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# **25 Years of Temporary Employment**

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# It is Time to Take Stock

Summarize the **key stylized facts** about the **spread** of temporary employment

Provide a unifying **framework** for the **theoretical literature** on fixed-term contracts

Obtain from theoretical results **insights** as to **political economy** of **two-tier labor markets**

**Explain the rise and then stabilization** of the share of temporary employment

**Understand why** temporary contracts are much **concentrated among the youngsters**

Discuss how to **reduce segmentation** in the labor market and **foster transitions from temporary to permanent employment**

# The Spread of Temporary Employment

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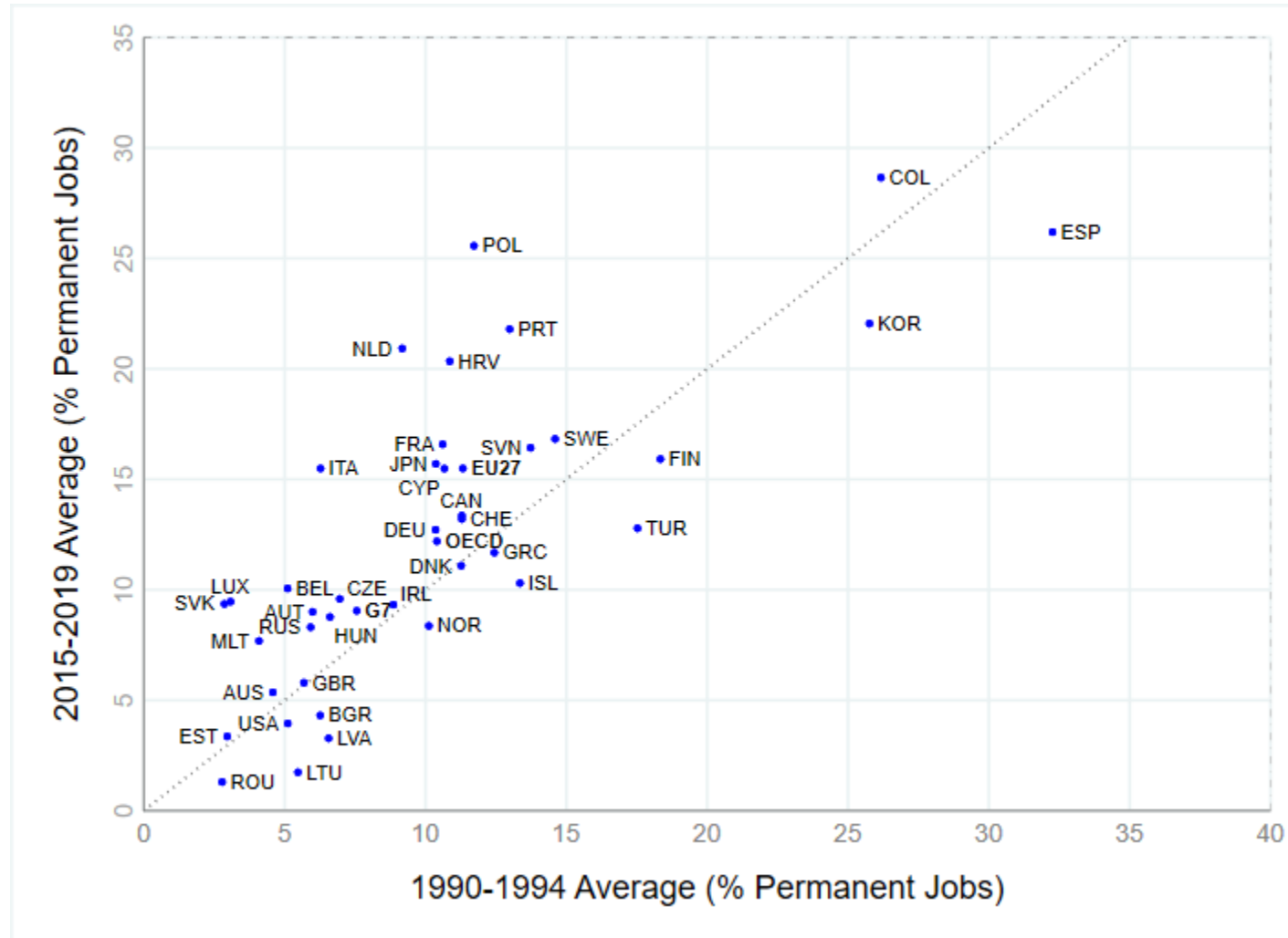
In the last 25 years, the share of temporary contracts has been **rising in most OECD countries**

Trend stabilized at around **15-20% of dependent contracts**

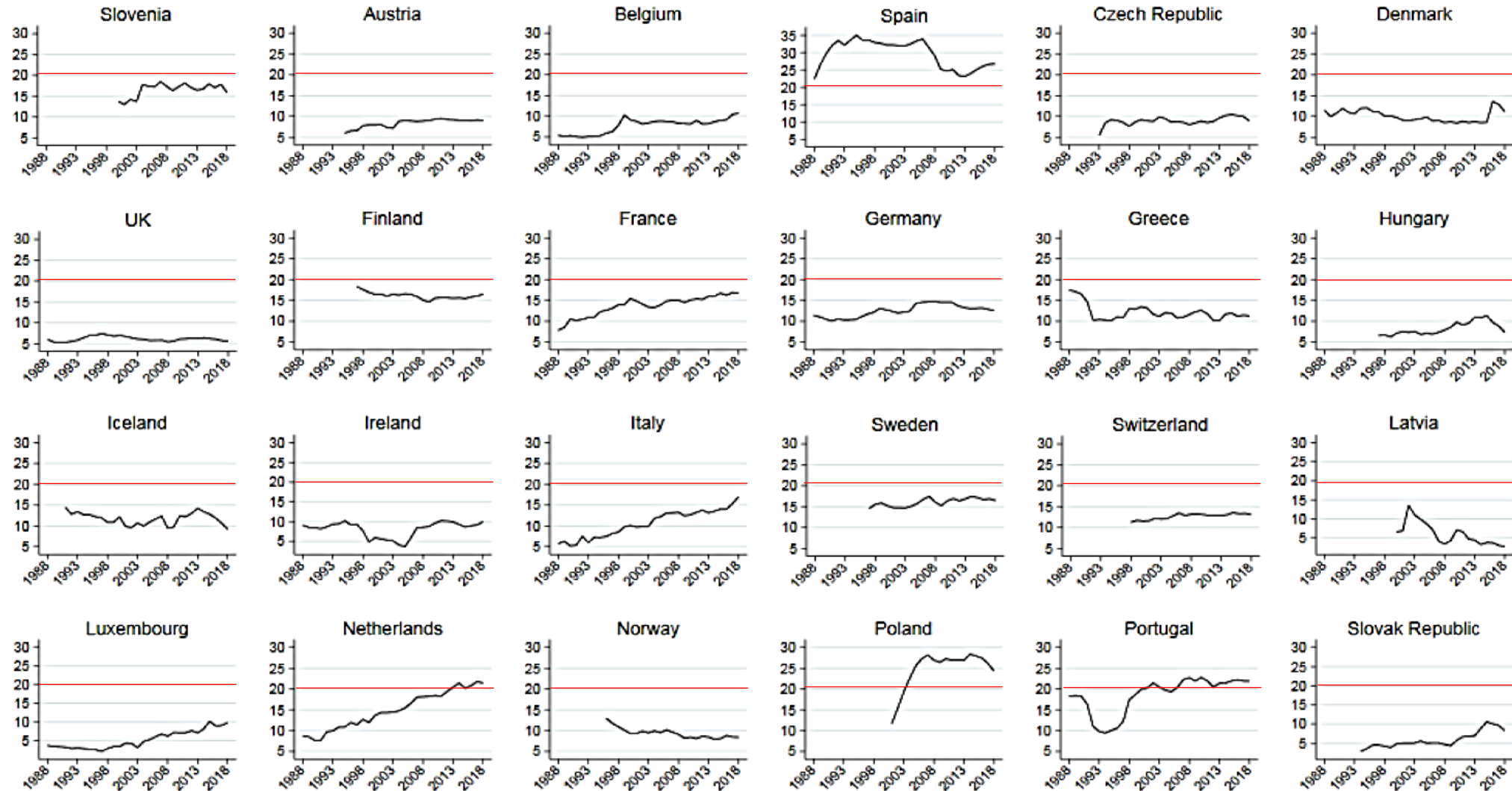
Incidence is significantly **higher among young workers**

