGRICULTURAL) (% CHANGE)		MEN'S EMPLOYMENT (NON-AGRICULTURAL) (% CHANGE)	
	YEAR 0	IN FIVE YEARS (CUMULATIVE)	YEAR 0	IN FIVE YEARS (CUMULATIVE)	YEAR 0	IN FIVE YEARS (CUMULATIVE)	YEAR 0	IN FIVE YEARS (CUMULATIVE)
CHILE	2,22	3,07	1,46	0,00	0,70	0,00	2,06	0,00
COLOMBIA	0,05	0,26	0,25	0,26	0,30	0,50	0,20	0,06
INDIA	1,99	2,80	0,12	1,09	0,36	1,79	0,07	0,95
INDONESIA	0,84	3,59	0,51	3,17	0,26	3,83	0,68	2,72
PHILIPPINES	0,04	0,00	0,01	0,04	-0,00	0,05	0,02	0,04
SOUTH AFRICA	-0,09	1,55	0,55	1,90	1,04	2,89	0,15	1,11
SOUTH KOREA	1,21	4,50	1,52	3,41	2,16	4,02	0,89	2,80
TURKEY	0,10	1,56	0,16	0,91	0,29	1,17	0,11	0,81
AVERAGE	0,80	2,17	0,57	1,35	0,64	1,78	0,52	1,06

GDP multiplier in 5 yrs, cumulative (one-off increase)

care: 1.6 in Turkey & South Africa - 4.6 in South Korea

Exception: Colombia and Philippines 0.2

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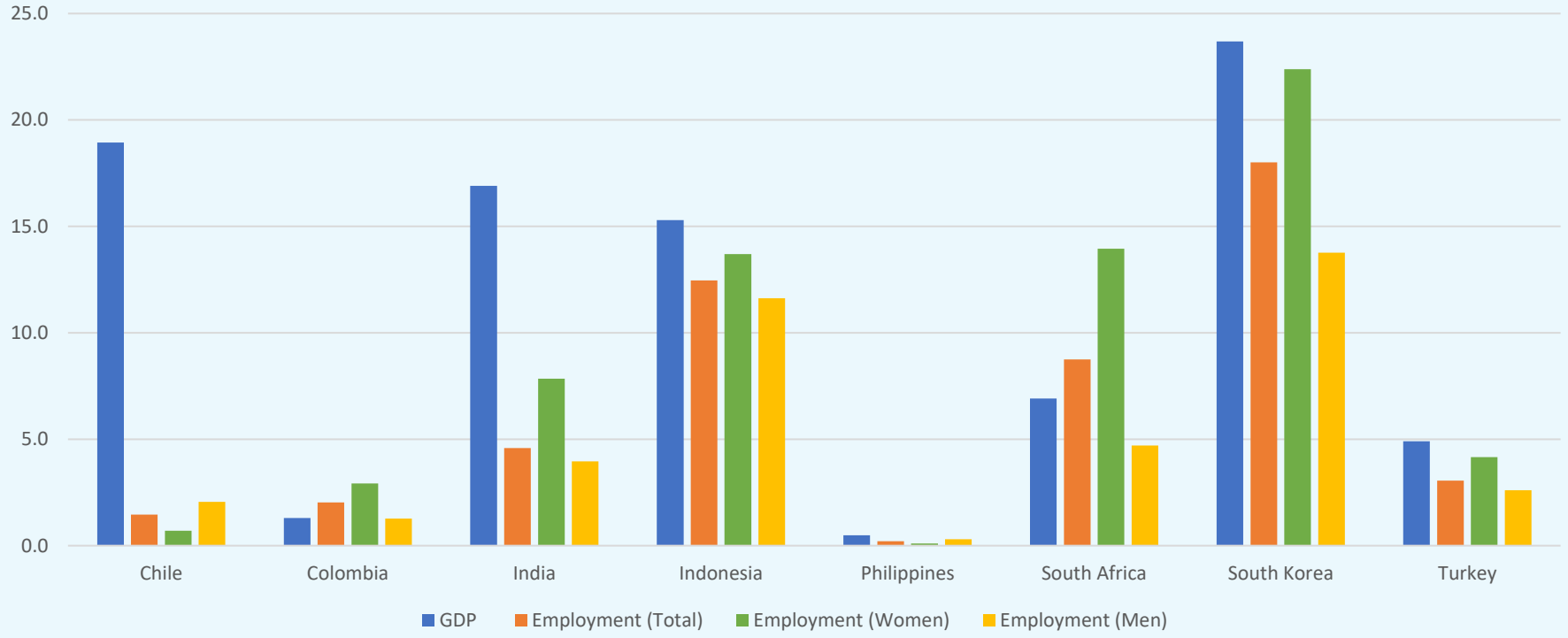
The cumulative % change in GDP and employment (non-agricultural) at the end of **five years** in response to increasing spending in **care economy** by 1%-point/GDP **every year**



- GDP average: 11.0%
  - 1.3% Colombia, 4.9% Turkey, 15.3% Indonesia, 16.9% India, 23.7% Korea
- Employment average:6.3%
  - 1.5% in Chile, 3.1% Turkey, 12.5% Indonesia, 4.6% India, 18.0% Korea
- jobs for both women and men, albeit at a faster rate for women.

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	Chile	Colombia	India	Indonesia	Philippines	South Korea	South Africa	Turkey
GDP in constant 2015 prices in USD (1000)	262807032	321687569	2695611315	1049318967	396224788	1637850078	358712445	997437115
GDP per capita in PPP (constant 2017 international $)	24968	14585	6714	11812	8915	42759	13710	28197
Employment rate, total (%)	58.8	60.8	46.7	66.1	56.4	60.3	40.1	44.5
Employment rate, men (%)	69.3	73.4	71.9	79.7	69.4	68.8	46.1	62.2
Employment rate, women (%)	48.8	48.9	19.7	52.4	43.6	51.9	34.5	27.6
Output in the care econ/GDP (%)	11.8	14.8	7.9	4.4	9.2	16.0	15.6	12.5
Value added in manufacturing sectors providing input to REEEPT/GDP (%) (i)	1.9	1.5	1.8	4.7	1.1	14.2	3.7	3.5
Value added in construction/GDP (%)	6.9	7.6	6.7	10.7	7.9	5.5	3.1	5.4
Value added in transport (excluding air transport)/GDP (%)	2.4	3.3	3.5	2.9	2.3	1.6	7.9 (vii)	0.7
The share of informal employment in total employment (%) (ii)	29.3	62.4	88.6	82.4	36.1	25.1	35.3	32.0
Public GFCF/GDP (%)	2.3	3.5	6.1	3.6	4.8	5.0	2.4	3.4
Employment in the care economy/total employment (%) (ii)	14.9	8.4	5.2	6.6	4.3	15.2	12.2	11.7
Employment in construction/total employment (%) (ii)	8.5	6.9	11.9	6.2	9.7	7.4	8.2	4.5
Employment in transport (excluding air transport)/total employment (%) (ii)	8.5	7.9	6.2	4.9	9.0	8.4	6.1	4.5
Employment in manufacturing/total employment (%) (ii)	9.9	11.8	12.1	14.4	8.5	16.3	10.8	18.4
Women's share in employment in the care economy (%) (ii)	72.9	70.4	45.3	63.1	71.8	74.6	72.6	61.3
Women's share in employment in construction (%) (ii)	7.4	5.8	7.8	2.1	2.1	9.9	11.1	4.3
Women's share in employment in transport (excluding air transport) (%) (ii)	19.5	13.7	3.6	6.7	7.2	18.0	19.1	9.2
Women's share in employment in the manufacturing sector (%) (ii)	32.6	44.9	20.8	43.4	41.1	28.4	34.7	25.4
Women's share in employment in the manufacturing sectors providing input to REEEPT (%) (iii)	na	25.4	na	36.3	50.7	24.5	na	na
Imports/value added in the manufacturing sectors providing input to REEEPT (%) (iv)	301.5	192.1	141.5	103.3	351.2	51.7	261.2	172.7
Imports/value added in the manufacturing sector (%) (v)	162.9	96.4	54.2	47.5	108.8	66.9	150.7	96.5
Imports/value added in services (%) (v)	8.7	8.1	8.8	7.5	12.7	13.5	7.4	5.5
Energy imports, net (% of energy use) (v)	65.2	-274.1	34.3	-103.1	45.8	81.4	-14.5	75.2
CO2 Emissions per capita (t CO2 pc) (vi)	4.8	1.5	1.7	2.2	1.3	11.3	7.4	4.4
CO2 Emissions/GDP constant 2015 USD PPP (vi)	0.2	0.1	0.3	0.2	0.1	0.3	0.6	0.2
CO2 intensity of total energy supply (CO2/TES; t CO2/TJ) (vi)	52.3	40.6	58.8	57.8	52.4	49.9	73.9	59.7
Energy intensity: Total energy supply/GDP (PPP) (GJ/thousand 2015 USD PPP) (vi)	4.0	2.7	4.3	3.1	2.7	5.4	8.3	2.7
Renewable share (modern renewables) in final energy consumption (SDG 7.2) (%) (vi)	25.3	22.8	15.9	9.7	10.4	3.4	5.6	14

The impact of an increase in public spending on aggregate demand

	Direct effects in the short run		Direct effects in the medium run	
	Public spending in the social sector (care economy)	Public spending in REEEPT (green economy) or infrastructure	Public spending in the social sector (care economy)	Public spending in REEEPT (green economy) or infrastructure
Consumption in N	Rising employment in H (+)	Rising employment in N (+) Reducing private consumption by public provision (-)	Rising productivity and profit share (?)	Rising productivity and profit share (?)
Consumption in H	Direct positive effect (+) Rising employment in H (+) Reducing private consumption by public provision (-)	Rising employment in N (+)	Rising productivity and profit share (?)	Rising productivity and profit share (?)
Private investment	Change in public debt/ GDP (-/0?)	Change in public debt/ GDP (-/0?) Improved business environment or infrastructure (+) Substitute private investment in infrastructure (-)	Rising productivity and profit share (+) Change in public debt/GDP (-/0?)	Rising productivity and profit share (+) Change in public debt/GDP (-/0?)
Government expenditures	Direct positive effect (+)	Direct positive effect (+)		
Net exports	0	Negative effect due to increase in imports (-)	Rising productivity and lower real unit labour costs (+)	Rising productivity and lower real unit labour costs (+) Negative effect due to increase in imports (-)

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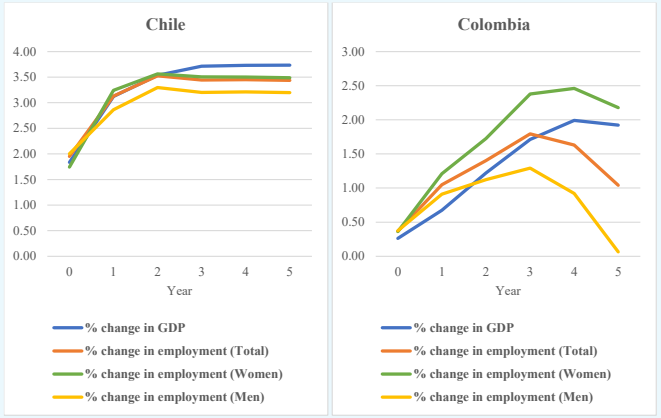
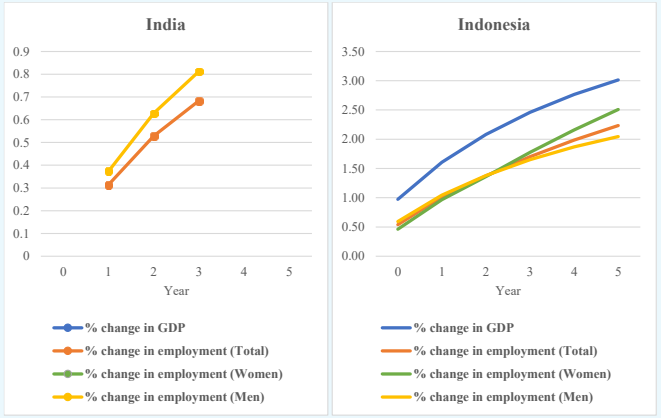
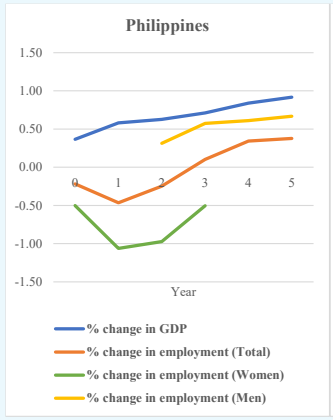
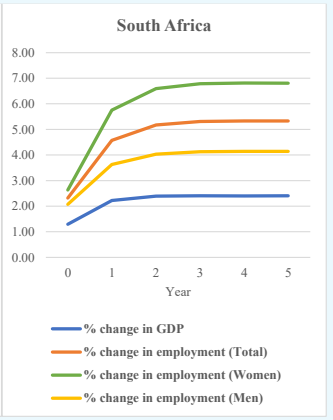
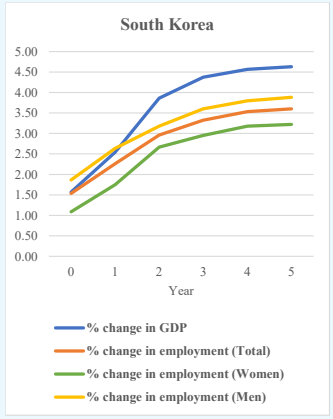
The cumulative % change in GDP, women's and men's and total employment (all in non-agricultural sector) in response to a 1%-point increase (one-off) in public GFCF as a ratio to GDP

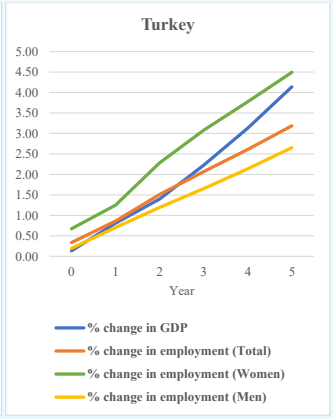












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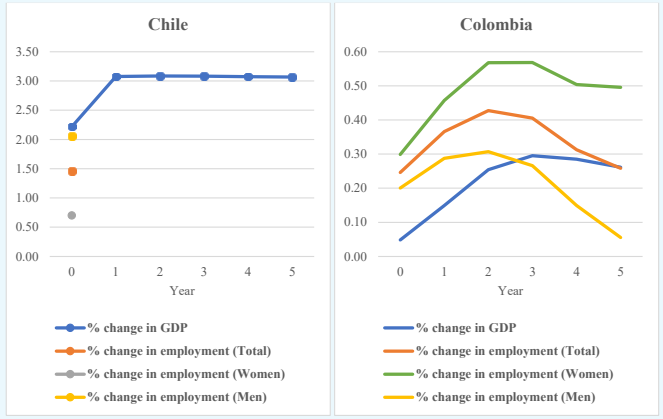
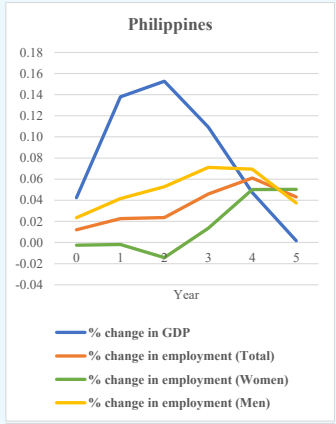
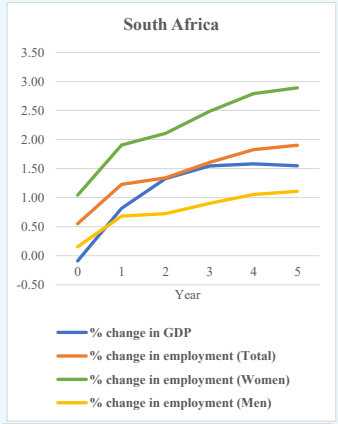
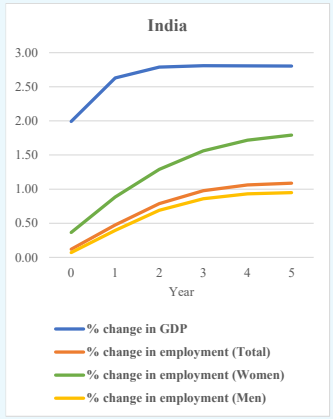
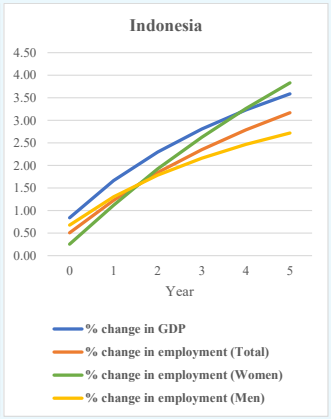
The cumulative % change in GDP, women's and men's and total employment (all in non-agricultural sector) in response to a 1%-point increase (one-off) in public spending in the care economy as a ratio to GDP

