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Optimal Extended Unemployment Benefits

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During the past 35 years, basic parameters of the U.S. state-federal system of unemployment insurance (UI) have remained remarkably constant. Although there are large state-by-state variations in program features, on average, the system replaces about 35 percent of lost wages and pays benefits for about 24 weeks—and these averages have remained almost constant since the late 1960s.[1,2] In contrast to this overall stability, the history of programs that extend the potential duration of benefits during recessionary periods has been quite eventful. A program of standby, extended benefits (to be triggered on by worsening labor market conditions) became a permanent feature of UI law in the early 1970s and paid significant amounts of benefits during recessions in the 1970s and early 1980s. However, changes in the triggering mechanism, together with a secular decline in the key indicator used (the insured unemployment rate [IUR]), sharply reduced the significance of this program after 1985. At the same time, the federal government implemented emergency extended benefits programs in every recession since 1971. Each of these programs had its own special duration provisions, and many of the programs contained unique features, especially in how they interacted with the regular UI program. In some cases, the extended durations the emergency programs provided were nearly as long as those provided by the regular UI program itself—that is, up to 20 to 25 additional weeks of benefits availability.

The goal of this paper is to view this complex set of extended benefits policies through the prism of the emerging theory of optimal UI. The paper is divided into four additional sections.

[1] Most state laws promise replacement of 50 percent of wages, but state maximum benefit levels constrain total replacement so that the average replacement rate is approximately 35 percent.

[2] Some states provide a uniform duration (typically 26 weeks), whereas others offer durations that vary with workers' labor market histories. The 24-week figure represents the overall national average across both types of state systems.

In Section A, we survey the theory of optimal UI and show how it should be interpreted in judging extended benefits policy. Section B summarizes actual extended benefits policy since 1971 and provides illustrative data about the programs' performance. In Section C, we use aggregate data on regular and extended benefits programs in the United States to examine ways of assessing whether this combination of programs performed optimally during the past 35 years. Finally, Section D offers some conclusions and a few lessons for the directions that extended benefits policy might take in the future.

A. THE THEORY OF OPTIMAL UNEMPLOYMENT INSURANCE

During the past 25 years, a substantial body of literature that seeks to evaluate the efficiency properties of UI has developed. The key insight of this research is to view UI as *insurance* (rather than, say, as an income transfer program) against the risk of wage losses arising from unemployment. A primary advantage of this approach is that it permits authors to take advantage of the major gains that have recently been made in the theory of insurance and related issues, such as the study of moral hazard or of optimal incentive contracts. In this section, we provide a brief review of this literature, with a particular focus on its relevance to extended benefits policy.

UI is superior to other ways of insuring against wage loss from unemployment (such as precautionary savings) because it compensates explicitly for the contingency of concern. Without any incentive effects, and with actuarially fair insurance premiums, full wage replacement insurance would be optimal. As with any insurance contract, however, the possibility of moral hazard complicates matters. For example, if receipt of UI benefits causes workers to remain unemployed longer, full insurance is no longer optimal—an efficient trade-off

exists between the risk aversion benefits of insurance and the welfare costs of added unemployment.

Baily (1978) was one of the earliest authors to explicitly model this trade-off. His results suggested that the optimal wage replacement ratio might be approximately 0.65, unless the elasticity of a recipient's job search effort with respect to that ratio was quite high. Baily also noted that a one-time, fixed redundancy payment instead of traditional UI benefits might be welfare enhancing. Fleming (1978) expanded on the optimality concept by stressing the importance of savings and possible capital market imperfections. He showed that optimal wage replacement ratios would be lower (perhaps as low as 0.20) with perfect capital markets than without them. A final contribution to the early theoretical development was the paper by Shavell and Weiss (1979), which considered possible departures from a fixed benefit schedule throughout the UI spell.[3] If initial wealth is zero, the authors showed that it is optimal to have benefits decline over time to induce more active job search early in the unemployment spell. No such simple conclusions are possible if the UI recipient has some initial wealth—an initial period of low benefits may provide more efficient consumption patterns in a balanced-budget context.[4]

Recent literature on optimal UI has generalized these early results in several ways by including:

- More complete specifications of the incentive effects of UI

[3] The weekly benefit amount for a Michigan recipient may vary during the benefit collection period if he or she has more than one base-period employer. Because the variation in the weekly benefit amount is tied to prior earnings at the different base-period employers, however, it seems unlikely that the variations in it are designed to address the disincentive effects of the UI program.

