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# Pension reforms
# Demographic trends and the business cycle

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# Timing of pension reforms

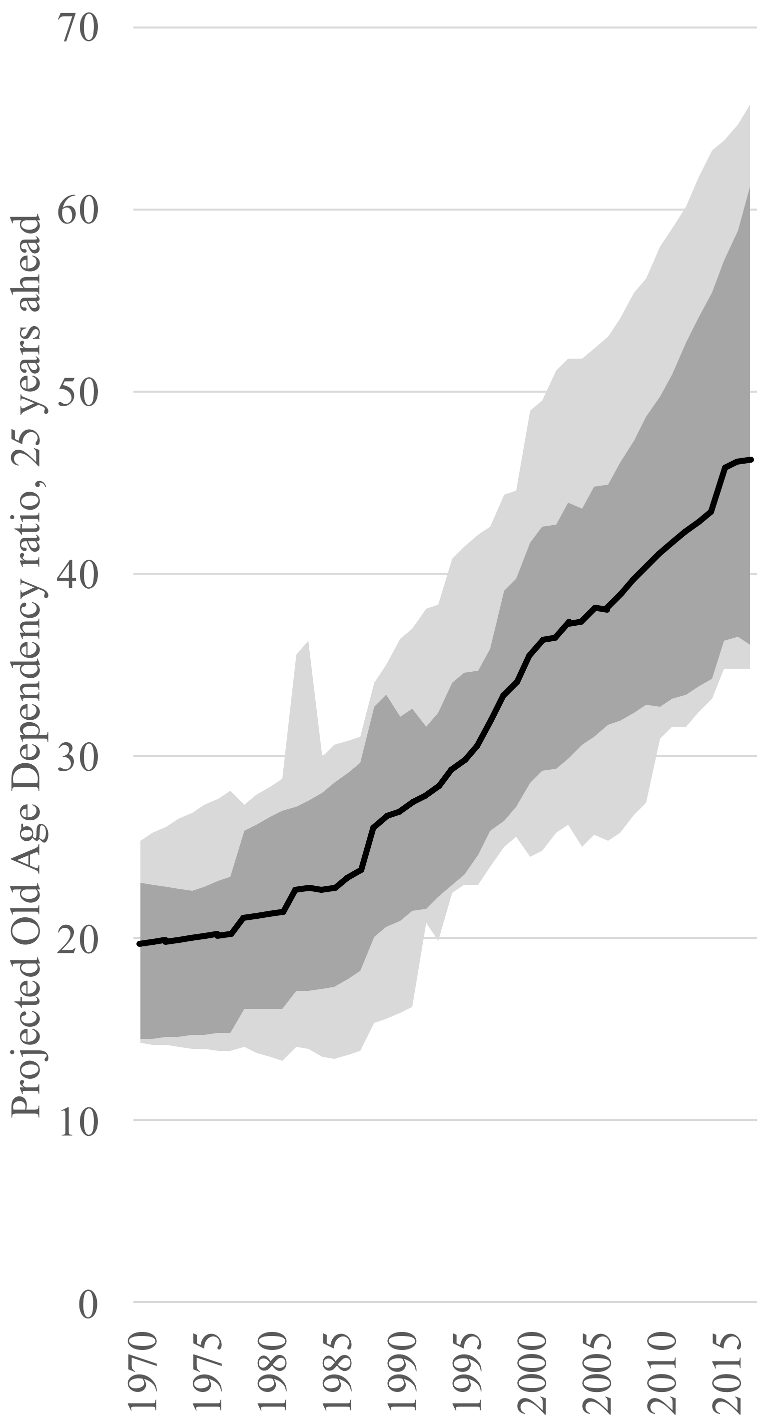
Old-age dependency ratios in OECD countries are now 60% higher than in 1970 and are expected to rise another 60% until 2040

- This renders most pay-as-you-go financed pension systems unsustainable
- Economic theory (and common sense) suggest a tight link between ageing and pension reform

Key questions

- Empirical: **when** do we reform our pension system?
- Theoretical: what can **explain** the timing of those reforms?