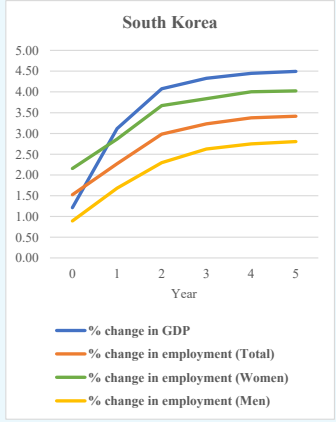


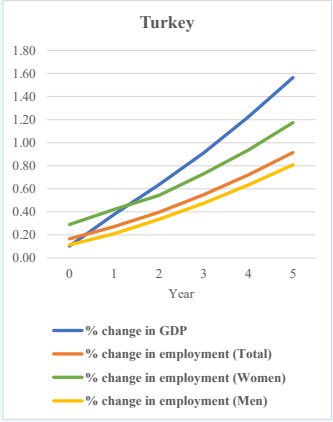












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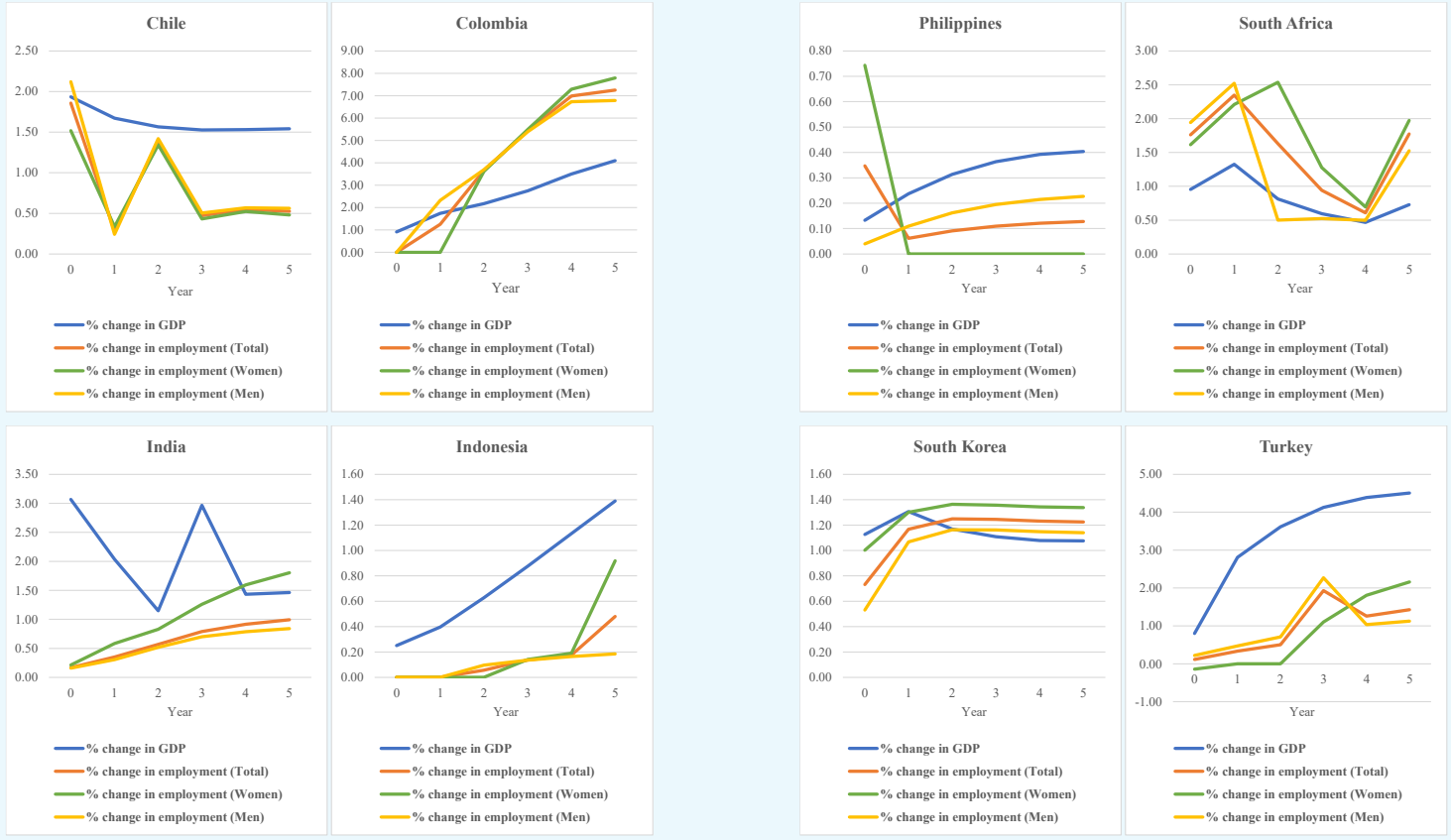
The cumulative % change in GDP, and women's and men's employment (and total employment, all in non-agricultural sector) in response to a 1%-point increase (one-off) in public spending in the green economy (REEEPT) as a ratio to GDP



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			South Africa India, Indonesia, Phillipines				South Korea, Chile, Colombia, Turkey			
						Ratio to GDP				Ratio to GDP
Care: Health and social care + Education & childcare						0.01000				0.01000
Public infrastructure: Public gross fixed capital formation						0.01000				0.01000
			Industry	Manufacturing Industry code (ISIC4 Rev3 code)	Industry share in RE, EE or PT	Ratio to GDP	Industry	Manufacturing Industry code (ISIC4 Rev3 code)	Industry share in RE, EE or PT	Ratio to GDP
Green (REEEPT)						0.01000				0.01000
	Share in REEEPT	Share in RE								
Renewable energy (RE)	0.50					0.00500				0.00500
Solar		0.25				0.00125				0.00125
			Electrical machinery	31 (total)	0.51	0.00064	Electrical equipment, and supplies	31 (total)	0.55	0.00068
			Glass products	2610	0.08	0.00010	Glass products	2610	0.09	0.00011
			Non-ferrous metals	2720	0.08	0.00010	products	2720	0.09	0.00011
			Structural metal produc	281	0.10	0.00013	Fabricated metal products except machinery and funiture	28=281+289	0.12	0.00015
			Engines, turbines	2911	0.07	0.00009	Building construction and repair		0.16	0.00020
			Construction		0.16	0.00020				
Wind		0.25				0.00125				0.00125
			Construction		0.13	0.00016	Building construction and repair		0.26	0.00033
			Construction services		0.13	0.00016	Plastic products	2520	0.13	0.00017
			Plastic products	2520	0.13	0.00017	Fabricated metal products except machinery and funiture	28=281+289	0.13	0.00017
			Other fabricated metal	289	0.13	0.00017	Machinery and equipment of general purpose	291	0.38	0.00048
			General machinery	291	0.38	0.00048	Other transportation equipment	359 or 3599	0.04	0.00006
			Lifting equipment	2915	0.04	0.00006	Electronic components and accessories	3210	0.04	0.00006
			Electrical machinery	31 (total)	0.04	0.00006				
Geothermal		0.25				0.00125				0.00125
			Construction		0.60	0.00075	Building construction and repair		0.60	0.00075
			Pumps, compressors	2912	0.40	0.00050	Machinery and equipment of general purpose	291	0.40	0.00050
Hydro		0.25				0.00125				0.00125
			Plaster, cement	2694	0.33	0.00041	Cement and concrete products	2694+2695	0.33	0.00041
			Construction		0.18	0.00023	Civil engineering construction		0.18	0.00023
			Engines, turbines	2911	0.21	0.00027	Machinery and equipment of general purpose	291	0.21	0.00027
	Share in REEEPT	Share in EE	Electrical machinery	31 (total)	0.28	0.00035	Electrical equipment, and supplies	31 (total)	0.28	0.00035
Energy efficiency (EE)	0.20					0.00200				0.00200
Public and private buildings		0.5				0.00100				0.00100
			Construction		0.50	0.00050	Construction		1.00	0.00100
			Construction services		0.50	0.00050				
Industrial energy efficiency		0.25				0.00050				0.00050
			Special machinery	292	0.40	0.00020	Machinery and equipment of general purpose	291	0.20	0.00010
			General machinery	291	0.20	0.00010	Machinery and equipment of special purpose	292	0.40	0.00020
			Engines, turbines	2911	0.20	0.00010	Electrical equipment, and supplies	31 (total)	0.20	0.00010
			Construction		0.10	0.00005	Building construction and repair		0.20	0.00010
			Construction services		0.10	0.00005				
Grid upgrades		0.25				0.00050				0.00050
			Construction		0.13	0.00006	Building construction and repair		0.25	0.00013
			Construction services		0.13	0.00006	Machinery and equipment of general purpose	291	0.25	0.00013
			General machinery	291	0.25	0.00013	Electronic components and accessories	3210	0.25	0.00013
			Electrical machinery	31 (total)	0.50	0.00025	Household electrical appliances	2930	0.125	0.00006
	Share in REEEPT	Share in PT					Electrical equipment, and supplies	31 (total)	0.125	0.00006
Public transport (PT)	0.30					0.00300				0.00300
Public transport vehicles: locomotives, rolling stock		0.10			0.10	0.00030			0.10	0.00030
Public transport services		0.72			0.72	0.00216			0.72	0.00216
Construction		0.18			0.18	0.00054			0.18	0.00054

South Africa India, Indonesia, Phillipines				South Korea, Chile, Colombia, Turkey			
Industry	ISIC4 Rev3 code	ISIC4 rev4 code	Ratio to GDP	Industry	ISIC4 Rev3 code	ISIC4 rev4 code	Ratio to GDP
Plastic products	2520	2220	0.00017	Plastic products	2520	2220	0.00017
Glass products	2610	2310	0.00010	Glass products	2610	2310	0.00011
Plaster, cement	2694	2394	0.00041	Cement and concrete products	2694+2695	2394+2395	0.00041
Non-ferrous metals	2720	2420	0.00010	products	2720	2420	0.00011
Structural metal produc	281	251	0.00013	Fabricated metal products except machinery and funiture	28=281+289	251+259	0.00031
Other fabricated metal	289	259	0.00017	Machinery and equipment of general purpose	291	281	0.00147
General machinery	291	281	0.00071	Machinery and equipment of special purpose	292	282	0.00020
Engines, turbines	2911	2811	0.00045	Household electrical appliances	2930	2750	0.00006
Pumps, compressors	2912	2813	0.00050	Electrical equipment, and supplies	31 (total)	27	0.00120
Lifting equipment	2915	2816	0.00006	Electronic components and accessories	3210	2610	0.00018
Special machinery	292	282	0.00020	Other transportation equipment	3599	3099	0.00006
Electrical machinery	31 (total)	27	0.00130	Locomotives, rolling stock	352	3020	0.00030
Locomotives, rolling stock	352	3020	0.00030				
Sum of manufacturing sub-industries providing input to REEEPT/GDP			0.00458	Sum of manufacturing sub-industries providing input to REEEPT/GDP			0.00458
Construction			0.00327	Construction			0.00327
Public transport services			0.00216	Public transport services			0.00216
Total: (manufacturing+consr uction+public transport services)/GDP			0.01000	Total: (manufacturing+construction+public transport services)/GDP			0.01000

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	"Status quo" scenario	"High road" scenario	Additional spending in care services required by 2030 for the "high road" scenario compared to current policies: "high road" - "status quo"	Additional annual spending in care services required for 5 years for the "high road" scenario compared to current policies: "high road" - "status quo"
India	3.6	8.6	5	1.0
Indonesia	3.9	12.5	8.6	1.7
Philippines	14.1	19.6	5.5	1.1
South Korea	11	12.3	1.3	0.3
Turkey	8.8	10.9	2.1	0.4

Source: : İlkkaracan and Kim, 2019, also reported in ILO 2020

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County/Region	Model	Current Policies	Net zero 2050 (1.5°C)	Additional low-carbon investment required to limit global warming to 1.5°C compared to current policies: Net zero 2050 (1.5°C) - Current Policies
Colombia*	GCAM5.3_NGFS	0.64	2.01	1.37
Indonesia*	GCAM5.3_NGFS	0.30	2.01	1.71
South Korea*	GCAM5.3_NGFS	0.11	1.06	0.95
South Africa*	GCAM5.3_NGFS	0.58	2.69	2.11
India*	GCAM5.3_NGFS	1.37	4.83	3.46
India**	AIM/CGE	0.22	3.37	3.15
India**	IMAGE	0.47	1.46	0.99
India**	MESSAGEix-GLOBIOM	0.27	1.52	1.25
India**	POLES	0.79	2.92	2.13
India**	REMIND-MAgPIE	2.29	7.73	5.44
India**	WITCH-GLOBIOM	0.87	5.16	4.29
Asia**	AIM/CGE	0.47	3.38	2.91
	IMAGE	0.33	1.14	0.81
	MESSAGEix-GLOBIOM	0.24	1.06	0.82
	POLES	0.78	2.39	1.61
	REMIND-MAgPIE	1.53	4.88	3.35
	WITCH-GLOBIOM	0.74	4.35	3.61
Middle East and Africa**	AIM/CGE	0.22	4.08	3.86
	IMAGE	0.61	1.57	0.96
	MESSAGEix-GLOBIOM	0.24	1.65	1.41
	POLES	0.52	3.12	2.60
	REMIND-MAgPIE	1.18	5.88	4.70
	WITCH-GLOBIOM	0.66	9.10	8.44
Latin America and the Caribbean**	AIM/CGE	0.52	2.29	1.77
	IMAGE	0.68	1.30	0.62
	MESSAGEix-GLOBIOM	0.27	1.18	0.91
	POLES	0.88	1.84	0.96
	REMIND-MAgPIE	1.34	3.29	1.95
	WITCH-GLOBIOM	0.56	1.91	1.35

Source: *Ratios to GDP are own calculations based on required investment amount reported in Bertram et al. (2021).
**McCollum, et al. (2018) Supplementary Data Tables

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	Estimation period	Lags	Level / difference	Control variables	Order of variabl
Chile	1982-2018	1	Difference	Δlog(population_15); Δrer; Δinformal; Δlog(world_gdp); Δrent_gdp_w	output in the soci sector, public GF GDP, E_t^M, E_t^F
Colombia	1994-2018	3	Level	log(population_15); rer; oil_gdp_w; log(world_gdp)	as in A4.3
India	1982-2018	1	Difference	Δinformal; Δlog(world_gdp); drer; Δoil_gdp_w; Δtrade_gdp	as in A4.3
Indonesia	1992-2018	1	Level	log(population_15); log_world_gdp	as in A4.3
Philippines	1974-2018	3	Level	log_population_15; time trend; log_world_gdp	as in A4.3
South Africa	1993-2018	1	Difference	Δurban; Δinformal; Δrent_gdp_w; Δlog(population_15)	output in the soci sector, public GF GDP, E_t^M, E_t^F
South Korea	1972-2018	1	Difference	drer	as in A4.3
Turkey	1992-2018	1	Level	log(population_15); time trend; informal; rer urban; log(world_gdp)	as in A4.3

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	Estimation period	Lags	Level / difference	Control variables	Order of variables
Chile	1982-2018	1	Difference	Δlog_population_15; Δrer; Δinformal; Δlog_world_gdp; Δrent_gdp_w	value added in manufacturing sub-industries providing input to REEEPT, construction, transport, GDP, E_t^M *and* E_t^F
Colombia	1978-2018	3	Level	Time trend; log_population_15; rer	as in A4.5
India	1982-2018	2	Difference	Δinformal; Δlog_world_gdp; Δrer; Δurban; time trend	as in A4.5
Indonesia	1977-2017	1	Level	log_population_15; log_world_gdp; time trend	as in A4.5
Philippines	1972-2018	1	Level	log_population_15; urban; log_world_gdp	as in A4.5
South Africa	1994-2018	2	Difference	Δrer; Δlog_population_15; Δrent_gdp_w; Δinformal; durban	as in A4.5
South Korea	1972-2018	1	Difference	Time trend	as in A4.5
Turkey	1983-2018	1	Level	log_population_15; time trend; rer; log_world_gdp; urban; informal; rent_gdp_w; oil_gdp_w	value added in transport, manufacturing sub-industries providing input to REEEPT, construction, GDP, E_t^M *and* E_t^F

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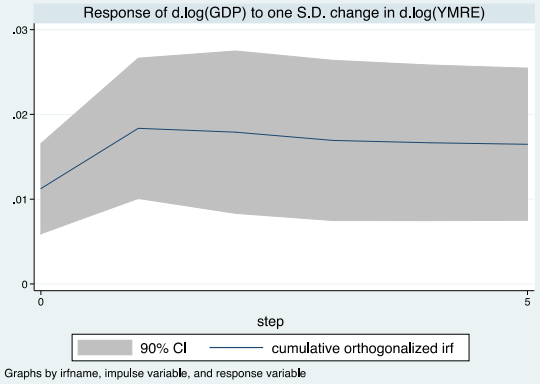
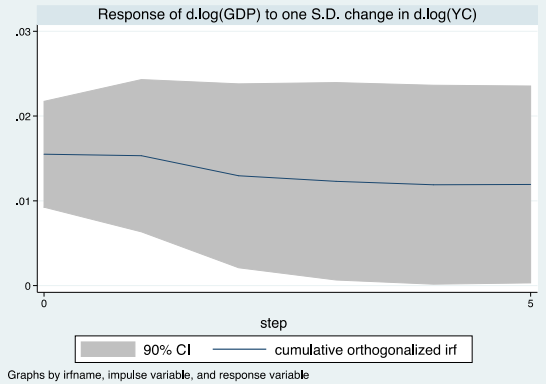
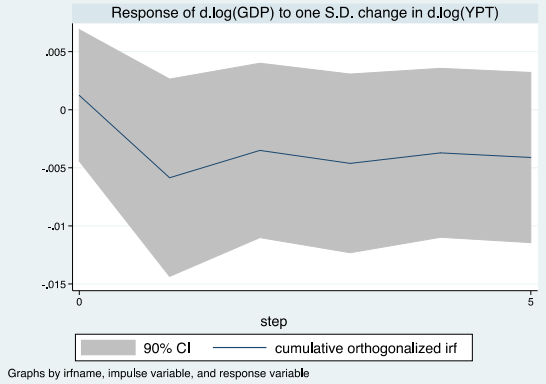
Cumulative Impulse Response Functions: GDP to REEEPT

