# Social Security and Retirement Around the World: Lessons from a 25-Year International Collaboration

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Netspar Werkgroepdag
February 13, 2020

# Retirement Emerges as a Distinct Phase of Life in 20th Century

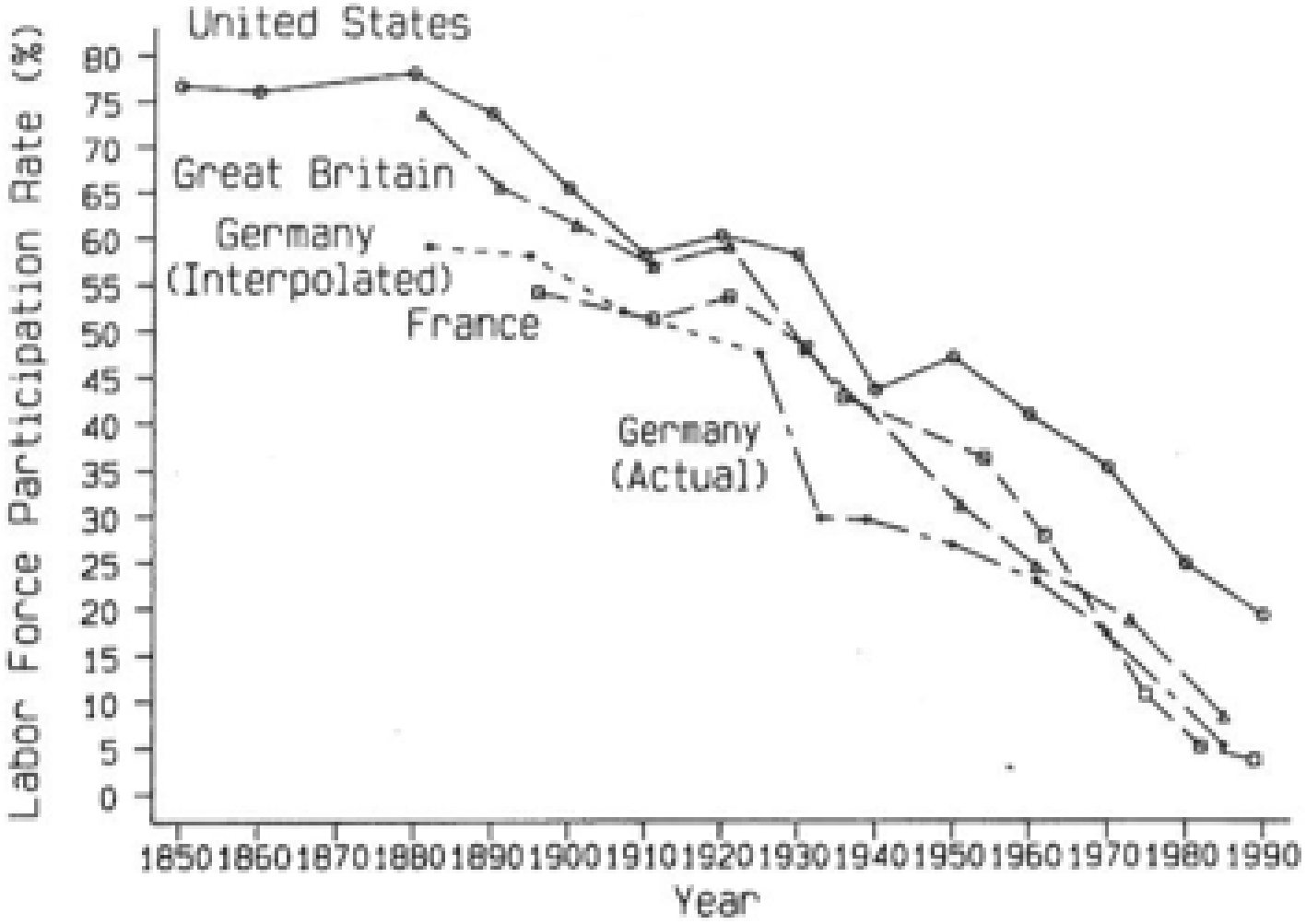


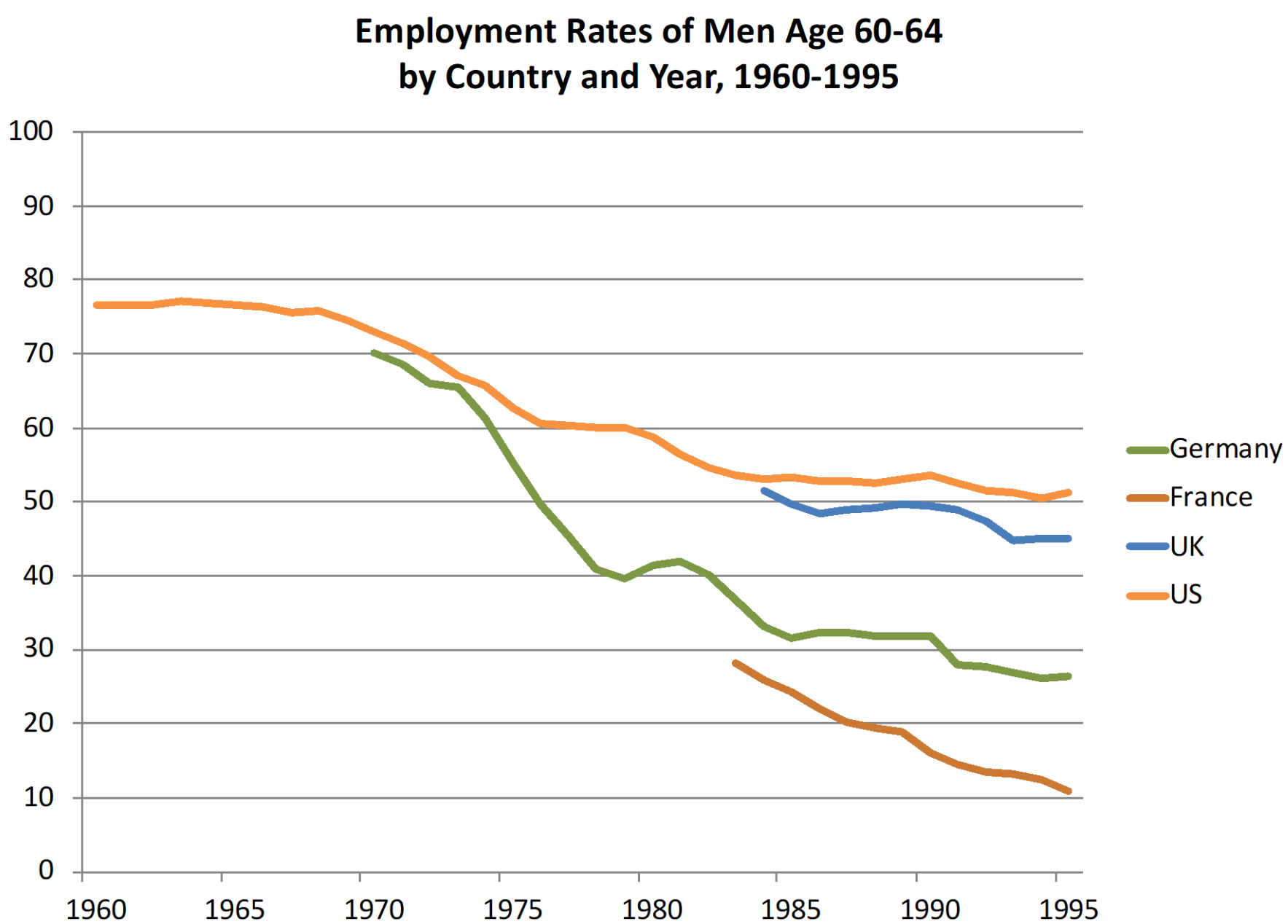

**Fig. 2.2 Labor force participation rates of men aged sixty-five and over, 1850–1990, United States, Britain, France, and Germany**

Source: Costa, *The Evolution of Retirement*, 1998.