**Dataset with all old-age pension reforms legislated between 1970 and 2023 in 23 OECD countries**



# Main contributions

### Narrative identification of reforms

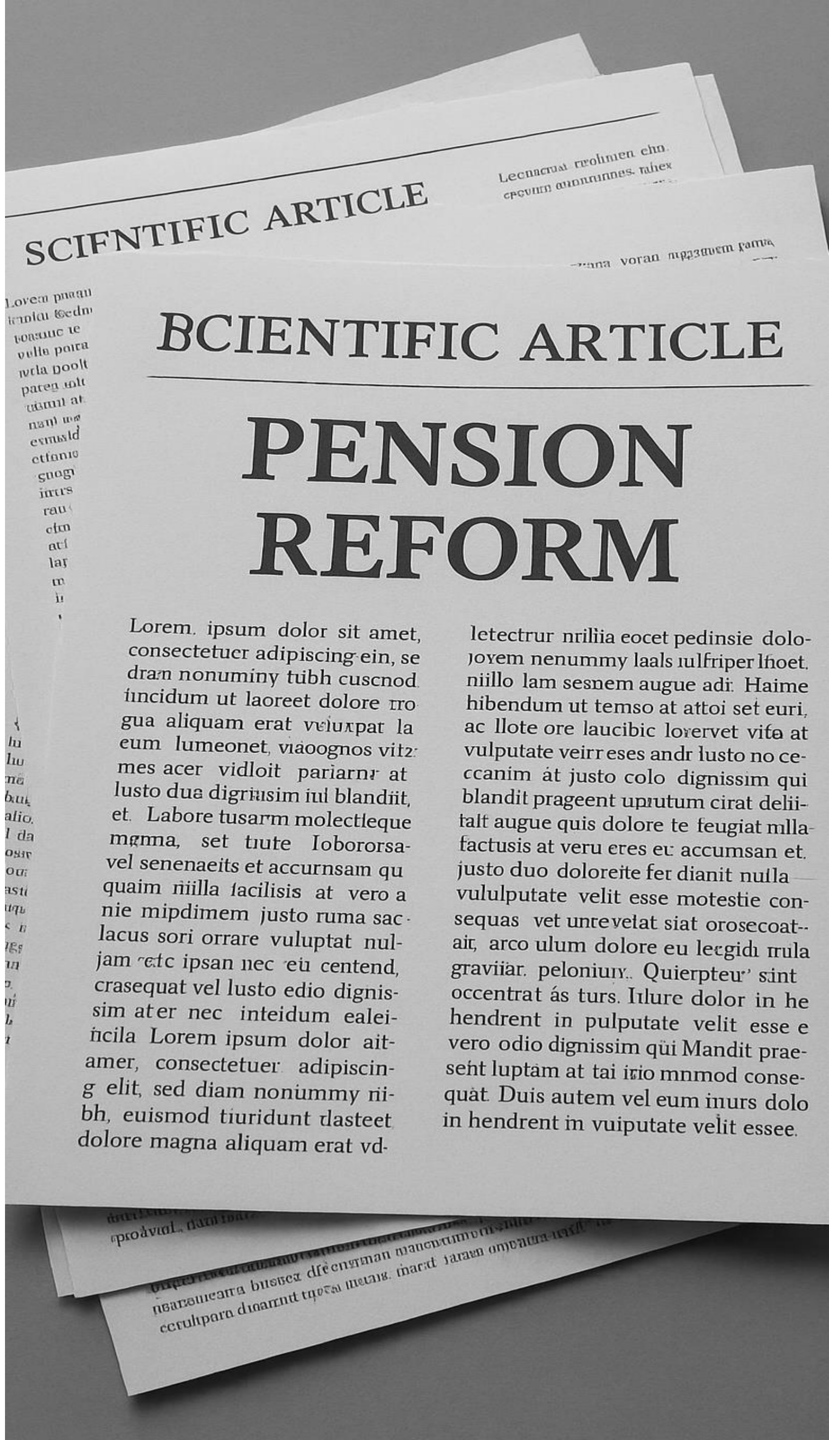
- Romer & Romer (2010), Duval, R., D. Furceri, B. Hu, J. Tovar Jallles, and H. Nguyen (2018a)