Countries with largest share of temporary employment show **mildest conversion into permanent contracts**

# The Size and Evolution of Temporary Employment

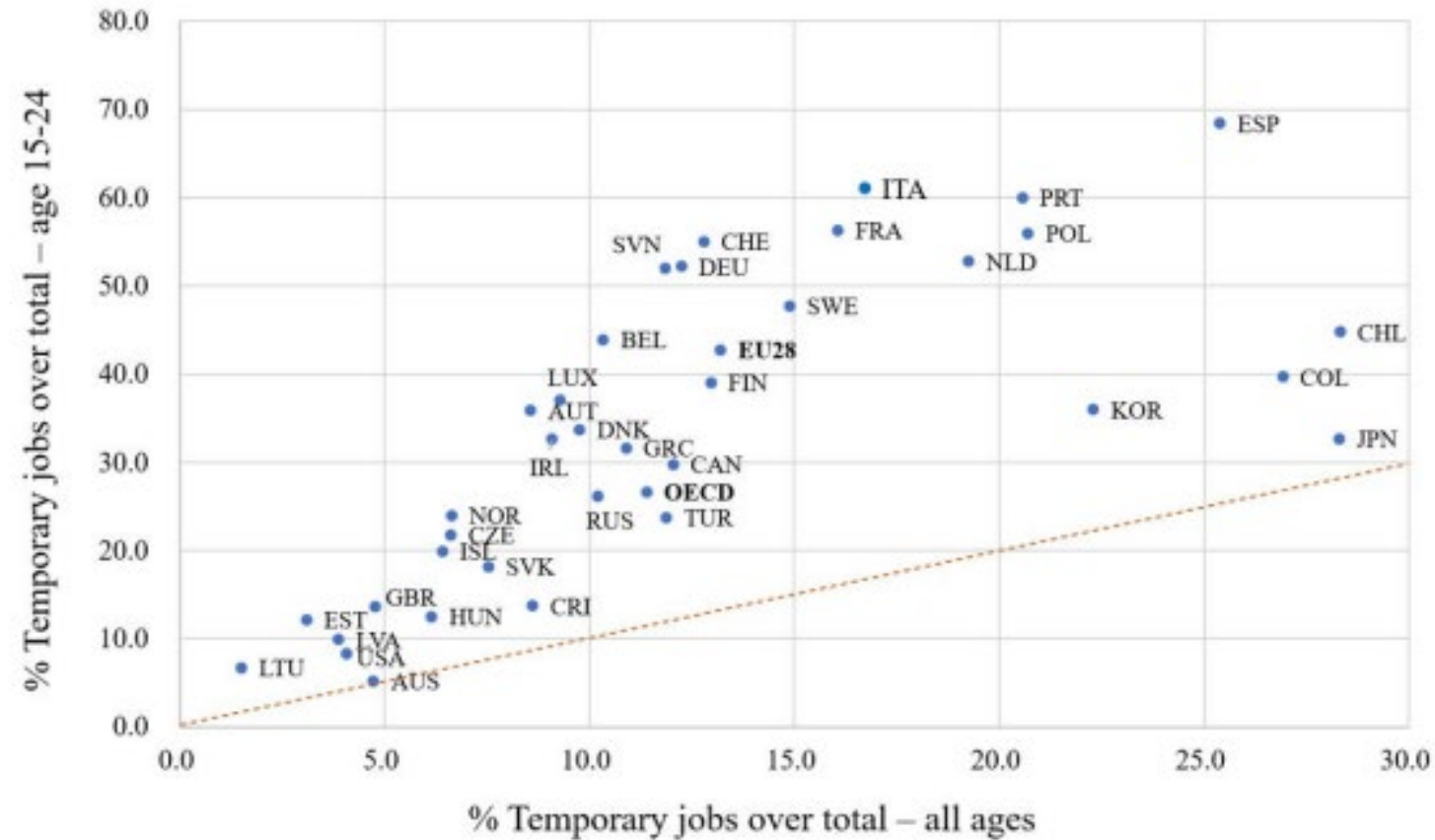


# Is it levelling off?



— 20 yrs average settlement rate

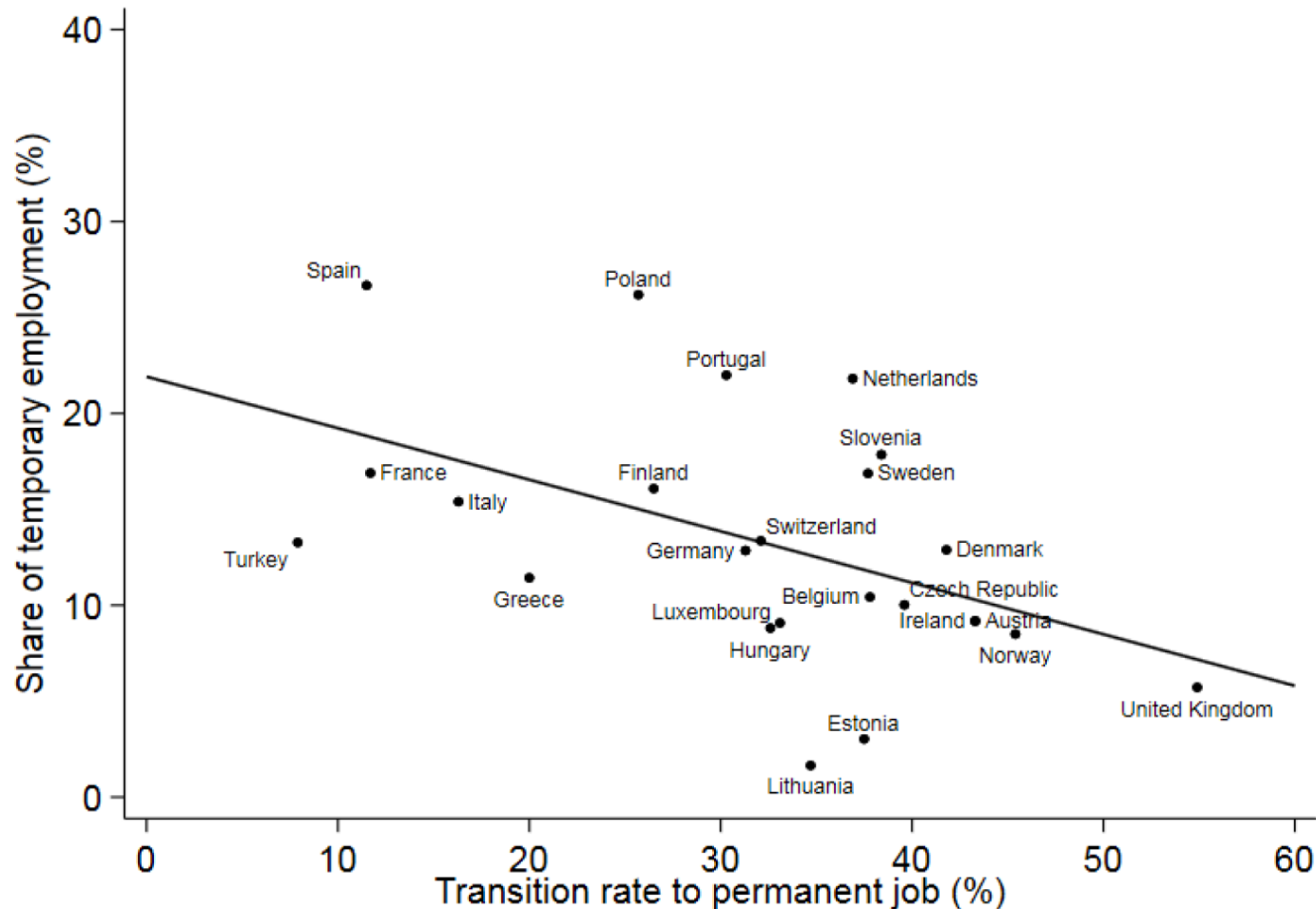
# Incidence of fixed-term contracts among age groups