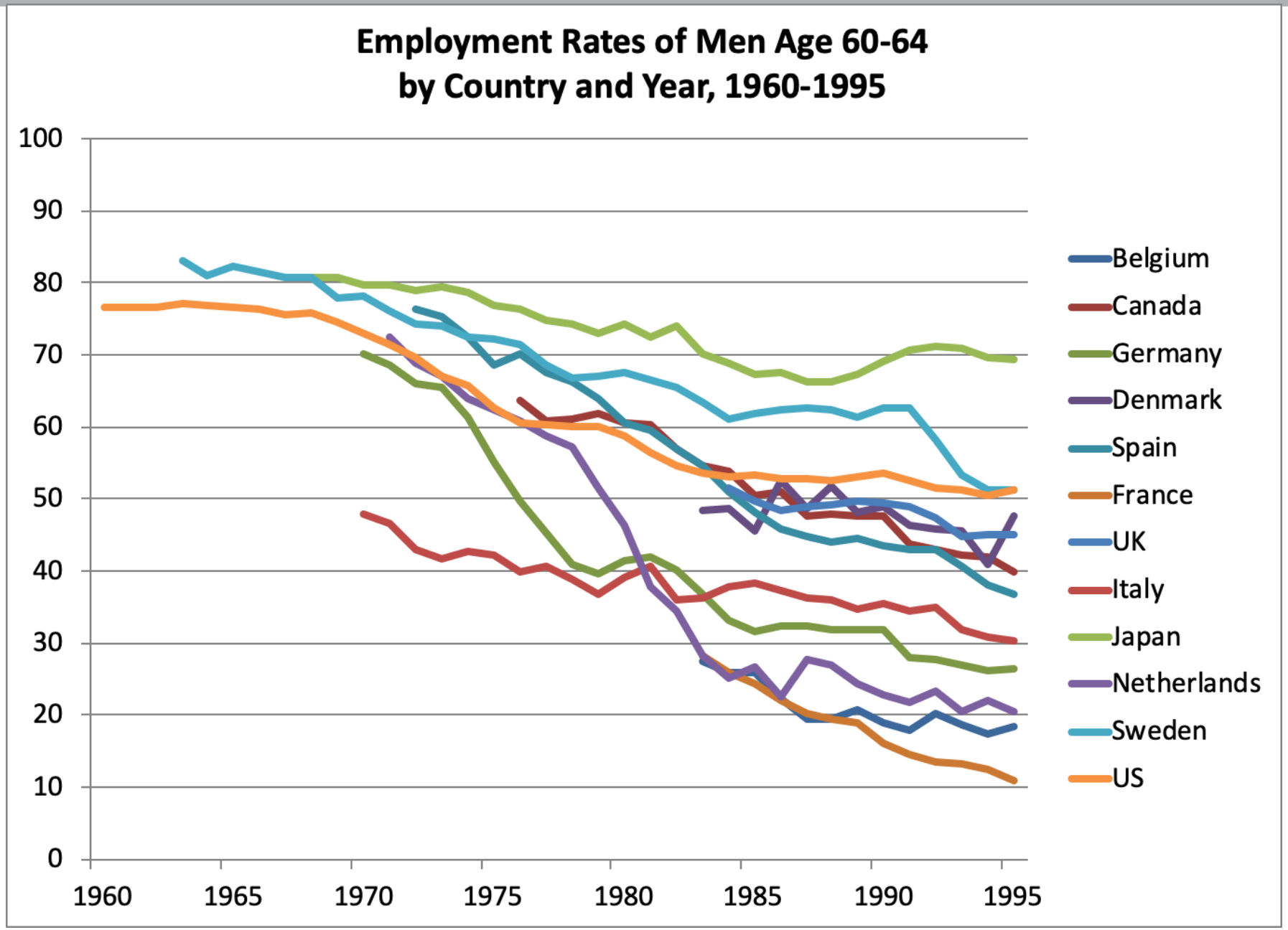
# Public Pensions Spread during 20th Century

- The first pensions were for military veterans in Rome (13BC)
  - Later adopted for veterans in UK & France (1670s), US (1866)
- Pensions for the masses first introduced in Germany (1889)
  - Promoted by Chancellor Otto von Bismarck
  - "Those who are disabled from work by age and invalidity have a well-grounded claim to care from the state" – Emperor William I
- Early pensions already had classic social insurance features:
  - Mandatory participation, contributions by employers/employees, benefits paid in response to an event, benefits for all
- **Many countries introduced pensions starting in early 1900s and greatly expanded them over 20th century:**
  - Cover more workers; provide disability & survivors benefits; provide more generous benefits; be available at a younger age

# By 1995, Less Work, But Also Differences by Country



# By 1995, Less Work, But Also Differences by Country



# Key Questions about Pensions and (Men's) Work in 1995

- Can the **common trend of declining labor force participation** seen in many countries over the 20th century be explained by **rising pension coverage and generosity** over this period?

- Can the **large differences across countries** in 1995 in the share of men ages 60-64 who work be explained by **differences in pension systems**? Or do they result from differences in health, labor demand, culture, etc.?

# How to Explore these Questions?

- 1990s: emerging "credibility revolution" in economics
  - "Naïve" regressions often suffer from OVB, other problems (Angrist and Pischke, 2010)
  - New focus on quasi-experimental methods

- Pension programs are **difficult to study** because these are (usually) national programs covering all workers
  - Cross-sectional differences in benefits mostly due to differences in earnings histories and family circumstances
  - Not a good source of variation to learn the effect of pensions on work

