



# **Estimating the Impact of Labor Taxes on Employment and the Balances of the Social Insurance Funds in Turkey**

Gordon Betcherman\* and Carmen Pagés\*\*

\*World Bank, \*\*Inter-American Development Bank



- Introduction
- Labor demand estimates
- HLFS estimates
- Regional subsidies estimates
- Fiscal impact estimates
- Final policy considerations



## Employment levels are well below EU averages and the EU target

	Employment rate (15-64 years)
<b>Turkey 2006</b>	<b>46%</b>
Lisbon 2010	70%
EU-15 2006	66%
EU-27 2006	64%

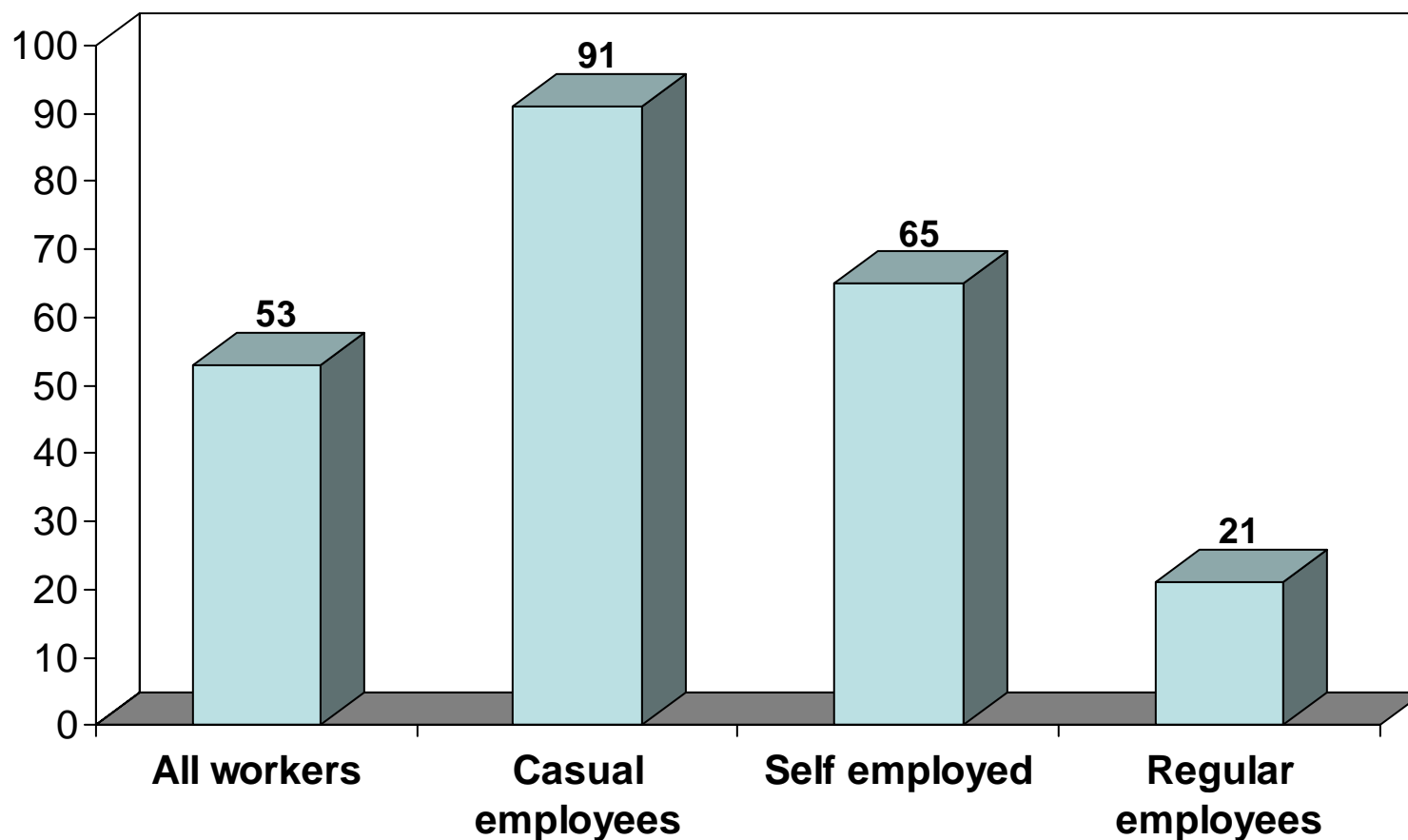
Source: Eurostat

Between 2002 and 2006, GDP grew by 7.5% annually but employment increased by just 1.1% per year. The overall employment picture reflects very low rates for women.