Source: OECD statistics 2020

# Temporary Contracts and Outflows to Permanent Jobs

Share of fixed-term employment and conversion rates into permanent employment, EU countries



# Preferences for Temporary vs. Permanent Contracts

## Reasons for working fixed-term in EU-28, percentage, 2014:

%

*Person undergoing school education or training:*

17.5

***Person could not find a permanent job:***

**62.3**

*It is a contract for probationary period:*

8.7

*Person did not want a permanent job:*

11.5

Source: EU-LFS (2014); calculations by Schmid and Wagner, 2016

# Why TEMPs = lower quality: 1. Workplace Accidents

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Temporary employment is associated to a  
**higher risk of workplace accidents**

*(Guadalupe, 2003)*

in spite of under-reporting

*(Probst et al., 2013)*

because temporary workers are

**less experienced**

*(Pouliakas and Theodossiou, 2013;*

*Bena et al., 2013)*

lower tenures, thus

**less trained in work safety standards**

*Bena et al., 2013*

working **longer hours**  
and putting **more effort**

*(Guadalupe, 2003)*

performing **more dangerous tasks**

*(Amuedo-Dorantes, 2002;*

*Picchio and van Ours, 2017)*

## 2. Adverse Aggregate Shocks

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Temporary workers represent the  
**key margin of adjustment**  
in case of adverse aggregate shocks

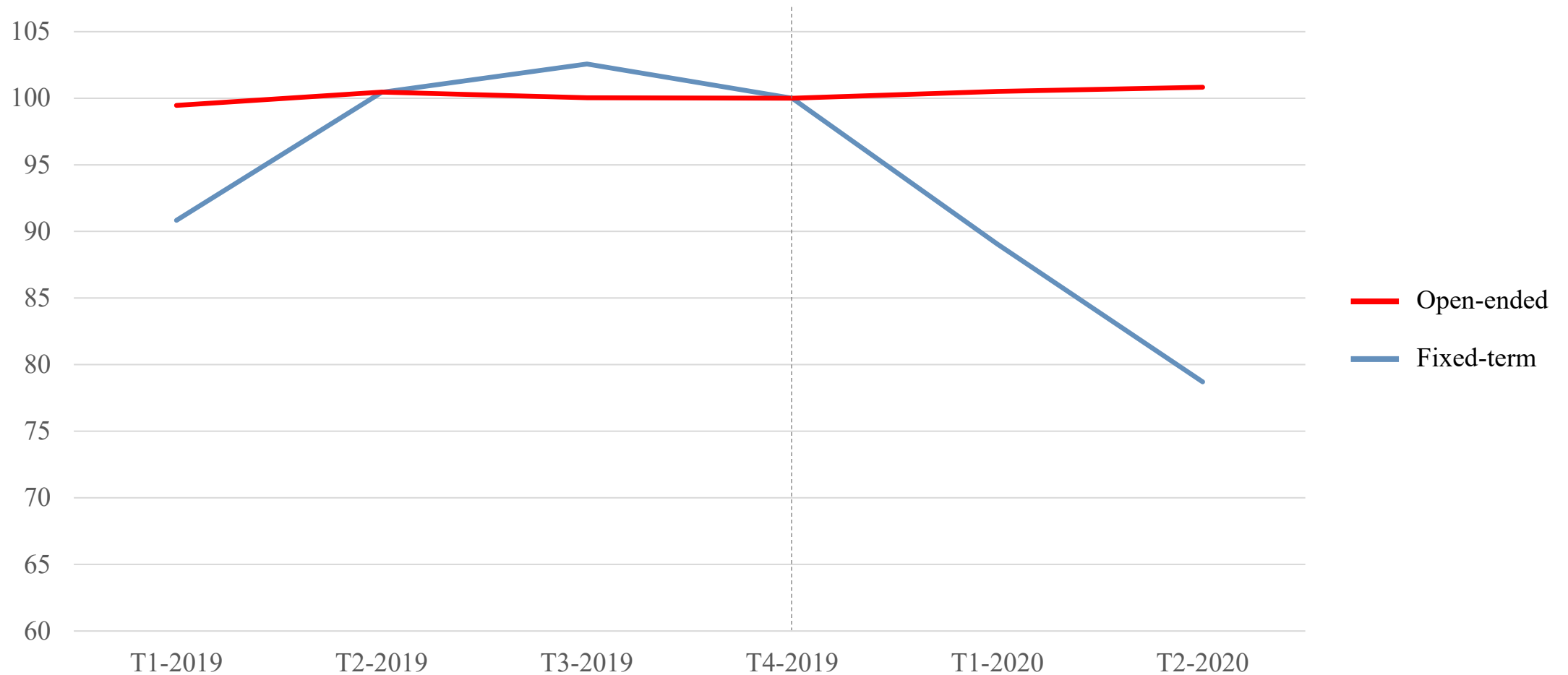
This was the case during the  
**Great Recession of 2008-2009**

Similar developments are  
Taking place in this  
**COVID-19 Recession** in Europe

A hiring freeze for temporary workers does  
not mean a delayed entry in the labor market,  
but a **job loss**

# Temps & Permanent Contracts during the Pandemic

Open-ended and fixed-term contracts in Italy, T12019-T42020 (T42019 = 100), *source: Istat*



### 3. Uncovered Unemployment Risk

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Social insurance provides a rather  
**low coverage of unemployment risk**  
for temporary workers

They often do not reach **minimum  
contribution records for eligibility**

They qualify only for  
**short-duration benefits**

Issue of **pension adequacy** in the  
long-term under Defined-  
Contribution systems

They are more **liquidity constrained**  
than other workers

# Some theory

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- **Perfect labor market:** static profit maximization. No difference between permanent and temporary employment. Employment adjustment to shocks is instantaneous.
- **Imperfect labor market:** with adjustment costs employment decision is no longer static.
- *Models with matching frictions and search costs:* a match enjoys rent and continuing a job avoids search costs. Thus all jobs are open ended. In presence of shocks to the match surplus, the difference between temporary and permanent employment becomes relevant. Jobs have an expected duration based on the size of the termination costs. Conversion from fixed-term to permanent is also possible.
- Possible also to have temporary employment under firing at will. Sort of replacement employment (for workers on leave). Jobs put in a mothball.

# The workhorse model: DMP Model

The best framework to investigate the general equilibrium (of the labor market) effects of temporary employment is the (Diamond)-**Mortensen-Pissarides model (1994)**

## Environment

- Labor force is fixed and normalized to 1:
  - $u$  is the unemployment rate;
  - $(1-u)$  is the fraction of employed individuals.
- Job creation and destruction coincide with unemployment outflows and inflows respectively.
- Productivity is match-specific.
- Draws from a continuous distribution  $G(\epsilon)$ .

# The MP Model: Two Key Variables

## *Reservation Productivity $\epsilon^d$*

The lowest productivity level at which the firm finds it profitable to continue producing. If productivity falls below that level, the job is destroyed.

It holds:

$$\frac{\partial \epsilon^d}{\partial F} < 0$$

an increase in firing costs  $F$  reduces the reservation productivity

## *Market Tightness $\theta$*

*Job creation:* matching function with constant returns to scale  $m(u; v)$ , where

- $m$  is the n° of matches per unit of time,
- $u$  is the unemployment rate,
- $v$  is the vacancy rate.