[4] The recent paper by Wang and Williamson (2002) yields even more complex benefit schedules when recipient savings behavior is taken into account.

- Explicit consideration of heterogeneity in employers and employees
- A focus on the duration of benefits as a policy parameter

Because the third of these has the greatest relevance to extended benefits policy, we will provide only a brief discussion of the first two. With regard to incentive effects, some authors have generalized possible effects of UI on the job search process to include the intensity of search effort (Hopenhayn and Nicolini 1997) or refusal of suitable employment (Hansen and Imrohoroglu 1992). In these models, such additions provide a more explicit consideration of how UI may affect reservation wages. A different set of generalizations focuses on how availability of UI may affect workers' performance on the pre-unemployment job. Specifically, availability of UI may make workers more willing to shirk on their pre-unemployment jobs (Wang and Williamson 1996) or to quit their jobs voluntarily.[5] A general conclusion of these attempts to model incentive effects more fully is to reinforce the finding that the unemployment rate itself is endogenously determined in a full general equilibrium context. Unfortunately, most modeling has been calibrated around a specific unemployment rate for simulation purposes. Exogenous changes in the unemployment rate (such as those that occur during recessions) have not usually been an explicit topic of concern.

Heterogeneity in firms or workers has also been shown to have implications for UI policy. Most literature on this topic has focused on experience rating.[6] Early papers by Feldstein (1978)

[5] Most U.S. workers who voluntarily quit without good cause are ineligible for UI benefits (Nicholson 1997). However, the distinction between voluntary and involuntary separations is sometimes difficult to make.

[6] The literature on experience rating usually takes the types of jobs available in the economy as fixed. Acemoglu and Shimer (1999), however, illustrate how availability of UI benefits may alter the distribution of jobs by making high-risk jobs more attractive to risk-averse workers. In their model, this effect increases output in the economy.

and Topel (1984) suggested that the failure to adopt complete experience rating can result in the subsidization of firms and industries with above-average layoff experiences. Empirical estimates of the size of this effect tended to be large, sometimes amounting to an increase of about one percentage point in the unemployment rate.[7] Recent papers have also stressed the importance of experience rating, though usually in a more theoretical context. For example, Blanchard and Tirole (2004) illustrate that full experience rating is required if firms are to internalize the costs imposed by their own layoff decisions and thereby make efficient choices between UI and employment protection. Similarly, Wang and Williamson (2002) show that incomplete experience rating can negatively affect the welfare of low-unemployment workers, but they stress that these losses represent mainly transfers; in their model, effects on total output are quite small.

Complications raised by worker heterogeneity (say, differences in skills or in preferences for leisure) have played a relatively minor role in the development of the literature on optimal UI. Although it seems plausible that such differences exist and that they might create problems in the development of efficient extended benefits policy, formal modeling of this possibility has been minimal. Wang and Williamson (2002) do consider the welfare consequences of worker heterogeneity in job retention and show that, without experience rating, optimal allocations result in large transfers from workers in long-tenure industries to workers in short-tenure ones. They also show that, when workers from the long-tenure industries become unemployed, they have

[7] Card and Levine (1994) reach a similar conclusion.

longer unemployment spells. However, the authors do not pursue the consequences of this finding for more general policy purposes.[8]

Although Davidson and Woodbury (1997) and Wang and Williamson (2002) deal explicitly with the duration of UI benefits, neither paper focuses on the central issue of how optimal duration should change in the presence of changing unemployment risk. One of the more striking conclusions of the Davidson and Woodbury paper is their claim that the potential duration of benefits should be infinite under an optimal program. The authors reach this conclusion by pointing out that an actuarially fair increase in benefit duration will always be welfare enhancing if there are no incentive effects, because such an increase provides added income in the post-exhaustion period when income is lowest. With an infinite duration, the authors conclude that a wage replacement ratio of approximately 0.50 is about right. However, if potential durations were limited (say, to 26 weeks), optimal replacement ratios could easily exceed 1.0.