# The other aspect of Turkey's "job deficit" is high informality

% unregistered



Source: HLFS



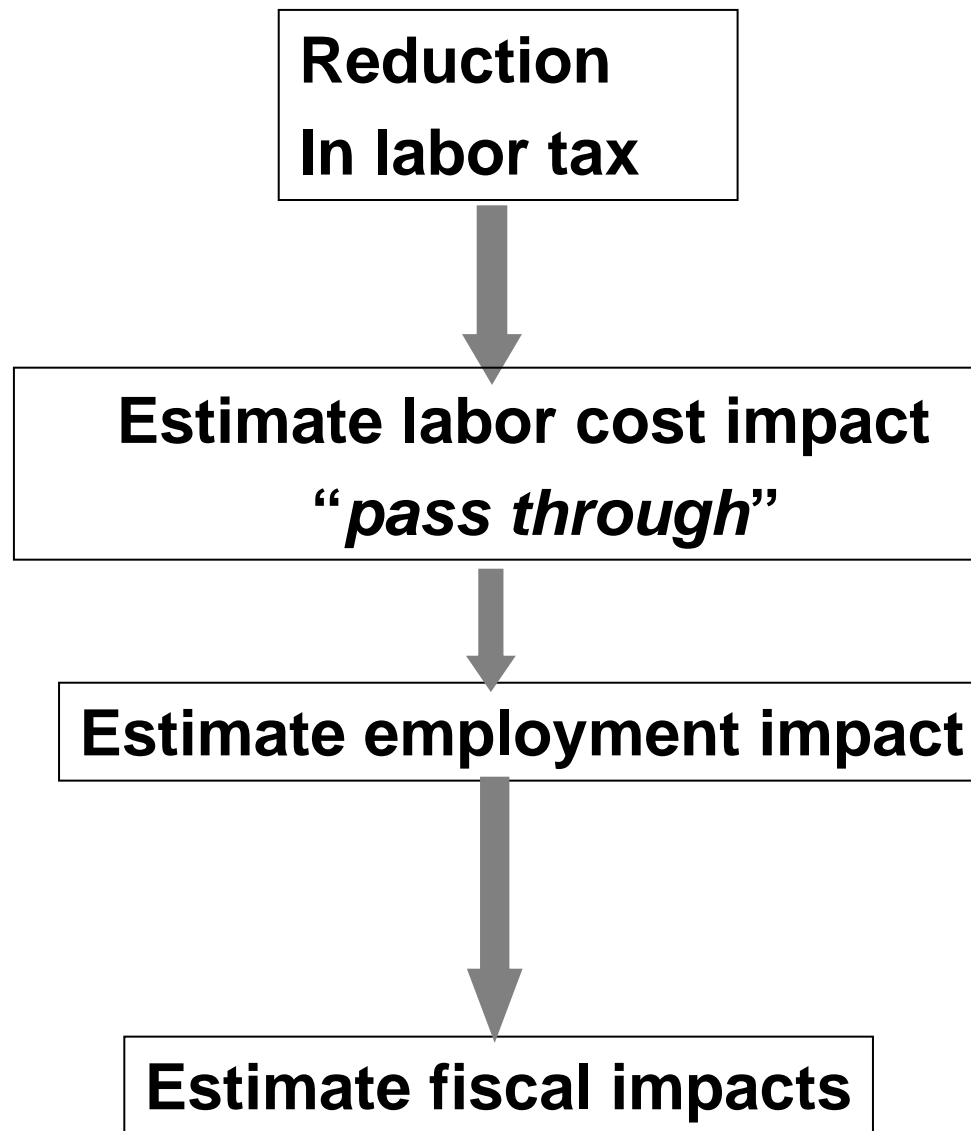
# Turkey's tax wedge is high, especially for workers with families and for low-wage workers



Source: OECD, World Bank



# Study Methodology





## Multiple lines of evidence to assess employment impacts

1. Calculation of labor demand elasticities and “pass through” based on TUIK **establishment data** (manufacturing, construction)
2. Analysis of employment changes for different demographic groups due to changes in minimum wages and contribution base using **Labor Force Survey data**
3. Evaluation of net employment impact of regional employment subsidies based on **SSK administrative data**

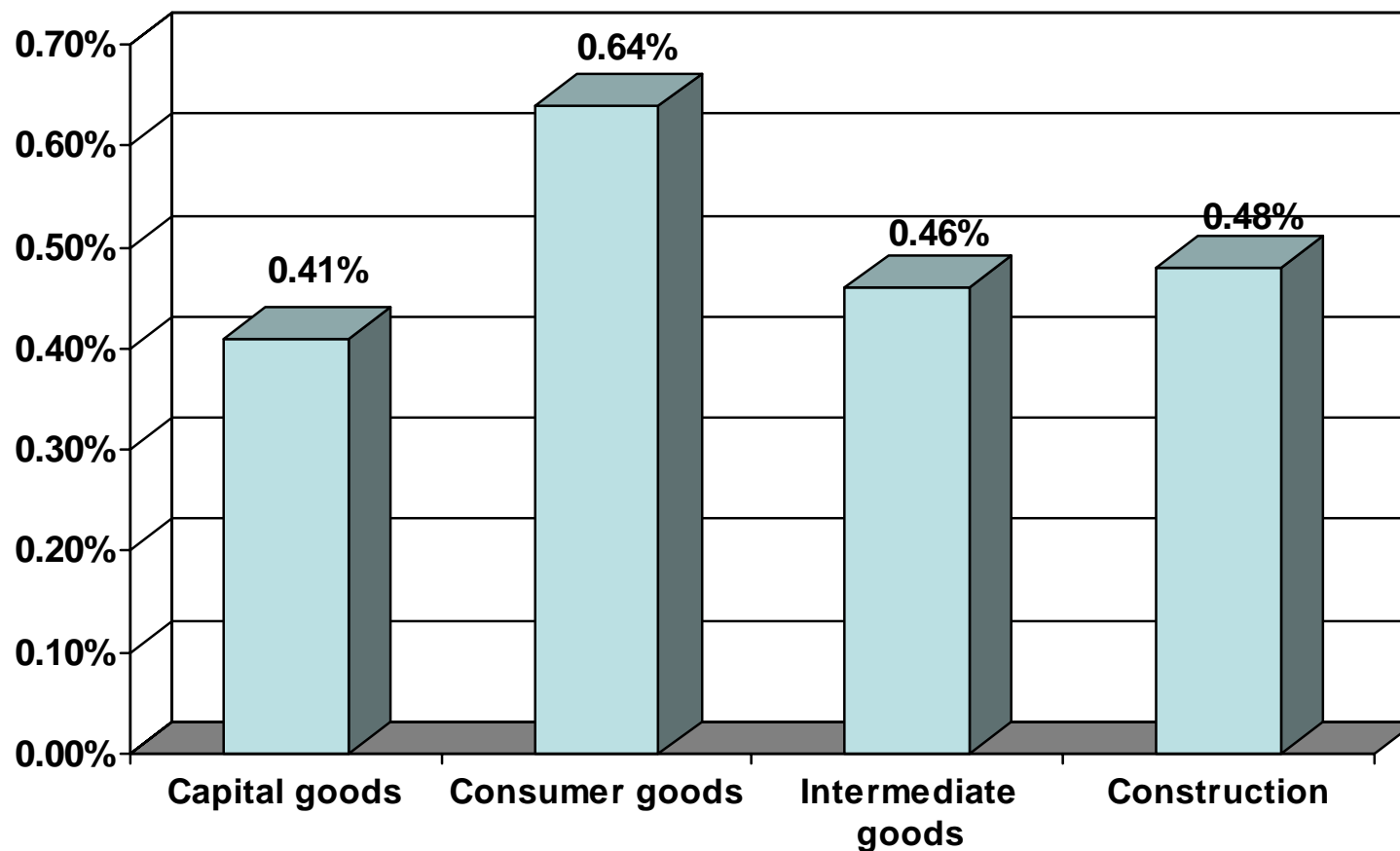


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# Employment response to changes in labor costs