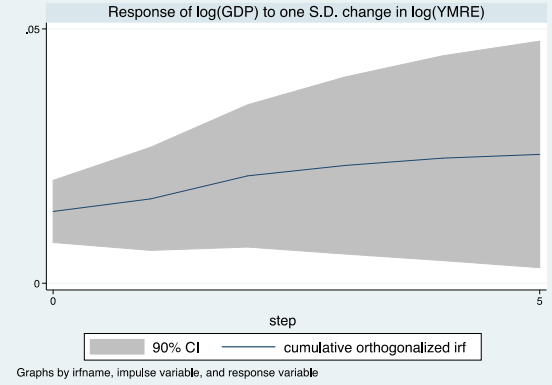
- South Korea

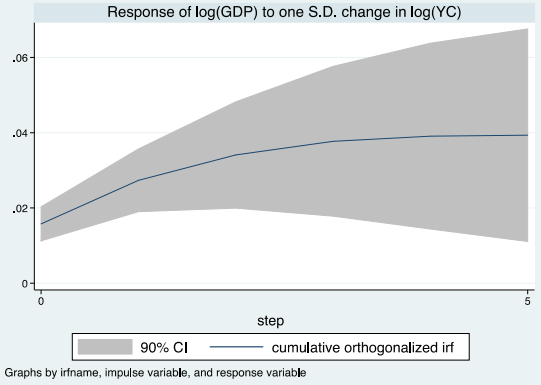


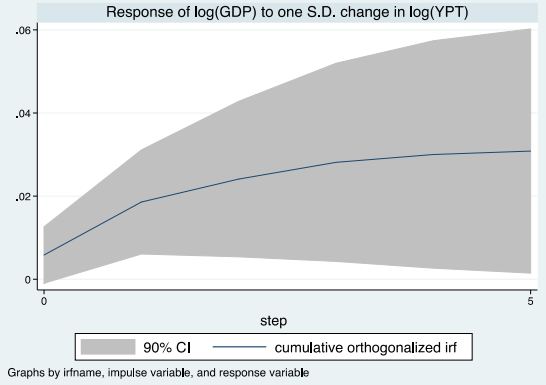




Turkey







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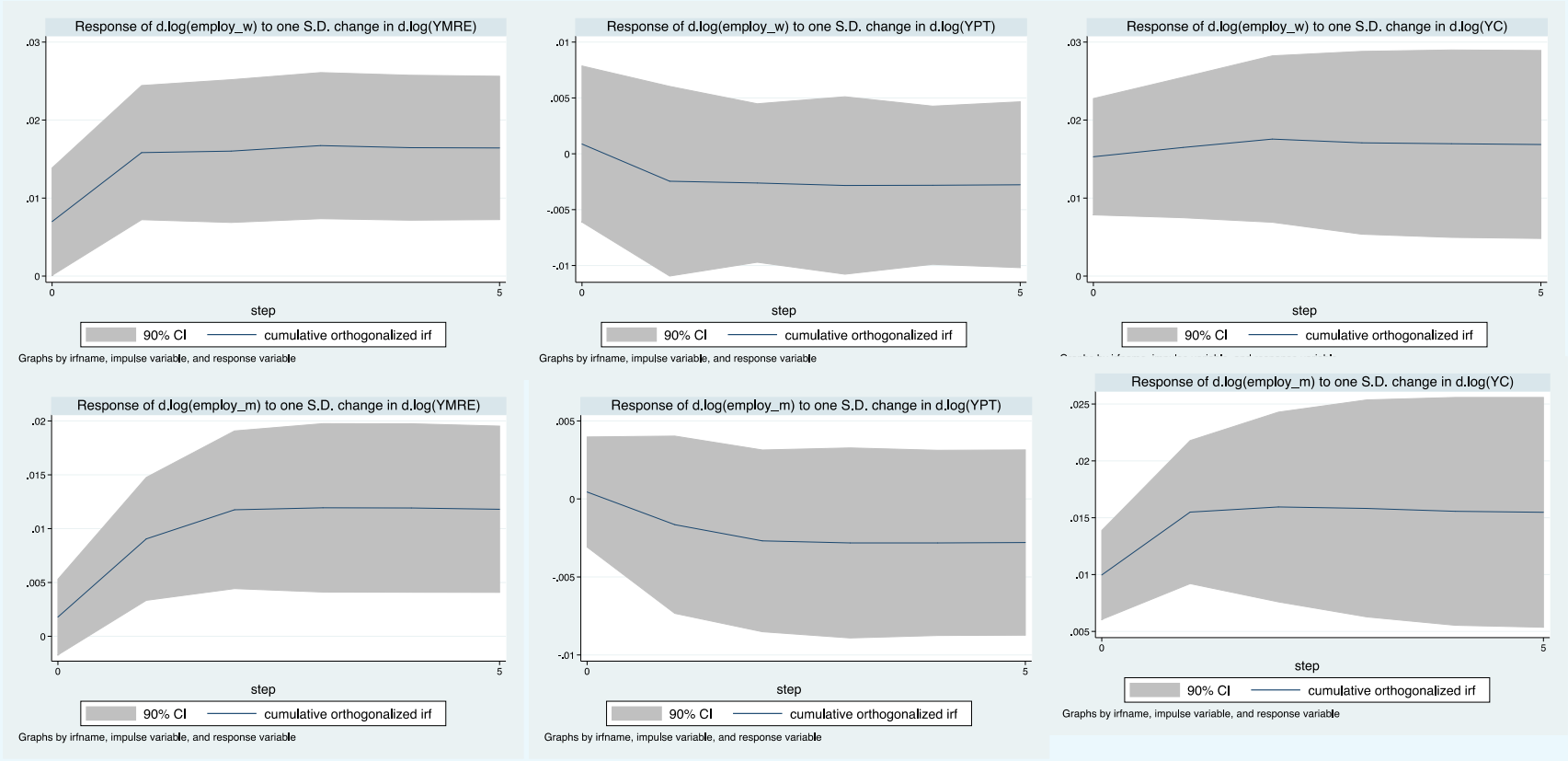
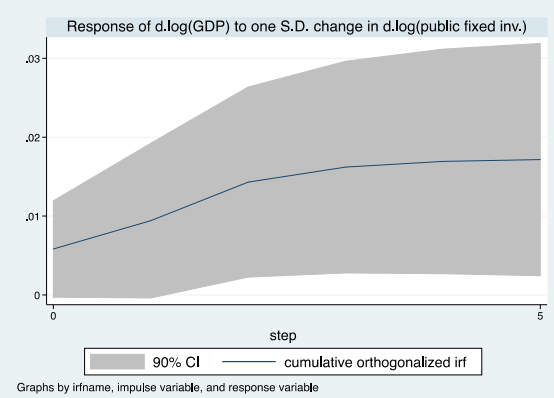
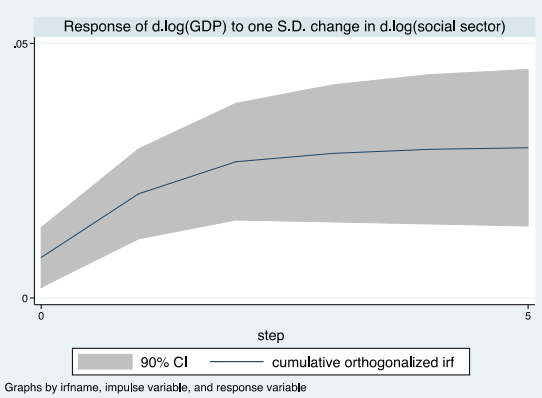
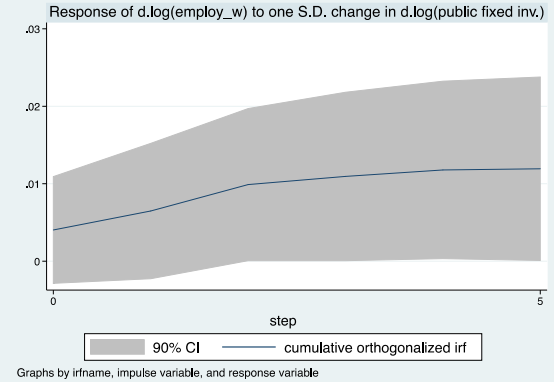
Cumulative Impulse Response Functions: employment to REEEPT

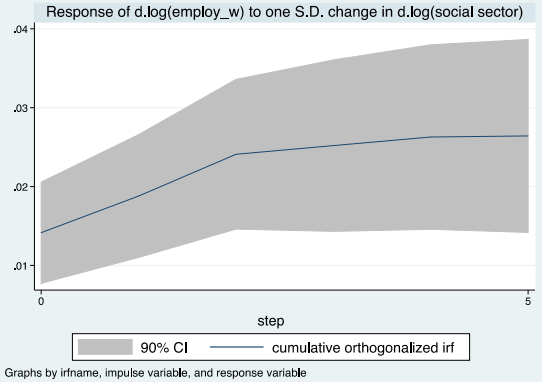
- South Korea

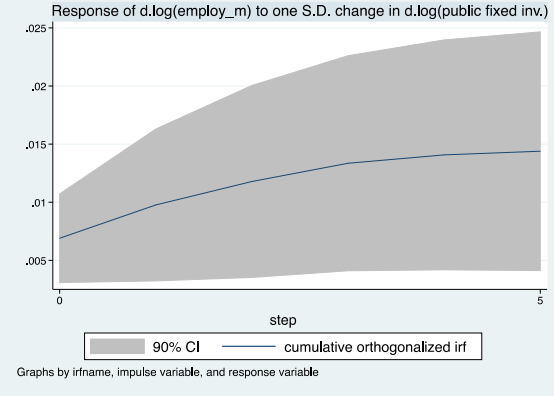


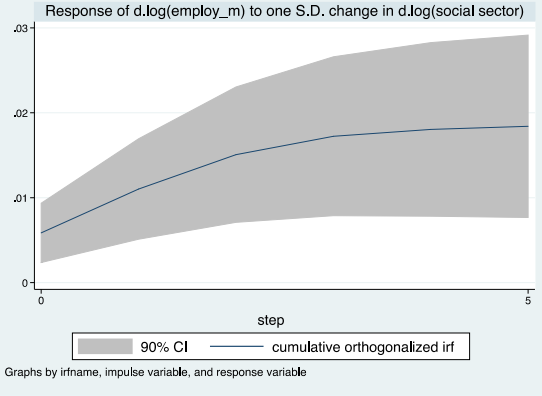












Cumulative impulse response functions: GDP and employment response to public spending in physical infrastructure and care

South Korea

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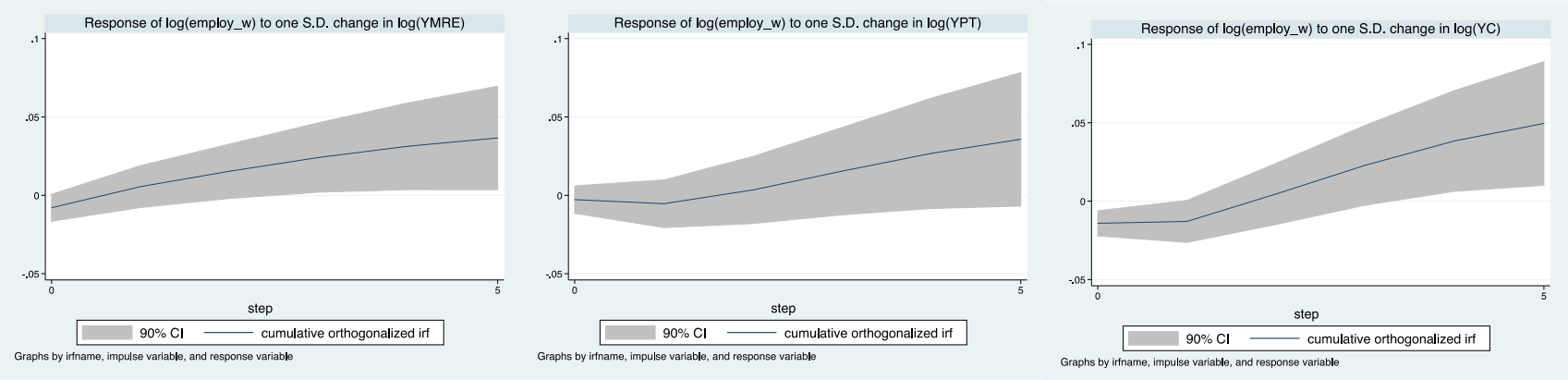
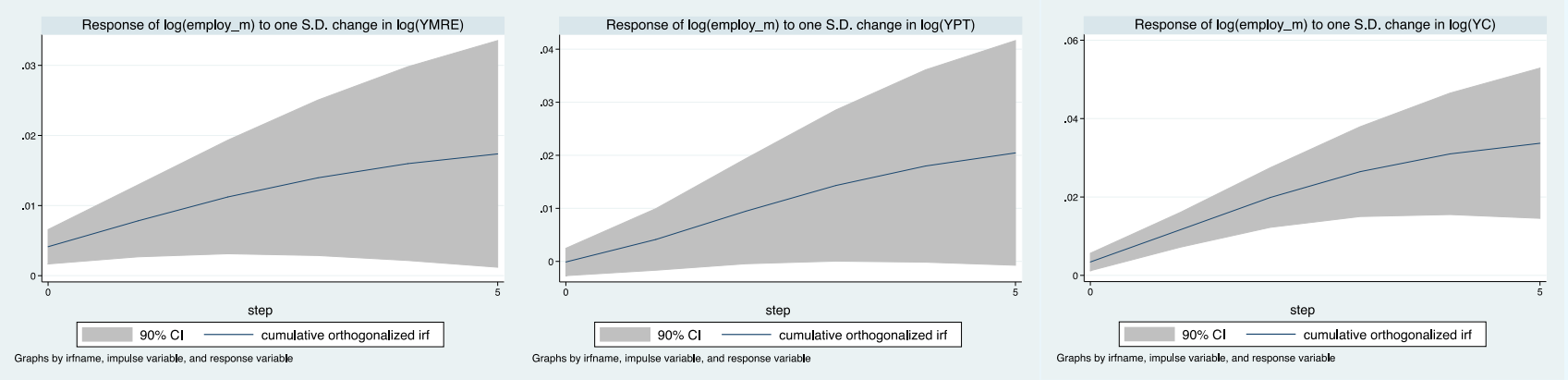
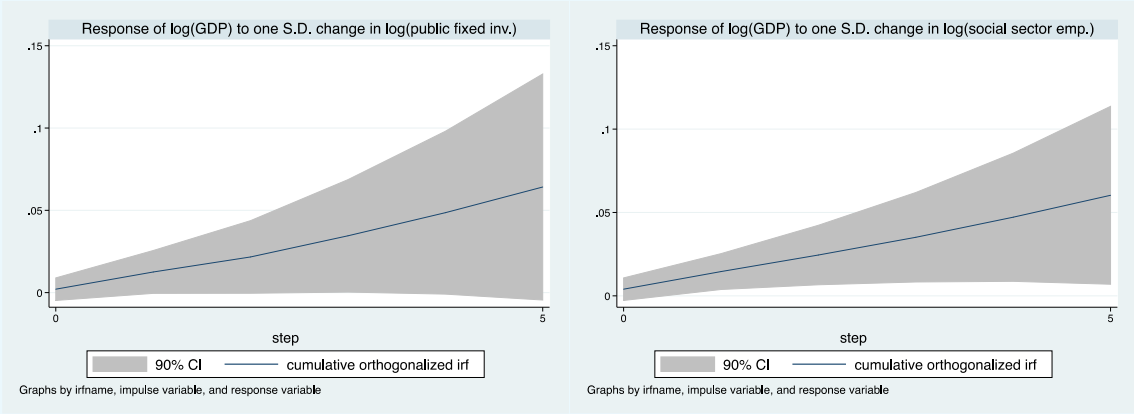
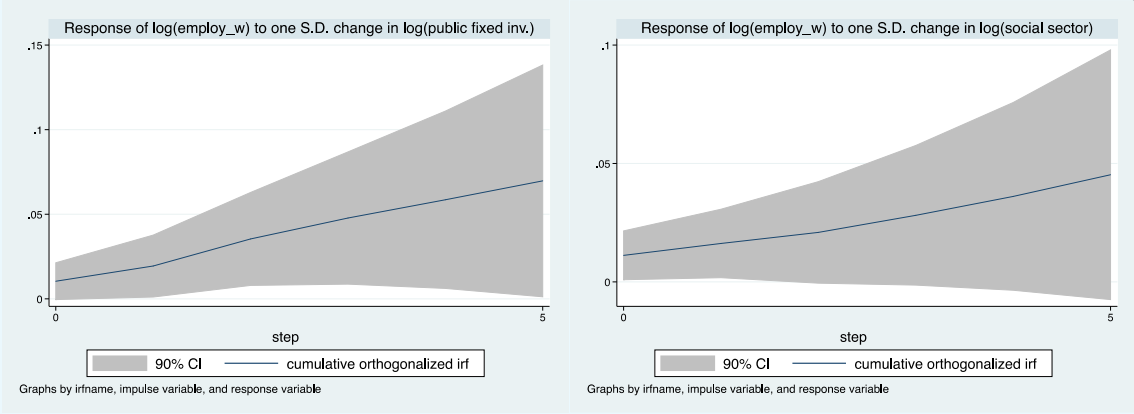
Cumulative Impulse Response Functions: employment to REEEPT

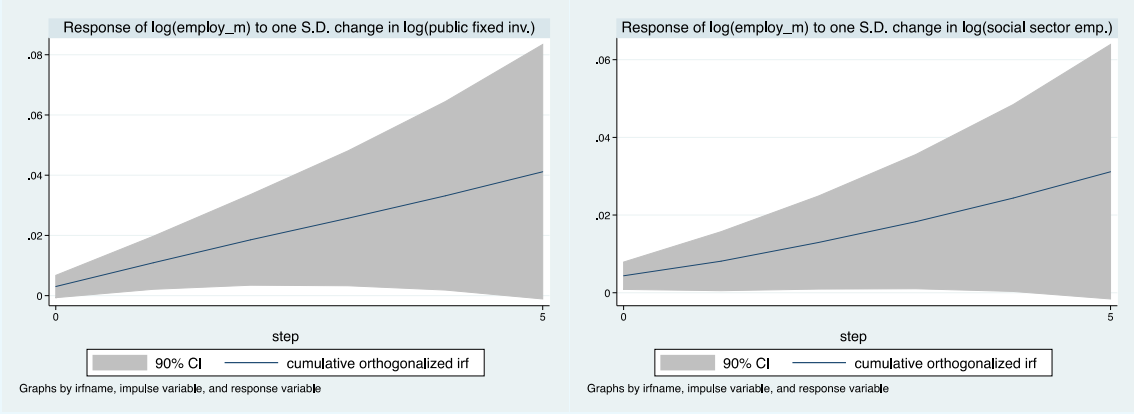
- Turkey











Cumulative impulse response functions: GDP and employment response to public spending in physical infrastructure and care