*Job finding probability:*

$$\frac{m(u, v)}{v} = q(\theta) \quad s. t. \quad \theta = \frac{u}{v}$$

EPL affects negatively  $\theta$ :

$$\frac{\partial \theta}{\partial F} < 0$$

# The MP Model: EPL Effects on Unemployment

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The effects of employment protection on unemployment are **ambiguous**,  
as **EPL reduces both job destruction and job creation**

$$\dot{u} = \lambda G \left( \epsilon^d(F) \right) (1 - u) - \theta(F) q(\theta(F)) u$$

where first term on rhs is **unemployment inflows**, and second term is **unemployment outflows**

Employment protection **unambiguously reduces unemployment turnover**  
→ **lower quality matching** between vacancies and jobseekers  
→ **lower productivity levels**

This is the **key argument** used in the quest for more labor market flexibility, with the recommendation to **reduce EPL strictness**

# The MP Model: Empirical Evidence

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## **Negative effects of EPL on dismissal rates**

- Miles, 2000
- Boeri and Jimeno, 2005
- Autor et al., 2006
- Garibaldi et al., 2003, thresholds on firm size below which EPL does not hold (e.g., 15 employees) increases stayer coefficients persistence below the threshold
- Boeri and Garibaldi 2017, more transition above 15 after Jobs Act

## **Ambiguous results on the relationship between EPL and (un)employment**

- Lazear, 1990; Di Tella and MacCulloch, 2005: EPL has negative effect on employment and positive effect on unemployment
- Grubb and Wells, 1997: negative effect of EPL on employment
- Belot and van Ours, 2001: EPL affects negatively unemployment stock
- Addison and Grosso, 1996; Nickell et al., 2005: ambiguous effects on both

# Political Feasibility of Two-Tier Reforms

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Reducing EPL strictness to increase flexibility is **hardly politically feasible**

A reduction of EPL increases both:

- hirings → main beneficiaries are those currently unemployed,
- separations → main losers are the current workers, i.e. the median voter.

A solution is given by **two-tier regimes**,  
in which **new contracts are very flexible** and  
**old contracts keep the strict employment protection rules.**

# From MP to Saint-Paul Model

**Saint-Paul (1993)** returns a more simplified model, with **exogenous job destruction**, but **keeping the key insights of the MP model** in terms of EPL effects on job turnover.

## Environment

- Key policy variable: **separation rate  $s$** ,
- suppose that unemployment inflows are given by  $s(1-u)$ .
- An increase in  $s$  denotes a reform increasing flexibility (and vice versa).
- Market tightness will be also affected by  $s$ , i.e.  $\theta(s)$ .
- Unemployment outflows  $\theta(s)m(\theta(s))u$  are increasing in  $s$ .
- Wages are fixed by collective bargaining.

# Saint-Paul Model: Value Functions

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Value function for the employed:

$$rE = w + s[U - E]$$

Flow value of employment equals the **current wage** minus the potential **welfare loss associated with the exogenous separation rate**.

Value function for the unemployed:

$$rU = b + \theta(s)q(\theta(s))[E - U]$$

Flow value of unemployment equals the **value of leisure** (or unemployment benefit) plus the potential **welfare gain from becoming employed next period**

# Saint-Paul Model: Job Creation

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Wlog, we can specialize *job creation* as follows:

$$\theta(s)q(\theta(s)) = f(s) = s^\gamma \quad \text{where } \gamma < 1$$

Job creation is **increasing and concave in the separation rate**  
→ at the margin, **job creation reacts less to EPL reforms**  
than the job destruction margin.

We can now answer the question:

*How much support can such a two-tier reform obtain?*

# Saint-Paul Model: Political Feasibility

Worker surplus as a function of exogenous parameters:

$$\begin{aligned}(r + s)E &= w + sU; \\ (r + s^\gamma)U &= b + s^\gamma E; \\ (r + s + s^\gamma)(E - U) &= w - b; \\ E - U &= \frac{w - b}{r + s + s^\gamma};\end{aligned}$$

Take derivative of surplus wrt separation rate:

$$\frac{\partial(E - U)}{\partial s} = -\frac{(w - b)(1 + \gamma s^{\gamma-1})}{(r + s + s^\gamma)^2};$$

*What about the unemployed?* Plug in worker surplus into value of unemployment

$$rU = b + s^\gamma \frac{w - b}{r + s + s^\gamma}$$

***s* increases the value of unemployment**

**Conflict**  over the value of *s*

**The employed will veto such a reform, the more strongly so the larger the wage markup over the flow value of nonemployment**

# Two-Tier Reforms Induce Segmentation

*A two-tier reform induces segmentation in the labor market*

*Bentolila et al., 2012; Boeri and van Ours, 2013*

Increases flexibility ( $s \rightarrow s_f$ ) only for the new contracts, leaving current jobs unchanged.

**3 labor market statuses** are now identified:

- Employed with pre-existing rigid contract

$$rE = w + s[U_f - E]$$

- Unemployed

$$rU_f = b + s_f^y[E_f - U_f]$$

- Employed with new flexible contract

$$rE_f = w + s_f[U_f - E_f]$$

# Two-Tier Reforms Can Be Feasible

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We already know **higher  $s$  is an improvement for the unemployed.**

*How about the employed?* Rearranging their value function:

$$(r + s)E = w + sU_f$$

**insofar as  $U_f > U$  also the employed persons  
will be better off with the reform**

Two Problems:

- **Time consistency:** as time goes by all labor contracts are bound to become flexible contracts.  
*Do insiders anticipate this?*
- **Firms prefer flexible contracts.** Thus, all contracts are indeed bound to become more flexible.

# The Honeymoon Effect of Temporary Contracts

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**The introduction of temporary employment is associated with a *honeymoon effect*.**  
Intuition behind the honeymoon effect can be illustrated with a minimalist MP model

## Environment

- Jobs are technologically destroyed with probability  $\lambda$  but if the job is open-ended the firm needs to continue operation.
- Continuing operation when conditions turn bad is akin to paying a cost  $\tilde{F}$ .
- Permanent jobs have a death rate equal to  $\delta$  for natural turnover.
- Initially there are only open-ended contracts that can be destroyed at cost  $T$ .
- The wage is fixed at  $w$ .

# The Honeymoon Effect of Temporary Contracts

The value of a job is:

$$(r + \delta + \lambda)J^p = y - w - \lambda\tilde{F}$$

If economy is in steady state employment reads:

$$n^p = \frac{\theta^p q(\theta^p)}{\theta^p q(\theta^p) + \delta}$$

Job creation implies that:

$$\frac{c}{q(\theta^p)} = J^{o.e.}$$

Value of a temporary job for a firm:

$$(r + \delta + \lambda)J^t = y - w$$

Total employment is governed by the equation:

$$n_{t+1}^{o.e.} = \theta^p q(\theta^p)(1 - n_t) - \delta n_t$$

Value of a temporary job is larger.  
Market tightness will be larger for temp. jobs

$$J^t > J^p$$

$$\theta^{temp} > \theta^{perm}$$

# The Honeymoon Effect of Temporary Contracts

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**Job destruction and flows into unemployment will increase.**

Employment will move accordingly to the difference equation:

$$n_{t+1}^{temp} = \theta^{temp} q(\theta^{temp})(1 - n_t) - (\delta + \lambda)n_t^{temp}$$

In steady state the new level of employment will be:

$$n^{temp} = \frac{\theta^{temp} q(\theta^{temp})}{\theta^{temp} q(\theta^{temp}) + \delta + \lambda}$$

Labor market with temporary jobs only will experience more job creation and more job destruction, with **ambiguous effects on total employment.**

# The Honeymoon Effect of Temporary Contracts

**In the short run there is another effect.**

Assume that existing jobs are open ended and temporary jobs are introduced:

$$n_{t+1}^{tot} = \theta^{temp} q(\theta^{temp})(1 - n_t^{tot}) - \delta n_t^{tot} - \lambda n_t^{temp}$$

$$\text{where } n_t^{tot} = n_t^p + n_t^{temp}$$

At the time of the reform, the stock of existing jobs  
is destroyed at rate  $\delta$  while

**new jobs are created by the higher market tightness  $\theta^{temp}$ .**

**Thus employment increases.**

The latter is the *Honeymoon effect*. Also cyclical behavior of temps

# Why Fixed-Term Contracts Do Not Take Over?

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**Employers grade fixed-term contracts above open-ended contracts** as they give them more freedom in adjusting employment, hence higher profits.