# The NBER International Social Security Project

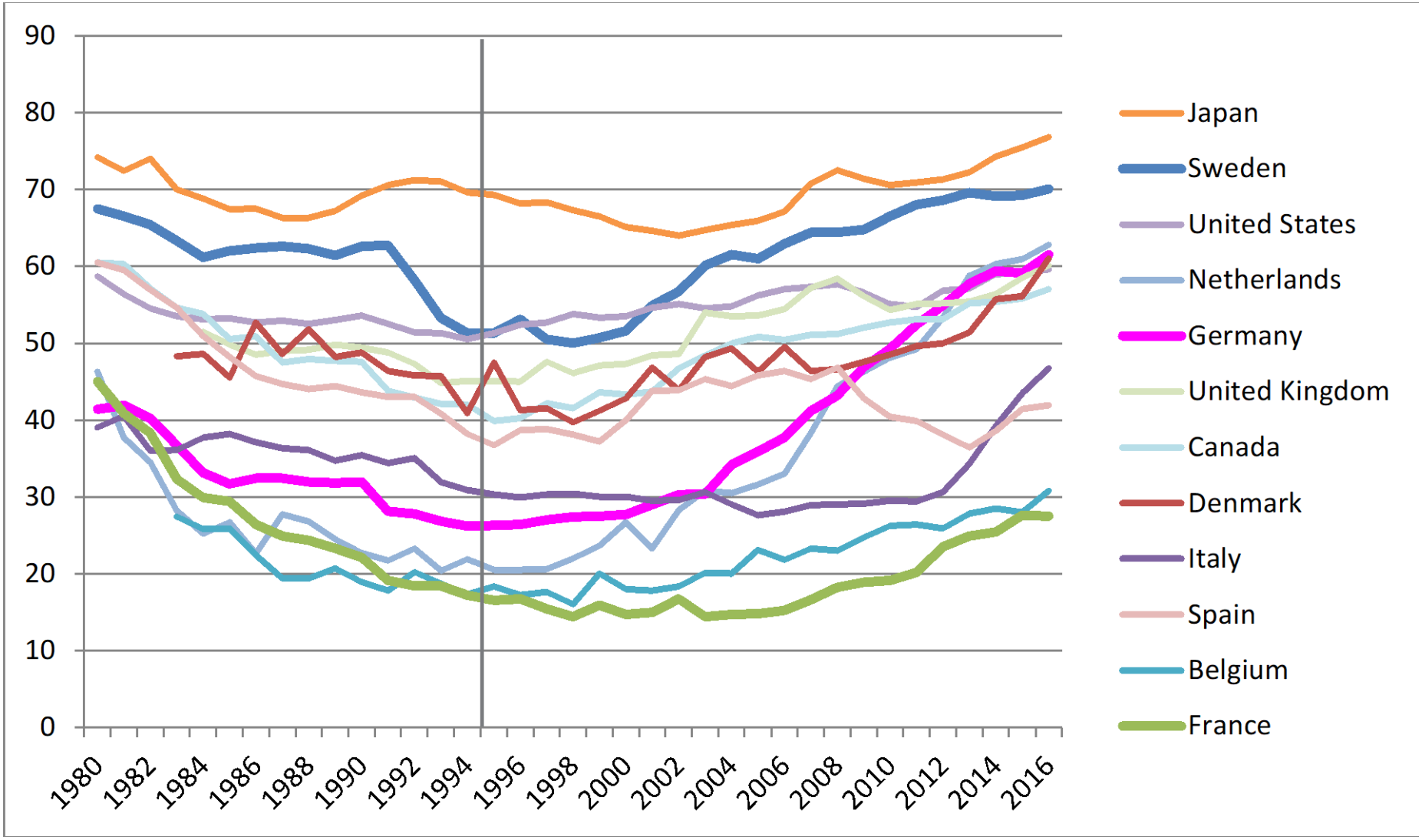
- Founded in the mid-1990s by David Wise and Jonathan Gruber as a collaboration between researchers in a dozen developed countries (Europe, US, Canada, Japan)
- **Insight: differences in pension program provisions across countries as a "natural laboratory" to study the effect of pensions on retirement**
  - Countries make different decisions about pension generosity, eligibility ages, etc. – a potentially useful source of variation
- Approach: Country teams with deep **country-specific knowledge** of institutions and data conduct studies based on **common methodological approach**
- **Results are combined** to draw lessons about the effect of pensions on retirement

# The ISS Team (Current and *Former*)

- **Belgium**: Anne-Lore Fraikin, Alain Jousten, Mathieu Lefebvre, *Arnaud Dellis, Raphaël Desmet, Sergio Perelman, Pierre Pestieau, and Jean-Philippe Stijns*
- **Canada**: Kevin Milligan, Tammy Schirle, *Michael Baker, Jonathan Gruber*
- **Denmark**: Paul Bingley, Nabanita Datta Gupta, Malene Kallestrup-Lamb, Peder Pedersen, *Michael Jørgensen*
- **France:** Didier Blanchet, Antoine Bozio, Simon Rabate, Muriel Roger, Julie Tréguier, *Luc Behaghel, Eve Caroli, Thierry Debrand, Ronan Mahieu, Louis-Paul Pelé, Corinne Prost, Melika Ben Salem, Emmanuelle Walraet*
- **Germany**: Axel Börsch-Supan, Nicolas Goll, Johannes Rausch, *Tabea Bucher-Koenen, Irene Ferrari, Hendrik Jürges, Simone Kohnz, Giovanni Mastrobuoni, Reinhold Schnabel, Morten Schuth, and Lars Thiel*
- **Italy**: Agar Brugiavini, Raluca Elena Buia, Giacomo Pasini, Guglielmo Weber, *Franco Peracchi*
- **Japan**: Takashi Oshio, Akiko Oishi, Satoshi Shimizutani, *Mayu Fujii, Emiko Usui, and Naohiro Yashiro*
- **Netherlands:** Arie Kapteyn, Adriaan Kalwij, *Klaas de Vos*
- **Spain**: Pilar Garcia-Gomez, Silvia Garcia-Mandico, Sergi Jimenez-Martin, Judit Vall-Castello, *Michele Boldrín, and Franco Peracchi*
- **Sweden**: Lisa Laun, Marten Palme, *Per Johansson, Ingemar Svensson*
- **UK**: James Banks, Carl Emmerson, David Sturrock, *Richard Blundell, Antonio Bozio, Paul Johnson, Costas Meghir, Sarah Smith, Gemma Tetlow*
- **US**: Courtney Coile, Susan Stewart, *Peter Diamond, Jonathan Gruber, Kevin Milligan, David Wise*

# Striking Rise in Men's Employment Since Mid-1990s (U-Shape)

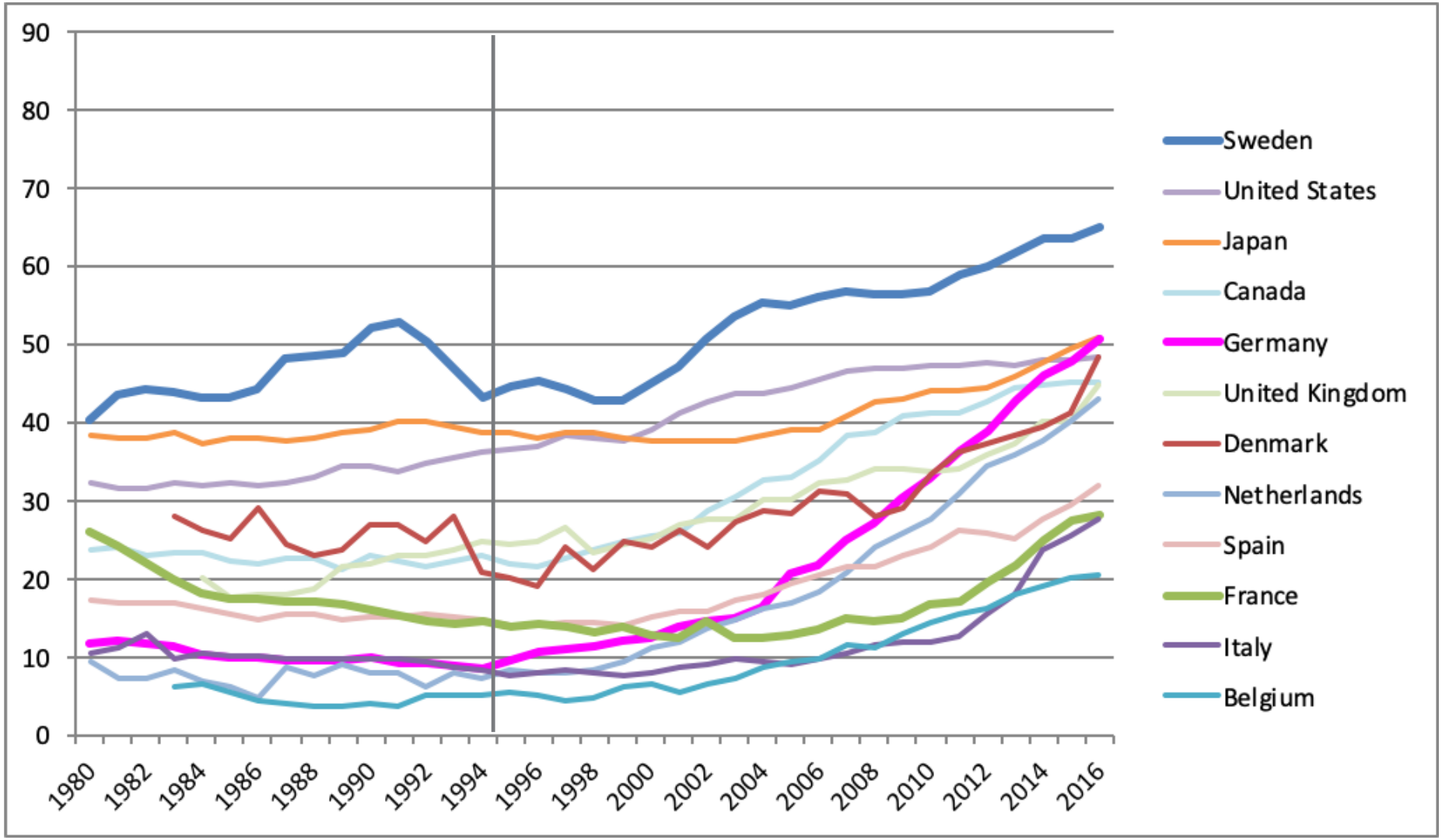
**Employment rates, Men Ages 60 to 64, 1980-2016**