Turkey

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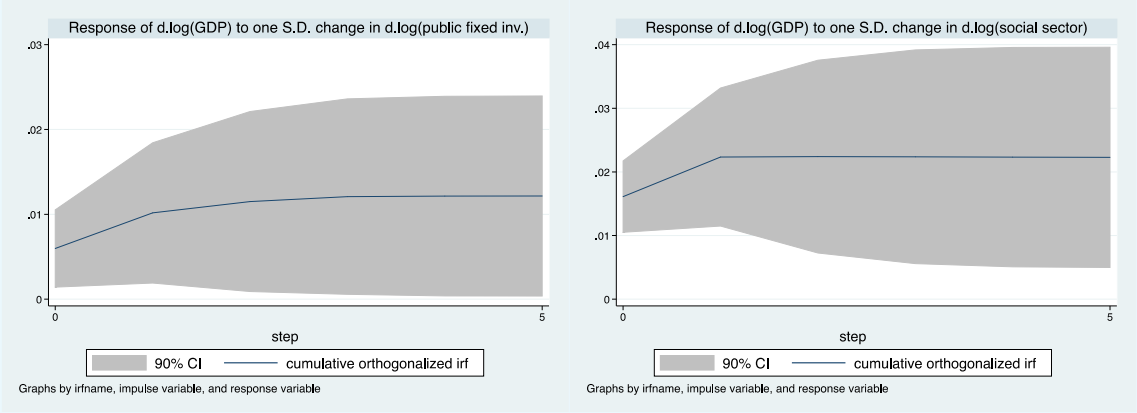
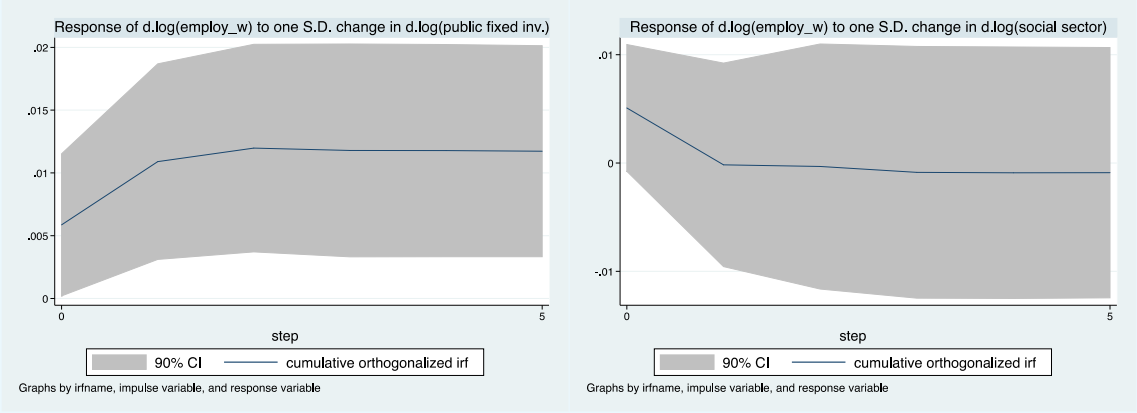
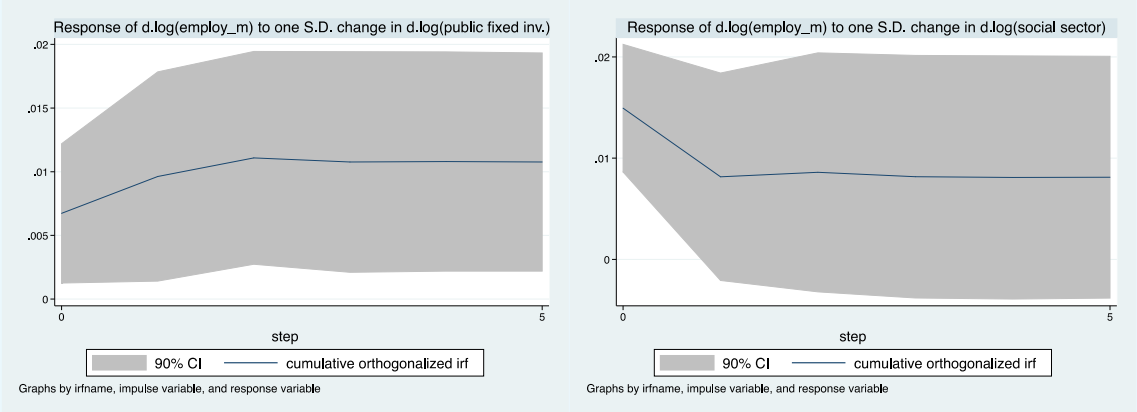
Cumulative impulse response functions

Chile







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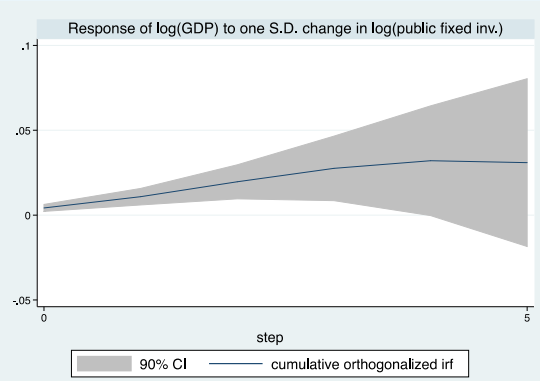
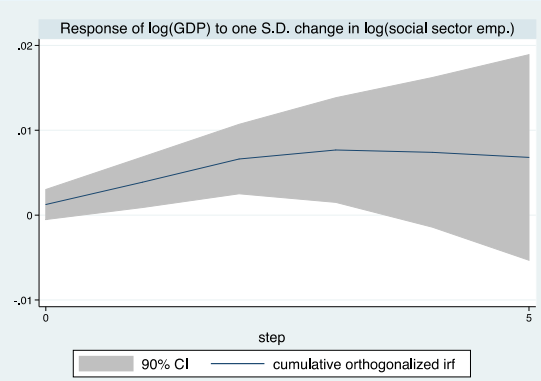
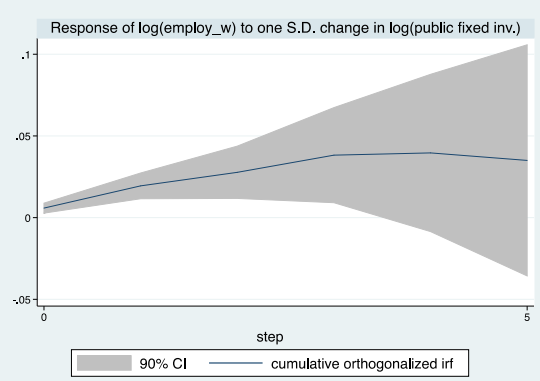
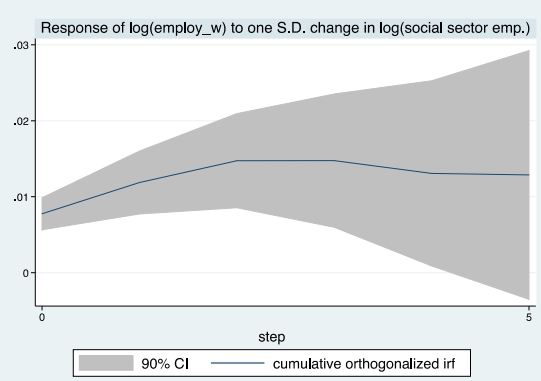
Cumulative impulse response functions

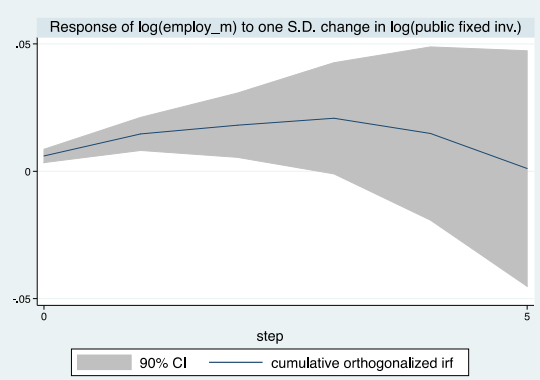
Colombia

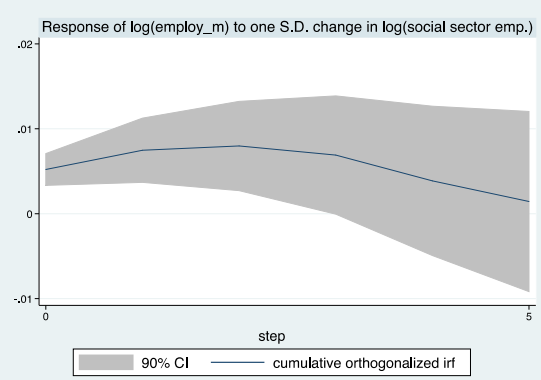












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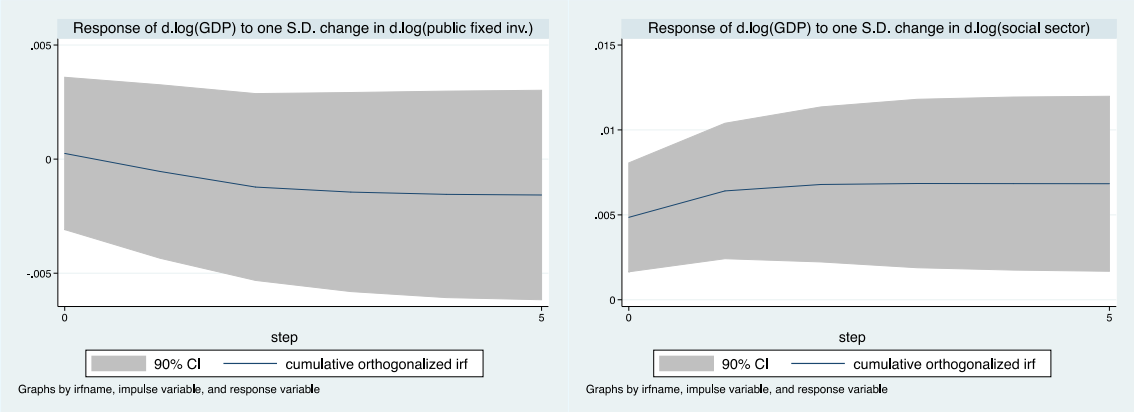
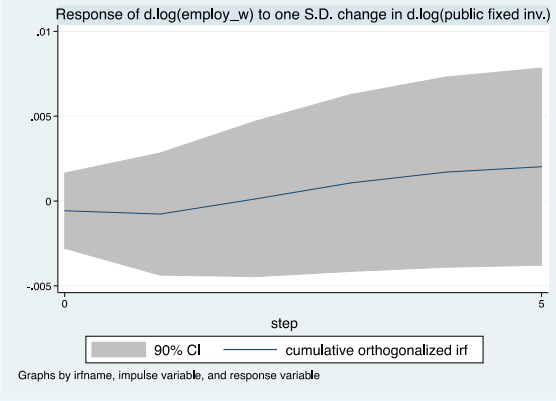
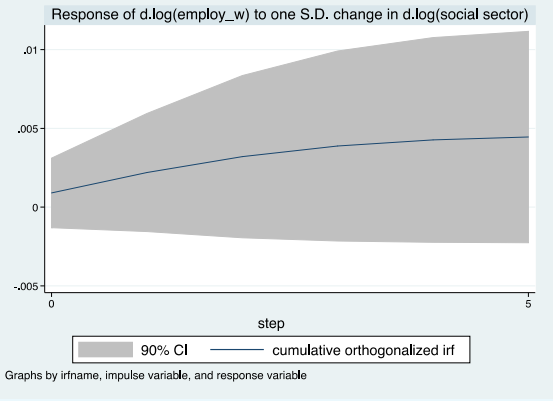
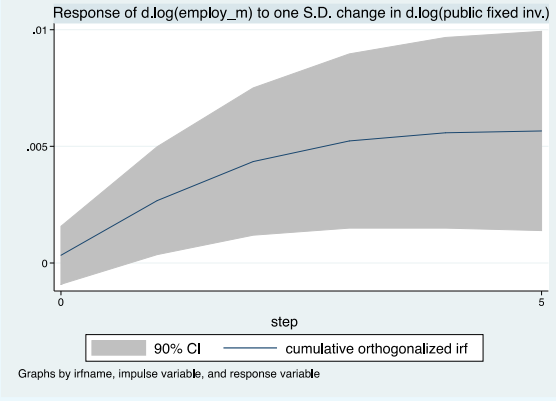
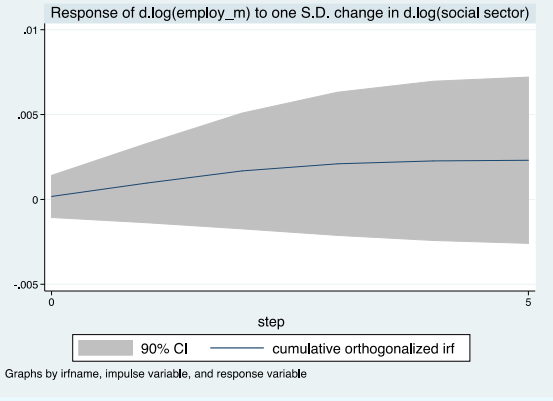
Cumulative impulse response functions India











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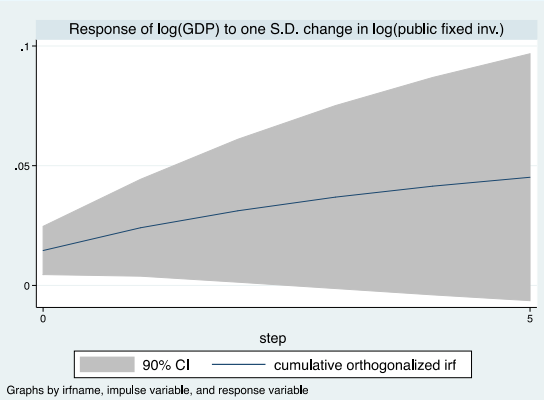
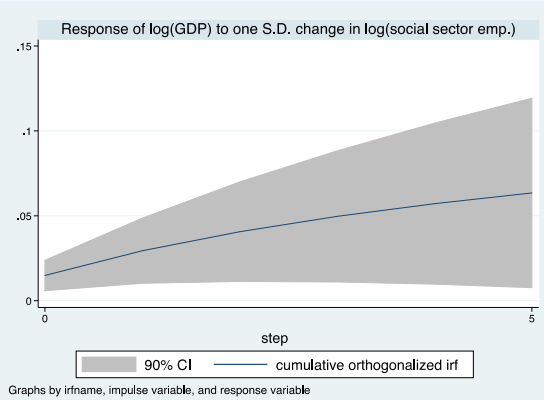
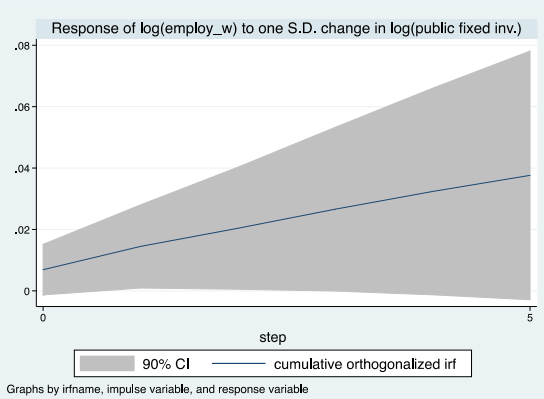
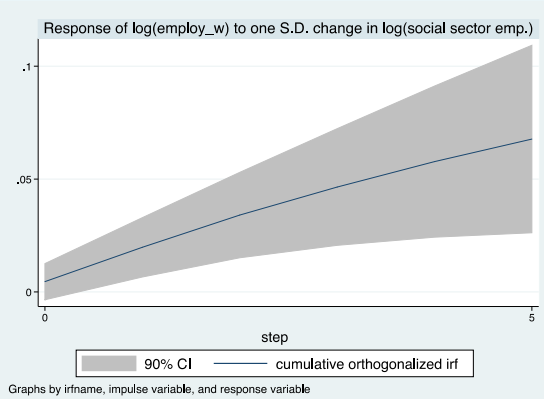
Cumulative impulse response functions

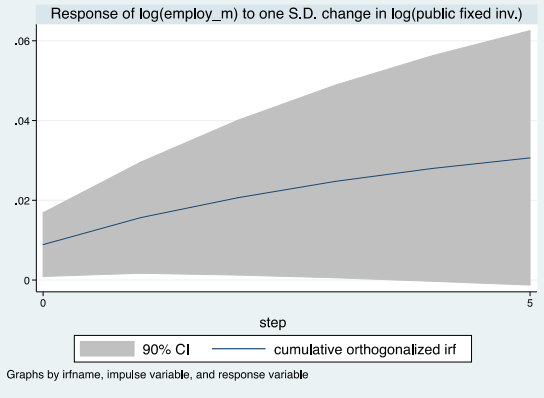
Indonesia

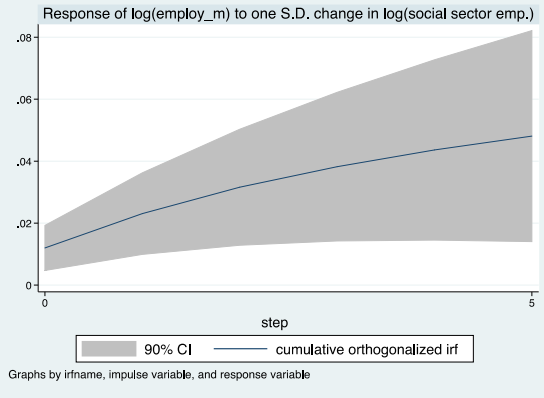












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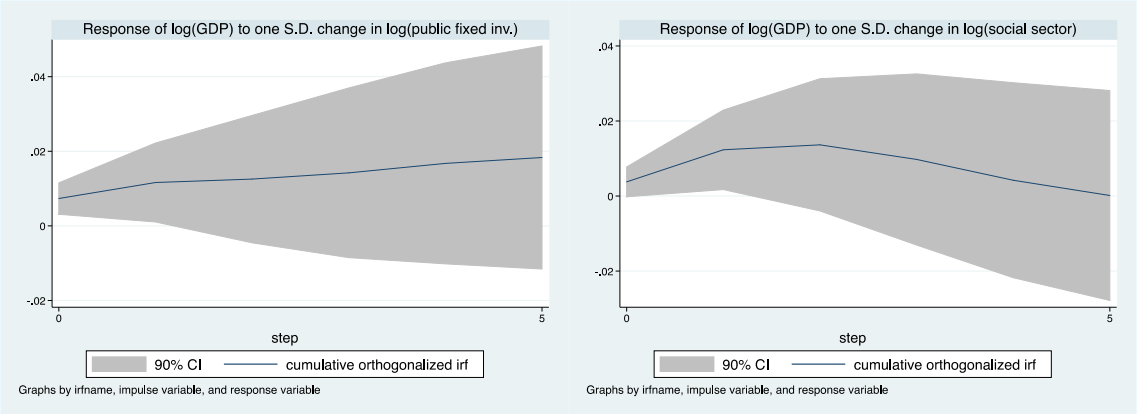

