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POOLED CROSS-SECTION TIME-SERIES EXAMINATION OF THE EFFECTS OF UNEMPLOYMENT INSURANCE COMPENSATION ON UNEMPLOYMENT RATE AND UNEMPLOYMENT DURATION

Evidence from State Data

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The main objective of this paper is to determine if there is a work disincentive effect associated with the Unemployment Insurance Compensation (UIC) program. We test our hypothesis that there is quite possibly a work disincentive effect which would result in higher rates of insured unemployment or longer average durations of insured unemployment (or both) in states with more generous UIC programs (because higher levels of UIC reduce the cost of remaining unemployed) using data for 18 years (from 1966 to 1983, the latest year for which data is available) for all of the 50 states. We conclude from our empirical results that a work disincentive effect exists.

1. Introduction

The Unemployment Insurance Compensation (UIC) system in the United States began in essence in 1932, during the Great Depression. Since then UIC has increased in scope such that now almost 98% of wage and salary workers are covered by the UIC program. The purpose of this paper is to investigate to what degree there might be a work disincentive effect due to UIC program.

Some critics of the UIC point to the possible work disincentive aspects of such a program. Evidence has been presented by Feldstein and Poterba (1984) concerning the positive relationship between UI benefit levels and reservation wages of unemployed individuals receiving UI benefits. They conclude that (p. 141) '... reducing net unemployment insurance benefits (by lowering gross benefits or by taxing unemployment benefits) could significantly lower the average duration of unemployment and the relative number of long duration spells of unemployment'.

Hamermesh (1979) argues that since UIC reduces the risks of labor market participation, it may increase labor force participation rates. However, Hamermesh's analysis indicates that this so-called 'entitlement' effect is almost exactly cancelled out by the work disincentive effect. Chapin's (1971) results, based on data from 1962 to 1967, indicate that for each 10% increase in the UIC the expected increase in the average duration of insured unemployment would be less than half a week. We also pool the data, as Chapin did, but employ a covariance model enabling us to account for possible differences across cross-sectional and time-series units.

2. Data and methodology

The data used for all 50 states between years 1966 to 1983 was obtained from various issues of the *Social Security Bulletin: Annual Statistical Supplement*, and the *Statistical Abstract of the United States*. Following are our models:

$$INSUR\ UR = f(REP\ RATIO, PER\ MANU, \text{LN}PERINC, UNIONMEM), \quad (1)$$

$$AVG\ DURA = f(REP\ RATIO, PER\ MANU, \text{LN}PERINC, UNIONMEM, EXFRBENE), \quad (2)$$

where

INSUR UR = rate of unemployed workers covered by UIC program,
AVG DURA = average duration of *INSUR UR*,
REP RATIO = average weekly benefit as a percentage of average weekly wage,
PER MANU = percentage of all non-agricultural employment in the manufacturing,
LN*PERINC* = natural log of real per capita personal income,
UNIONMEM = union membership as a percentage of total non-agricultural employment, and
EXFRBENE = percentage of UI claimants who exhaust benefits.

REP RATIO (replacement ratio) is our measure of the level of UIC. It is a relative measure because it is the average weekly benefit expressed as a percentage of average weekly wage for each state in a given year; thus there is no need to adjust for inflation. *PER MANU* is included to account for differences across states in industrial composition and for changes in industrial composition over time. LN*PERINC* is included to account for the possible differences in educational level and work effort. *UNIONMEM* would be expected to be positively related with *INSUR UR* and *AVG DURA* due to the inherent tendency of union members to refuse (low-paid) non-union jobs if fired or laid off. The variable *EXFRBENE* is included to indicate the impact of re-employment services and the degree to which disqualification rules are enforced.

3. Results

OLS estimates of eqs. (1) and (2) along with appropriate cross-sectional and time-series dummies are presented in table 1. For the first model, with *INSUR UR* as the dependent variable, *REP RATIO* has a positive coefficient. Thus there seems to be a work disincentive effect. For each 10% increase in the *REP RATIO* there is an expected increase in the *INSUR UR* of 7/10ths of 1%. This is in accordance with the theory that UIC reduces the cost of remaining unemployed and hence that higher levels of UIC are associated with higher rates of insured unemployment. The variable *PER MANU* has an expected negative coefficient. This indicates that, all other things being equal, states with higher proportions of workers in the manufacturing sector will have lower rates of unemployment. This is also in agreement with the fact that for the years 1966 to 1983 the average proportion of workers in manufacturing has declined while the average rate of insured unemployment has increased.

