The European Unemployment Dilemma

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Facts (1)

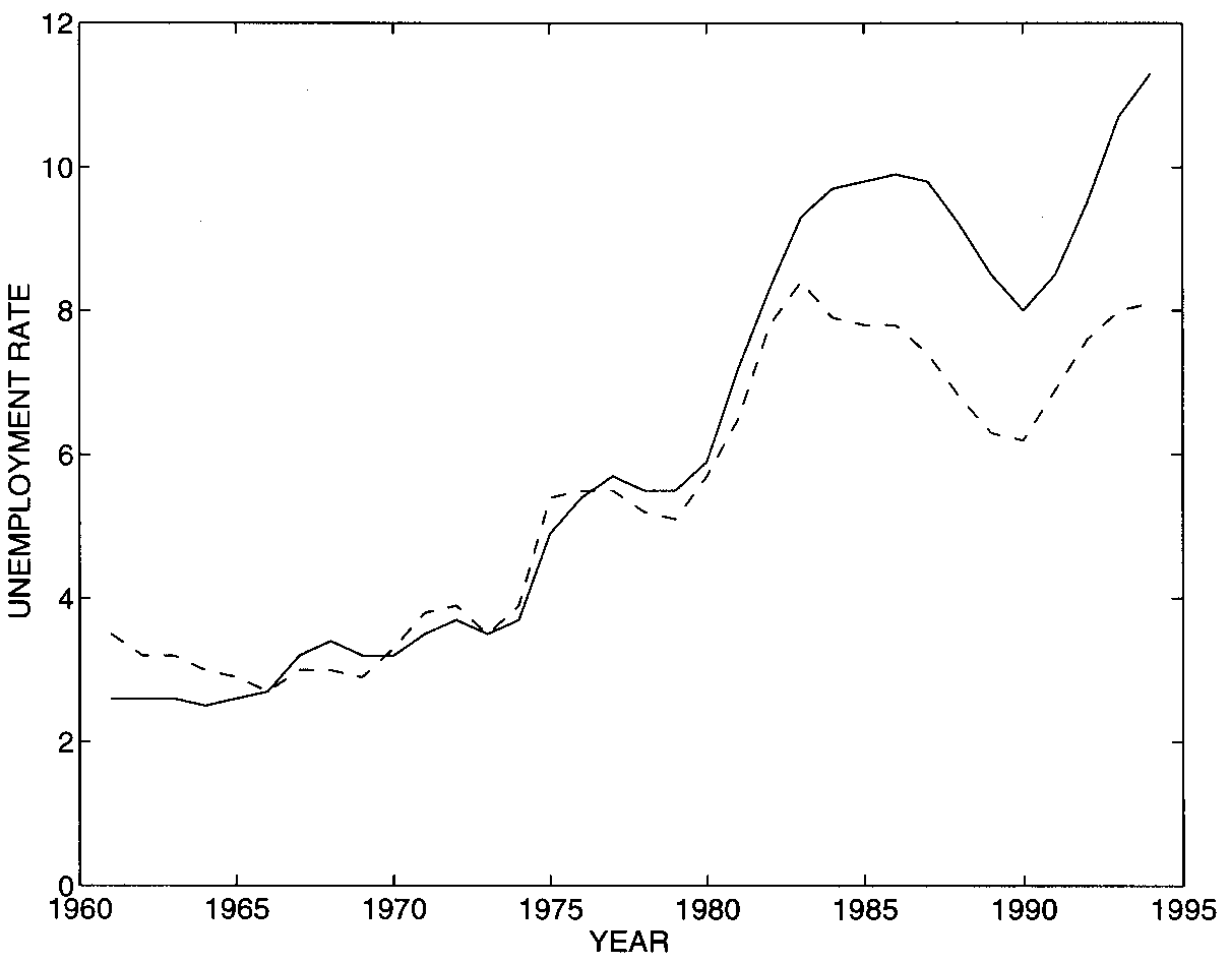

FIG. 1.—Unemployment rate in OECD as a percentage of the labor force. The solid line is unemployment in the European OECD countries, and the dashed line is unemployment in the total OECD. Data for 1961–77 are taken from *Labour Force Statistics* (1984), and data for 1978–94 are taken from *Employment Outlook* (1995).