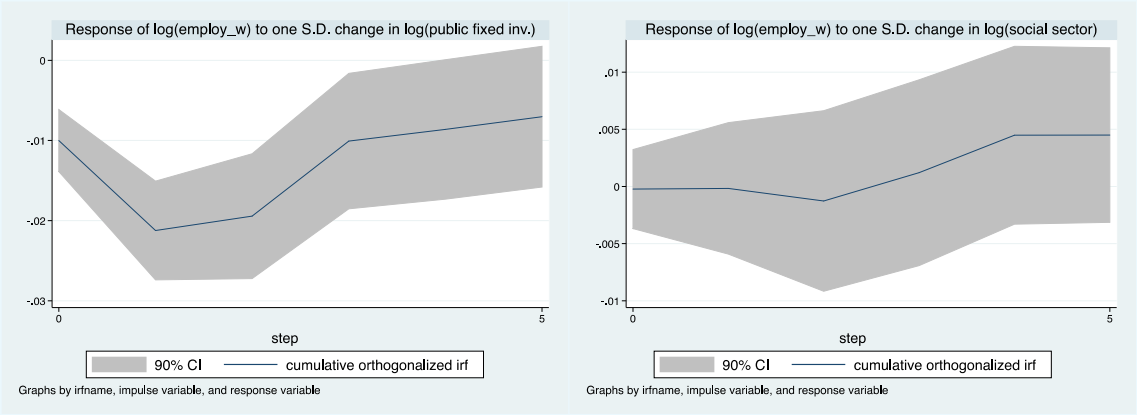

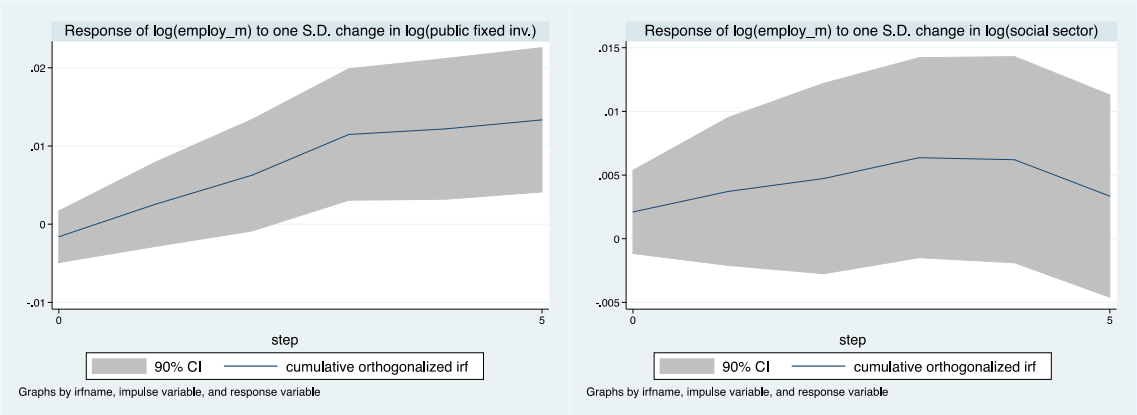

Cumulative impulse response functions

Philippines

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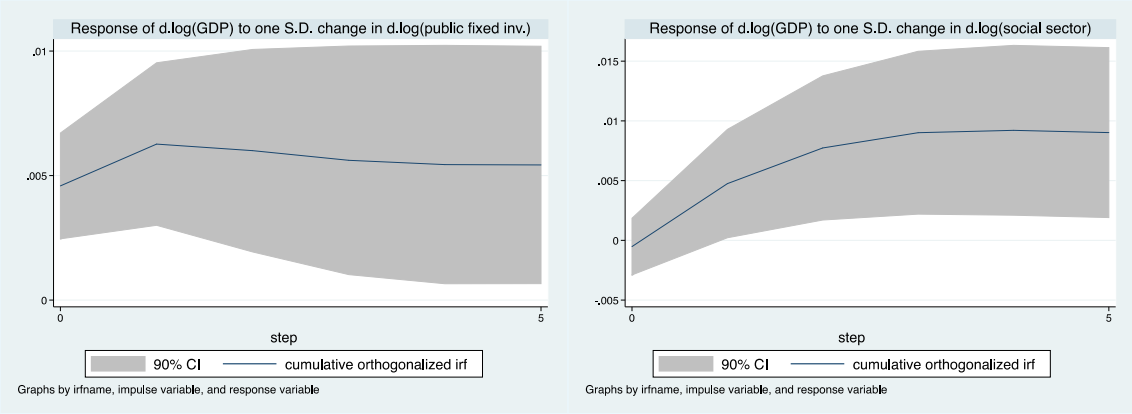

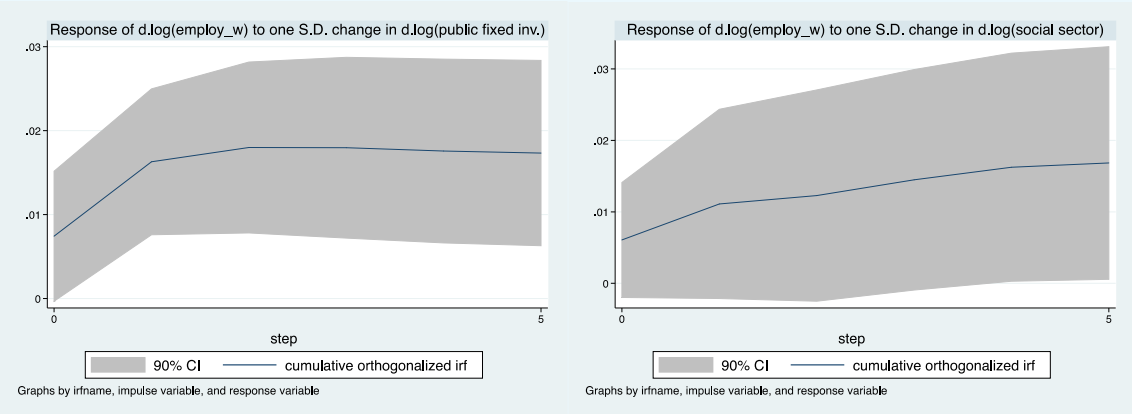

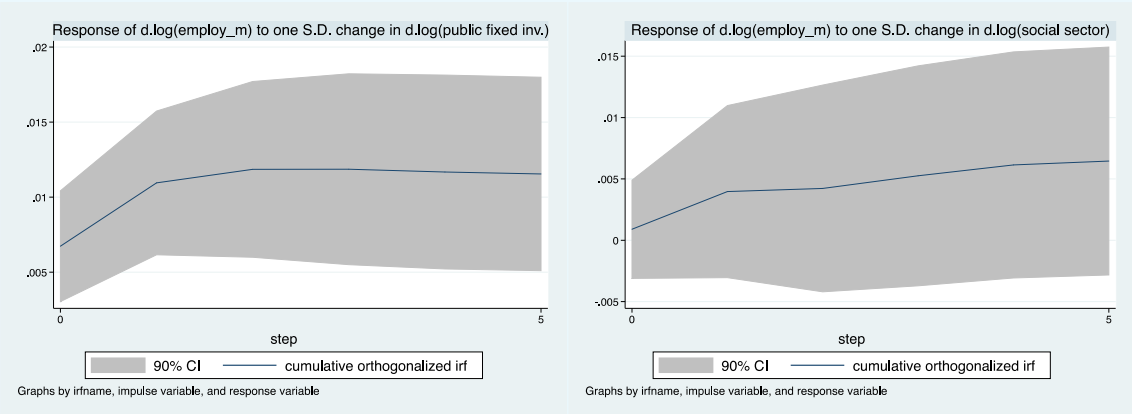

Cumulative impulse response functions

South Africa

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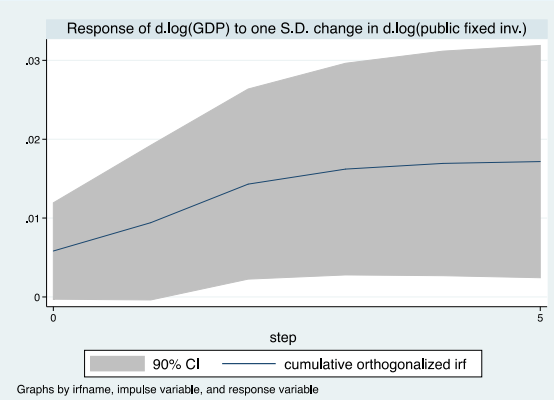
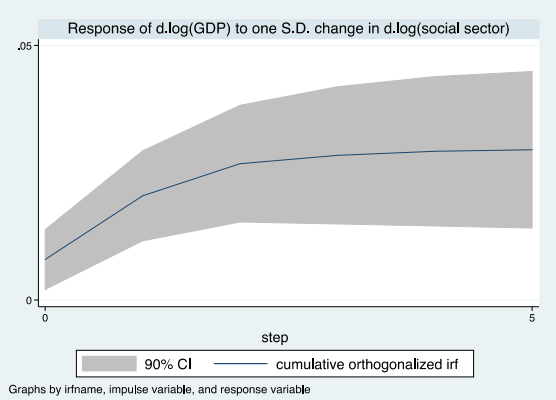
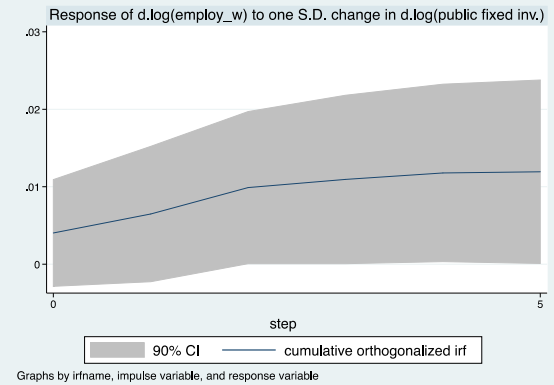
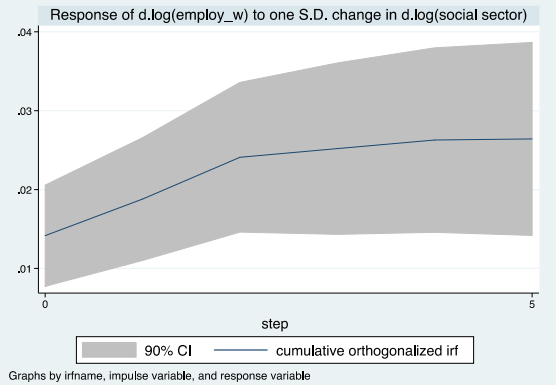
Cumulative impulse response functions

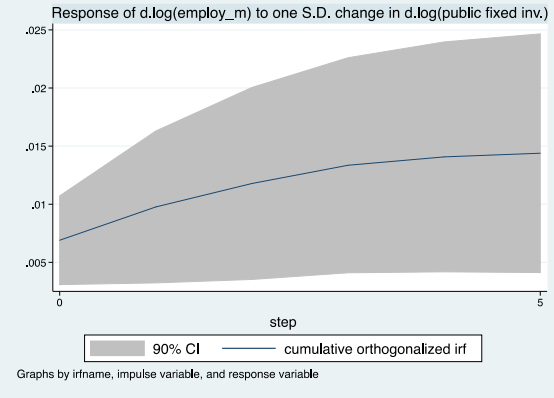
South Korea

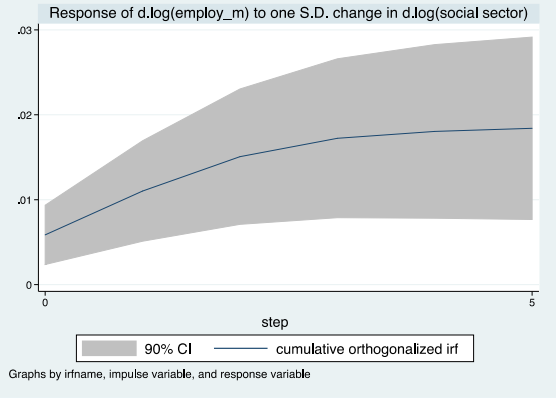












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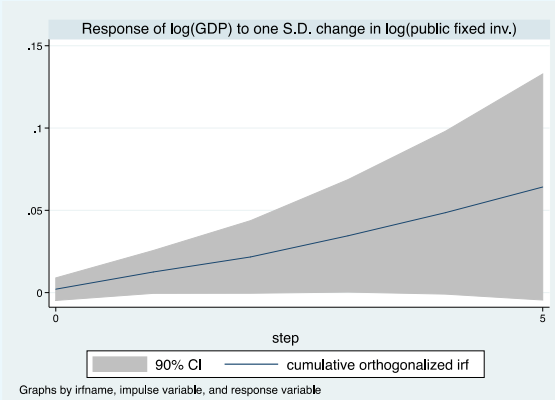
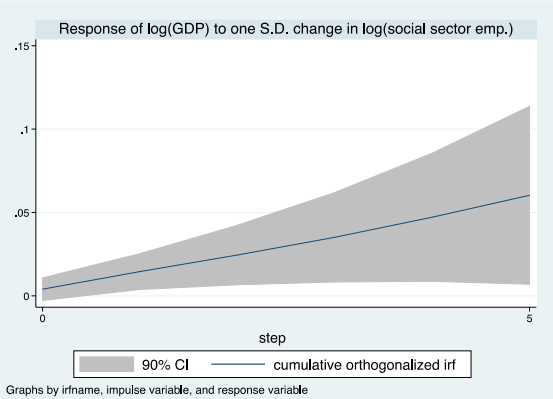
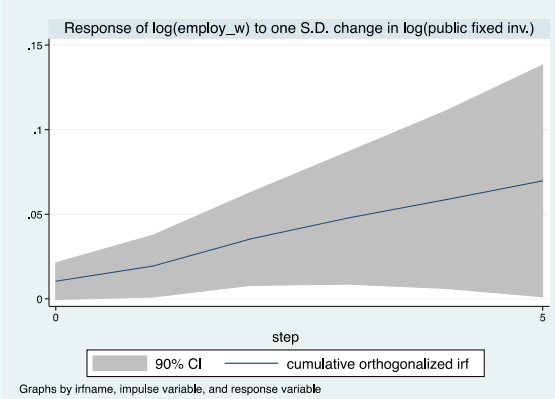
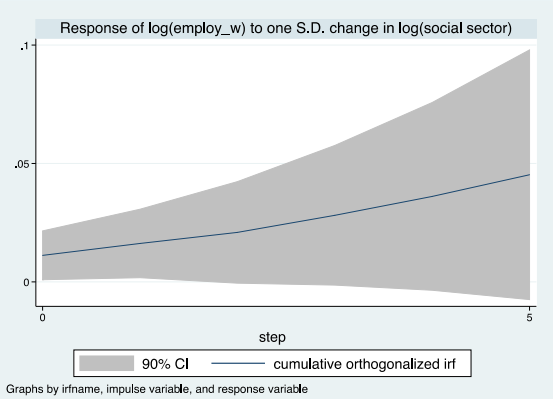
Cumulative impulse response functions

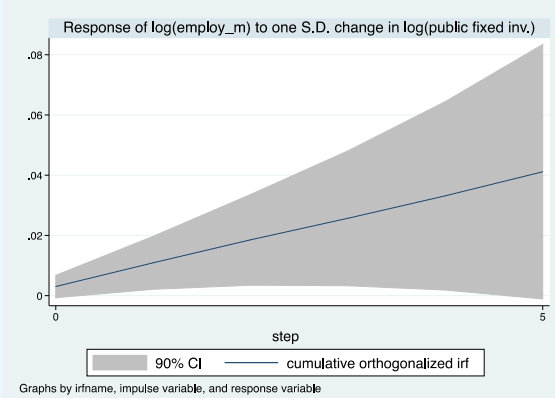
Turkey

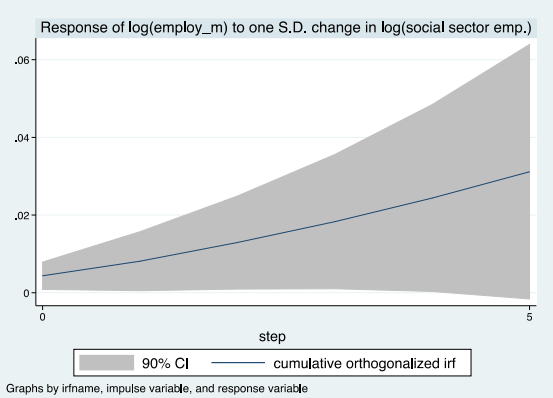












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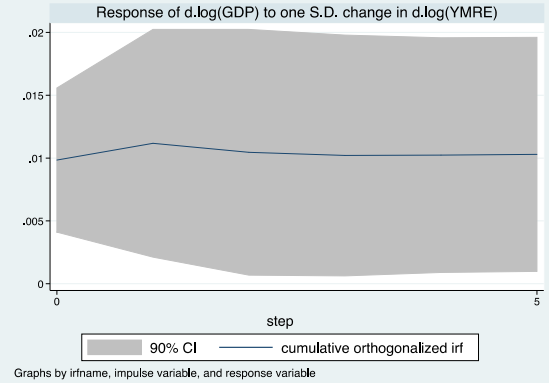
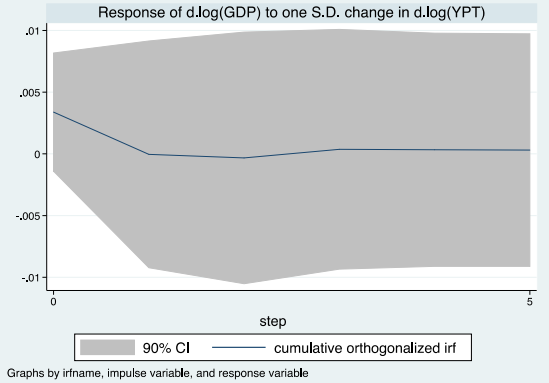
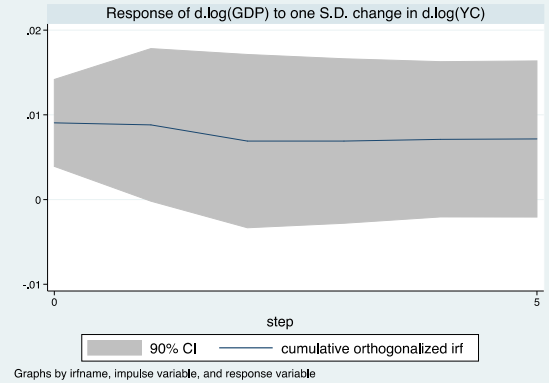
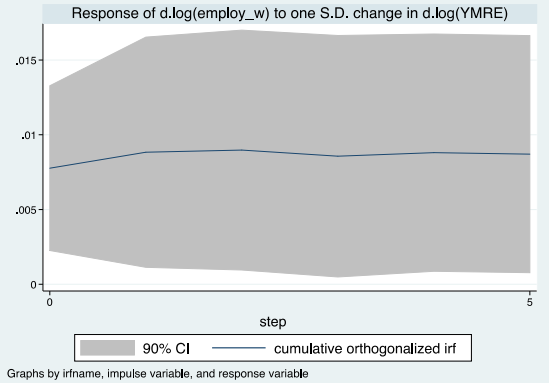
Cumulative impulse response functions