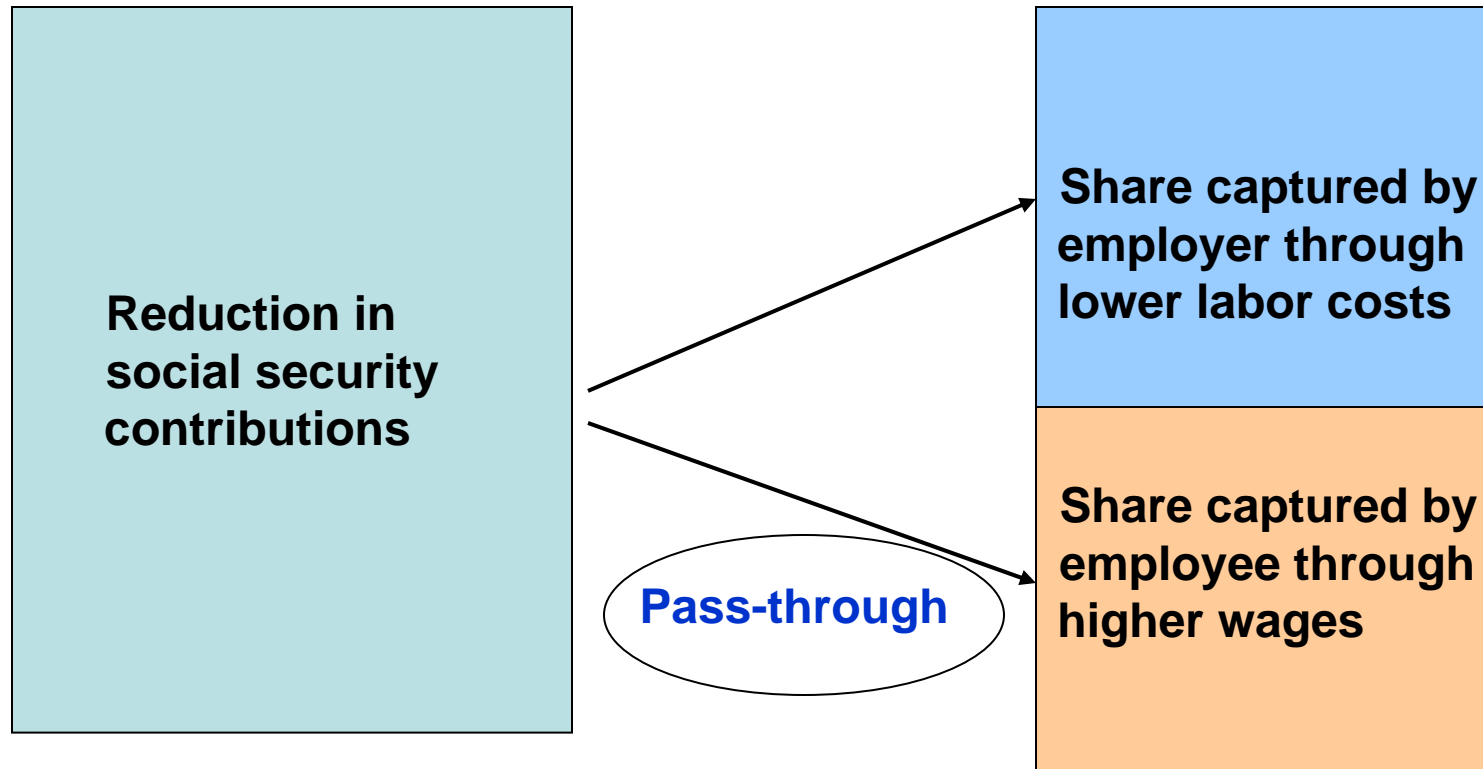
Estimates of percentage change in employment when labor costs change by 1 per cent (constant output long-run total wage elasticity)



Source: Taymaz (2006)