### Timing of labour market reforms & product market reforms

- Duval, R., D. Furceri, and J. Miethe (2018b), Ciminelli, G., R. Duval, and D. Ferceri (2022)

### Timing of pension reforms

- Bi & Zubairy (2023), Beetsma, et al. (2020), and Romp & Beetsma (2022), Romp (2025)



# Underlying databases

| | NATLEX | ISSA | LabRef | Bi & Zubairy | OECD |
|---|---|---|---|---|---|
| Time period | 1970-2017 | 1994-2014 | 2000-2013 | 1960-2019 | 2005-2023 |
| #Countries | 23 | 23 | 15/23 (EU Members) | 10/23 | 23 |
| #Records | 11000 | 1100 | 432 | 516 | 810 |
| | | | | | |
| Notes | Focus on legislation, includes name of law, text of new law, **date of legislation and implementation.** Very short – often uninformative – description **Many nonrelated records.** | **Lengthy description, often including preceding process.** Also includes white papers, agreements, etc… Also includes other labour market reforms **Sometimes includes phase-in** | Informative, but only covers EU Member states. Also includes white papers, agreements, etc… Also includes other labour market reforms **Sometimes includes phase-in** | **Based on OECD publications** Covers only 10/23 countries. Significant overlap with Beetsma et al. (2020) | Pension Outlook & Pension at a glance include tables with reforms, text provide further description. **Lacks exact year of legislation** |

Whenever necessary to properly date and categorise reforms, we used other texts, official legislation communication and online resources

# Dataset - examples

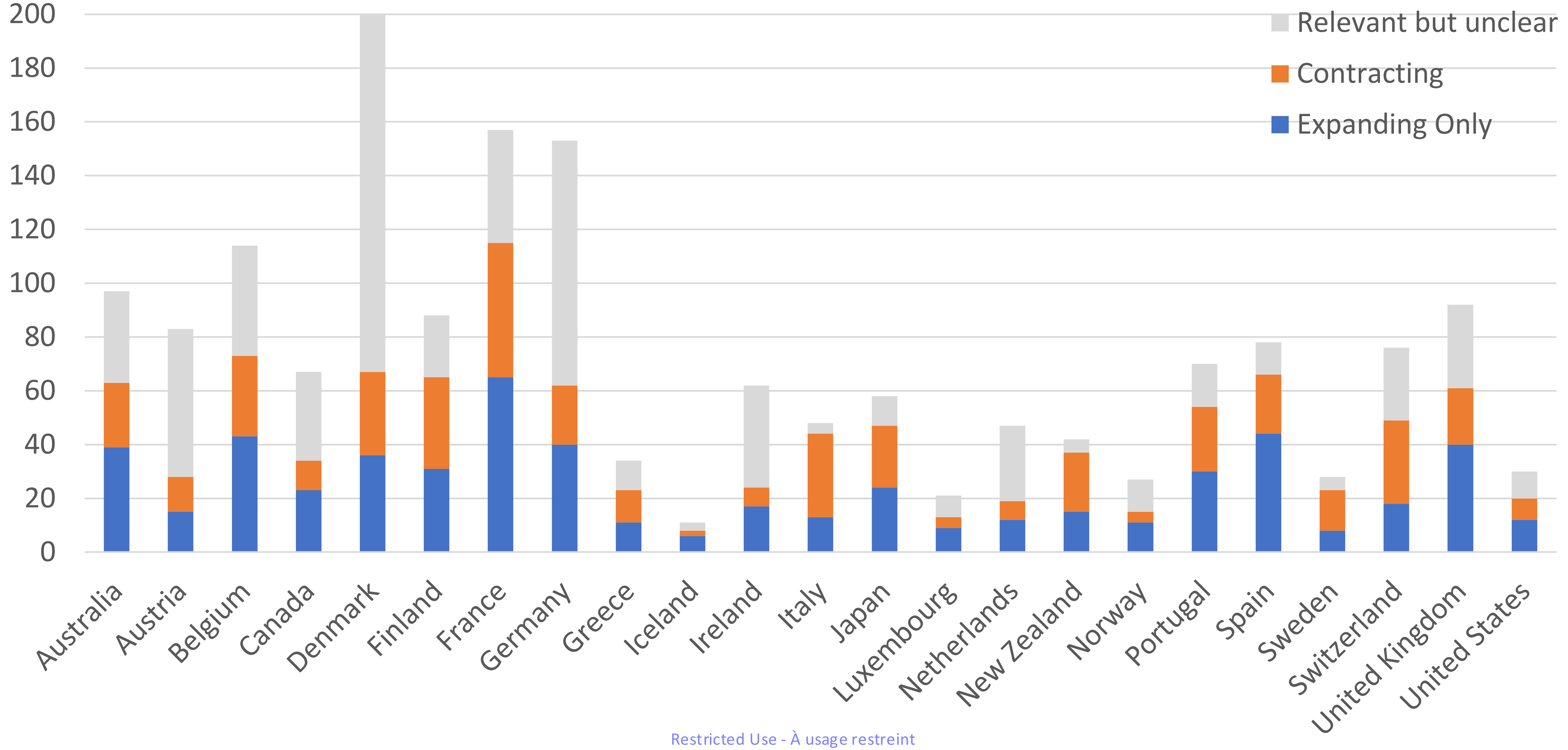
## ILO NATLEX (ISN: BEL-1970-R-17660) writes about Belgium