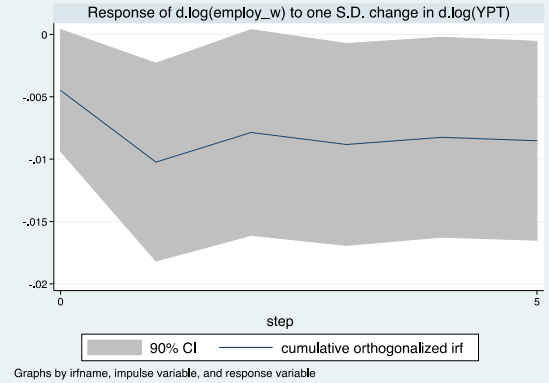
Chile

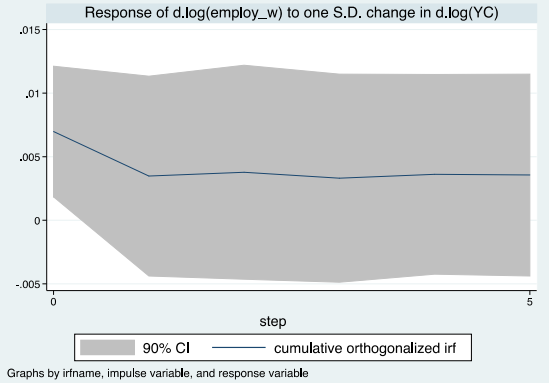












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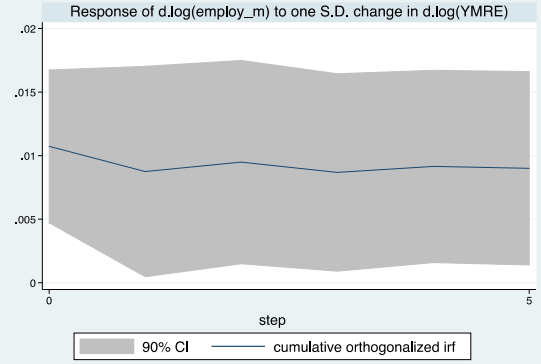

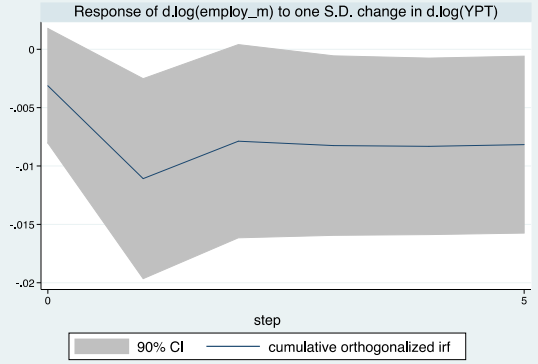

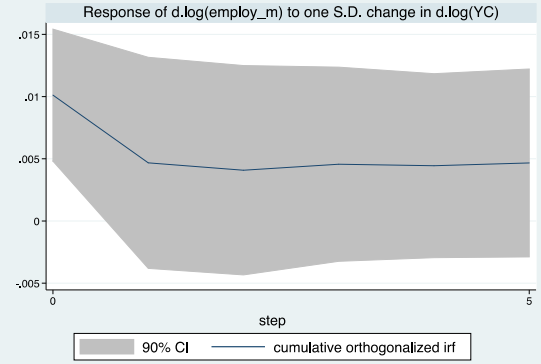

Cumulative impulse response functions

Chile

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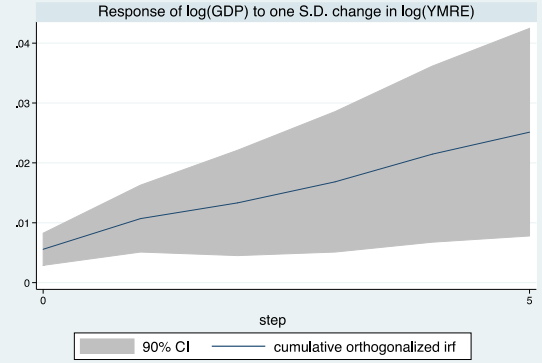
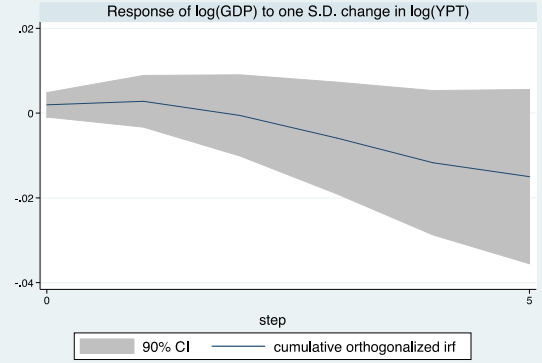
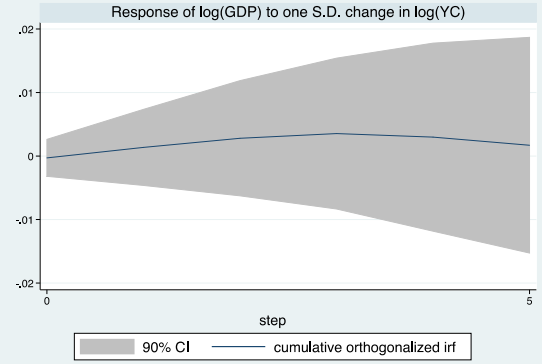
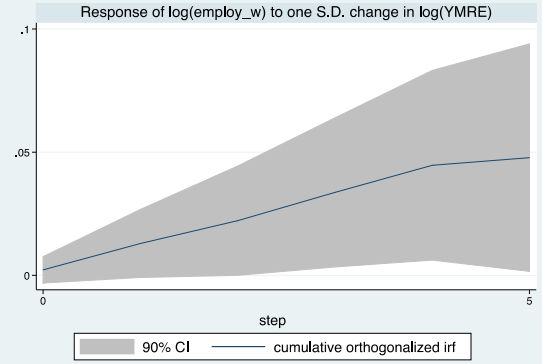
Cumulative impulse response functions

Colombia









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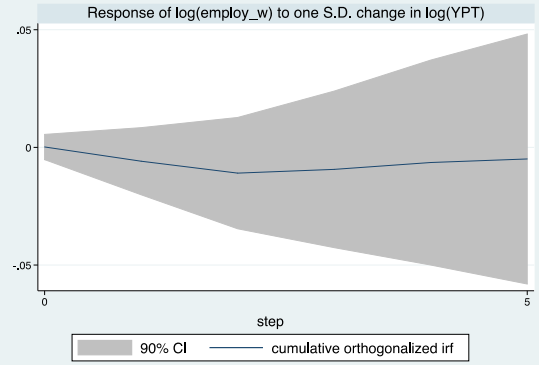

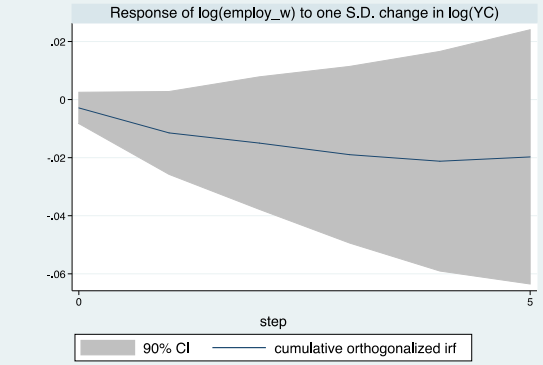

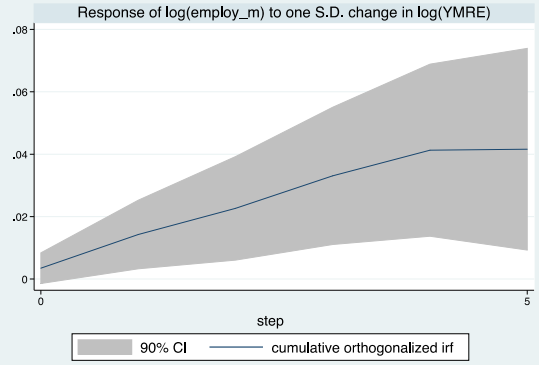

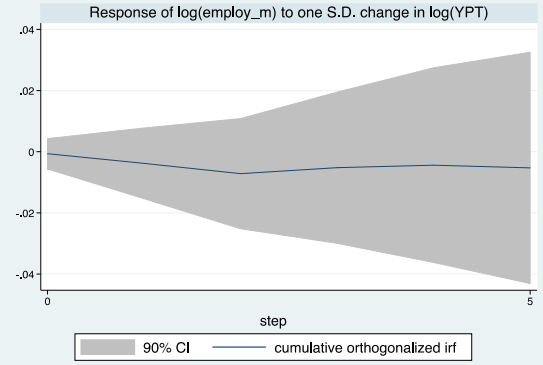

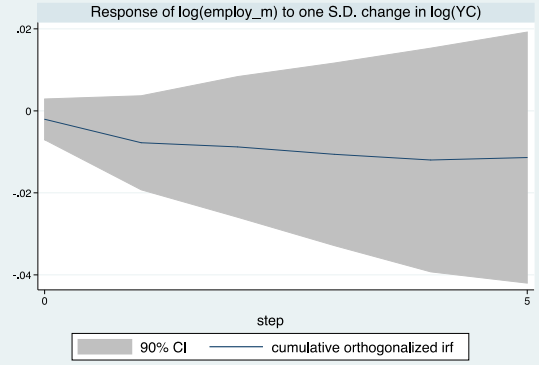

Cumulative impulse response functions

Colombia

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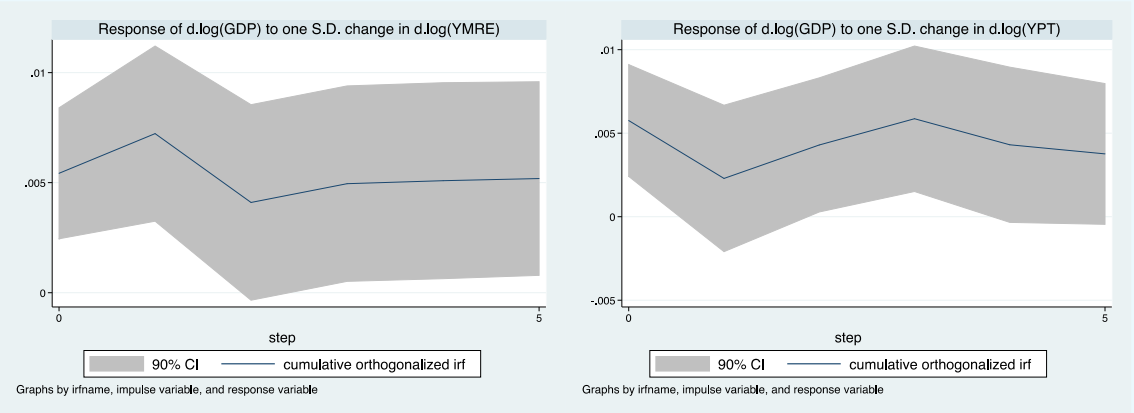
Cumulative impulse response functions

India



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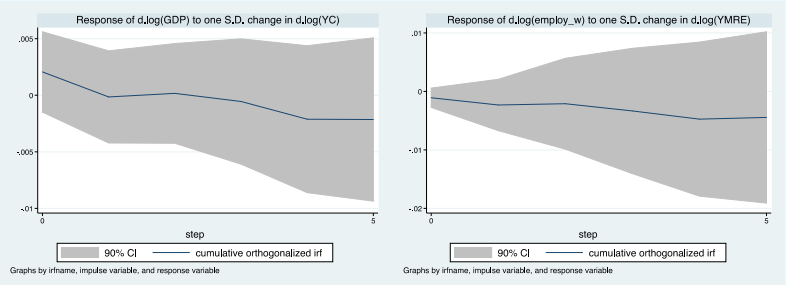

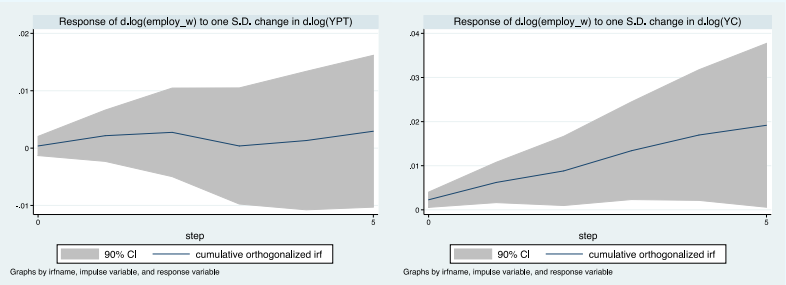

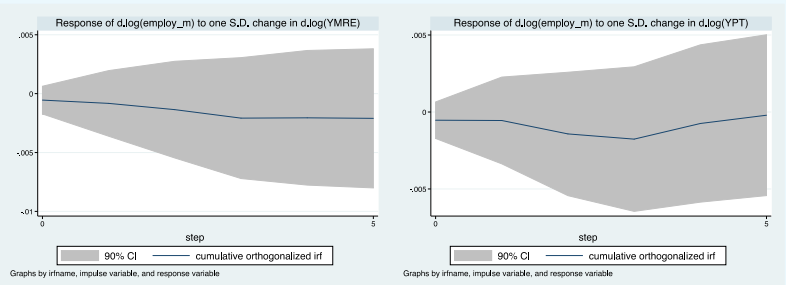

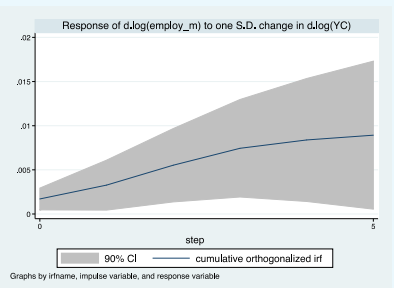

Cumulative impulse response functions

India

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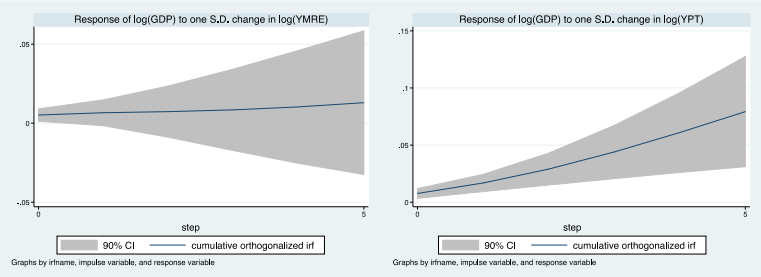

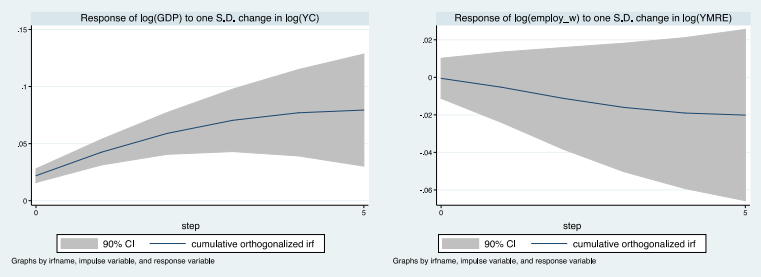

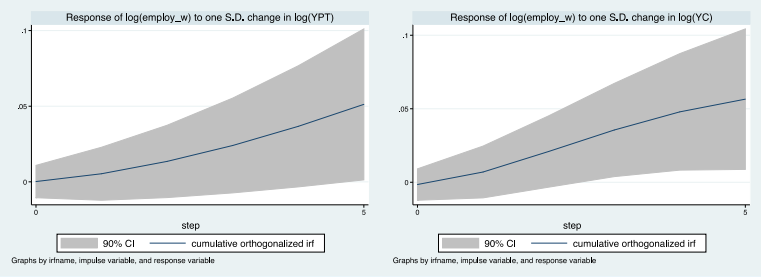

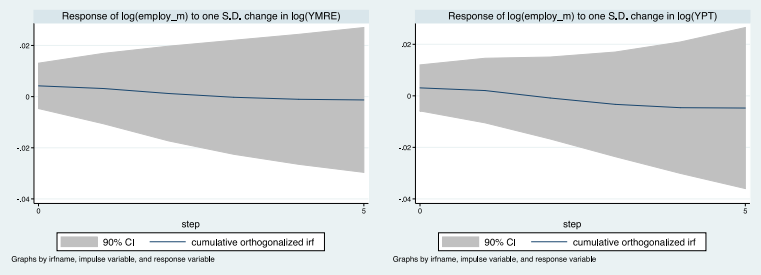

Cumulative impulse response functions

Indonesia

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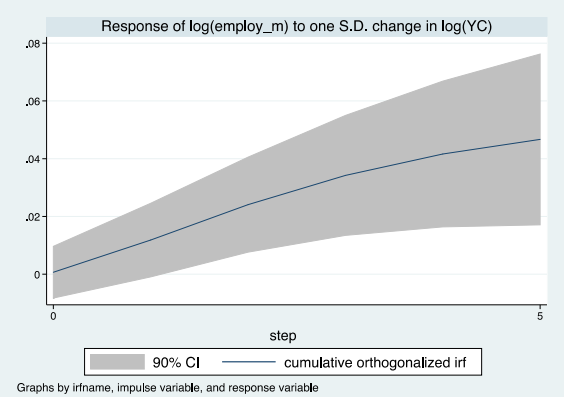
Cumulative impulse response functions