# However the employment effect of a tax reduction depends on who benefits

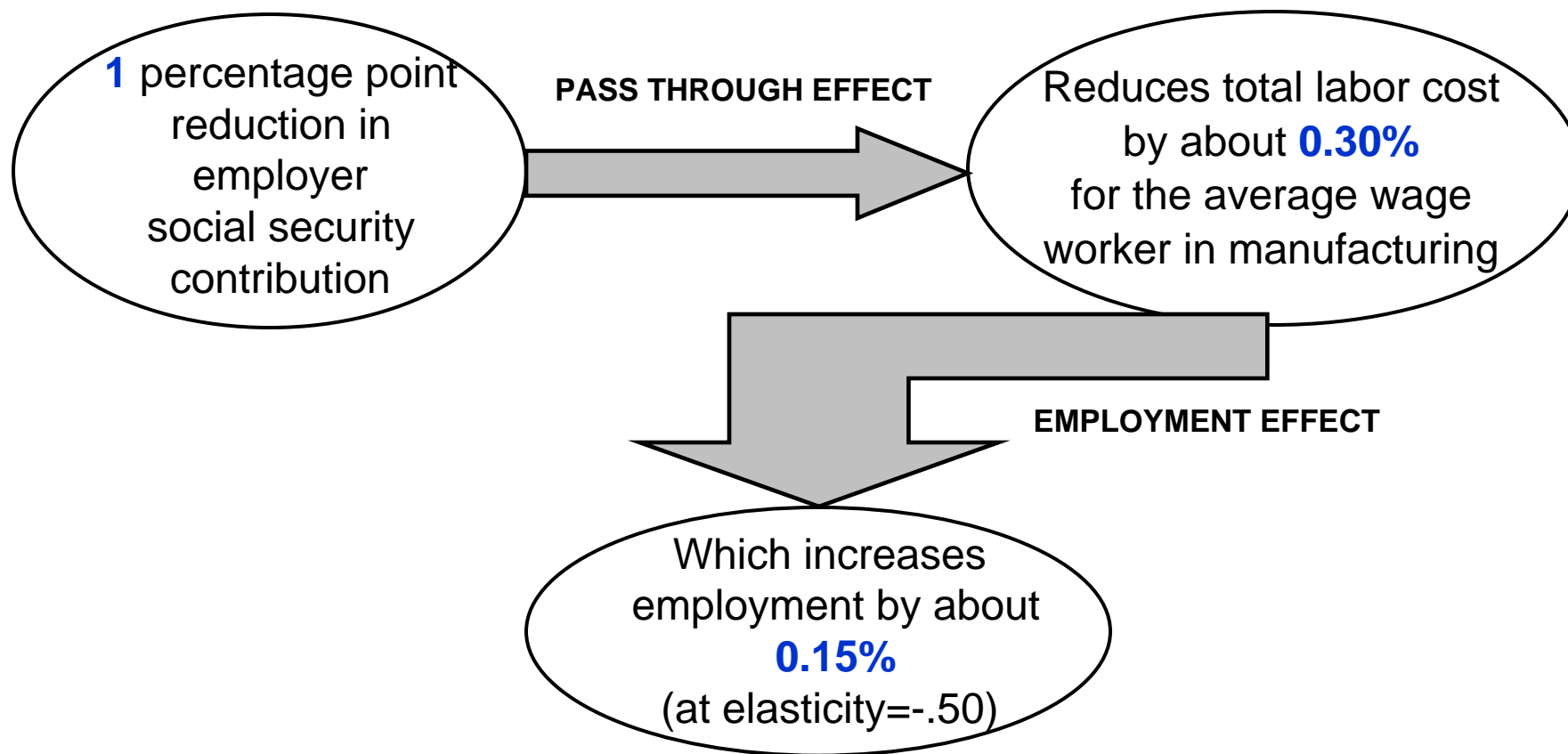


The larger the “pass-through”, the less impact that a reduction in taxes will have on labor cost. As a result, any gain in employment will also be less.



# The pass-through reduces the employment gain from an across-the-board tax cut

## Effects of reducing employer social security contributions for a worker earning the average wage

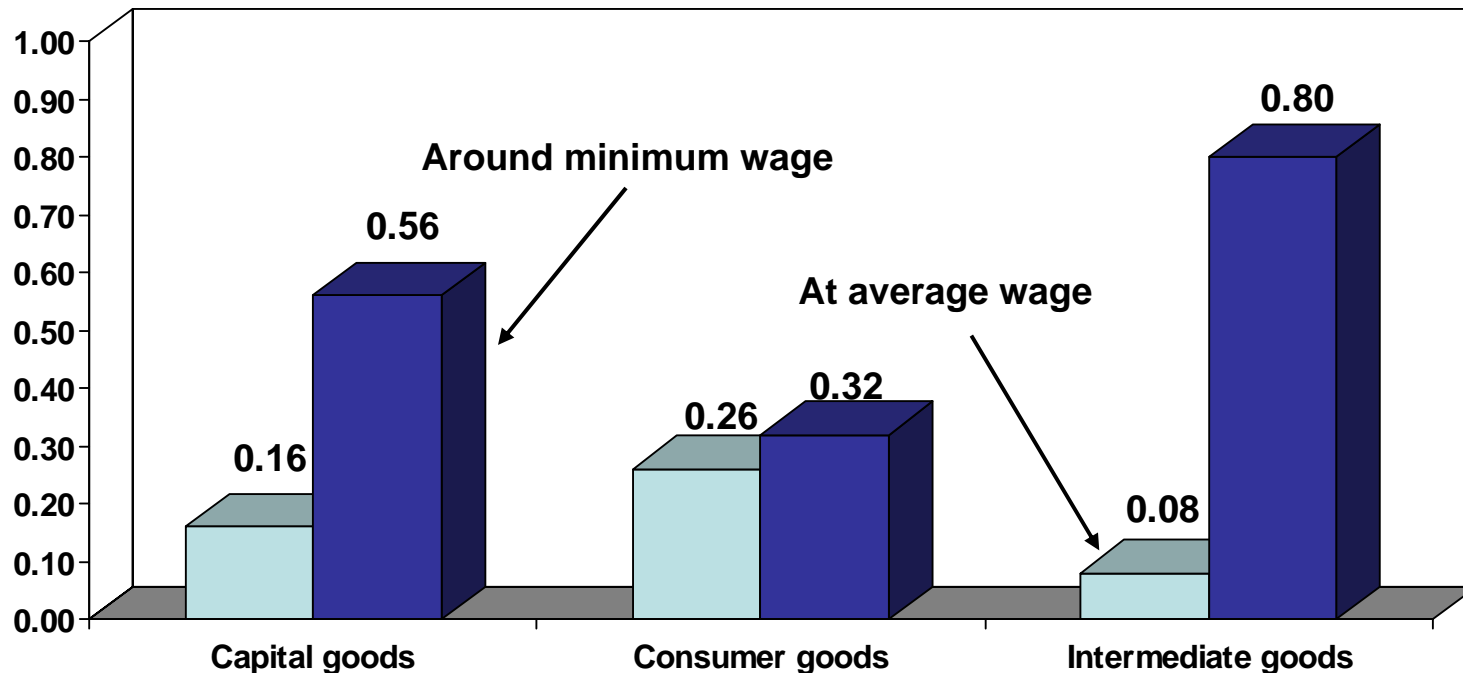


Source: Taymaz (2006)



# However, employment gains are greater for low-wage labor because the pass-through is smaller

Percentage decrease in total labor costs resulting from a 1 percentage point reduction in employer social security contributions



Source: Taymaz (2006)

The ability of workers to capture the gains of a tax cut declines with wage level [higher elasticity of labor supply/ minimum wage/bargaining power]. Labor cost reduction is greater and, accordingly, the employment gains for lower-wage labor are also greater



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# HLFS based study--methodology

- Quarterly data panel data
- Two panels used for estimations
  - Four quarters in 2004 (July 2004 policy change)
  - “Synthetic” panel composed of narrow demographic cells
- Study how the probability of remaining employed in following quarter is affected by policy-induced changes in labor costs –controlling for individual characteristics
  - Changes in labor costs differ across workers depending on their position in the wage distribution
- Estimation sample restricted to low wage workers



# HLFS-based study--results

- Employment probabilities respond to changes in policies affecting cost of low-wage labor
  - 1 percentage point decrease (increase) in total labor cost ratio increased (decreased) probability of worker being employed in subsequent quarter by 0.64 percentage points (2004 panel)
- Analysis also suggests that increases in minimum wages and social contribution base shifted employment from formal to informal sector
- Employment of women and youth especially sensitive to cost changes



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# Regional employment subsidies

- Three different regional incentive programs applied to a progressively wider group of lower-income provinces
  - Law 4325:(1998): 22 provinces
  - Law 5084 (Jan 2004): 15 additional provinces covered
  - Law 5350 (May 2005): 13 additional provinces covered
- We focus on employment impacts of Laws 5084 and 5350
- Laws have 4 subsidy components:
  - **(80-100%) reductions in employer social security contributions**
  - **(80-100%) reduction on income taxes on wages**
  - **Subsidies for electricity consumption**
  - **Land subsidies**
- Employers qualify by meeting new job creation thresholds:
  - Law 5084 subsidizes all new jobs (new and old establishments);
  - Law 5350, 30 worker size-20% increase minimum; but subsidy per worker increases.



