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A life-cycle model of trans-Atlantic employment experiences ☆

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ABSTRACT

To understand trans-Atlantic employment experiences since World War II, we build an overlapping generations model with two types of workers (high school and college graduates) whose different skill acquisition technologies affect their career decisions. Search frictions affect short-run employment outcomes. The model focuses on labor supply responses near beginnings and ends of lives and on whether unemployment and early retirements are financed by personal savings or public benefit programs. Higher minimum wages in Europe explain why youth unemployment has risen more there than in the U.S. Turbulence, in the form of higher risks of human capital depreciation after involuntary job destructions, causes long-term unemployment in Europe, mostly among older workers, but leaves U.S. unemployment unaffected. The losses of skill interact with workers' subsequent decisions to invest in human capital in ways that generate the age-dependent increases in autocovariances of income shocks observed by Moffitt and Gottschalk (1995).

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1. Introduction

Before the 1970s, unemployment rates were significantly lower in Europe than in the U.S., but after the 1970s, Europe suffered persistently higher unemployment than the U.S. These aggregate outcomes conceal important differences over life cycles of European and American workers. Fig. 1 displays the unemployment rate and the employment-to-population ratio at different ages for men in France and the U.S. in 1970 and 2004.[1] We include the employment-to-population ratio because many workers who collect government provided disability insurance and early retirement payments are probably unemployed rather than unable to work (see OECD, 2003, chap. 4). We shall call these people unemployed. Most

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[1] See also Rogerson (2006) who reports the employment-to-population ratio for both men and women in the U.S. and several European countries in 2003. Except for Italy with its lower female labor market participation, the same picture emerges as in our Fig. 1 where the prime-age European population of age 30 through 50 has very similar participation rates to those of the U.S. population.

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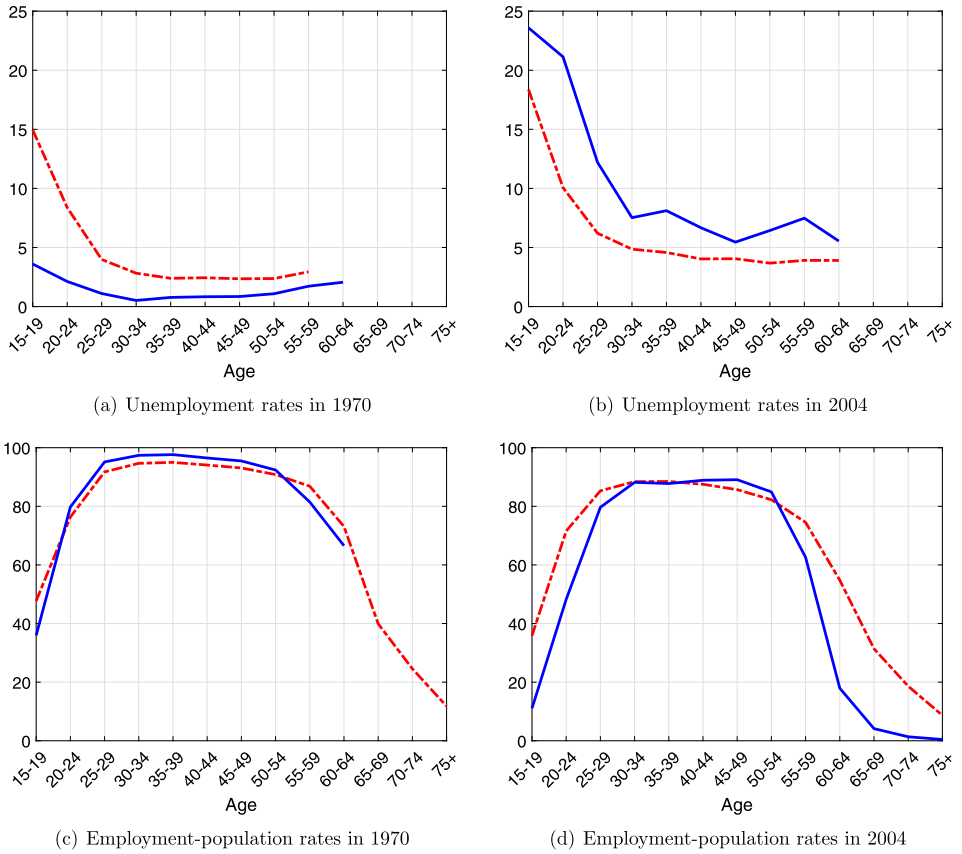

(a) Unemployment rates in 1970

(b) Unemployment rates in 2004

(c) Employment-population rates in 1970

(d) Employment-population rates in 2004

Fig. 1. Male unemployment and employment–population rates in percent and by age in France (solid lines) and the U.S. (dashed lines), respectively, in 1970 (left panels) and 2004 (right panels). Source: OECD (by courtesy of Robert Shimer).

macro-labor analyses of trans-Atlantic employment experiences in the tradition of matching models (e.g., Mortensen and Pissarides, 1999) and also in frictionless representative household models (e.g., Prescott, 2005) ignore life cycle dynamics.

This paper constructs a heterogeneous-agent life-cycle model that fits cross-time and cross-continent differences in employment by age while preserving a string of quantitative successes achieved by earlier macro-labor studies. Our model makes contact with data on life-cycle profiles of asset holdings, consumption, and earnings as well as age-dependent flows into and out of unemployment.[2] It does this while incorporating mechanisms from earlier work by Mortensen and Pissarides (1999) and Ljungqvist and Sargent (2008) that portray situations in which government-imposed layoff costs that suppress frictional unemployment can offset some of the unemployment increases caused by generous unemployment benefits.[3]

To explain trans-Atlantic employment outcomes, this paper extends Ljungqvist and Sargent's (1998, 2008) studies of the consequences of microeconomic 'turbulence'. Bertola and Ichino (1995) and Ljungqvist and Sargent (1998) argued that the outbreak of high European unemployment around 1980 was connected to Gottschalk and Moffitt's (1994) finding that the instability of earnings of U.S. workers increased between the 1970s and the 1980s. Bertola and Ichino (1995) interpreted greater earnings instability as reflecting more volatile local demand shocks and showed how a rigid wage and high layoff costs in Europe would lead to higher unemployment in a model with homogeneous workers. In contrast, Ljungqvist and Sargent (1998, 2008) imputed some increased earnings variability to shocks to workers' human capital and showed how generous unemployment benefits in Europe would generate high long-term unemployment among workers who had lost human capital after their most recent layoff. Instead of Ljungqvist and Sargent's learning-by-doing technol-

[2] For two related life-cycle models of unemployment, see Hairault et al. (2010) and Low et al. (2010) who attribute elevated old-age unemployment to benefit programs that are available only to older workers.

[3] This paper continues our efforts to explore the robustness of outcomes reported in Ljungqvist and Sargent (1998, 2008) to the inclusion of absent features whose inclusion referees and discussants of those earlier papers had suggested would attenuate or eradicate the main forces driving our outcomes. Those omitted features included risk-averse workers who want to smooth consumption by saving, firms with non-trivial entry–exit choices, a Ben-Porath technology for human capital investments, and wage and interest rates that are determined as in a standard growth model. Earlier papers Ljungqvist and Sargent (2007a, 2007b) established robustness in some settings but not others.

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