It is difficult to know what to make of these results. The authors point out that the purported optimality of infinite potential durations depends on two assumptions in their model: (1) the size of the effect of changes in potential duration on search effort, and (2) the exclusion of savings and borrowing from their model. The authors then claim that relaxing either of these assumptions would not appreciably change their key result, and some of their simulations show that. But theirs is a very specific type of job-matching model, and it is not clear that such results would extend to other ways for specifying labor market equilibria. Still, by focusing on the

[8] Karni (1999) also discusses worker heterogeneity in the context of devising incentive-compatible UI insurance schemes.

welfare significance of the decline in income that accompanies exhaustion of benefits, the authors pose a challenge for those who argue for programs that limit the duration of benefits.

Duration of benefits is not a primary interest of Wang and Williamson (2002), but the authors do present interesting simulations on the topic. Their results support those of Davidson and Woodbury in that they find welfare gains from increasing durations. However, these gains are relatively small in percentage terms. These authors also get smaller optimal replacement rates. For example, with infinite durations, Wang and Williamson compute an optimal replacement rate of 0.24, only about half of the size estimated by Davidson and Woodbury. An interesting sidelight to the authors' simulations is that their base case yields an unemployment rate of about 7.4 percent with a potential duration of 52 weeks and an optimal replacement ratio of 0.35. As we show in the next section, these numbers are approximately the values observed for the actual UI system during the recession of the mid-1970s. Unfortunately, however, the authors do not provide any simulations under alternative unemployment scenarios, in part because unemployment is endogenous in their model.

Although the literature on optimal UI has not addressed the extended benefits issue explicitly, this review offers a few conclusions that are relevant to that topic:

- Almost all models suggest that optimal replacement ratios are less than one in the presence of moral hazard.
- Models that allow for personal savings lead to lower optimal replacement ratios than those that do not.
- Time patterns of replacement rates that are not constant over the duration of the unemployment spell may be preferable to constant wage replacement rates, but the welfare gains from complex schedules seem small.
- The potential to exhaust UI benefits is important both because of its incentive effects and because of the sharp fall in income that exhaustion may entail.
- Experience rating of benefits can have important behavioral effects on firms and individuals.

- Worker heterogeneity may imply problems for the design of optimal UI systems, although this topic has not been studied in much detail.

In the rest of this paper, we show how these conclusions might be used to derive preliminary assessments about optimality of actual extended benefits policy in the United States.

B. A BRIEF HISTORY OF EXTENDED BENEFITS POLICY

Extended benefits programs have had a complex history in the United States during the past 35 years, which we will not summarize here.[9] Instead, Table 1 reports several details of the programs. We consider two types of programs: (1) the permanent extended benefits program (EB), which was incorporated into UI laws in 1971 and is triggered on by certain unemployment indicators; and (2) emergency programs (each with its own name and acronym) that are unique to each recessionary period. To illustrate trends in these programs, we have grouped the available quarterly data into four specific periods, one for each of the emergency programs, as follows:[10]

1. The Federal Supplemental Benefits (FSB) period: 1975.1 to 1977.4
2. The Federal Supplemental Compensation (FSC) period: 1982.3 to 1985.1
3. The Emergency Unemployment Compensation (EUC) period: 1991.4 to 1994.2
4. The Temporary Extended Unemployment Compensation (TEUC) period: 2002.2 to 2004.1

To some extent, this definition of time periods is arbitrary, because all the emergency programs had complex phase-in and phase-out provisions that do not fit neatly into a quarterly

[9] For a descriptive summary, see Nicholson and Needels (2004).

[10] We denote the quarters of a year by using a decimal point and numeral after the year. For example, "1975.1" indicates the first quarter of 1975.

calendar. However, the periods defined here contain nearly all activity under the emergency programs.

The relationship between our emergency program periods and National Bureau of Economic Research (NBER) reference cycle dating for recessionary periods is shown at the top of Table 1. Three facts are immediately apparent. First, activation of the emergency programs tended to occur late in the cyclical downturn. On average, initial benefits were not paid under the programs until about one quarter *after* the cyclical trough. Second, the programs have tended to pay benefits for a considerable period after each cyclical trough. Payments were made for an average of 10 quarters after each trough. Finally, it appears that these timing features have become more exaggerated in recent recessions. For example, in both the recession of the early 1990s and the recession of 2001, no benefits were paid under the respective emergency programs until about two quarters after the cyclical trough.