Source: Börsch-Supan and Coile (In Press), *Social Security and Retirement Around the World: Reforms and Retirement Incentives*

# Striking Rise in Women's Employment (Continuous)

## Employment rates, Women Ages 60 to 64, 1980-2016




Source: Börsch-Supan and Coile (In Press), *Social Security and Retirement Around the World: Reforms and Retirement Incentives*

# Overview of This Paper

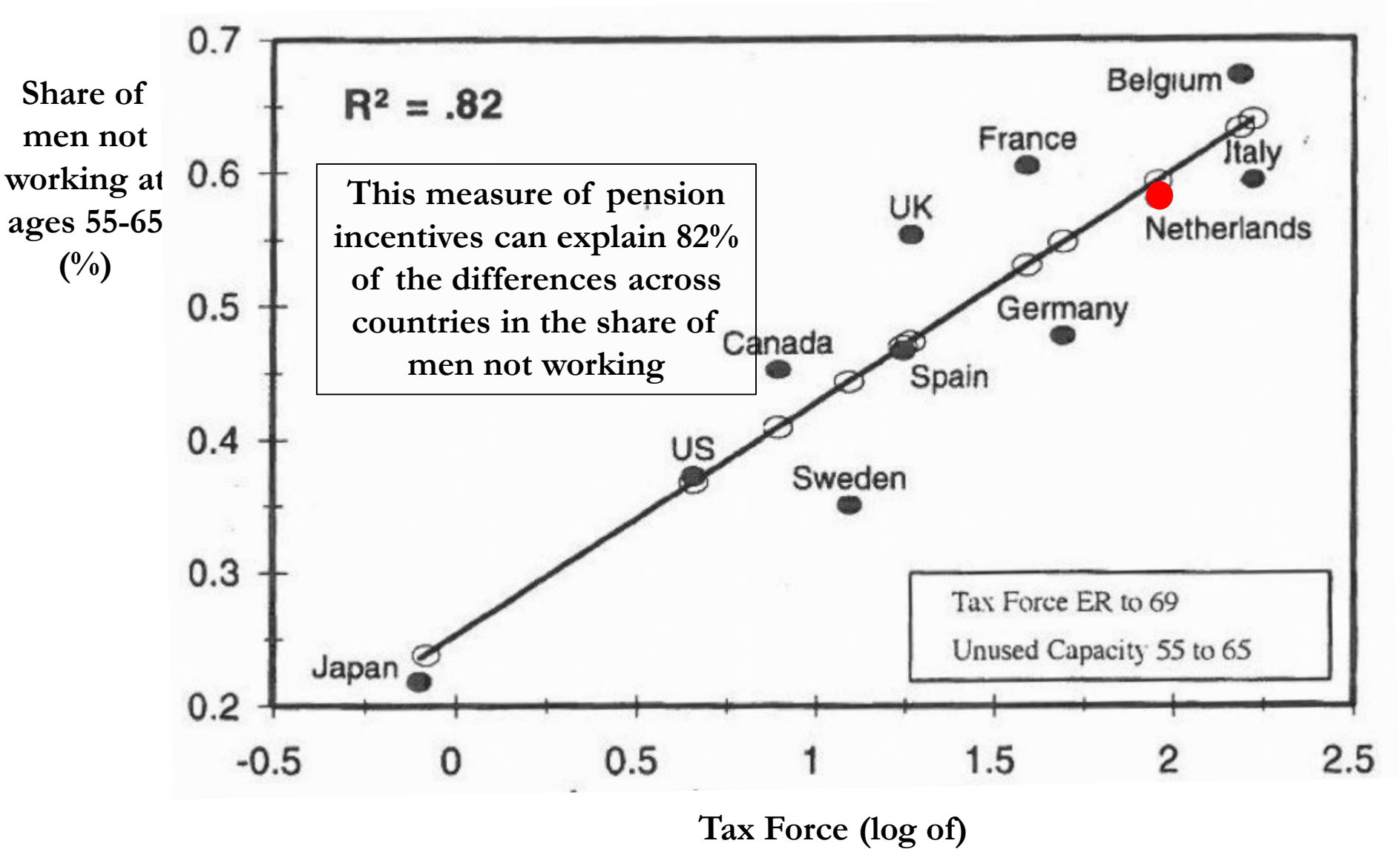
- Goal: Examine **lessons learned from a long-term international collaboration** that studies the effects of public pensions on retirement & other issues relevant to an other workforce

- **10 phases** – and 120 country studies – so far (ISS1-10)

- Main theme: **strength of the relationship between policy provisions, work incentives, and behavior**