Facts (2)

Unemployment and Long-Term Unemployment in OECD

	Unemployment (%)			Long-Term Unemployment of 6 Months and Over*			Long-Term Unemployment of 1 Year and Over*			
	1974–79 (1)	1980–89 (2)	1995 (3)	1979 (4)	1989 (5)	1995 (6)	1970 (7)	1979 (8)	1989 (9)	1995 (10)
Belgium	6.3	10.8	13.0	74.9	87.5	77.7	. . .	58.0	76.3	62.4
France	4.5	9.0	11.6	55.1	63.7	68.9	22.0	30.3	43.9	45.6
Germany†	3.2	5.9	9.4	39.9	66.7	65.4	8.8	19.9	49.0	48.3
Netherlands	4.9	9.7	7.1	49.3	66.1	74.4	12.2	27.1	49.9	43.2
Spain	5.2	17.5	22.9	51.6	72.7	72.2	. . .	27.5	58.5	56.5
Sweden	1.9	2.5	7.7	19.6	18.4	35.2	. . .	6.8	6.5	15.7
United Kingdom	5.0	10.0	8.2	39.7	57.2	60.7	17.6	24.5	40.8	43.5
United States	6.7	7.2	5.6	8.8	9.9	17.3	. . .	4.2	5.7	9.7
OECD Europe	4.7	9.2	10.3	. . .	. . .	. . .	. . .	31.5	52.8	. . .
Total OECD	4.9	7.3	7.6	. . .	. . .	. . .	. . .	26.6	33.7	. . .

Source.—Cols. 1 and 2: OECD *Employment Outlook* (1991), table 2.7; col. 3: OECD *Employment Outlook* (1996), table 1.3; cols. 4 and 8: OECD *Employment Outlook* (1984), table H, except for the OECD aggregate figures, averages for 1979 and 1980, which are taken from OECD *Employment Outlook* (1991), table 2.7; cols. 5 and 9: OECD *Employment Outlook* (1992), table N, except for the OECD aggregate figures, which are taken from OECD *Employment Outlook* (1991), table 2.7; cols. 6 and 10: OECD *Employment Outlook* (1996), table Q; col. 7: OECD *Employment Outlook* (1983), table 24.

* Figures in cols. 4–10 are percentages of total unemployment.

† Except for the year 1995, the data refer only to the former West Germany.

The Economy

- a continuum of workers who are risk neutral
- unemployed workers search for the job
- search brings disutility $c(s)$ and prob $\pi(s)$ of receiving one wage offer from distribution $F(w)$
- employed workers face a probability (λ) of being laid off
- all workers face a probability (α) of dying every period
- all newborn workers begin with the lowest skill level
- both income from employment and unemployment compensation are subject to a income tax τ

The Economy (continue..)

- stochastic accumulation or deterioration of skills
  - $\mu_e(h, h')$: transition prob for employed worker
  - $\mu_u(h, h')$: transition prob for unemployed worker
  - $\mu_l(h, h')$: transition prob for a laid off worker
- unemployment compensations are a function of their last earnings: $b(I)$
  - laid off workers $\surd$
  - newborn workers
  - workers who quit jobs
  - workers who reject jobs offer with earnings greater than $I_g(I)$ ("suitable" earning level)

Employed Worker's problem

$$V(w,h) = \max_{accept,reject} \Bigg\{ (1-\tau)wh + (1-\alpha)\beta \Bigg[(1-\lambda) \sum_{h'} \mu_l(h,h') V(w,h') + \lambda \sum_{h'} \mu_l(h,h') V_b(wh,h') \Bigg], V_o(h) \Bigg\} \quad (1)$$