Of course, pointing out these timing features should not be taken to imply any specific negative appraisal of the programs. Unemployment is a lagging indicator—for example, as Table 1 shows, peak unemployment rates also tend to occur after cyclical troughs. In addition, it will always take some time for workers laid off as a result of a cyclical downturn to exhaust their regular UI entitlements. Given these considerations, Congress justifiably may be slow in coming to an agreement on how, if at all, to address the needs of recession victims. Terminating the emergency benefits programs also can pose difficult trade-offs and may be politically unpopular. Still, recognition of the actual timing of the emergency programs may shed light on some policy questions. For example, given the information in Table 1, it seems unlikely that emergency benefits have played an important countercyclical role in the economy. Hence, these policies could be judged primarily on their insurance features.

Table 1 shows several other patterns related to the emergency programs. Overall, it appears that activity under the regular UI program was approximately the same during each of these historical periods. Total benefits paid were around $80 to $100 billion in 2004 dollars, first payments were in the range of 20 to 28 million, and dollars paid per first payment were in the $3,500 to $4,200 range. In contrast, the extended and emergency benefits programs had uneven usage. For the permanent, standby EB program, both first payments and total benefits paid were large during the recession of the mid-1970s, but the program contracted sharply for the recession of the early 1980s and almost completely disappeared after that. This contraction had three causes: (1) explicit legislative changes in the program's triggering mechanism that were implemented in 1981 (see Corson and Nicholson 1985); (2) a secular decline in the IUR that made it increasingly hard for states to meet the more stringent trigger requirements;[11] and (3) "normal" sequencing of the EB program has changed over time.[12] This trend must be addressed if EB is to play any major role in extended benefits policy in future recessions.

The emergency programs exhibit less variation. The FSC program of the early 1980s was the smallest of the emergency programs in benefits paid, primarily because of the relatively short

[11] See, for example, Blank and Card (1991). In 1992, EB was changed to permit states to use a state's TUR as an alternative trigger. Few states have adopted this option. In addition, the level set for such triggering, combined with the requirement that the change in the TUR must exceed certain thresholds, continued to limit benefit availability.

[12] EB was originally intended to be paid before emergency benefits. In the 1980s, however, changes in the EB trigger mechanism resulted in the program's not being available in many states. In such cases, UI exhaustees could go directly onto FSC. Relatively stringent trigger provisions continued into the 1990s. In addition, states were at times given the option to opt out of EB: claimants could go straight from collecting UI to collecting emergency benefits even when a state was triggered on. Because the emergency programs are fully federally financed and EB is only half federally financed, states overwhelmingly chose this option. Finally, under the TEUC program, the original sequencing was reversed so that EB would be payable only to claimants who had exhausted their entitlements under that emergency program.

extensions in potential duration that program provided.[13] Although the EUC program of the early 1990s appears to be the largest emergency program, the figures in the table are a bit misleading because of a unique optional payments feature incorporated into the program. Under this feature, claimants for regular UI could start immediately collecting EUC benefits if their benefit entitlements would be larger this way. An evaluation of the EUC program by Corson, Needels, and Nicholson (1999) suggests that approximately 17 percent of program activity derived from this option. Adjusting the figures in Table 1 for this fact would make the program statistics similar to those for FSB and TEUC. We make this adjustment in our calculations shown in Section C.

To gain further perspective on the emergency programs, Table 2 provides labor force and UI data for these emergency periods. These data highlight an important and paradoxical result. Using the total unemployment rate (TUR) as a metric, the most recent emergency period (2002.2-2004.1) had the strongest labor market. The average TUR during that period was more than one percentage point below the average during any other period. The data on unemployment duration tell a different story, however. Recent average unemployment durations were among the longest in any period. Similarly, weeks of regular UI benefits collected were high during the recent period, and the average exhaustion rate for regular UI benefits exceeded that for any other period by nearly four percentage points. Although these trends of increased benefit collection and exhaustion have been noted before (see Needels and Nicholson 1999), there is no general agreement about what underlying factors may be at work. Likely candidates

[13] All the emergency programs provided the same weekly benefit amount for which the claimant was entitled under the regular UI program. The programs offered differing potential durations over the periods they were in effect. The range of variation in potential duration is also shown in Table 1.

include a changing demographic composition of the unemployed toward groups with longer spells of unemployment and a decline in the relative importance of short-term layoffs in manufacturing. Whatever the cause, these data suggest that the needs of the long-term unemployed for insurance protection were greater during the most recent recession than might have been expected on the basis of the TUR alone.