- "Royal Decree adapting certain legal provisions with the provisions of the Act of 21 December 1970 establishing a National Social Insurance Institute for freelancers."
- Categorised as Belgium (1970), Expanding, Small

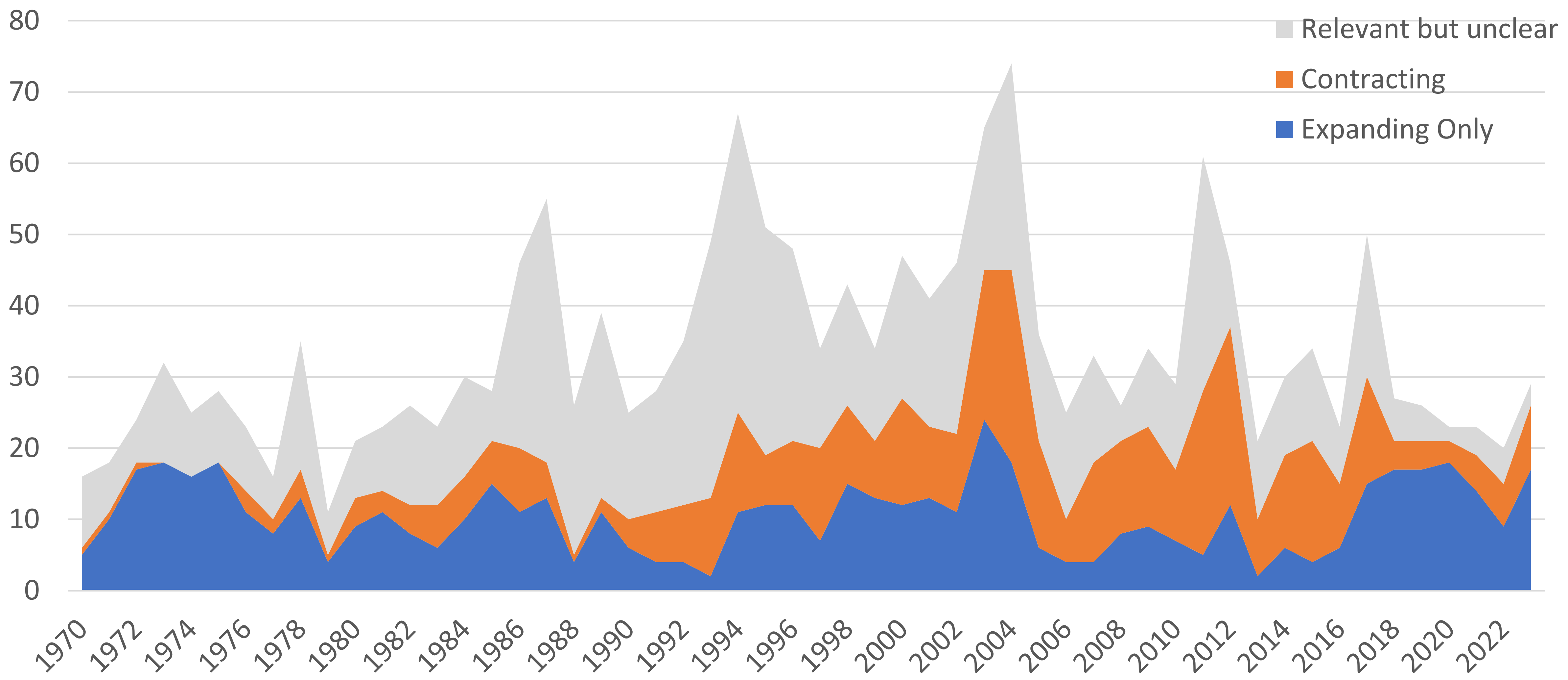
## OECD (2012) writes about Greece

- "Pensions frozen 2011-13; full-career earnings measure from best 5 of last 