# Lesson 1: Financial Incentives Affect Retirement Decisions

# ISS1: Cross-Country Differences



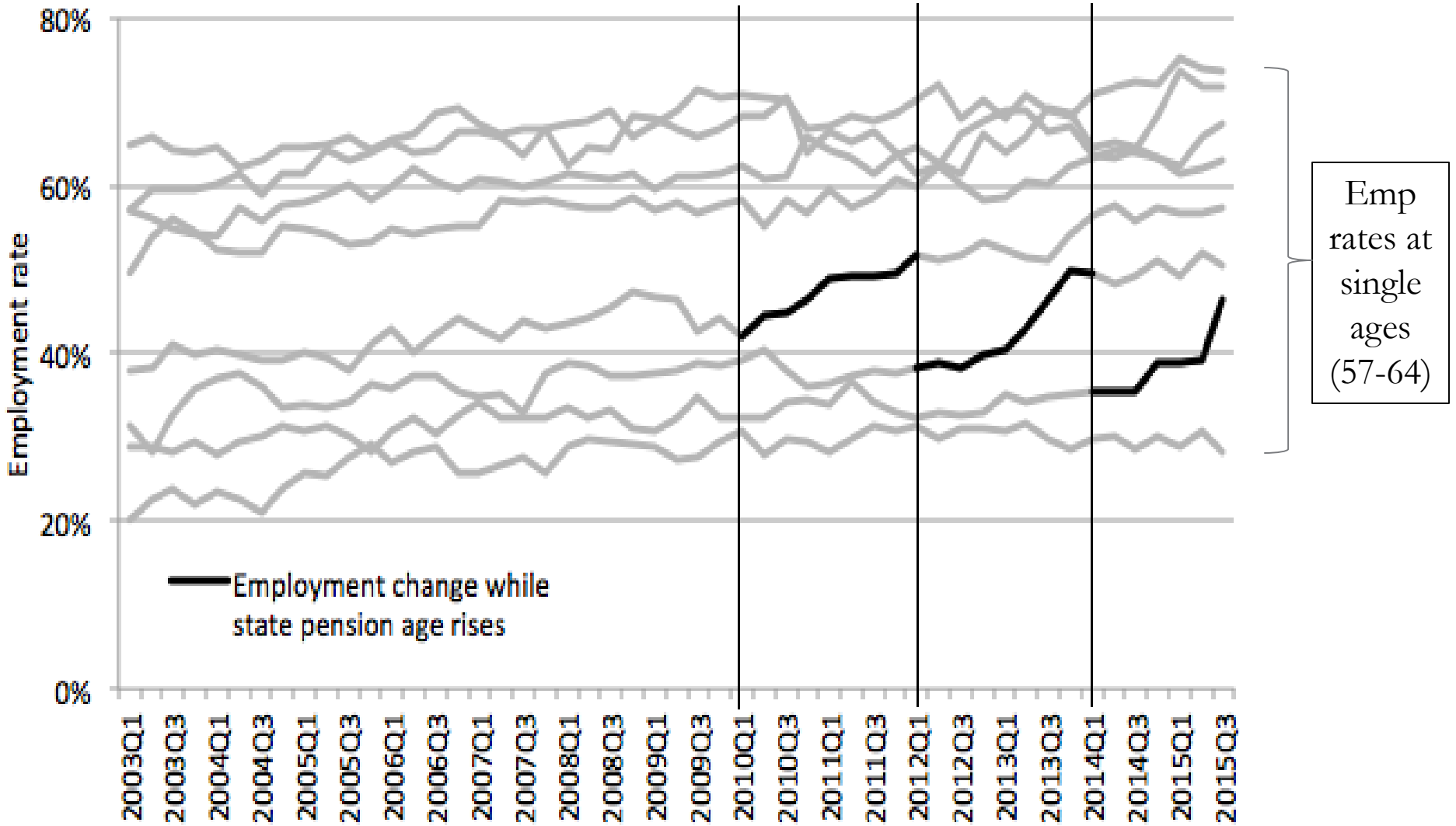

Source: Gruber and Wise (1999), *Social Security and Retirement Around the World*

# ISS2: Country-Specific Cross-Sectional Regressions

- Approach:
  - Incentive measures: one-year accrual (ACC), "peak value" (PV), or "option value" (OV) (accrual effects); SSW (wealth effects)
  - Include rich controls for current & lifetime earnings, to isolate variation arising from non-linearities in benefit formula, etc.

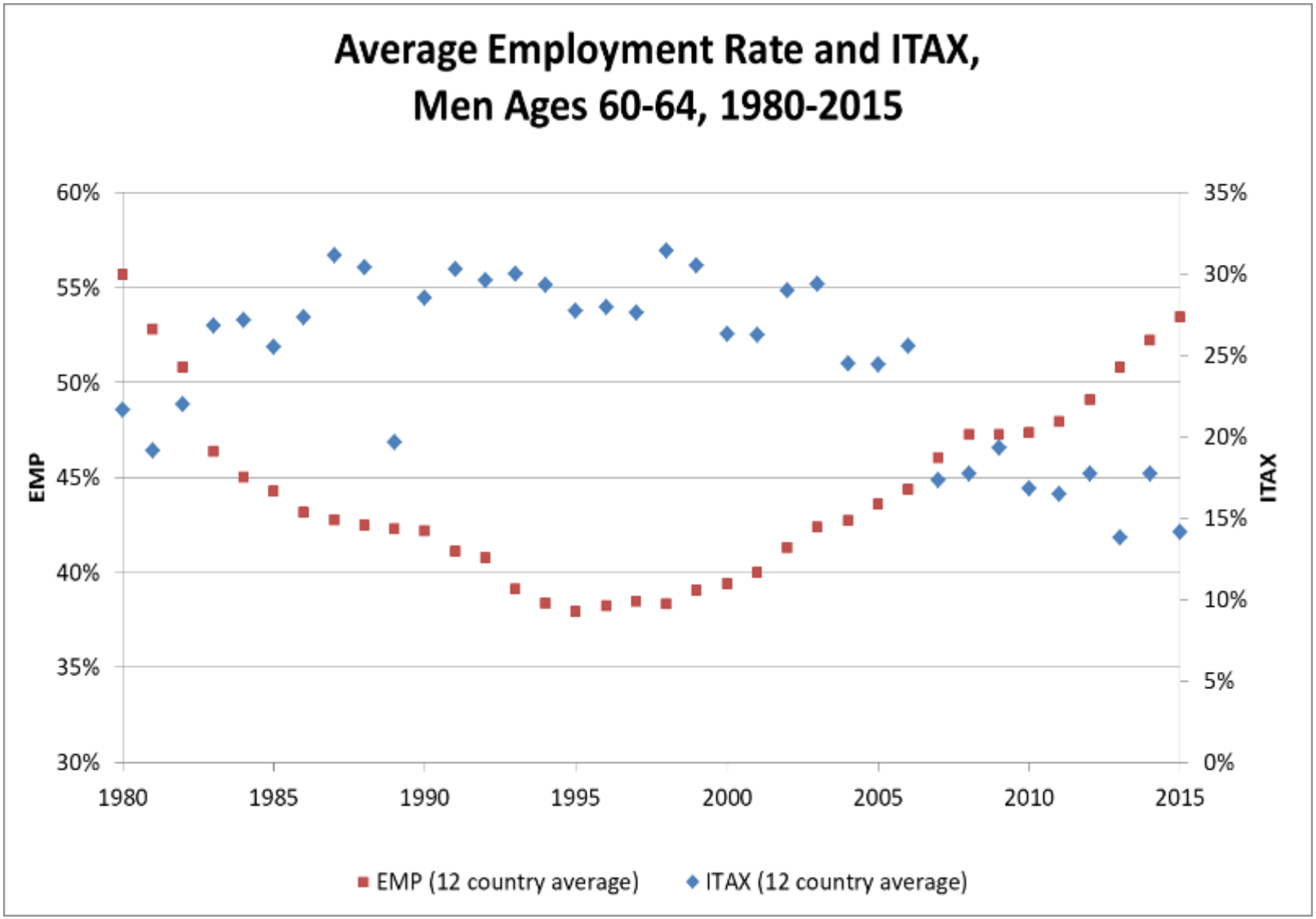
- Results:
  - ACC/PV/OV coefficients **negative & statistically significant in 10/12 countries**; magnitudes vary but large in all countries

# ISS8: Country-Specific Case Studies of Reform (UK)




Source: Banks and Emmerson, in Coile, Milligan, and Wise (2020), *Social Security and Retirement Around the World: Working Longer*

# ISS9: Time-Series Variation




Source: Börsch-Supan and Coile (In Press), *Social Security and Retirement Around the World: Reforms and Retirement Incentives*