# Regional incentives methodology

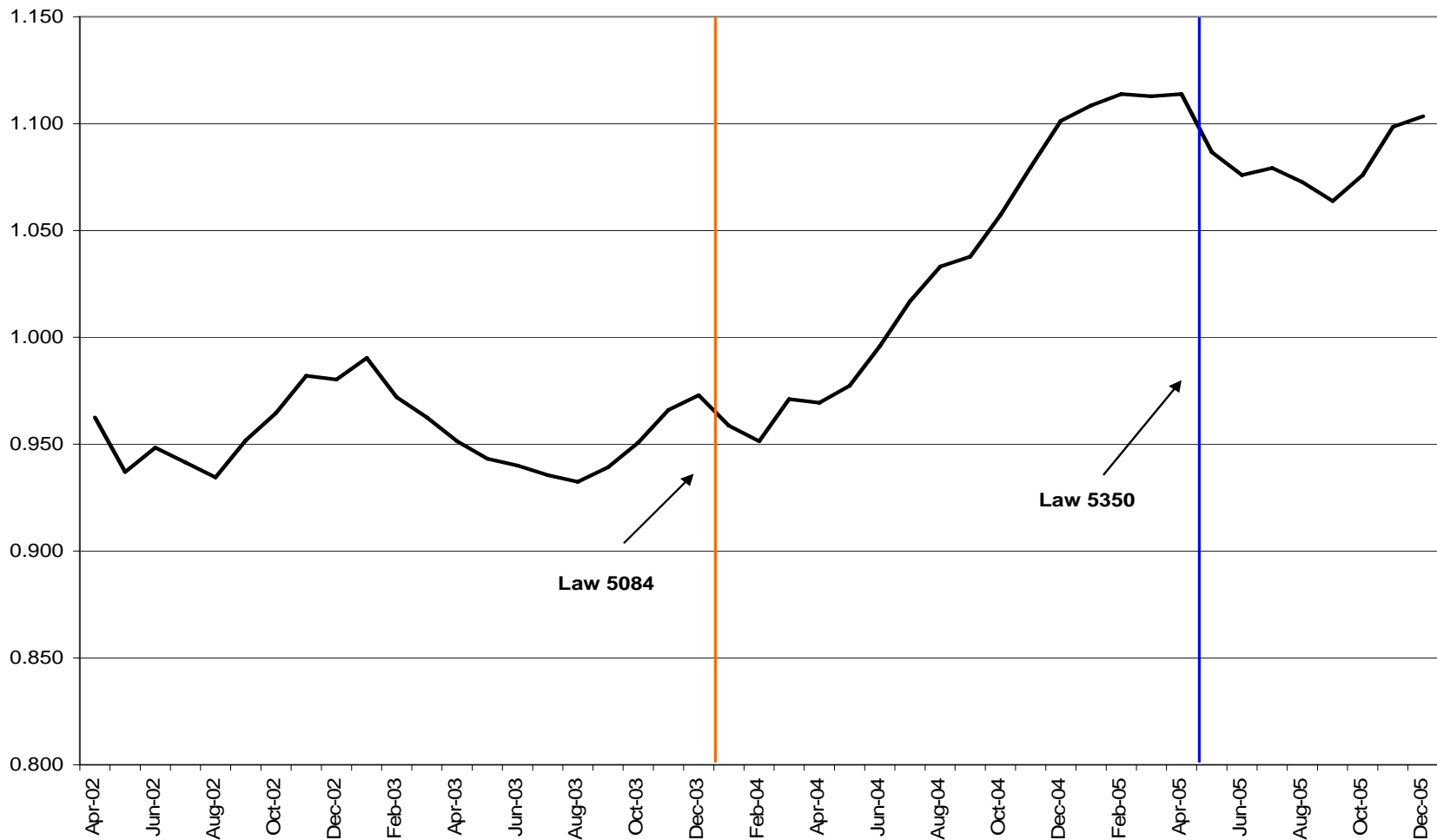
- Study implements a difference-in-differences methodology using the fact that subsidies were applied sequentially to targeted groups of provinces
  - It compares the employment behavior of subsidized versus not subsidized provinces.
  - Control groups
    - For provinces added under Law 5084 (Jan 2004)
      - “**Never**” -- Provinces never subsidized
      - “**5350**” – 13 provinces that did not get subsidized until Law 5350.
    - For provinces added under Law 5350 (May 2005)
      - “**Never**” -- Provinces never subsidized
- We consider results for law 5084 more reliable



- Data:
  - Monthly panel of province-level administrative (SSK) data:
    - Number of registered employees,
    - Number of registered workplaces
    - Total taxable earnings
    - SSK premiums
    - Workers & workplaces subsidized
    - Subsidies received



## Ratio of employment in provinces D\_5084 relative to employment in D\_5350 provinces





## Define:

D\_4325= Provinces subsidized under first law (4325) ; 22 provinces

D\_5084= Provinces added by law 5084; 15 provinces

D\_5350= Provinces added by law 5350: 13 provinces

Period\_1=Jan2004-April 2005

Period\_2= May 2005-Dec 2005.