One measure of the protection the UI system provides is the average potential duration of benefits. Statistics on this variable are available for the regular program, and, as Table 2 shows, these averages have been quite stable over time during the four most recent periods when emergency benefits programs operated. To calculate similar statistics for the extended and emergency benefits programs, we computed the average potential duration being provided under each program during a quarter weighted by the fraction of UI claimants who were eligible for the program.[14] As Table 2 shows, potential durations provided by the standby EB program were negligible after 1985, primarily because EB did not trigger on very often. Except for the FSC program in the early 1980s, however, the potential durations the emergency programs provided were similar, ranging from about 14 weeks (under TEUC) to about 17 weeks (under FSB). Overall, the entire unemployment compensation system provided between 37 and 40 weeks of benefits in all the emergency benefits periods, except for the mid-1970s, when 54 weeks were available. Although the FSB program of the 1970s was the most generous emergency program in its own right, the almost universal availability of EB during the mid-1970s contributed even more to the lengthy average potential duration. Cutbacks to the EB program in the early 1980s resulted in this "permanent" program playing a greatly reduced role in subsequent recessions.

[14] The principal reason that a regular UI claimant would not be eligible for any extended benefits program is that he or she resided in a state that did not meet the trigger criteria during a quarter.

Additional insights about the changing nature of the caseload in extended benefits programs are provided by microsurvey data. Although such data are not available for the most recent program (TEUC), all of the previous emergency programs did extensive surveying of recipients. Table 3 contains a brief summary of some of these data. The table also contains survey information from two recent studies of UI exhaustees that were conducted during nonrecessionary periods, since these data also can aid in understanding the changing extended benefits caseload. Several trends are readily apparent in these data. First, the decline in manufacturing overall is clearly mirrored in the figures. It appears that workers in the extended programs were increasingly less likely to be subject to the types of post-recession recalls that tend to characterize manufacturing. Second, the average age of participants in the emergency programs has been rising, as has their overall educational attainment. Mean tenure on the pre-UI job has also been increasing. Taken together, these data suggest that the emergency programs may be coming to increasingly focus on workers who may experience lower exit rates from unemployment. The greater tightness of the labor market overall may be acting as a filter—easier-to-employ workers are more likely to find jobs before they get to the emergency programs than was the case in prior recessions. But this leaves a pool of workers who are more difficult to employ as the primary caseload for the emergency programs. As we shall see, this changing composition of the extended benefits caseload poses some problems in interpreting the programs' performance in recent recessions.

In summary then, the data in Tables 1 through 3 show that the UI system has been relatively responsive to recessions in terms of the weeks of protection offered. In recent years, however, practically all this assistance has been provided through specific emergency programs, with each program having its own provisions and idiosyncrasies. And, over time, the caseload of these emergency programs seems to be changing in response to the evolving nature of recessions in the

U.S. labor market. In the next section, we develop several criteria for judging whether this complex set of policies performed in ways that might be considered optimal in the light of these changes.

C. THE OPTIMALITY OF EXTENDED BENEFITS PROGRAMS

Although the literature on optimal UI benefits has not explicitly examined extended benefits, many of the lessons of that literature can be used to make assessments about optimal extended and emergency benefits policy. In this section, we first summarize a few features of extended benefits policy that have been relatively constant and discuss the extent to which these are consistent with the optimal benefits literature. We then turn to the more difficult topic of evaluating the changing features of extended benefits policy, especially the changing potential durations that are offered.

All extended benefits programs have adopted the same weekly benefit amount as is provided to the worker under the regular UI program. Hence, replacement rates remain unchanged throughout the spell of compensated unemployment. Contrary to the suggestions offered in several theoretical papers and to actual policy in several European countries, schedules of declining benefits have never been adopted in the United States. A possible reason for keeping the replacement rate constant (other than administrative simplicity) is that this rate still represents the efficient trade-off between risk aversion and adverse incentives, given that UI durations have been correctly adjusted for the increased risks that recessions pose.[15]

[15] The available literature suggests that adverse incentives are roughly the same under regular UI and the extended programs. For a summary, see Decker (1997) and Nicholson and Needels (2004).