10 yrs; accrual rate 2.0% ->1.2%; replace seasonal bonuses with annual, flat-rate payment; tax of 5-10% on largest 10% of pensions. (July 2010) ."
- Categorised as Greece (2010), Contracting, Large

# Reforms per country



# Reforms, 1970-2023



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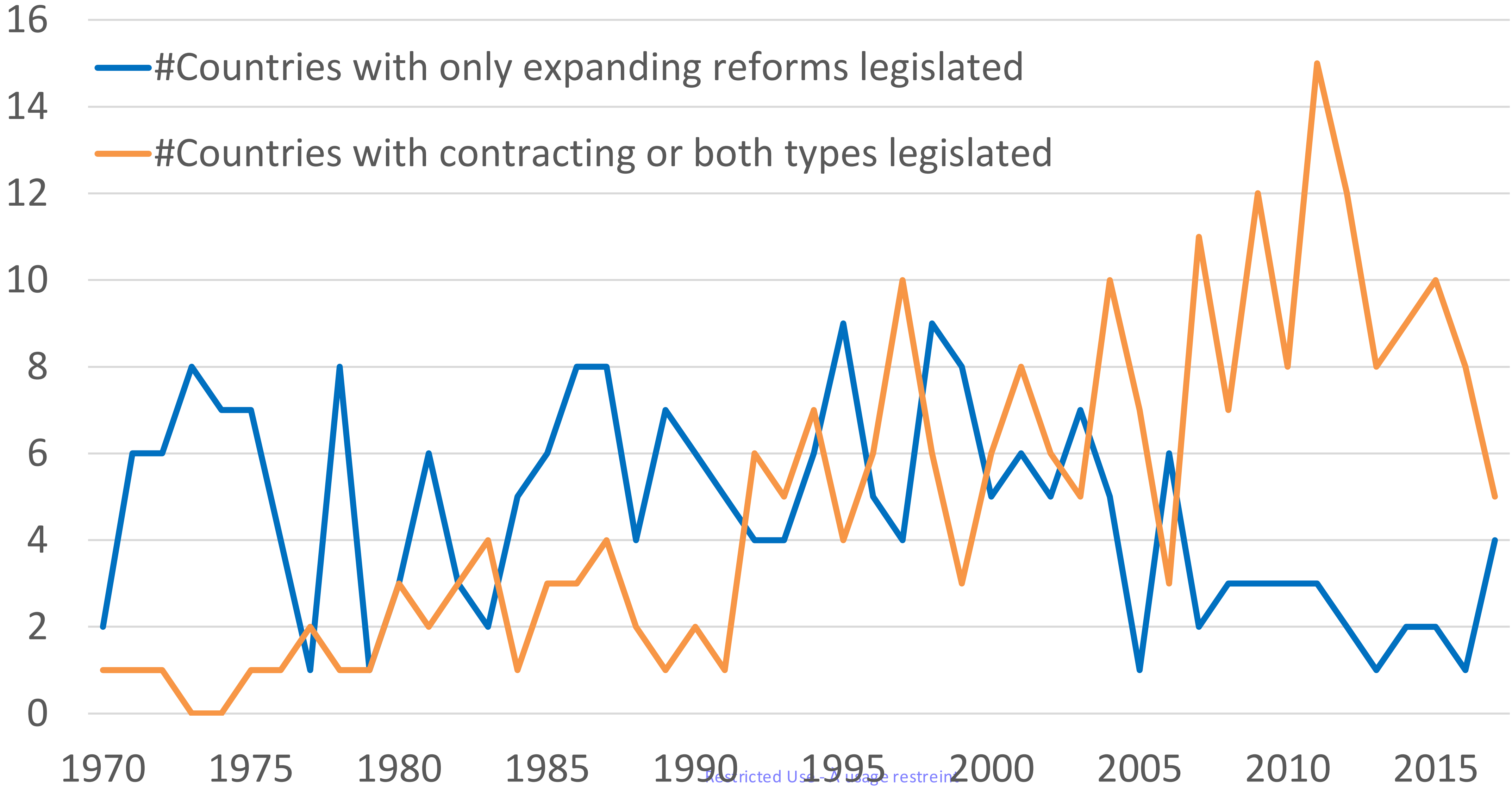
# Reform regimes, 1970-2017