# ISS9: Time-Series and Panel Variation

**Table 1: Country-Specific and Pooled Regressions of Employment Rates on Implicit Taxes, ISS Countries, 1980-2015**

| | Men | | Women | |
|---|---|---|---|---|
| | **Age 60-64** | **Age 65-69** | **Age 60-64** | **Age 65-69** |
| | Coeff | Coeff | Coeff | Coeff |
| **Country-Specific Regressions** | | | | |
| Belgium | **-0.043** | **-0.016** | **-0.049** | -0.001 |
| Canada | **-1.437** | **-0.435** | **-1.335** | **-0.397** |
| Denmark | **-0.446** | **0.076** | **-0.746** | -0.012 |
| France | **-0.120** | **-0.016** | **-0.043** | -0.003 |
| Germany | **-0.914** | -0.038 | **-0.461** | -0.020 |
| Italy | **0.150** | **0.119** | 0.007 | **0.044** |
| Japan | **-0.227** | 0.000 | -0.023 | 0.029 |
| Netherlands | **-0.534** | | | |
| Spain | **0.161** | 0.007 | 0.012 | **0.059** |
| Sweden | **-1.293** | **0.141** | **-0.358** | **0.109** |
| UK | -0.045 | **0.077** | **0.130** | **0.264** |
| US | **11.520** | **-0.359** | **11.078** | **-0.239** |
| **Panel Regressions** | | | | |
| All | **-0.067** | **-0.018** | **-0.046** | -0.003 |

Notes: ITAX is stratified by education, creating 3 observations per year. Data for the Netherlands is available for males age 60-64 only. Panel regressions include country fixed effects. Values in bold are statistically significant at the 10% level.

Source: Börsch-Supan and Coile (In Press), *Social Security and Retirement Around the World: Reforms and Retirement Incentives*

# Lesson 2: Policy Decisions Affect Incentives

# Pension Parameters Set by Policy Makers

- Old age pension program:
  - Eligibility age (early/normal retirement ages)
  - Benefit formula (# of years of earnings, indexing of past earnings, conversion of earnings to benefits)
  - Actuarial adjustment for delayed claiming
  - Earnings test
  - Post-claim indexation
- Other programs used as pathways to retirement:
  - May include: DI, UI, early retirement, occupation pensions
  - Eligibility criteria (different for older workers?)
  - Benefits
  - Duration limits

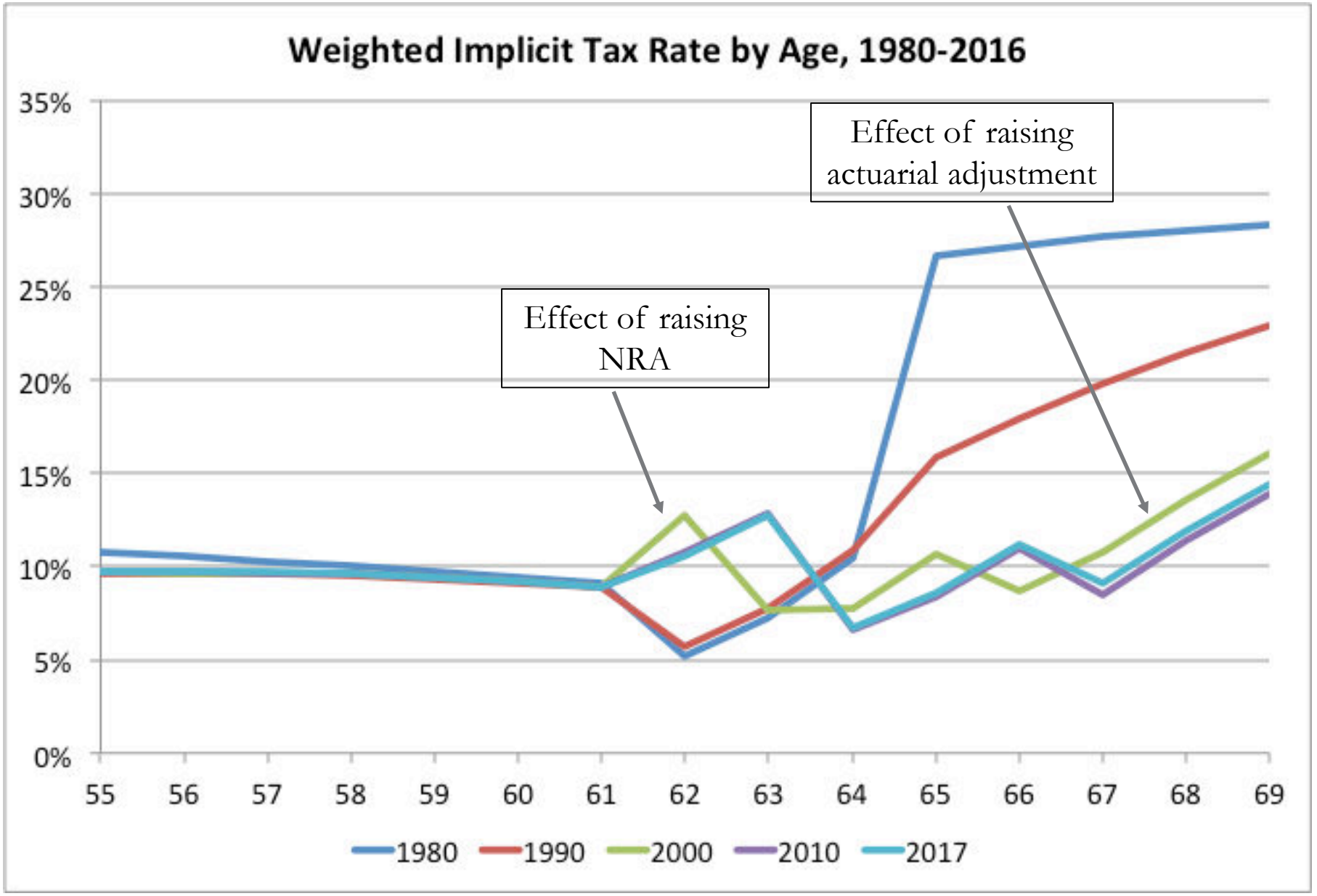
# ISS9: Frequent Reforms, Most Strengthen Work Incentives