Unemployed Workers with Compensation Benefits

$$
\begin{aligned}
V_b(I,h) = \max_s \Big\{ & -c(s) + (1-\tau)b(I) \\
& + (1-\alpha)\beta \sum_{h'} \mu_u(h,h') \Big[[1-\pi(s)] V_b(I,h') \\
& + \pi(s) \Big(\int_{w \geq I_g(I)/h'} V(w,h') dF(w) \\
& + \int_{w < I_g(I)/h'} \max_{accept,reject} \Big\{ (1-\tau) w h' \\
& + (1-\alpha)\beta \Big[(1-\lambda) \sum_{h''} \mu_l(h',h'') V(w,h'') \\
& + \lambda \sum_{h''} \mu_l(h',h'') V_b(wh',h'') \Big], V_b(I,h') \Big\} dF(w) \Big) \Big] \Big\}
\end{aligned}
\tag{2}
$$

Unemployed Workers without Compensation Benefits

$$V_o(h) = \max_s \Big\{ -c(s) + (1-\alpha)\beta \sum_{h'} \mu_u(h,h') \Big[[1-\pi(s)] V_o(h') + \pi(s) \int V(w,h') dF(w) \Big] \Big\} \tag{3}$$

Government

The government choose unemployment compensation $b(I)$ and "suitable" earning level $I_g(I)$ and the tax parameter τ must be set so that income taxes cover the expenditures on unemployment compensation in an equilibrium.

Stationary Equilibrium

A *Stationary Equilibrium* is defined as a set of government policy parameters $(\tau, b(I), I_g(I))$, optimal policies $(\bar{s_o}(h), \bar{w_o}(h), \bar{s_b}(I,h), \bar{w_b}(I,h))$ for workers and time-invariant employment and unemployment distributions, such that

- given government's policies, workers' optimal policies solve workers' problems
- the associated time-invariant employment and unemployment distributions are consistent with workers' optimal deicisions
- government's budget constraint is satisfied

Result: steady states

STEADY-STATE VALUES FOR THE WELFARE STATE ECONOMY AND THE LAISSEZ-FAIRE ECONOMY

	Welfare State Economy	Laissez-Faire Economy
GNP per capita*	1.542	1.555
Average productivity of employed*	1.657	1.659
Average wage of employed	.879	.878
Average skill level in the population	1.876	1.880
Unemployment rate (%)	6.95	6.28
Average duration of unemployment (weeks)	13.3	11.8
Percentage of unemployed at a point in time with spells so far $\geq$ 6 months	12.6	9.8
Percentage of unemployed at a point in time with spells so far $\geq$ 12 months	1.3	.7
Discounted expected net consumption of a newborn worker†	577.2	580.2

* GNP and average productivity are computed for the 2-week period.
† The discounted stream of consumption is net of disutility of searching.