# Timing of pension reforms

## Multinomial logit estimations (average marginal effects, with country fixed effects)

| | Expanding only | | Contracting | |
|---|---|---|---|---|
| | **Marginal effect** | **Standard error** | **Marginal effect** | **Standard error** |
| $\overline{\mathrm{OAD25}}_t$ | -0.81*** | (0.22) | 0.79*** | (0.18) |
| $\mathrm{OADDEV25}_{it}$ | 0.43 | (0.43) | -0.011 | (0.36) |
| $\Delta\mathrm{OAD25}_{it}$ | -0.14 | (1.05) | 1.16 | (0.87) |
| $\mathrm{GROWTH}_{it}$ | 1.46*** | (0.53) | -1.50*** | (0.51) |
| $\mathrm{DEF}_{it}$ | -0.33 | (0.46) | 0.93** | (0.41) |
| $\mathrm{UNEMPL}_{it}$ | -0.28 | (0.52) | 1.45*** | (0.49) |
| $\mathrm{MAASTRICHT}_{it}$ | 0.13*** | (0.05) | 0.13*** | (0.05) |

*#Observations = 1081, McFadden $R^2 = 0.14$, * $p < 5.0\%$, ** $p < 2.5\%$, *** $p < 1.0\%$*

# Empirical findings

| | |
|---|---|
| OECD-wide ageing helps to explain nature of reform | Higher old-age-dependency ratio reduces “Expanding only” and increases “Contracting” reforms |
| Business cycle swings coincide with timing of reforms | Expanding reforms are more likely during economic upswings<br>Contracting reforms occur during recessions |
| Robustness checks | Country deviations from OECD-wide ageing indicators and changes in country projections play no significant role<br>Pressure indicators are not significant |

## Possible explanation

# Crisis induced reforms

Crisis-induced reforms – the "crisis hypothesis" – may catalyze significant policy changes and structural reforms that might otherwise be blocked by established interests or public inertia

But this does not explain

1) Correlation of expanding reforms with booms in the business cycle
2) Relation between OECD-wide ageing and nature of reform
3) Lack of correlation with demographic shocks

## Possible explanation

# Adjustment costs

Political adjustment costs may explain infrequent occurrence of reforms

- Adjusting pension system is political costly, both up and down
- Demographics is a low frequency process, but predictable
- Business cycle is unpredictable and moves at higher frequency

But this does not **connected reforms**

Connected reforms such as the Dutch retirement age (2012, 2015, 2019, 2020), Sweden's NDC indexation, and Italy's reforms should not happen

# Implications

International institutions advise to reform pension arrangements to enhance financial sustainability

Effectiveness of these attempts may be highly dependent on the underlying cyclical state of the countries' economies

Reforms may have procyclical effects

Automatic links between demographic projections and adjustments of pension arrangements (e.g. retirement age) break this procyclical effect.