The variable LN*PERINC* has a negative coefficient, as expected. States with higher real per capita personal income levels are assumed to have more industrious and educated workforces and hence have lower rates of unemployment. *UNIONMEM* is shown to have a positive effect on *INSUR UR*. More highly unionized states should have higher unemployment rates due to the nature of unions and the propensity of union members to refuse non-union jobs, where on average benefits are less, after being laid off or fired. The dummy variables are significant for the most part, and there

Table 1
Regression results.

Independent variables	Dependent variable			
	INSUR UR		*AVG DURA*	
	Parameter	*t*-value	Parameter	*t*-value
INTERCEP	29.62535	7.572	52.18034	7.241
REP RATIO	0.0766978	10.052	0.03221494	2.299
PER MANU	−0.187443	−13.490	−0.2137	−8.517
LN *PERINC*	−3.12262	−6.038	−5.00271	−5.272
UNIONMEM	0.03423237	2.816	0.006440427	0.294
EXFRBENE	–	–	0.1097604	14.860
*DUMMY*AL	3.13841	5.745	3.171717	3.218
*DUMMY*AZ	−2.56643	−8.205	−1.06198	−1.887
*DUMMY*AK	0.2028686	0.984	0.04702649	0.126
*DUMMY*CA	0.5833056	1.637	2.953947	4.579
*DUMMY*CO	−4.00612	−11.053	−2.74789	−4.213
*DUMMY*CN	1.978784	6.193	4.849326	8.427
*DUMMY*DE	0.5490659	1.985	3.343325	6.720
*DUMMY*FL	−3.17996	−9.053	−2.82701	−4.406
*DUMMY*GA	−1.1824	−5.343	−2.17468	−5.430
*DUMMY*HI	−4.33012	−8.810	0.4213834	0.476
*DUMMY*ID	−1.45095	−5.144	−2.30221	−4.534
*DUMMY*IL	0.1495756	0.439	4.312568	6.973
*DUMMY*IN	0.7472192	2.691	1.373769	2.725
*DUMMY*IA	−2.25273	−8.051	0.6112045	1.214
*DUMMY*KS	−2.32592	−7.683	−0.0309739	−0.057
*DUMMY*KY	−0.898755	−4.019	0.05495049	0.136
*DUMMY*LA	−2.83659	−9.739	−0.170047	−0.324
*DUMMY*ME	1.228301	5.859	0.2385839	0.632
*DUMMY*MD	−2.05533	−5.807	0.9288516	1.458
*DUMMY*MA	0.8281684	2.792	4.663573	8.692
*DUMMY*MI	2.507196	7.618	3.390983	5.701
*DUMMY*MN	−1.86947	−6.163	1.274335	2.322
*DUMMY*MS	−0.423158	−1.887	0.07363291	0.182
*DUMMY*MO	−0.775932	−2.679	0.2948474	0.566
*DUMMY*MT	−2.96296	−7.721	−2.67553	−3.876
*DUMMY*NE	−3.45071	−10.740	−1.78891	−3.091
*DUMMY*NV	−3.14671	−6.132	−2.08003	−2.253
*DUMMY*NH	0.02360934	0.097	0.8819276	1.939
*DUMMY*NJ	2.042321	6.292	4.748775	7.975
*DUMMY*NM	−3.91825	−10.468	−0.658222	−0.976
*DUMMY*NY	−0.0432226	−0.110	6.200531	8.758
*DUMMY*NC	1.24294	4.470	1.656645	3.303
*DUMMY*ND	−4.47683	−10.867	−1.63504	−2.201
*DUMMY*OH	0.1519102	0.518	3.832862	7.269
*DUMMY*OK	−2.68611	−9.046	−0.931178	−1.721
*DUMMY*OR	0.5294491	1.835	2.468237	4.752
*DUMMY*PA	0.9762263	3.032	5.370702	9.238
*DUMMY*RI	2.405735	9.038	3.099715	6.434
*DUMMY*SC	1.024242	3.748	1.2067	2.453
*DUMMY*SD	−5.11999	−14.075	−3.30025	−5.020
*DUMMY*TN	0.6503508	3.185	1.375881	3.746
*DUMMY*TX	−3.00285	−10.061	−1.13104	−2.078
*DUMMY*UT	−2.98011	−10.165	−1.30044	−2.460
*DUMMY*VT	0.33745	1.483	2.939299	7.134