*Why don't they offer only fixed-term contracts?*

Main explanations:

Sorting of firms in the two sub-markets based on **trading lower flexibility on the firing side with lower search costs and higher flexibility in the hiring margin**

*Berton and Garibaldi, 2012*

**Trade-off between intrinsic heterogeneous duration of jobs and the menus of contracts available**

*Cahuc et al., 2016*

# Heterogeneous Duration and Temporary Contracts

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**Cahuc et al., 2016:** impact of fixed-term contracts on labor turnover  
in a model with heterogeneous duration

## Environment

- Productivity of the job is  $y$  and is constant across jobs.
- Jobs are hit by a destruction shock at rate  $\lambda$ , so that  $1/\lambda$  is the expected duration of the job.
- Conditional on a  $\lambda$  shock, the productivity of the firm drops to zero.
- Firms are heterogeneous with respect to this arrival rate, and they draw a technological duration drawn from a continuous distribution  $\Omega(\lambda)$  with support  $\lambda \in [0; \infty]$ .
- Wage  $w$  is exogenous.
- Jobs are heterogeneous and are contingent to the specific  $\lambda$  value.

# Heterogeneous Duration and Temporary Contracts

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## 2 types of contracts:

- A  $\lambda$  job can be made permanent (or open ended) or temporary.
- If the  $\lambda$  job is permanent, it has no duration and can be destroyed at a cost  $F$ .
- A temporary job has a stochastic duration of  $1/\rho$ , so that a firm obtains the right to end the temporary job at rate  $\rho$ .
- The arrival of  $\rho$  is independent of the arrival of  $\lambda$ .
- When  $\lambda$  strikes, firms have the option of converting the job into an open-ended contract.
- Note that firms have to pay the wage  $w$  when the shock  $\lambda$  strikes, but the shock  $\rho$  has yet not hit the firm.
- Writing a contract involves a cost  $c$

# Heterogeneous Duration and Temporary Contracts

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Offering different contracts is governed by **3 reservation productivities**  $\lambda^{o.e.}, \lambda^{*c}, \lambda^{max}$

s.t. when;

$\lambda < \lambda^{o.e.}$	firms open permanent jobs;
$\lambda \in [\lambda^{o.e.}, \lambda^{*c}]$	firms open up temporary jobs and convert them into open ended contracts when $\rho$ strikes;
$\lambda \in [\lambda^{*c}, \lambda^{max}]$	firms open up temporary jobs that are not converted;
$\lambda > \lambda^{max}$	no job is opened.

# Heterogeneous Duration and Temporary Contracts

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Value of open-ended job with arrival rate  $\lambda$ :

$$J^{o.e.}(\lambda) = \frac{y - w - \lambda F}{r + \lambda}$$

Value of a fixed-term job with arrival rate  $\lambda$ :

$$(r + \lambda + \rho)J^{f.t.}(\lambda) = y - w - \lambda\phi F + \rho[\text{Max}(J^{o.e.}(\lambda) - c, 0)]$$

where  $\phi F$  , with  $\phi < 1$  is the cost of holding a temporary job by paying the wage  $w$  until the shock  $\rho$  strikes

# Heterogeneous Duration and Temporary Contracts

**Decision 1:** Conversion costs  $c \rightarrow$  firms convert if  $\lambda < \lambda^{*c}$  where

$$\lambda^{*c} = \frac{y - w - rc}{c + F}$$

**Decision 2:** offer open-ended vs temporary job that converts.  
 $\rightarrow$  firms convert if  $\lambda \in [\lambda^{o.e.}, \lambda^{*c}]$  where

$$\lambda^{o.e.} = \frac{c\rho}{(1 + \phi)F}$$

**Decision 3:** last margin is  $\lambda^{max}$  where

$$\lambda^{max} = \frac{y - w}{\phi F}$$

Given the reservation values, model is closed with a *job creation condition*:

$$\frac{c}{q(\theta)} = \int_0^{\lambda^{*,o.e.}} J^{o.e.} dF(z) + \int_{\lambda^{*,o.e.}}^{\lambda^{*,c}} J^{f.t.,c}(z) dF(z) + \int_{\lambda^{*,c.}}^{\lambda^{max}} J^{f.t.}(z) dF(z)$$

# Sorting in Sub-Markets

**Berton and Garibaldi, 2012:** workers and firms sorting into temporary jobs

## Environment

- Two productivity levels,  $y^h$  and  $y^l$  with  $y^h > y^l$
- Jobs start at  $y^h$ , but there are shocks at frequency  $\lambda$  that reduce productivity to  $y^l$  permanently
- Wages are fixed at  $y^l < \hat{w} < y^h$
- When a shock occurs an employer is forced to retain the worker with an open-ended contract, while she could fire a worker with a fixed-term contract → **firms prefer fixed-term contracts.**
- Market tightness in the sub-markets for the two types of contracts is labeled  $\theta^t$  and  $\theta^p$  respectively.

# Sorting in Sub-Markets: Value Functions

The value of a fixed-term job is:

$$rV^t = -c + q(\theta^t)[J^t - V^t]$$

The value of a permanent job is:

$$rV^p = -c + q(\theta^p)[J^p - V^p]$$

Competition at entry drives down the two values to zero:

$$\frac{c}{q(\theta^t)} = J^t \quad \& \quad \frac{c}{q(\theta^p)} = J^p$$

For the two contracts to coexist in the long-run it must be that **vacancies in open-ended contracts can be filled at a faster pace than vacancies in fixed-term contracts:**

$$q(\theta^p) > q(\theta^t)$$

# Sorting in Sub-Markets

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Having a higher rate of vacancy filling in the permanent contract sub-market implies also that **job finding rate is higher in the temporary contract sub-market**

$$\theta^t q(\theta^t) > \theta^p q(\theta^p)$$

- **Homogeneous workers will all sort in the same sub-market**
- Assume workers differ by some value of leisure parameter  $z$  drawn from some distribution  $F(.)$

Value of unemployment in the two sub-markets will be:

$$rU^p(z) = z + b + \theta^p m(\theta^p)[V^p - U^p(z)]$$

$$rU^t(z) = z + \theta^t m(\theta^t)[V^t - U^t(z)]$$

where  $b$  can be interpreted as unemployment benefits for long-tenure workers

# Sorting in Sub-Markets

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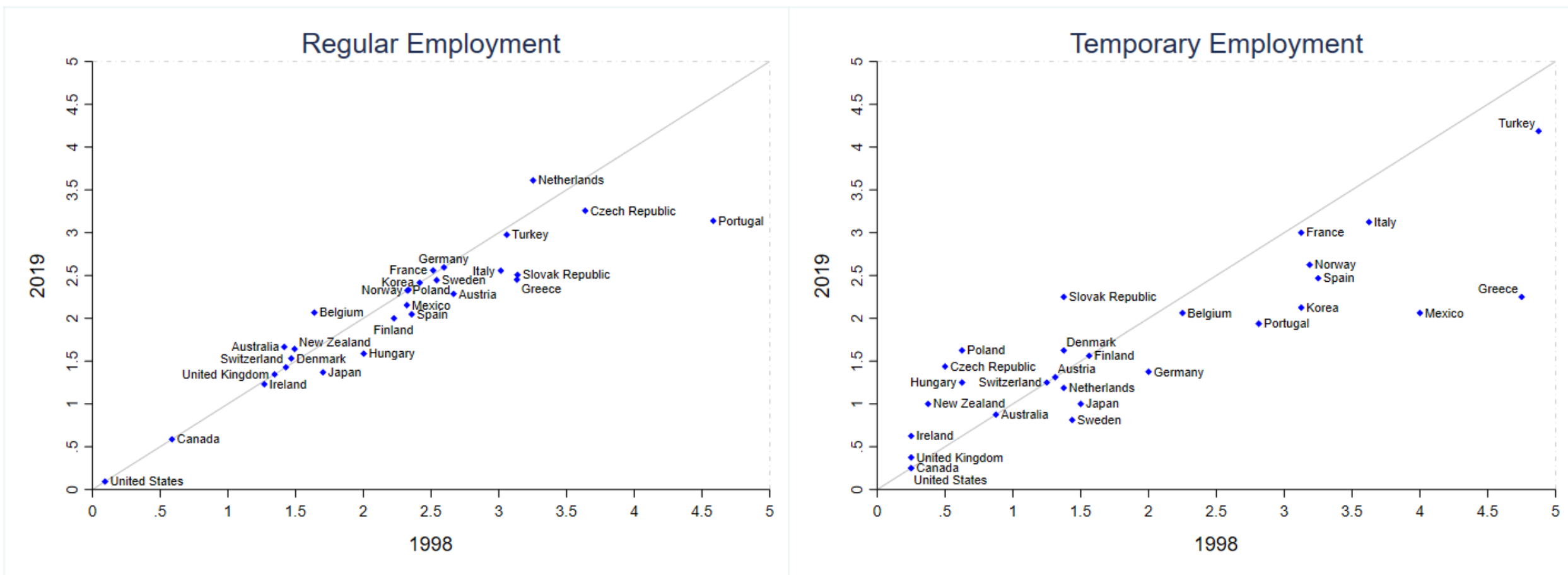
- Both value functions are **increasing in  $z$**
- Value function referred to the **fixed-term sub-market is steeper in  $z$**
- value function for **permanent contracts has a higher intercept**

If the two value functions cross each other at some threshold  $z^R$ , this **threshold will be unique.**

**Temporary and permanent sub-markets coexist as long as  $R$  exists.**

if  $R$  exists, it is lower than the wage, s.t.  $R < w$ .

# Change in EPL, 1998–2019: (a) regular; (b) temporary



Source: OECD EPL database

# Empirical Literature: Two-tier Regimes

A number of studies have been investigating the relationship between **strictness of EPL for regular contracts and the spread of temporary employment**

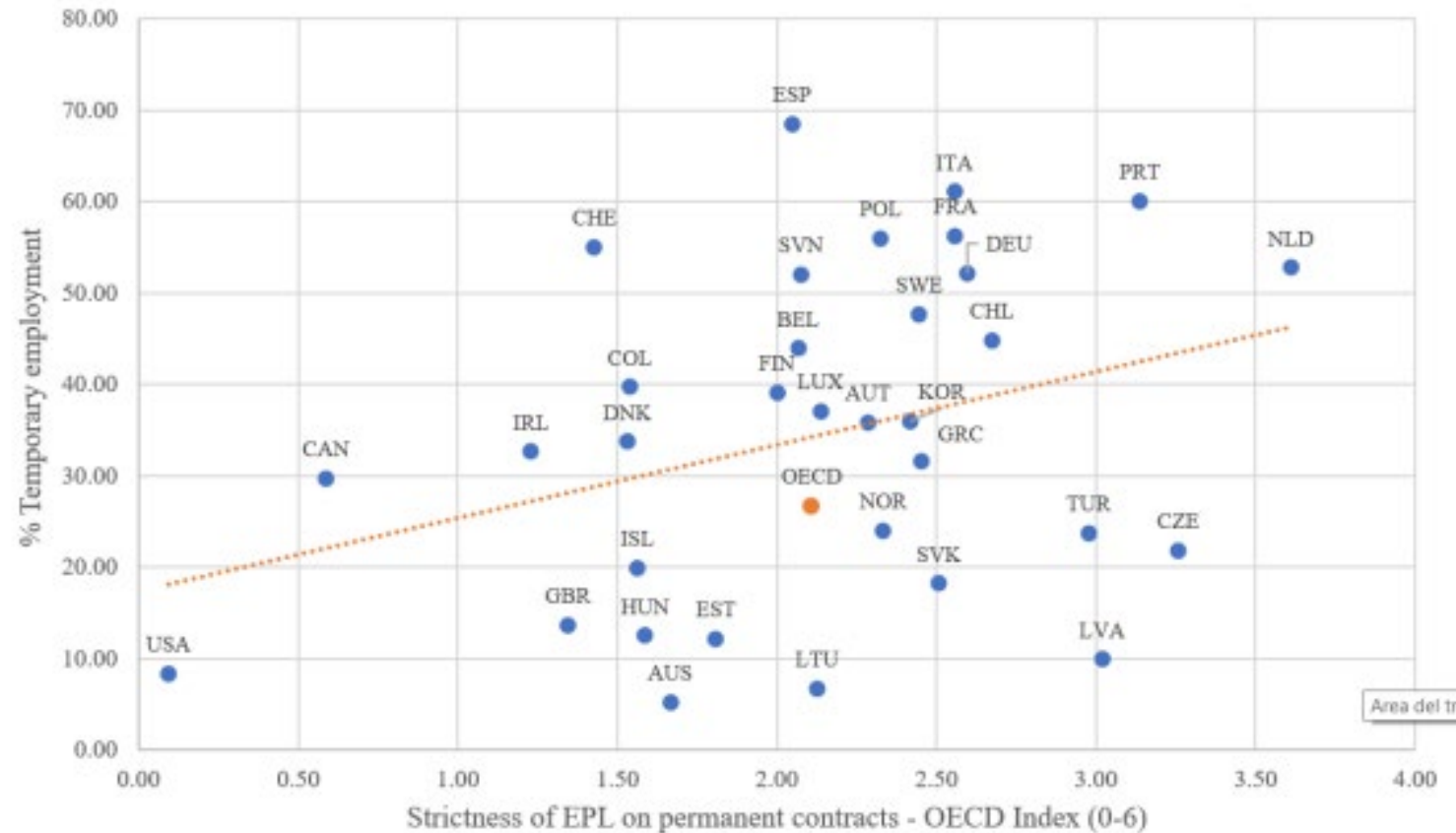
## **Hijzen et al., 2017**

- Regression Discontinuity Design around 15 employees threshold in Italy
- Evidence: **stricter EPL increases significantly hiring under fixed-term contracts**

## **Centeno and Ivaro A. Novo, 2012**

- study reform that increased strictness of EPL for regular workers in Portugal
- Evidence: **sizeable increase in hirings under fixed-term contracts**

# Fixed-term employment and strictness of EPL



Source: OECD statistics 2020

# Further Empirical Implications of Search and Matching Models

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Two components of temporary employment:

- **Contingent workers:** transitory replacement of job holders allowing the employer to save on the costs of opening and filling a vacancy
  - Controlling for skills, predicted *no differences in wages* btw contingent and replaced workers
- Temporary employment as a margin of flexibility to firms in countries with **strict EPL** for workers with permanent contracts
  - Even controlling for individual characteristics, temporary workers predicted to be *paid less* than permanent contract worker
  - More volatility over the cycle

# Empirical Literature: TEMPs Characteristics

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Many studies have been analysing the **characteristics of temporary employment**