Indonesia



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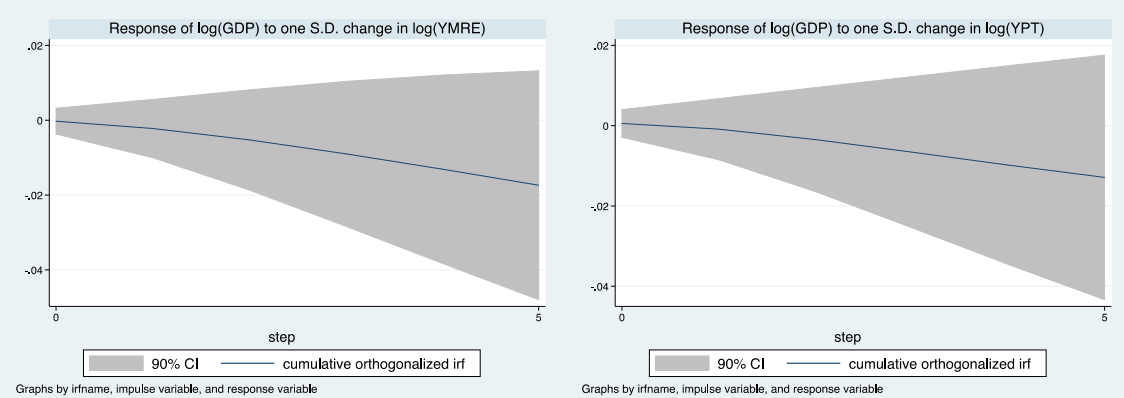

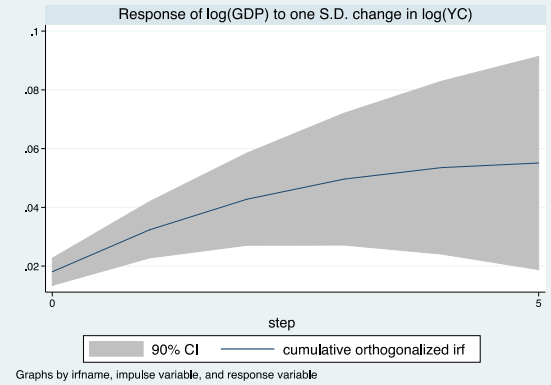

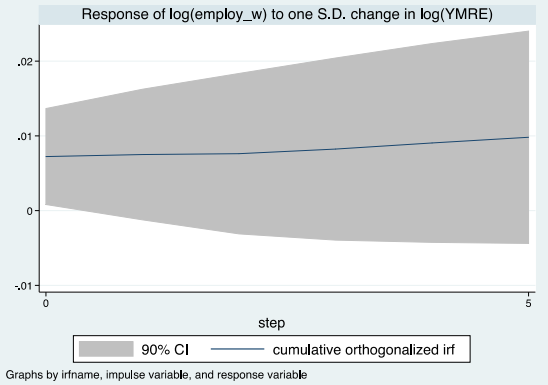

Cumulative impulse response functions

Philippines

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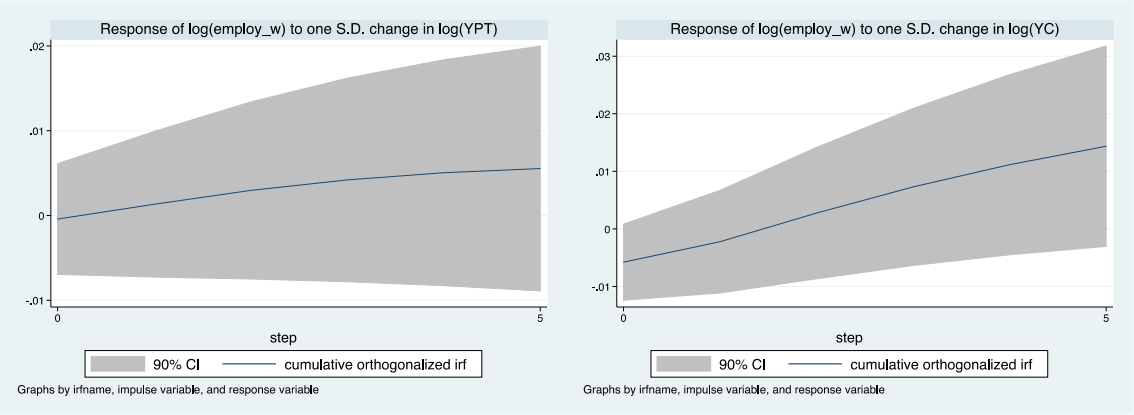
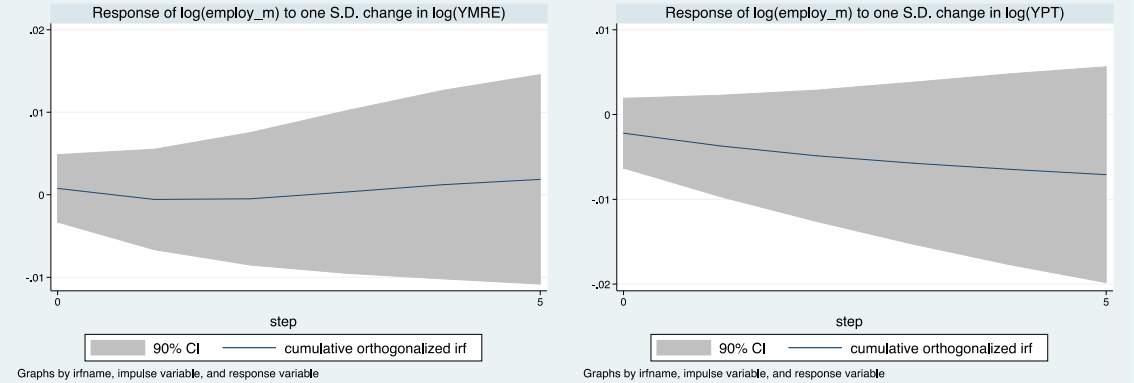
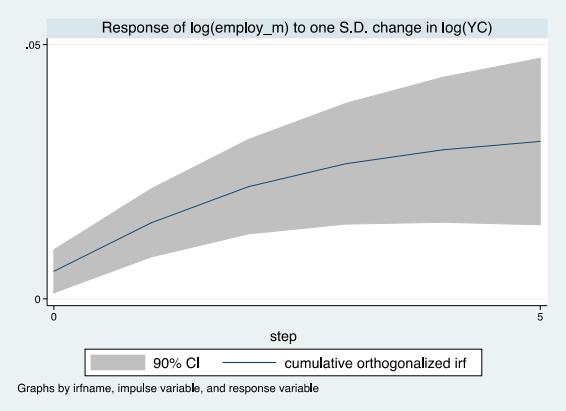


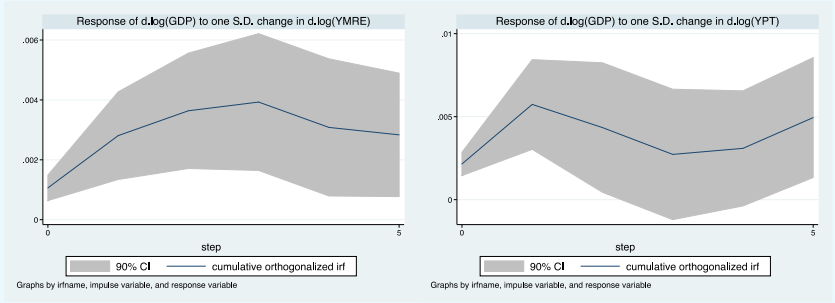


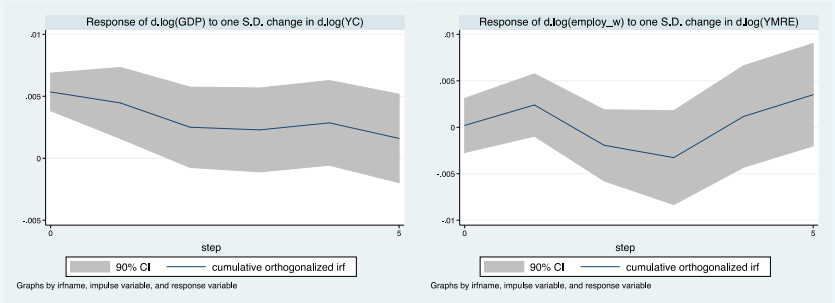


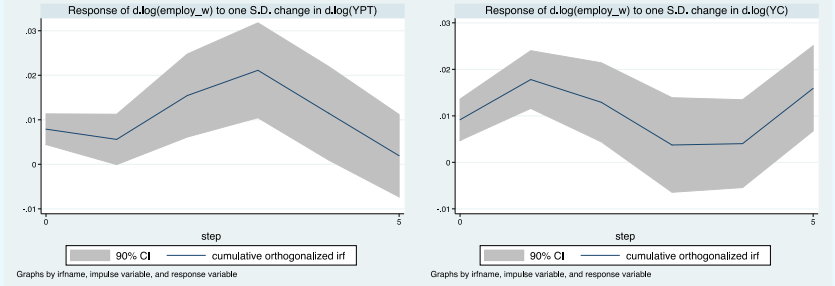
Cumulative impulse response functions

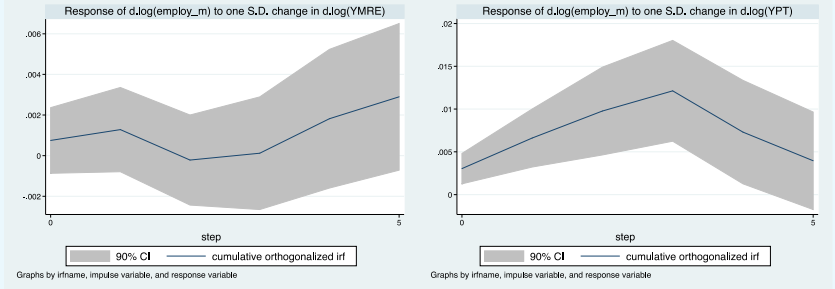
Philippines

UNIVERSITY OF GREENWICH









Cumulative impulse response functions

South Africa

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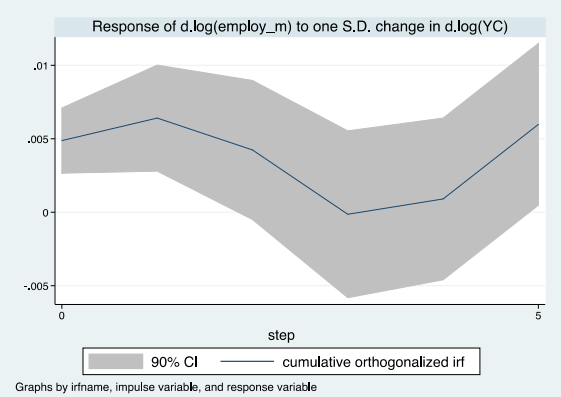
Cumulative impulse response functions

South Africa



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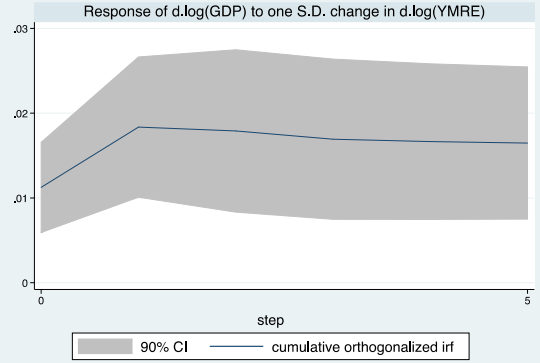
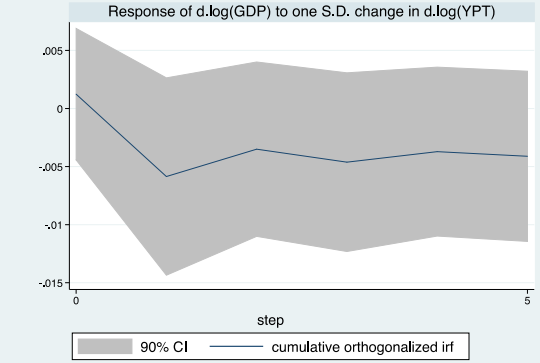
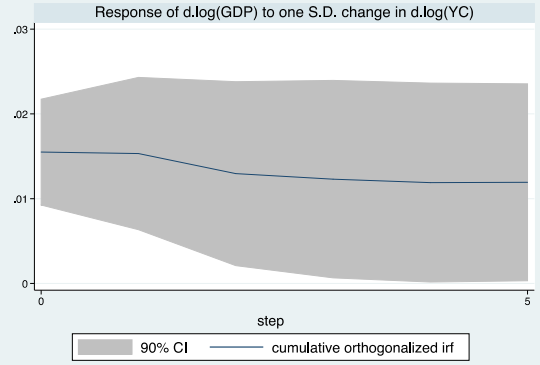
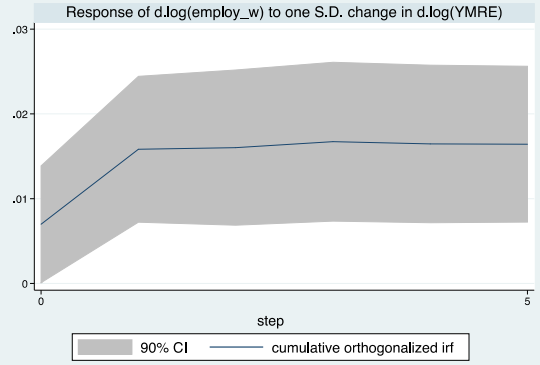
Cumulative impulse response functions

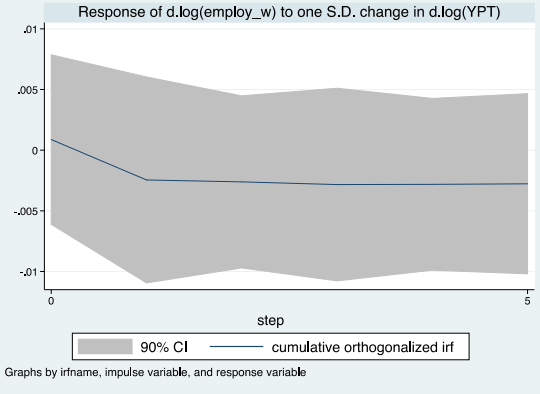
South Korea

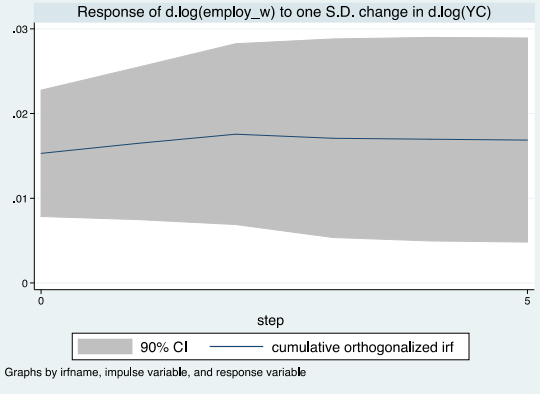












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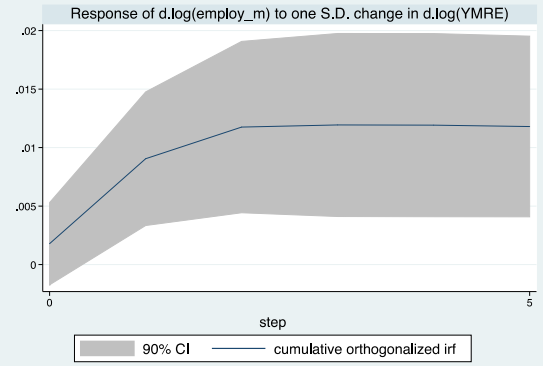

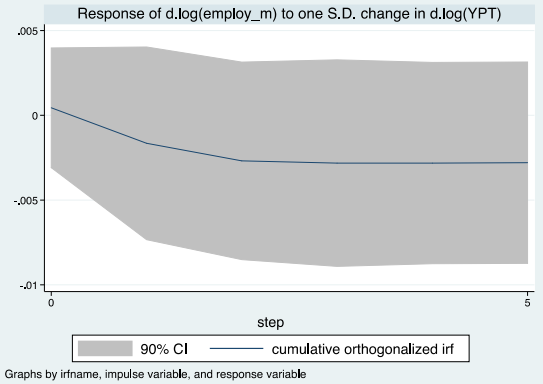

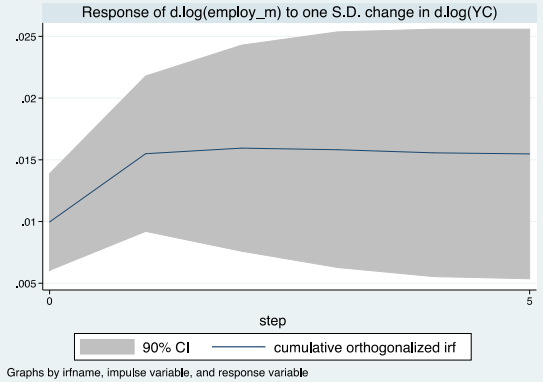

Cumulative impulse response functions

South Korea

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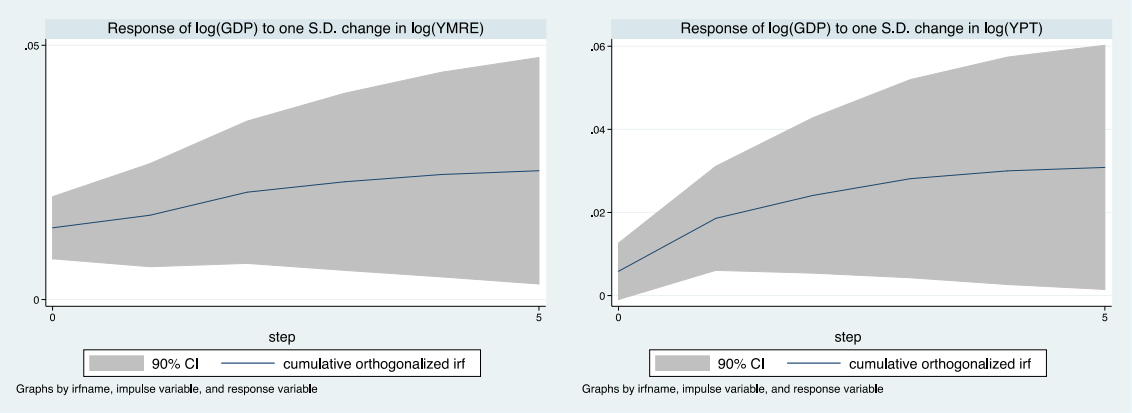
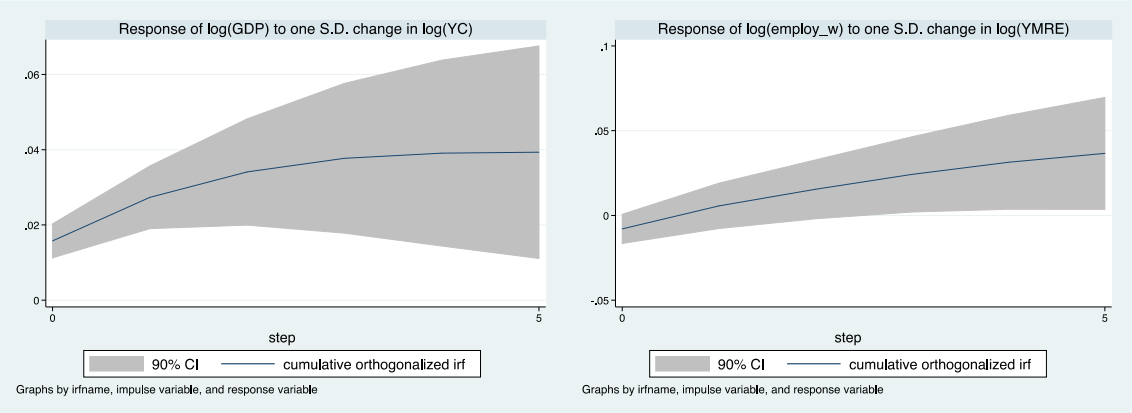
Cumulative impulse response functions