Result: reservation wages

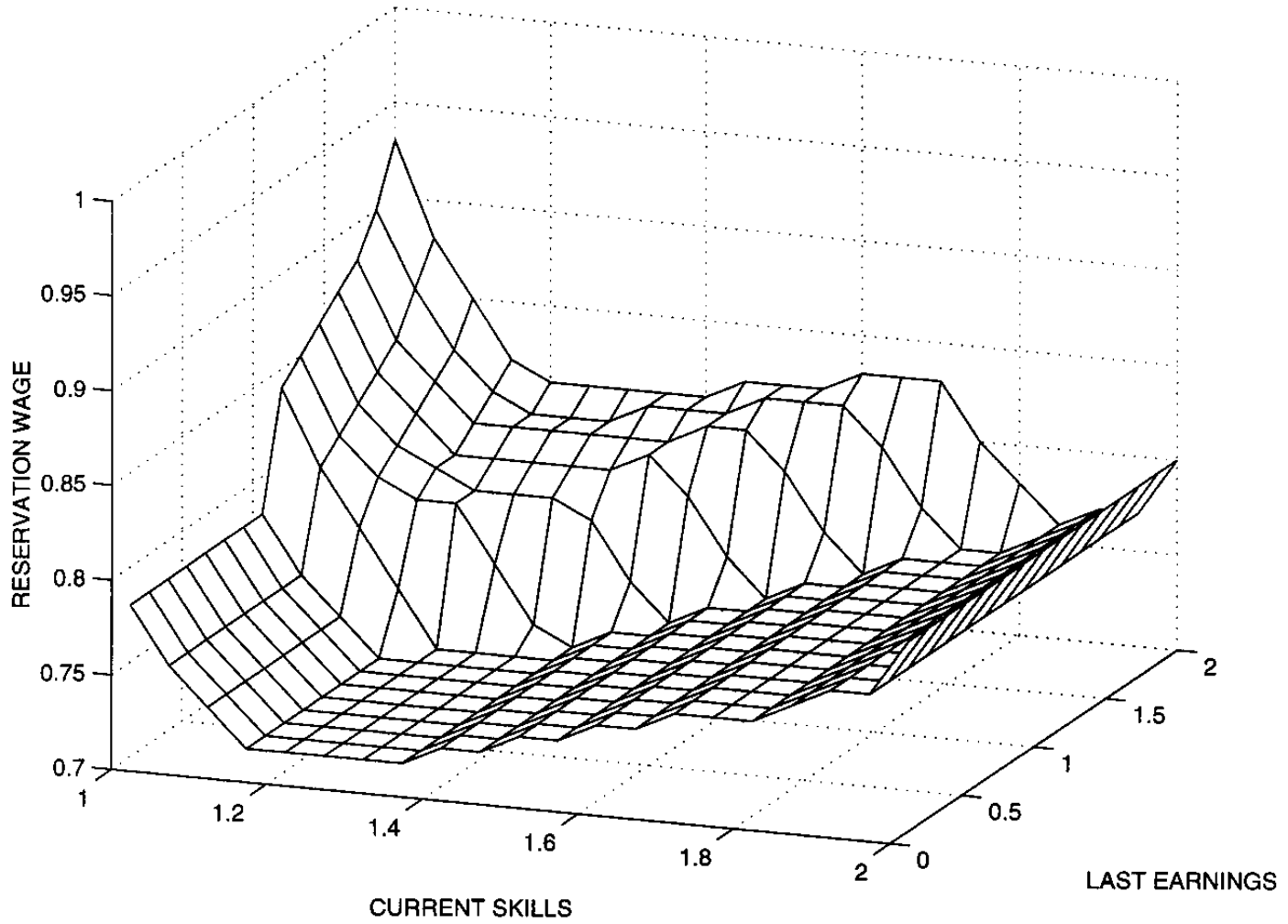

FIG. 4.—Reservation wages in the welfare state economy of unemployed workers with unemployment compensation. The reservation wages are drawn as a function of the unemployed workers' current skills and their last earnings before being laid off.