(1)

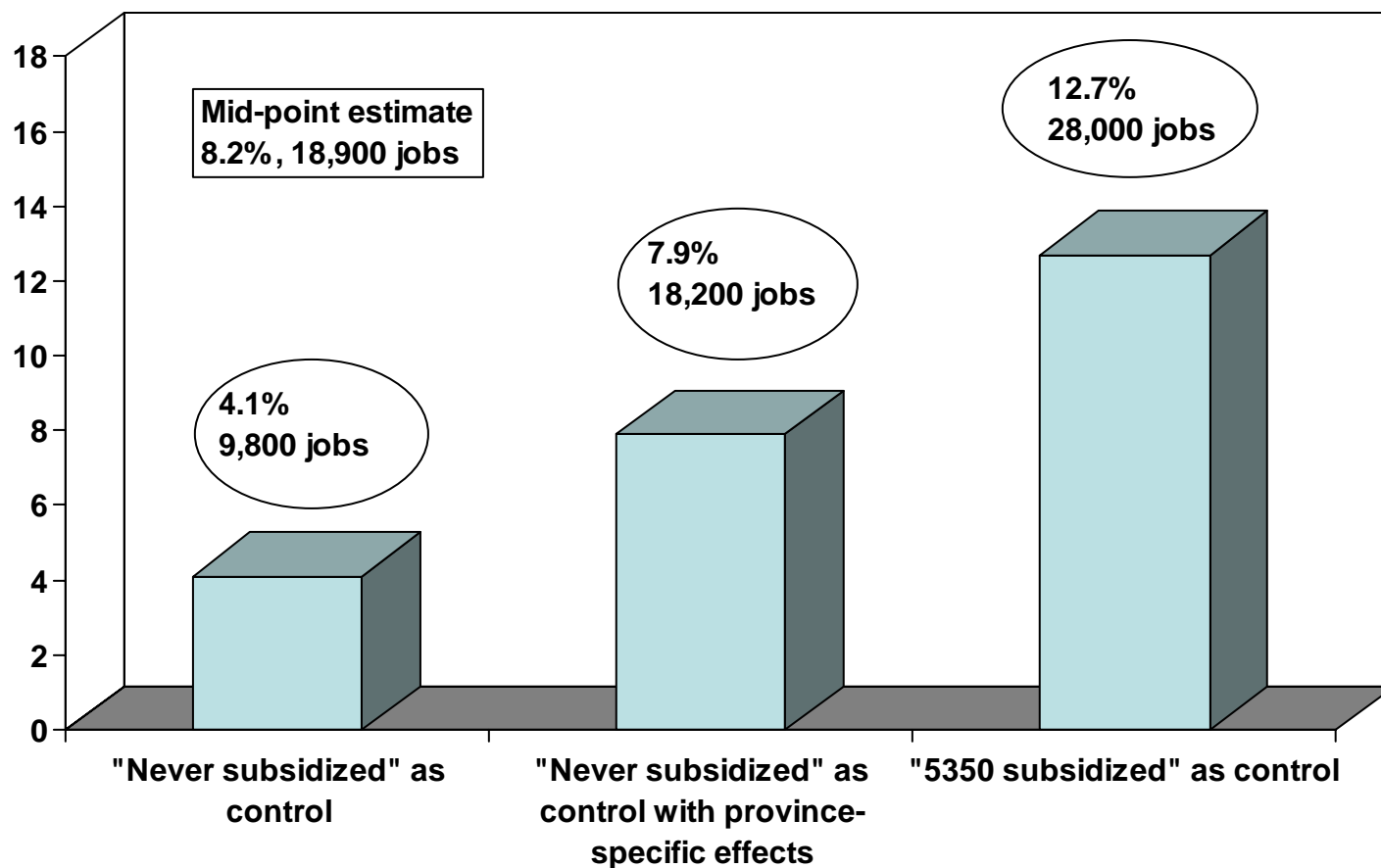
We estimate the following specifications:

$$X_{jt} = \alpha_0 + \delta_0 \text{Period}_1 + \delta_1 D_{5084} + \delta_2 D_{5084} * \text{Period}_1 + \varepsilon_{jt}$$

$$\begin{aligned} X_{jt} = & \alpha_1 + \gamma_0 \text{Period}_1 + \gamma_1 \text{Period}_2 + \gamma_2 D_{4325} + \gamma_3 D_{5084} + \gamma_4 D_{5350} \\ & + \beta_0 D_{4325} * \text{Period}_1 + \beta_1 D_{4325} * \text{Period}_2 \\ & + \beta_2 D_{5084} * \text{Period}_1 + \beta_3 D_{5084} * \text{Period}_2 + \\ & + \beta_4 D_{5350} * \text{Period}_1 + \beta_5 D_{5350} * \text{Period}_2 + v_{jt} \end{aligned} \quad (2)$$