**Booth et al., 2002**

Temporary employment in the UK is less paid and less involved in formal training

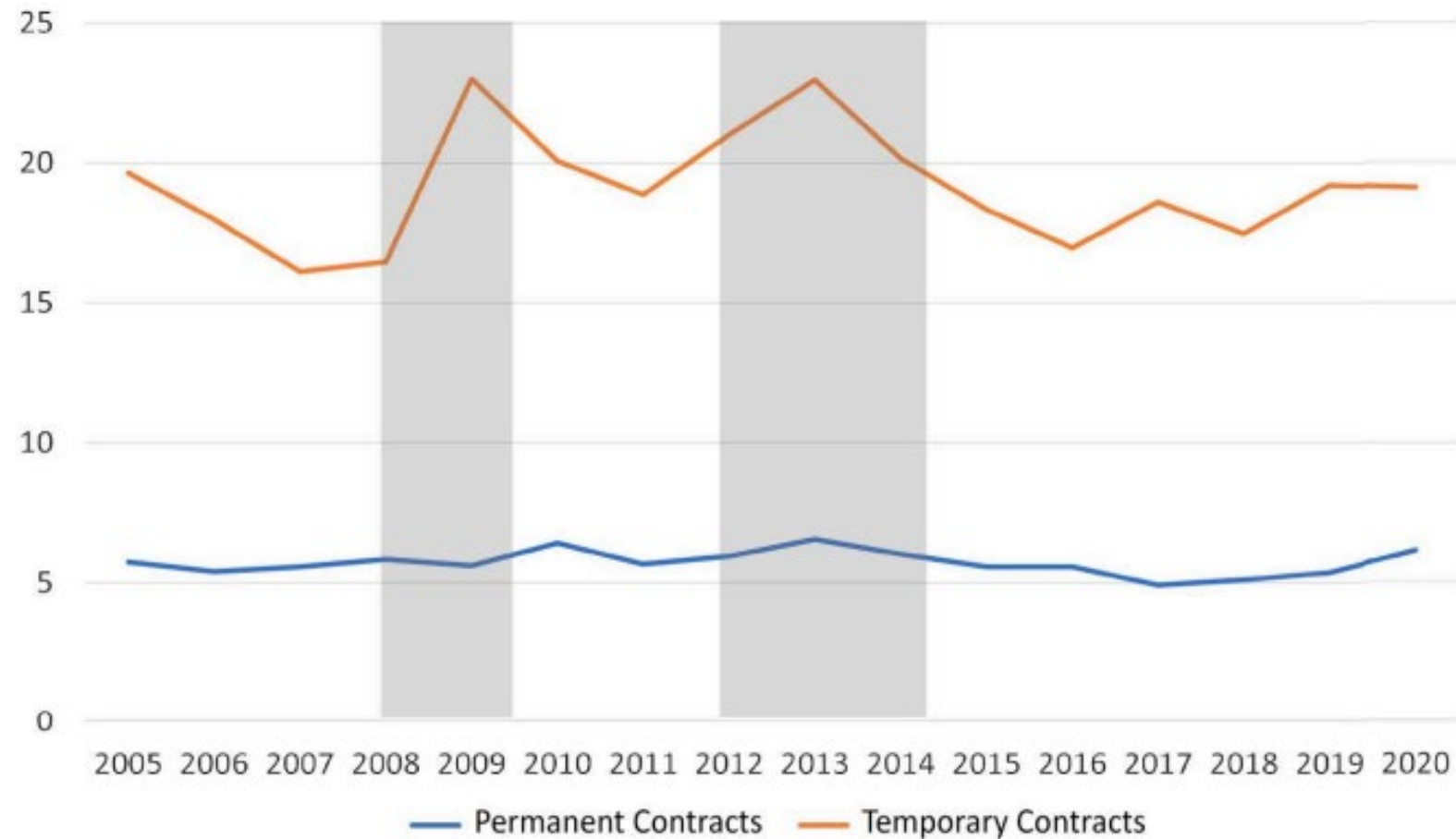
**Ferreira et al., 2018**

This can be compensated by more engagement in informal training

**Garcia Perez et al., 2018**

Fixed-term contracts ease the entry of youngsters in the market,  
but have negative consequences on their career prospects

# Transitions to nonemployment, percentages (Italy 2005-2020)



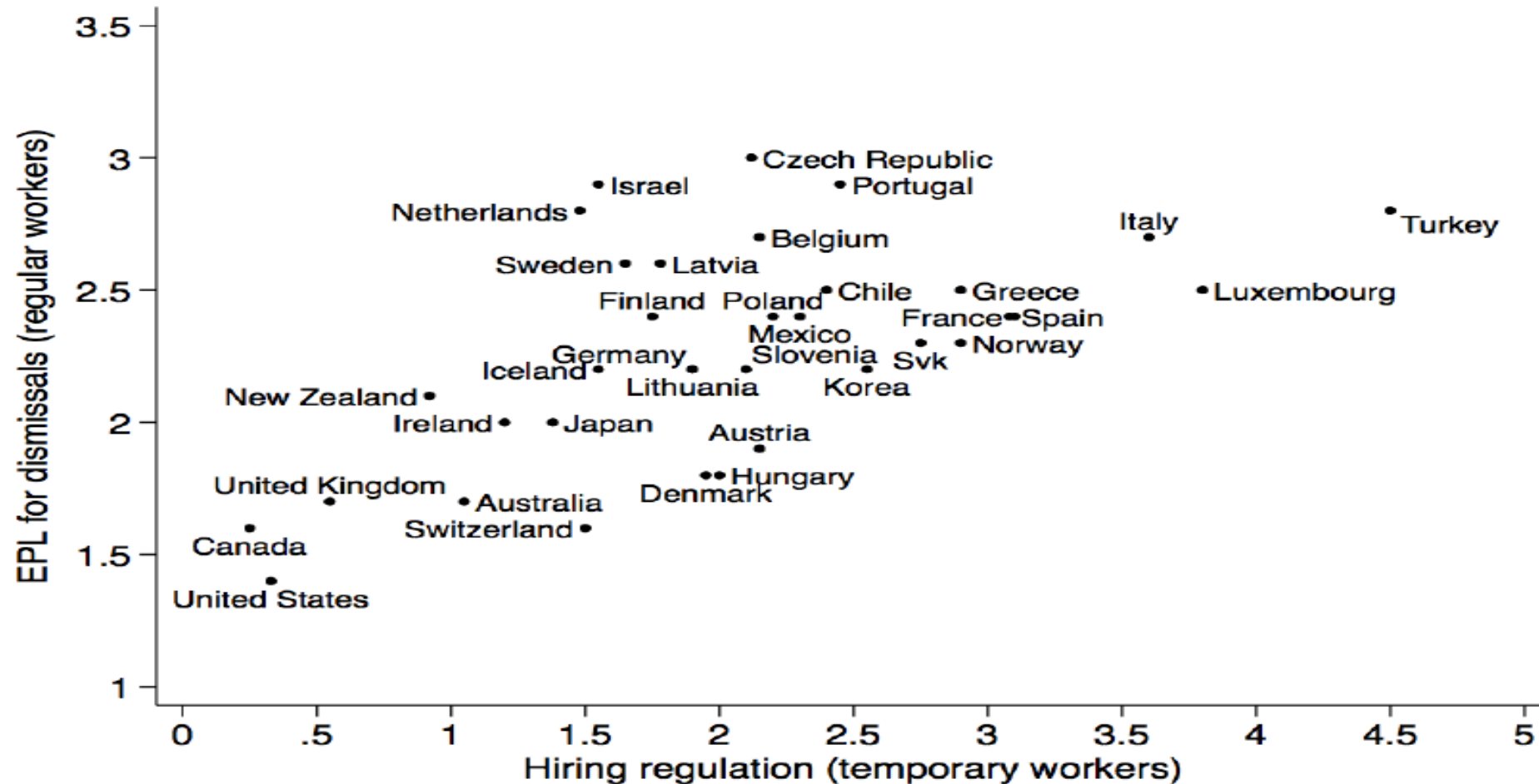
# Policies Increasing Hiring Costs in Temporary Contracts

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- Prevent that temporary contracts take over the entire distribution of wages
- Isomorphic to lower vacancy filling rate for temps vis-a-vis open ended contract
- This is ultimately what countries are doing