Result: search intensity

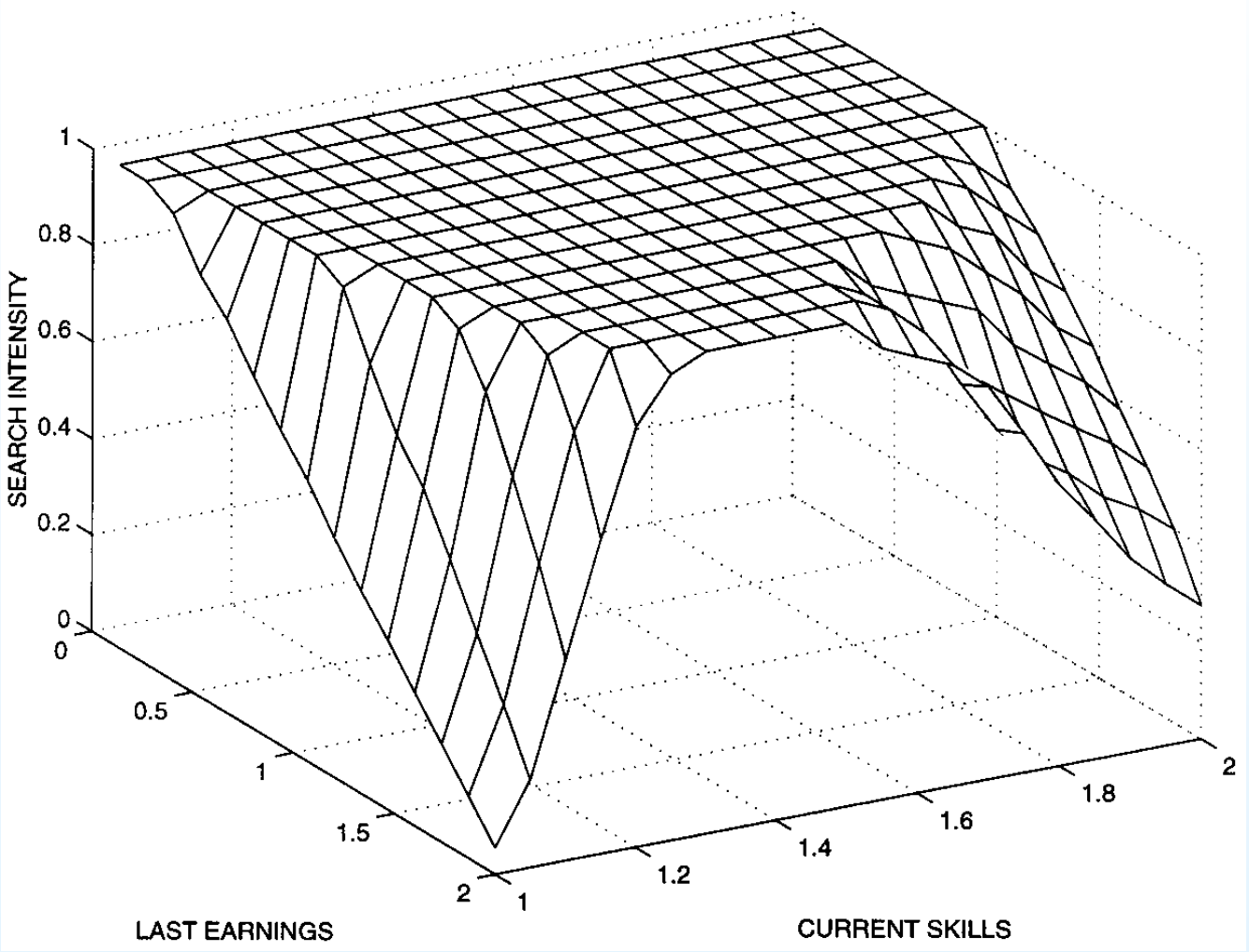

FIG. 5.—Search intensities in the welfare state economy of unemployed workers with unemployment compensation. The search intensities are drawn as a function of the unemployed's current skills and their last earnings before being laid off.

Result: reservation wages (2)