**Table 1: Pension Reform Implementation, by Type and Country**

| Type of Reform | Belgium | Canada | Denmark | France | Germany | Italy | Japan | Netherlands | Spain | Sweden | UK | US | Total # Countries |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Old Age Pension** | | | | | | | | | | | | | |
| Lower early eligibility age (EEA) | | 1987 | | 2003 | | | | | 2002 | | | | 3 |
| Raise EEA-women | 1991 | | | | 2012 | | 1987-1999, 2006-2018 | | | | 2010- | | 4 |
| Raise EEA-all | 2013-18 | | 2015 | 2010-2015 | 2006-2012 | 1996-2011 | 2001-2013 | 2013- | 2011 | | 2018- | | 9 |
| Lower statutory elig age (SEA) | | | 2005-06 | | | | | | | | | | 1 |
| Raise SEA-women | 1997-2009 | | | | | 2012 | 1987-1999, 2018-2030 | | | | 2010- | | 4 |
| Raise SEA-all | | | 2015 | 2010-2015 | 2012-2029 | 1994-2000, 2003-2012 | 2013-2025 | 2013- | 2013 | | 2018- | 2003-2008 | 9 |
| Lower min yrs for early claiming | | | | 1983 | | | | | | | | | 1 |
| Raise min yrs for early claiming | 1997-2005, 2013-2019 | | | 1993-2003, 2014 | | 2011- | | | | | | | 3 |
| Introduce partial retirement | | | | | 1992, 1996 | | | | | | | | 1 |
| Raise benefit generosity | | 1980s, 2006-07, 2016 | | | 1984, 2014, 2018 | | | | | | 2002, 2007, 2011 | | 3 |
| Lower benefit generosity | 1996, 1997-2009, 2012 | 1997-99 | | 1993 | 1992, 2001, 2004 | 1993 | 1986-2006 | 2000s | 1997, 2011, 2013 | | 1980, 1986, 1995 | | 9 |
| Weaken actuarial adjustment | 1991, 2015 | | | 2003 | 1992 | | | | 1997, 2007 | | | | 4 |
| Strengthen actuarial adjustment | 2007 | 2011-16 | 1999 | 2003, 2005 | 1996-2010 | | 2005 | 1990s | 2002, 2007 | | | 1990-2008 | 9 |
| Strengthen earnings test | | | | | | | 2002, 2005 | | | | | | 1 |
| Weaken earnings test | | | | 2009 | 1992 | | 1989, 1995, 2005 | | 2002 | | 1989 | 1990, 2000 | 6 |
| Notional DC | | | | | | 1995-2032 | | | | 1998 | | | 2 |
| **Other Pathways** | | | | | | | | | | | | | |
| Strengthen non-SS early ret | 1984 | | 1987, 1992, 1994, 1999 | 1995 | 2014 | | | | | | | | 4 |
| Weaken non-SS early ret | 1986-1987, 2008, 2012, 2015 | | 1996, 1999, 2006, 2012 | 1983, 1994, 2003, 2011 | 1996 | 1996-2008, 2012- | | 2006 | | | | | 6 |
| Strengthen DI | | | 1984 | | 2012, 2014, 2018 | | | | | | | | 2 |
| Weaken DI | | | 2003 | | 1984, 2000 | | | 1985, 1990s, 1998, 2002, 2004, 2006 | 1985, 1997, 2004-05 | 1991, 1997, 2003, 2008 | 1995, 2008-2010, 2011, 2016 | | 6 |
| Strengthen UI | 1985, 1989, 1996 | | | 1984-2009 | 1984-87, 2008 | | | | 1984, 1989, 2002 | | | | 4 |
| Weaken UI | 2004, 2012, 2015 | | | 2012 | 1997, 2002, 2005 | | | 2004, 2006 | 2012 | | | | 5 |

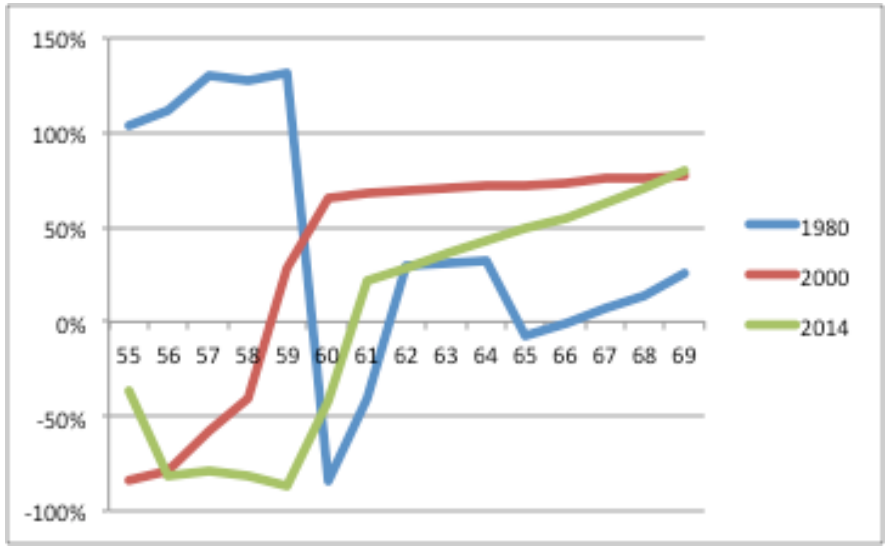
Source: Börsch-Supan and Coile (In Press), *Social Security and Retirement Around the World: Reforms and Retirement Incentives*