Turkey





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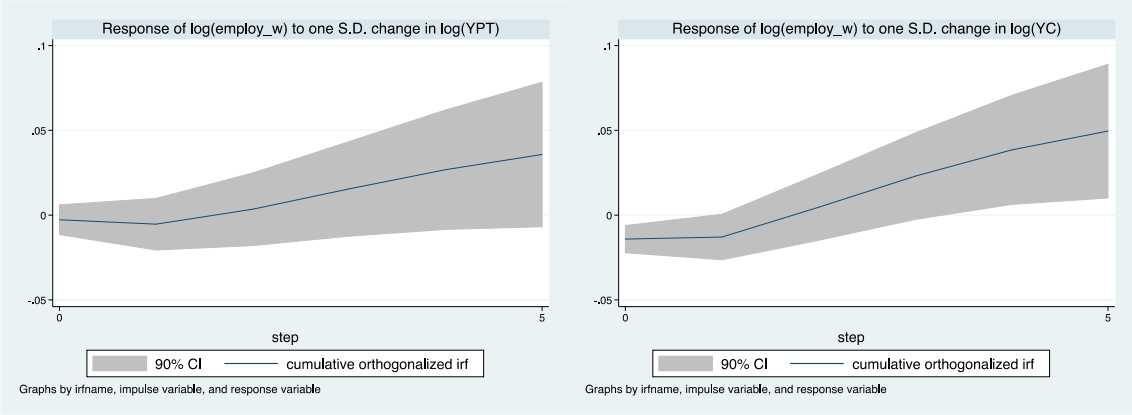

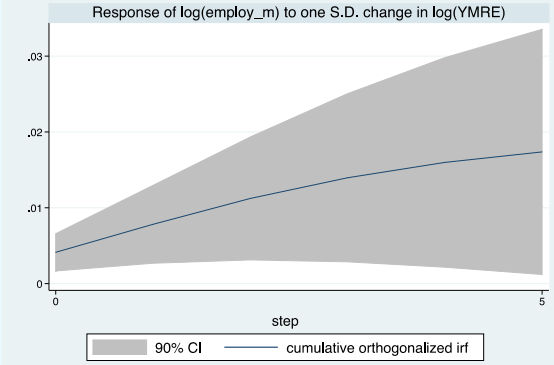

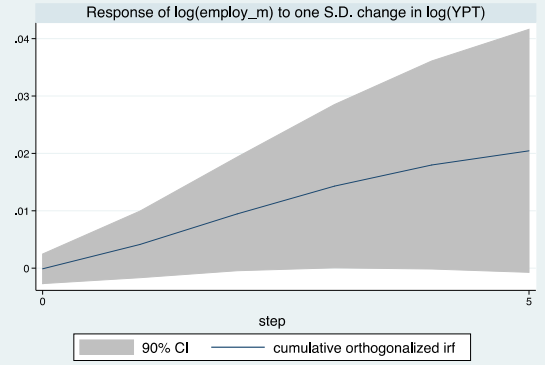

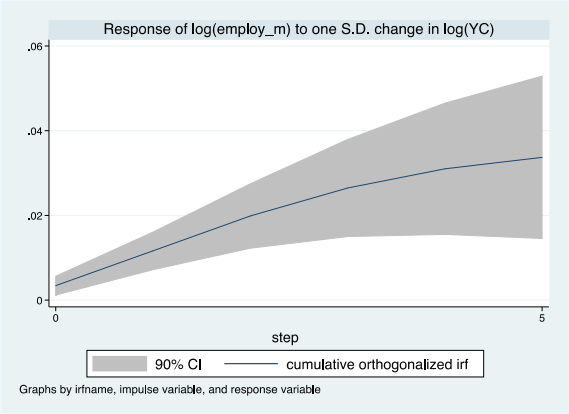

Cumulative impulse response functions

Turkey

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…Policy implications: Labour market policies

- Representation and collective voice for both women and men
  - Collective bargaining coverage
  - inclusive trade unions
  - Labour market regulation, eg ban zero hours and false self-employment practices
- establishing sufficiently high minimum wages at living wage rate
- 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 free 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
  - Permanent shorter hours with wage compensation for the lower wage earners → a narrowing of gender gaps

The demand regimes in the short-run

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

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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

Table 1: IV-GMM and OLS results for consumption in N and H

	IV-GMM				*OLS*			
Dependent variable	$\Delta\log C^N_t$		$\Delta\log C^H_t$		$\Delta\log C^N_t$		$\Delta\log C^H_t$	
Variable	Coeff.	p-value	Coeff.	p-value	Coeff.	p-value	Coeff.	p-value
Constant	0.007	0.000	0.006	0.039	0.007	0.020	0.010	0.069
$\Delta\log(R_t(1-t^R_t))$	0.071	0.000	0.039	0.154	0.082	0.000	0.054	0.187
$\Delta\log(WB^F_t(1-t^W_t))$	0.192	0.000	0.183	0.100	0.154	0.040	0.319	0.212
$\Delta\log(WB^M_t(1-t^W_t))$	0.369	0.000	0.374	0.003	0.348	0.001	0.165	0.506
$\Delta\log(PW1_t(1-t^{PW}_t))$	0.001	0.943	-0.035	0.369	0.013	0.570	-0.064	0.283
$\Delta\log(PW99_t(1-t^{PW}_t))$	0.134	0.000	0.031	0.730	0.141	0.026	-0.046	0.779
R^2	0.749		0.077		0.759		0.121	
Kleibergen-Paap rk Wald F statistic for weak identification	18.21		18.21		-		-	
Hansen J overidentification test (p-value)	0.624		0.374		-		-	
Durbin-Wu-Hausman test for endogeneity (p-value)	0.017		0.884		-		-	
Sample	1973-2015		1973-2015		1973-2015		1973-2015	

Notes: Robust standard errors used. We use contemporaneous, one-year, and two-year lagged differences of log α^N, log t^R, log t^W, log β^N, log Y^{World}, Chinn-Ito capital account openness index and contemporaneous differences of log α^H, logarithm of strike days as a ratio to employment, logarithm of union members as a ratio to employment and log λ as instruments for all independent variables.

Table 2: IV-GMM and OLS results for private investment

	IV-GMM		*OLS*	
Dependent variable	$\Delta \log I_t$		$\Delta \log I_t$	
Variable	Coeff.	p-value	Coeff.	p-value
Constant	-0.022	0.000	-0.029	0.005
$\Delta \log(\pi_t(1-t^R_t))$	0.270	0.000	0.221	0.031
$\Delta \log Y_t$	1.040	0.001	1.995	0.001
$\Delta \log(PW1_t(1-t^{PW}_t))$	-0.102	0.000	-0.132	0.084
$\Delta \log(PW99_t(1-t^{PW}_t))$	0.612	0.000	0.328	0.038
$\Delta \log(D/Y)_t$	-0.237	0.000	-0.118	0.178
R^2	0.713		0.700	
Kleibergen-Paap rk Wald F statistic for weak identification	12.15		-	
Hansen J overidentification test (p-value)	0.515		-	
Durbin-Wu-Hausman test for endogeneity (p-value)	0.064		-	
Sample	1974-2015		1974-2015	

Notes: Robust standard errors used. We use contemporaneous, one-year and two-year lagged differences of log α^N; contemporaneous, one-year, two-year, 3-year lagged differences of log κ^H, log t^R, log t^W, log β^N, log Y^{World}, logarithm of strike days as a ratio to employment; one-year, two-year, 3-year lagged differences of log D/Y; contemporaneous differences of log α^H, log λ, logarithm of union members as a ratio to employment as instruments for all independent variables.

Table 3: IV-GMM and OLS results for exports

	IV-GMM		*OLS*	
Dependent variable	$\Delta \log X_t$		$\Delta \log X_t$	
Variable	Coeff.	p-value	Coeff.	p-value
Constant	-0.018	0.059	-0.019	0.055
$\Delta \log(\pi_t)$	0.305	0.008	0.126	0.302
$\Delta \log Y^{World}_t$	1.879	0.000	1.978	0.000
R^2	0.490		0.521	
Kleibergen-Paap rk Wald F statistic for weak identification	65.74		-	
Hansen J overidentification test (p-value)	0.337		-	
Durbin-Wu-Hausman test for endogeneity (p-value)	0.192		-	
Sample	1973-2016		1973-2016	

Notes: Robust standard errors used. We use one-year and two-year lagged differences of Chinn-Ito capital account openness index and one-year lagged difference of log Y^N for $\Delta \log \pi$.

Table 4: IV-GMM estimation results for imports

	IV-GMM		*OLS*	
Dependent variable	$\Delta \log M_t$		$\Delta \log M_t$	
Variable	Coeff.	p-value	Coeff.	p-value
Constant	0.001	0.751	0.008	0.237
$\Delta \log(\pi_t)$	-0.307	0.001	-0.224	0.080
$\Delta \log Y^N_t$	1.836	0.000	1.630	0.000
R^2	0.627		0.638	
Kleibergen-Paap rk Wald F statistic for weak identification	11.98		-	
Hansen J overidentification test (p-value)	0.295		-	
Durbin-Wu-Hausman test for endogeneity (p-value)	0.692		-	
Sample	1973-2015		1973-2015	

Notes: Robust standard errors used. We use contemporaneous, one-year and two-year lagged differences of $\log \alpha^N$, $\log \beta^N$, $\log \kappa^H$, $\log Y^W$, logarithm of strike days as a ratio to employment and Chinn-Ito capital account openness index as instruments for all independent variables.

Table 5: IV-GMM results for productivity in N

	IV-GMM		*OLS*	
Dependent variable	$logT_{it}$		$logT_{it}$	
Variable	Coeff.	p-value	Coeff.	p-value
$logY_{i(t-1)}$	0.141	0.297	0.253	0.005
$logI_{i(t-1)}/ E_{i(t-1)}$	-0.025	0.806	-0.104	0.091
$logw^F_{i(t-1)}$	0.650	0.000	0.603	0.000
$log\alpha_{i(t-1)}$	0.622	0.000	0.553	0.000
$log(G^H_{t-1}+C^H_{t-1})/N_{t-1}$	0.402	0.014	0.487	0.002
$log(I^G_{t-1})/N_{t-1}$	-0.069	0.336	-0.126	0.014
R-squared	0.913		0.917	
Kleibergen-Paap rk Wald F statistic for weak identification	7.509		-	
Hansen J overidentification test (p-value)	0.146		-	
Durbin-Wu-Hausman test for endogeneity (p-value)	0.217		-	
Number of observations	126		126	
Number of sectors	18		18	
Sample	1981-2015		1981-2015	

Notes: Both regressions include yearly fixed effects. The time indicator t refers to five-year nonoverlapping average of explanatory variables starting from 1980 and of the dependent variable starting from 1981. One-year lags of log Y, log I/E, log w^F, log α^N are instrumented by one-year lags of strike days as a a ratio to employment for six broad sectors, logarithms of sectoral value added in each of the eighteen sectors in the US, logarithms of sectoral value added in each of the eighteen sectors in the EU-12, logarithms of α^N for the UK; eleven year lags of log Y, log I/E, log w^F, log α.

Table 6: IV-GMM estimation results for private net wealth

	IV-GMM		*OLS*	
Dependent variable	$\Delta \log PW_t$		$\Delta \log PW_t$	
Variable	Coeff.	p-value	Coeff.	p-value
Constant	0.004	0.375	-0.002	0.828
$\Delta \log(WB^F_t(1-t^W_t))$	0.409	0.004	0.495	0.017
$\Delta \log(WB^M_t(1-t^W_t))$	0.396	0.009	0.428	0.072
$\Delta \log(R_t(1-t^R_t))$	0.191	0.000	0.214	0.001
$\Delta \log(PW_{t-1}(1-t^{PW}_{t-1}))$	0.369	0.000	0.331	0.002
R^2	0.629		0.640	
Kleibergen-Paap rk Wald F statistic for weak identification	7.538		-	
Hansen J overidentification test (p-value)	0.368		-	
Durbin-Wu-Hausman test for endogeneity (p-value)	0.177		-	
Sample	1973-2015		1973-2015	

Notes: Robust standard errors used. We use contemporaneous and one-year lagged differences of log α^N, log α^H; log β^N, log β^H; contemporaneous, one-year and two-year lagged differences of log t^R, log t^W, log Y^{World}, logarithm of strike days as a ratio to employment as instruments for all independent variables except the lagged difference of log $PW(1-t^{PW})$.

Table 7: IV-GMM estimation results for wealth distribution

	IV-GMM		*OLS*	
Dependent variable	$\log\lambda_t$		$\log\lambda_t$	
Variable	Coeff.	p-value	Coeff.	p-value
Constant	-0.048	0.779	-0.105	0.528
$\log(\pi_t(1-t^R_t))$	0.035	0.754	0.042	0.685
$\log t^{PW}_t$	-0.061	0.049	-0.057	0.074
$\log \lambda_{t-1}$	0.939	0.000	0.901	0.000
R^2	0.825		0.826	
Kleibergen-Paap rk Wald F statistic for weak identification	33.07		-	
Hansen J overidentification test (p-value)	0.858		-	
Durbin-Wu-Hausman test for endogeneity (p-value)	0.289		-	
Sample	1972-2015		1972-2015	

Notes: Robust standard errors used. We use contemporaneous $\log t^R$, $\log \beta^N$, logarithm of strike days as a ratio to employment, logarithm of union members as a ratio to employment and two-year lag of $\log \lambda_t$ as instruments for $\log(\pi_t(1-t^R_t))$ and $\log \lambda_{t-1}$.

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)[(i)]	(10)	(11)	(12)	(13)
A. The effects of a 1% increase in female and male wages in N													
SR (ii)	0.400	0.011	0.040	-0.084	0.209	0.026	0.022	0.006	0.213	0.224	0.230	0.219	-0.156
MR (ii)	0.081	0.000	0.008	-0.018	0.042	0.005	0.004	0.001	0.038	-0.641	-0.564	-0.704	-0.075
B. Closing gender pay gap in N by 1%: the effects of a 1% increase in only female wages in N (1% decline in $\alpha^{N)}$													
SR	0.137	0.004	0.021	-0.025	0.072	0.010	0.009	0.003	0.086	0.091	0.093	0.089	-0.061
MR	0.080	0.003	-0.003	-0.023	0.041	0.003	0.002	0.001	0.021	-0.049	-0.040	-0.055	-0.037
C. The effects of a 1% increase in female and male wages in H													
SR	0.336	0.050	0.249	0.000	0.239	0.160	0.065	0.019	0.640	0.673	0.691	0.660	-0.257
MR	0.064	0.041	0.212	0.054	0.094	0.140	0.049	0.014	0.480	-0.057	0.019	-0.118	-0.163
D. Closing gender pay gap in H by 1%: the effects of a 1% increase in only female wages in H (1% decline in $\alpha^{H)}$													
SR	0.229	0.036	0.170	0.000	0.164	0.107	0.044	0.013	0.436	0.459	0.471	0.449	-0.212
MR	0.044	0.030	0.145	0.037	0.065	0.094	0.033	0.010	0.328	-0.040	0.013	-0.081	-0.118
E: The effects of a 1% increase in female and male wages in both N and H (iii)													
SR	0.736	0.061	0.289	-0.084	0.447	0.186	0.087	0.025	0.852	0.898	0.921	0.879	-0.413
MR	0.145	0.041	0.221	0.036	0.136	0.145	0.053	0.016	0.519	-0.699	-0.545	-0.822	-0.239
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 α^H (i) and α^N (iv))													
SR	1.101	0.102	0.479	-0.109	0.683	0.303	0.140	0.041	1.374	1.447	1.485	1.417	-0.686
MR	0.269	0.074	0.363	0.049	0.243	0.241	0.088	0.026	0.867	-0.787	-0.573	-0.959	-0.394

Notes :(i) Column (9)=(1)+(2)+(3)+(4)-(5)+(6)+(7)+(8). In each column, the effects in Appendices 2-3 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 period when productivity changes.

(iii) Sum of the effects in simulations (A) and (C)

Table 8. 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)[(i)]	(10)	(11)	(12)	(13)
A. The effects of a 1% increase in female and male wages in H													
SR	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
MR	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. Closing gender pay gap in H by 1%: the effects of a 1% increase in only female wages in H (1% decline in $\alpha^{H)}$													
SR	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
MR	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
C. The effects of a 1%-point increase in public purple social infrastructure investment/GDP (κ^H) by increasing employment with constant wages													
SR (ii)	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
MR (ii	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
D. The effects of a 1%-point increase in public green physical infrastructure investment/GDP (κ^G)													
SR	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
MR	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
E. The effects of a 1%-point increase in the tax rate on profit income (t^R)													
SR	-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
MR	-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
F. The effects of a 1%-point increase in the tax rate on wealth (t^{PW})													
SR	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
MR	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
G. The effects of a 1%-point increase in the tax rate on wage income (t^W)													
SR	-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
MR	-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
H. Progressive income tax: The effects of a 1%-point increase in the tax rate on profit income (t^R) and a 1%-point decrease in the tax rate on wages (t^W) (iii)													
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	0.23

Notes: (i) Column (9)=(1)+(2)+(3)+(4)-(5)+(6)+(7)+(8). In each column, the marginal effects 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.

(iii) The effects in simulations (E) minus (G)