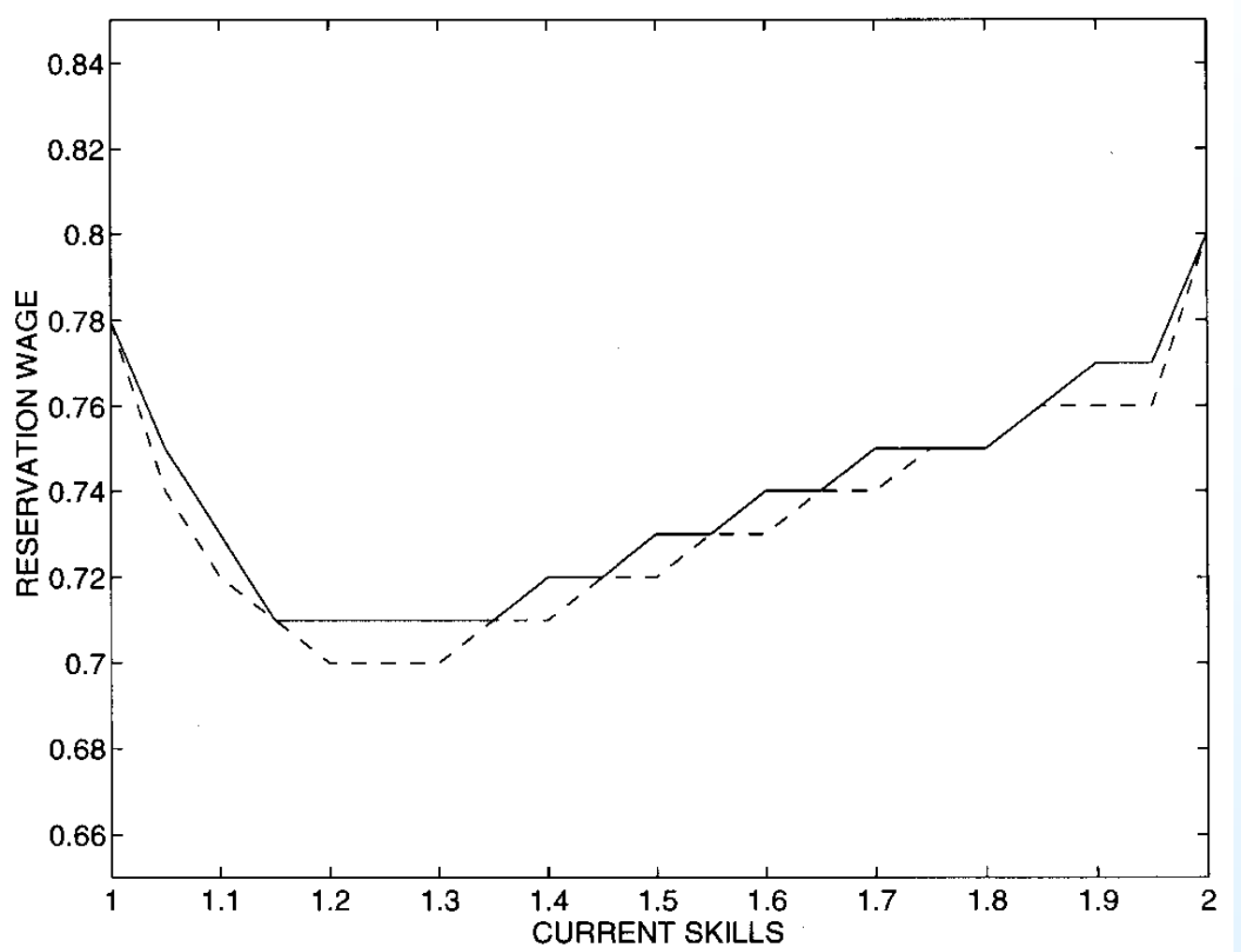

FIG. 6.—Reservation wages of unemployed workers without benefits drawn as a function of their current skills. The solid line describes the welfare state economy and the dashed line refers to the laissez-faire economy.