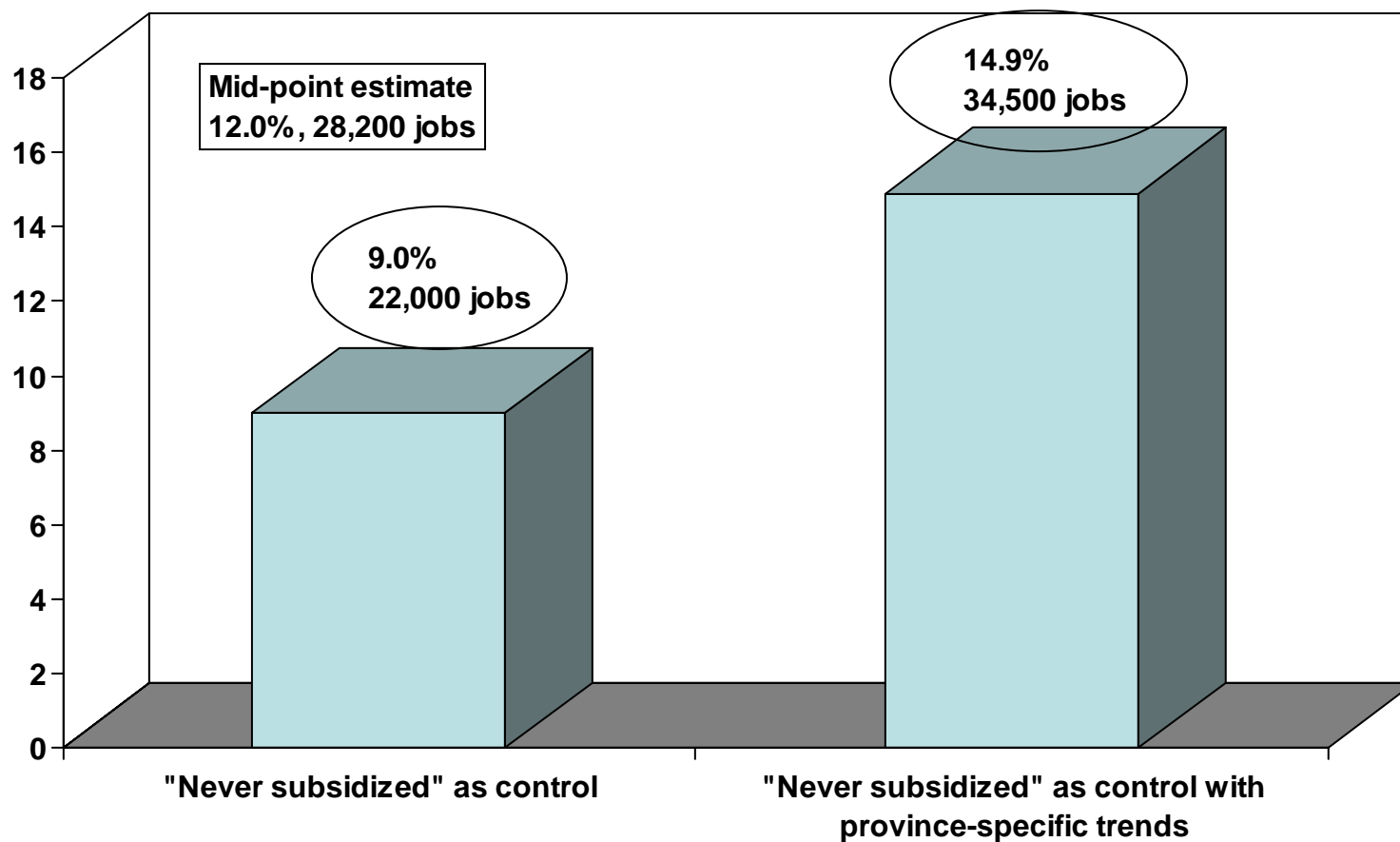


# Econometric estimates of net job creation effect of Law 5084 in 15 provinces





# Econometric estimates of net job creation effect of Law 5350 in 13 provinces





# Other results

- No “pass-through” in this data, which is consistent with LD results as subsidies are implemented at MW level.
- Job creation was costly:
  - According to administrative data cost per job-month is 152YTL (28% MW)
  - But.. according to our estimates between 47-81% of the subsidized jobs would have been created anyway. (large deadweight loss)
  - Therefore, costs per “actual” created job were much higher:
    - 286YTL (52% MW)- 819YTL (149% MW) with a medium estimate of 80% MW.
- Higher cost effectiveness of law 5350 → Design matters



## Summary of evidence on employment impacts

- Employment levels respond significantly to changes in labor costs.
- Because of high average pass-through rates, only a small proportion of any tax cut will reduce total costs.
- But pass-through rates fall at lower wage levels so the employment impact will be larger for this segment of the labor market. For higher-wage workers, tax cuts will primarily result in increased earnings, with little or no effect on employment.



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# Modeling the impacts of reducing social security contributions

Projections of financial implications of reducing employer contributions for pensions and UI, based on PROST and UISIM

- Two different reform options for pensions
  - “Across the board” rate reduction covering all registered employment
  - “Targeted” reduction for new hires under the age of 30
    - 54% of workers earning less than 1.25 minimum wage are under 30 so this option oriented to low-wage labor
- One UI rate reduction option covering all workers



## Design of modeling exercise

- Effects of social security contribution reductions on number of contributors calculated according to estimates of labor demand elasticity and pass-through presented earlier
- Tax reductions introduced in 2007, with full employment effect in 2008
- Employment effect modeled as a one-time increase in the number of contributors
- Note that there is no consideration of general equilibrium effects (i.e., on output, wages, etc.) or of substitution effects in the case of the targeted reduction scenario



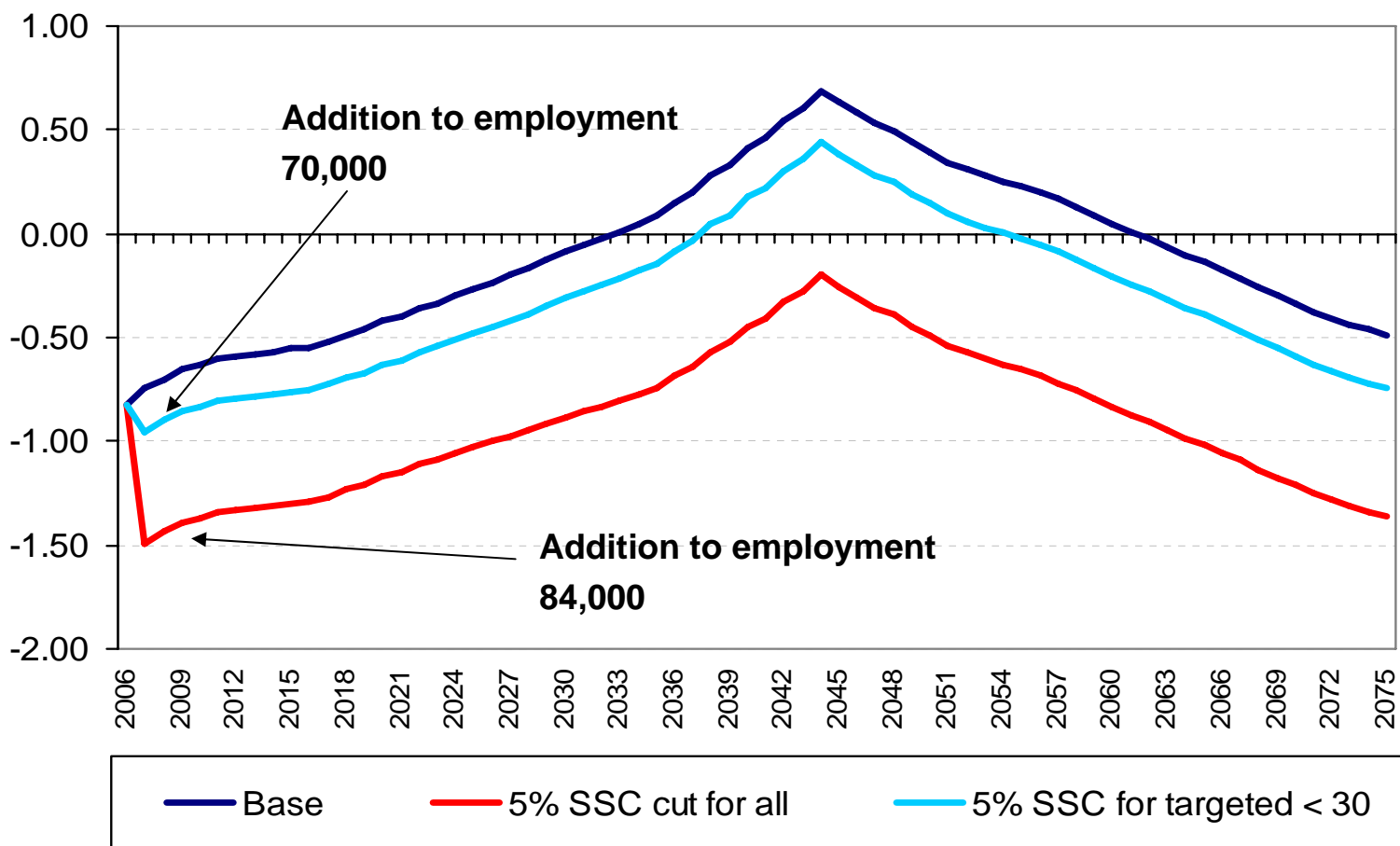
# Reform scenarios for reducing employer contributions