**Clusters of rigidities:** on the hiring side for temporary contracts and on the layoff side for permanent contracts

# Putting sand in the wheels of temporary contracts



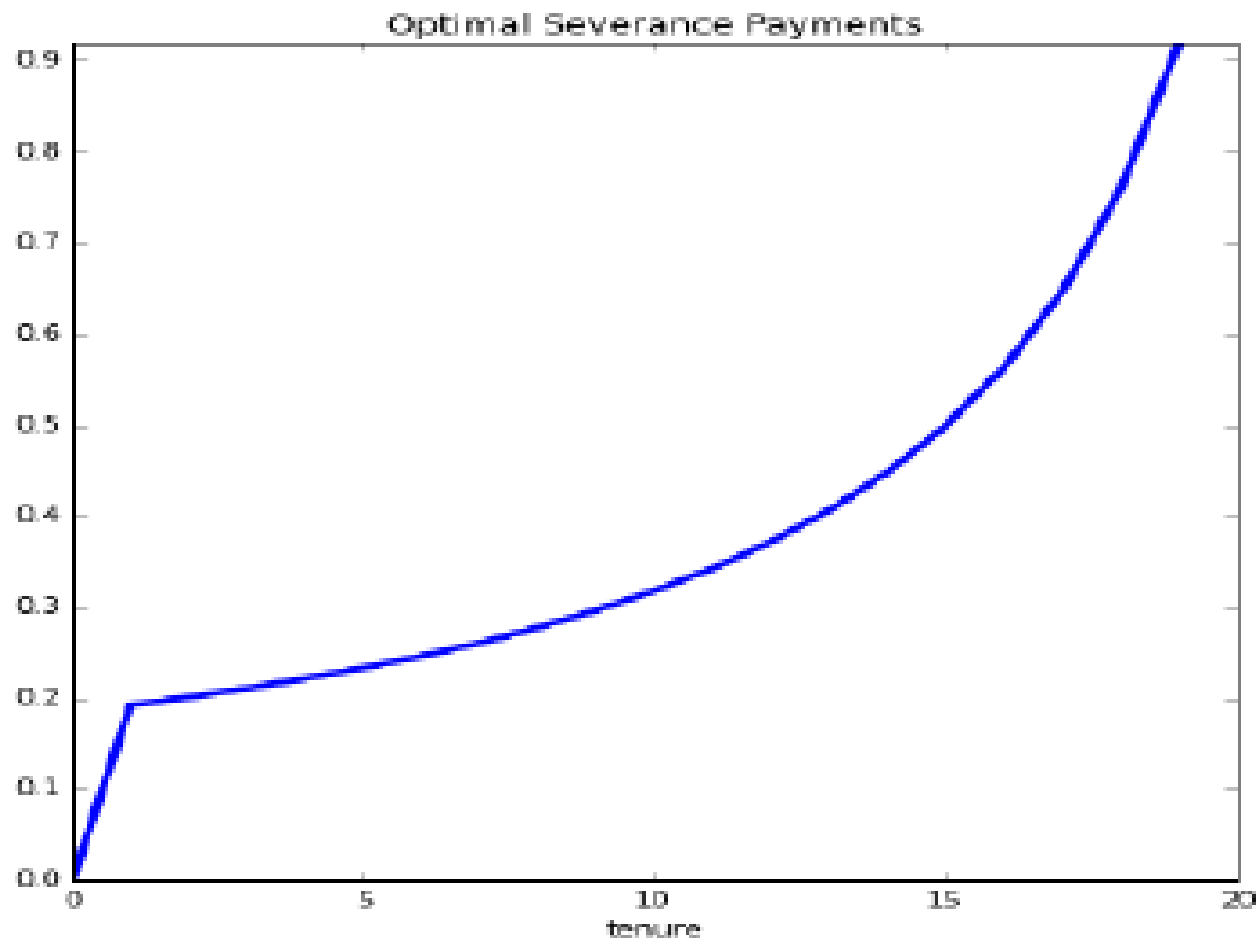
# Political economic equilibria with either high or low restrictions on both contracts

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- Two-tier reforms followed by increased restrictions on hiring in fixed-term contracts
- This reduces potential positive effects on productivity of reduced restrictions on job destruction (from temporary contracts) as increased hiring costs in temporary contracts make it more costly to layoff permanent contract workers.
- Hiring costs in temporary contracts increase monopsony power of firms, do not protect temporary workers, and make unemployed worse off.
- Increased segmentation in labor markets makes it more difficult to provide social insurance against labor market risk
- Was it worth doing all this? Should we give up the idea of reforming permanent contracts?

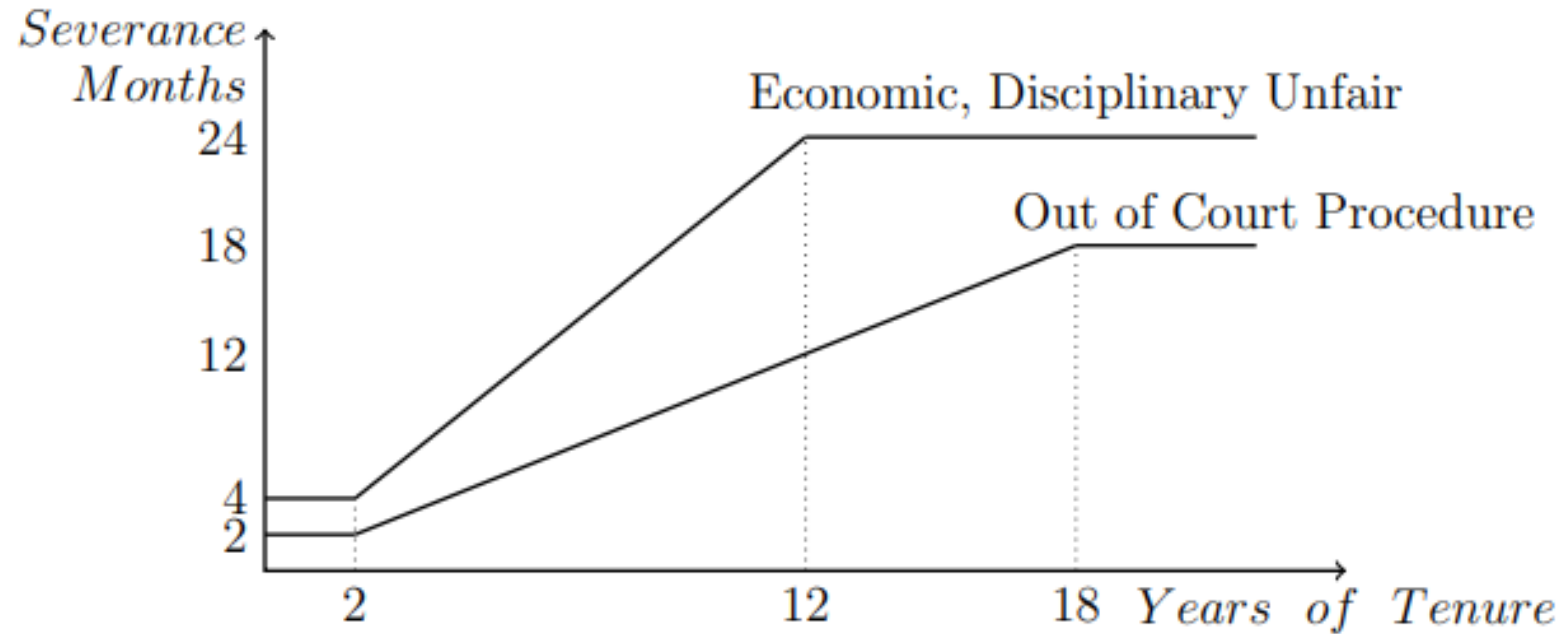
# Optimal severance pay by tenure

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# The Jobs Act Graded Security Contract

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**Thank you**