Table 1 (continued)

Independent variables	Dependent variable			
	INSUR UR		*AVG DURA*	
	Parameter	*t*-value	Parameter	*t*-value
*DUMMY*VA	−2.63155	−9.500	−1.09498	−2.198
*DUMMY*WA	1.052617	2.791	2.610946	3.845
*DUMMY*WV	−0.862191	−2.631	−0.362418	−0.606
*DUMMY*WS	0.04718145	0.169	3.075515	6.114
*DUMMY*WY	−5.32607	−11.726	−3.4829	−4.259
*DUMMY*67	0.1843823	1.524	0.1805547	0.828
*DUMMY*68	0.08498588	0.676	0.5485368	2.411
*DUMMY*69	−0.0381588	−0.274	0.3055545	1.206
*DUMMY*70	0.856973	5.778	0.3135181	1.145
*DUMMY*71	1.457339	9.179	1.495808	4.960
*DUMMY*72	0.5336015	2.971	1.624672	4.810
*DUMMY*73	0.5307225	2.636	1.249625	3.323
*DUMMY*74	1.13742	5.801	0.4382566	1.183
*DUMMY*75	3.057409	15.107	2.016929	5.043
*DUMMY*76	1.752496	8.101	1.377955	3.285
*DUMMY*77	1.358223	5.991	1.45786	3.407
*DUMMY*78	0.8866799	3.602	1.358347	2.996
*DUMMY*79	0.4183755	1.724	1.149534	2.577
*DUMMY*80	1.058443	4.583	1.438439	3.315
*DUMMY*81	0.8391551	3.611	1.472718	3.367
*DUMMY*82	1.617099	6.839	1.672387	3.650
*DUMMY*83	0.9604979	3.902	3.098825	6.526
R^2	0.8802		0.8433	
DF	825		824	
F-value	86.558		62.434	

is an interesting trend in the time dummies (*DUMMY*67–*DUMMY*83) which are all significant at the 1% (year 1966 being the omitted category). The trend, which could have been easily expected, is that during recession years (e.g., 1971, 1975, and 1982) the dummy coefficient is greater than in the non-recession years. However, there is no pattern concerning the state dummies (*DUMMY*AL–*DUMMY*WY), Alabama being the omitted category.

The second model, which has the *AVG DURA* as the dependent variable, has similar results. For *REP RATIO*, the coefficient is 0.0322, indicating that a 10% increase in the replacement ratio is associated with an increase in the *AVG DURA* of about a third of a week (*AVG DURA* is measured in weeks); a little over two days. Thus, while a work disincentive effect exists, it appears to be very slight in this second model. The variable *PER MANU* has an expected negative coefficient, indicating that states with higher proportions of workers in the manufacturing sector have, all other things being equal, shorter average durations of insured unemployment.

As expected, the coefficient of LN*PERINC* is negative, indicating that states with higher per capita personal income levels are expected to have shorter average durations of unemployment for the same reasons as described in the first model. While the coefficient of *UNIONMEM* is positive, it is not statistically significant, indicating that union membership has little, if any, effect on the average duration of unemployment. The variable *EXFRBENE*, the percentage of claimants who exhaust benefits, i.e., who do not find work before they run out of UIC benefits, should be expected to be higher in states with lax enforcement of disqualification rules or poor re-employment services (the degree to which a claimant is required to *actively* search for a job differs greatly across states).

As expected, the variable *EXFRBENE* has a positive coefficient. For each 10% increase in the *EXFRBENE* there seems to be a one week increase in the *AVG DURA*. Most of the dummy variables are significant in this model. Looking at both models one notices that both *INSUR UR* and *AVG DURA* peaked in 1975 which is consistent with the drastic after effects of the OPEC oil crisis. Even though AVG DURA peaked once again in 1983, *INSUR UR* remained stable, which would support the hypothesis that same workforce might have remained unemployed for longer periods of time.

4. Conclusion

This paper has used two models to investigate the possibility of a work disincentive effect due to UIC programs. We must conclude that a work disincentive effect exists. States with more generous UIC programs should expect higher rates of insured unemployment as well as longer average durations of unemployment. However, in our analysis we found that the coefficients for the replacement ratio in both models were relatively small. Thus while a work disincentive effect exists, its effect is generally very small. States with relatively longer durations of insured unemployment would be better off trying to reduce the exhaustion rates by reinforcing re-employment programs and step-up efforts to enforce disqualification rules for UIC programs.

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