Skill distribution at layoffs

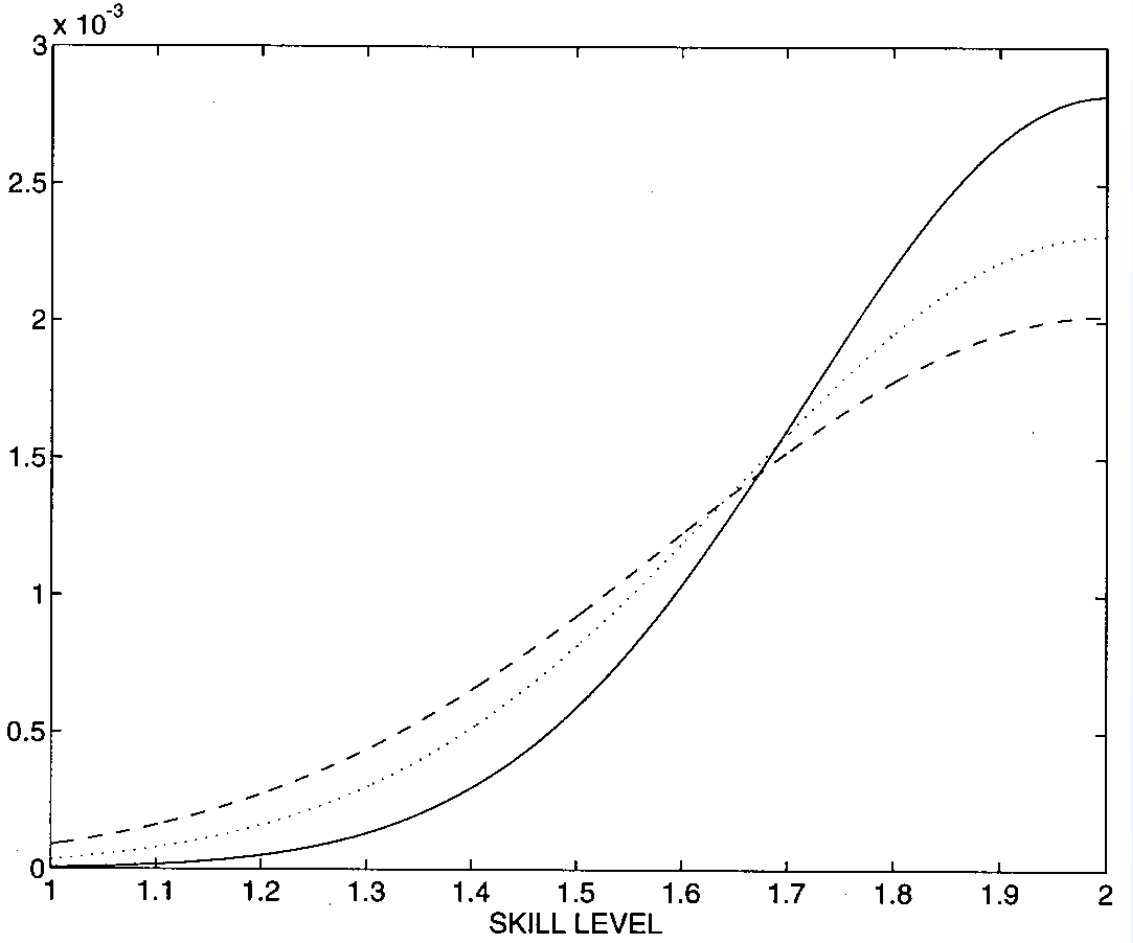

FIG. 13.—Probability distribution of a worker's skills immediately after a layoff. The range starts at the lowest skill level and ends at the worker's skill level before the layoff. The graph is drawn for a worker who had attained the highest skill level of two before the layoff. The solid line, dotted line, and dashed line refer to different degrees of economic turbulence indexed by variances .02, .03, and .04, respectively.

Result: persistent economic turbulence

	Degree of Economic Turbulence*			
	0	.02	.03	.04
Tax rate (%): Welfare state	2.85	3.88	5.66	11.69
Average productivity of employed:†				
Welfare state	1.657	1.562	1.531	1.507
Laissez-faire	1.659	1.552	1.520	1.496
Unemployment rate (%):				
Welfare state	6.95	7.13	8.84	14.87
Laissez-faire	6.28	5.81	5.77	5.73
Average duration of unemployment (weeks):				
Welfare state	13.3	13.7	17.5	31.8
Laissez-faire	11.8	10.6	10.6	10.7
Percentage of unemployed at a point in time with spells so far $\geq$ 6 months:				
Welfare state	12.6	18.2	34.9	63.1
Laissez-faire	9.8	8.2	8.3	8.5
Percentage of unemployed at a point in time with spells so far $\geq$ 12 months:				
Welfare state	1.3	5.8	23.5	55.6
Laissez-faire	.7	.6	.6	.6
Discounted expected net consumption of a newborn worker:‡				
Welfare state	577.2	544.4	525.6	486.1
Laissez-faire	580.2	549.6	540.3	533.5