# ISS9: How Reforms Affect Implicit Tax -- US Case

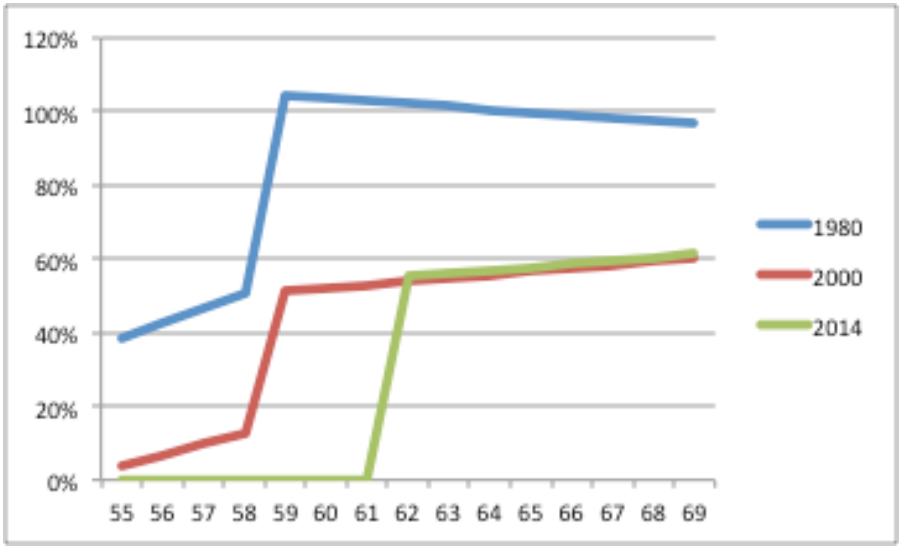


# ISS9: Effect of Reforms on ITAX, Men 60-64, Select Countries

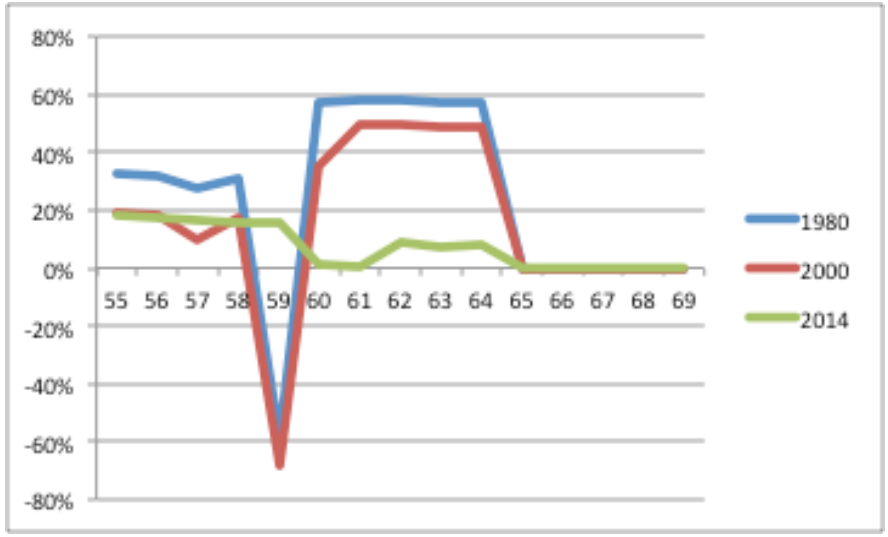
France



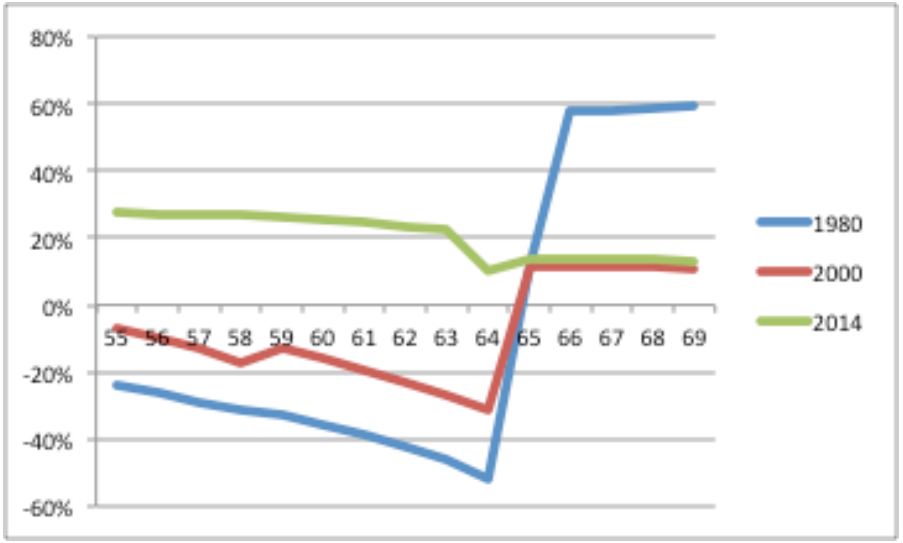

Italy




Netherlands




UK

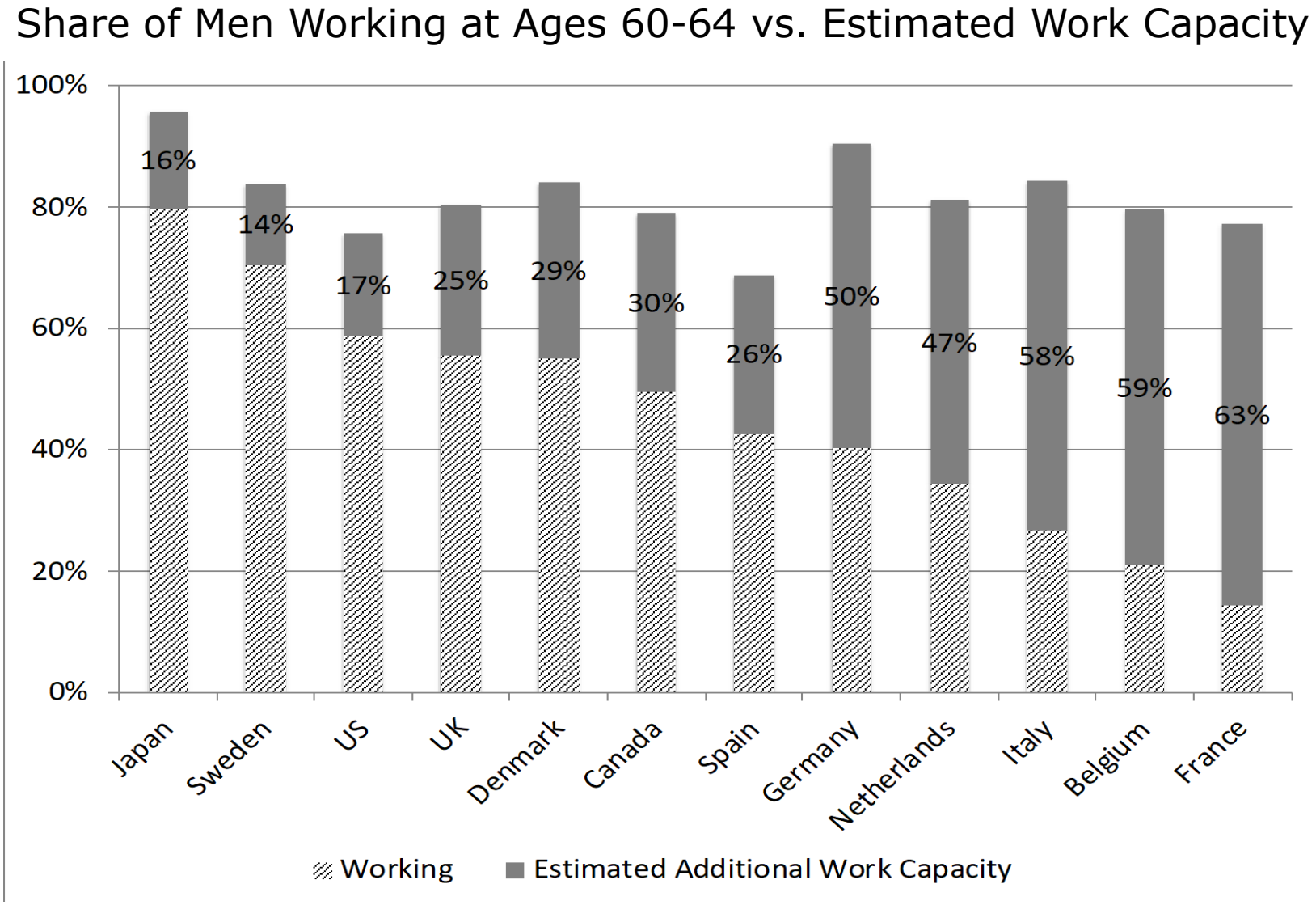


# Lesson 3: Policy Decisions Reflect Societal Concerns

# Policy Decisions May Reflect Multiple Priorities

- ISS4: Youth unemployment
  - Policies to promote longer work lives may make it harder for younger workers to find jobs ("lump of labor" theory)
  - Multiple methods: cross-country variation in ITAX and youth employment; case studies of pension reform; panel regressions of youth employment on older employment
  - "The overwhelming weight of the evidence, as well as the evidence from each of the several different methods of estimation, is contrary to the boxed economy proposition."
- ISS7: Health capacity of older workers
  - Policies to promote longer work lives may harm those who are too sick to work longer (if not protected by DI)
  - Methods: if workers today worked as much as workers in the past (1) or younger workers (2) in similar health, how much more would they work?

# ISS7: Work Capacity, Men 60 to 64




Source: Wise (2017), *Social Security and Retirement Around the World: The Capacity to Work at Older Ages*

# Conclusions from the ISS Project

- Lesson 1: Financial Incentives Affect Retirement
  - Finding is remarkably consistent across methods:
    - Cross-country differences at a point in time (ISS1)
    - Within-country variation across individuals (ISS2,ISS6)
    - Reform-driven variation in incentives within and across countries over time (ISS9,ISS10)
- Lesson 2: Policy Decisions Affect Incentives
  - Choices about actuarial adjustment, etc. affect incentives (ISS1)
  - Recent reforms have strengthened incentive to work (ISS9)
- Lesson 3: Policy Decisions Reflect Societal Concerns
  - Policy makers may be reluctant to promote later retirement due to concerns about youth employment (ISS4) or health (ISS7)

# Conclusions from the ISS Project

"The results leave no doubt that **social security incentives have a strong effect on retirement decisions**, and the estimates show that the effect is **similar in countries with very different cultural histories, labor market institutions, and other social characteristics**."

-- Gruber and Wise (ISS2, 2004)

"Overall, our findings in this volume support the hypothesis that social security **reforms over the past several decades have strengthened the incentives for work** at older ages, and that the resulting increase in the financial incentive to work at older ages **contributed to the rise in employment** at older ages during this period."

-- Börsch-Supan and Coile (ISS9, In Press)

Thank you!