Type of reform	Pension contribution cut (now 11% of gross wages)	UI contribution cut (now 2% of gross wages)	Increase in contributors	Increase in contributors
			%	number
Across the board	5 percentage points	2 percentage points	1.11%	84,200
Targeted at new hires under 30	5 percentage points	2 percentage points	2.09% (of employment under 30)	70,200
Across the board UI		2 percentage points	0.30%	22,700



# Pension deficit projections of an across the board and targeted SSC reduction

## SSK PAYG Current Balance as % of GDP, PROST

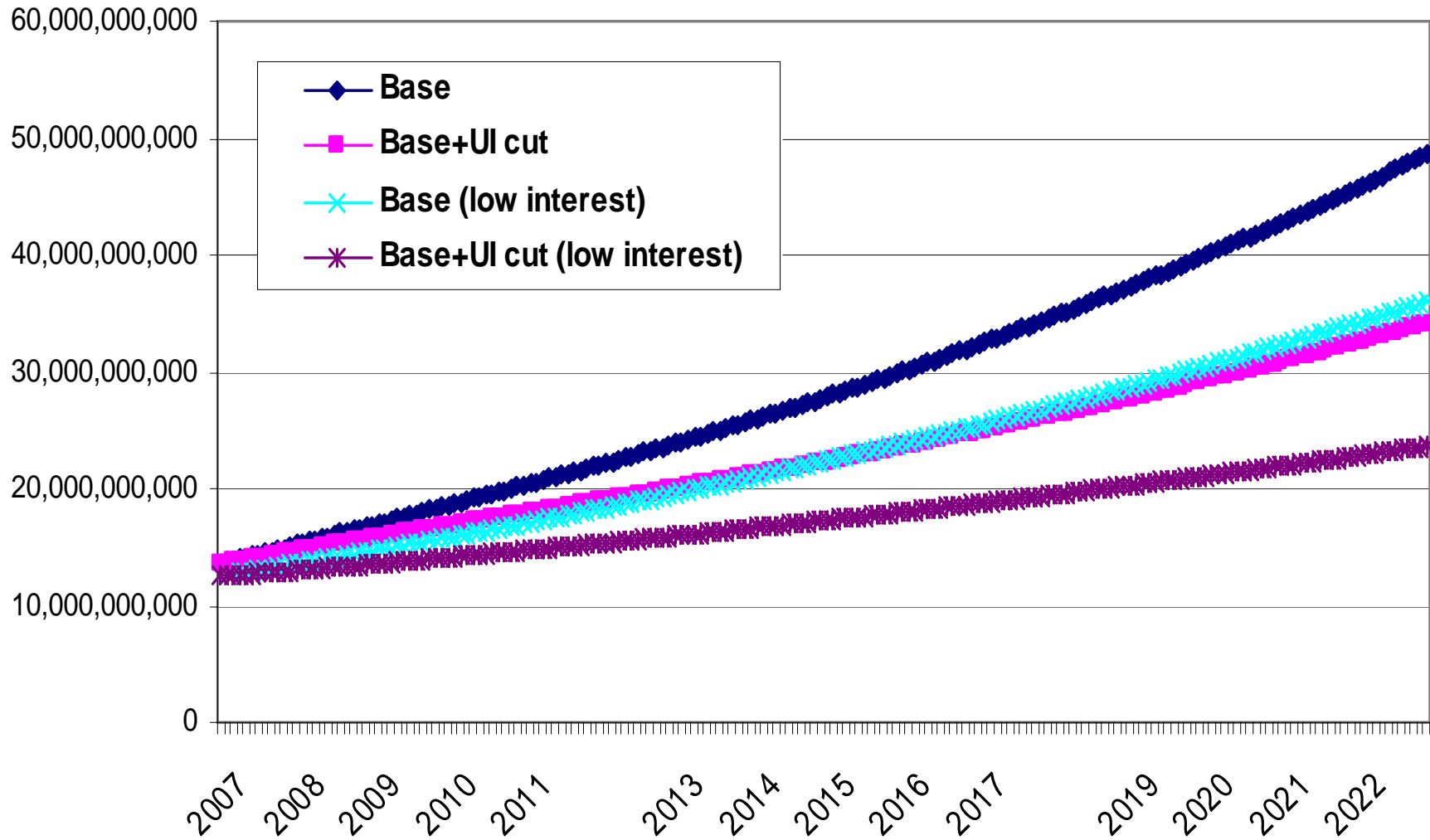




# UI Fund projections

## Base Case and 2% tax cut

UIF reserve, YTL, UISIM





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## What are the policy implications from the study's main findings?

1. *Labor tax cuts* will not have major impact on registered employment unless the size of the cut is very large
2. “*Across the board*” cuts in social security contributions would have only modest employment impact while worsening the balance of the social security fund
3. *A targeted social security cut* for new youth hires would generate slightly fewer jobs but this impact would be achieved with only minor implications for the fund.
4. *A cut in UI contribution rates* will only have a small employment impact. But a reduction could be recommended because of the very large and growing reserve.



# Final policy considerations

- Turkey's high tax wedge, especially for low-wage labor and for families with children, does need to be addressed. It affects labor demand and reduces net earnings of low-wage workers.
- This issue could be addressed through more comprehensive income tax reform to make the system more progressive. We have not tested any implications of income tax reform on employment.
- Concern about employment, especially in the formal sector, needs to be addressed through a comprehensive approach, both inside and outside the labor market.