A second feature that extended and emergency benefits programs share is failure to incorporate any significant experience rating into the programs. The emergency programs have all been federally financed outside of the regular UI experience rating system, and the declining importance of EB has reduced the significance of the experience rating inherent in that program as well.[16] Substantial research shows that the absence of complete experience rating in the regular UI program provides incentives for firms to make short-term layoffs (Feldstein 1978; and Topel 1983). There are several reasons why these incentives may be muted with extended benefits programs, however. First, whatever benefits would be charged to firms if extended benefits were experience rated would usually represent longer-term unemployment (typically more than six months). There is little evidence that experience rating affects firms' decisions over this longer horizon. Second, because extended and emergency benefits are paid after the regular UI entitlement is exhausted, the impact of experience rating of such benefits would, at best, only marginally alter the effect that regular UI experience rating has, since states have maximum tax rates.[17] Finally, the temporary nature of emergency benefits programs might also mitigate any effect of experience rating. At the onset of a recession, firms typically will not know what emergency benefits programs (if any) will be enacted, so they may discount the prospect in their decision making. Overall, then, it is unlikely that the absence of experience rating in emergency benefits programs has significant allocational effects.

[16] Because half of EB is financed with state funds, that program does exhibit experience rating to the extent that state formulas permit. Since many firms are at state maximum tax rates during recessions, however, there is very little effective experience rating under EB.

[17] This excludes the optional benefits component in the EUC program of the early 1990s, which was in effect for 17 months in 1992 and 1993.

Consequently, any assessment of the optimality of the extended benefits programs enacted in the United States during the past 30 years must ultimately focus on their duration provisions. In this section, we develop three tests of optimality:

1. The effect of extended benefits on rates of benefit exhaustion
2. The connection between the potential durations provided by extended benefits and actual unemployment durations during recessions
3. The aggregate relationship between extended benefits and lost earnings

Despite the variation in emergency benefits programs, we conclude overall that these programs have indeed increased insurance protection when it was needed, though an assessment of the relative generosity of the specific programs is affected by the changing caseloads of the programs and therefore yields somewhat paradoxical results.

1. Extended Benefits and Exhaustions

Approximately 30 percent of UI recipients exhaust their regular UI benefits entitlements during nonrecessionary periods.[18] As Table 4 shows, exhaustion rates for regular UI exceeded 35 percent during all of the emergency periods, reaching more than 40 percent in the most recent period. Because the availability of extended benefits cushions the economic impact of such rising exhaustion rates on workers' incomes, a natural measure of the insurance protection being provided by these programs is how they affect the likelihood that a worker will run out of all benefits. In Table 4, we calculate this effect. The first calculation reported in the table simply divides emergency exhaustions by UI first payments during the period. This method shows that the emergency programs all seem to have reduced total exhaustion rates to well below pre-

[18] The nonrecessionary exhaustion rate has been rising. In the post-1989 period, the nonrecessionary rate averaged 32.6 percent, up from approximately 30.0 percent in the decades before.

recession levels, with the EB/FSB combination of the 1970s having the most dramatic effect. Interestingly, the highest exhaustion rates occurred during the most recent emergency period, during which our simple estimates suggest that 28 percent of UI recipients exhausted all their potential UI, EB, and TEUC benefit entitlements.

These simple calculations may obscure actual exhaustion experiences by not including people who exhaust one tier of benefits and do not continue to the next. If these individuals are also considered to be "exhaustees," our calculated rates would be higher. To examine this question, we first estimate the probability of exhausting EB or emergency program benefits given that someone obtains a first payment for that program by taking the ratio of exhaustions to first payments over the emergency benefit period. These calculations show that exhaustion rates for both EB and for the emergency programs have varied considerably over time—primarily in response to the durations provided under the programs.[19]

The second component in our more complex calculation of total exhaustion rates is the "effective participation rate" for the various extended benefits programs. This rate is defined as the number of first payments under a program divided by the number of exhaustees from the prior program tier. For example, in the case of EB during the recession of the mid-1970s, effective participation was nearly universal—EB first payments were 99 percent of regular UI exhaustions during the period. The effective EB participation rates in the 1980s and 1990s were much lower, primarily because the program did not trigger on in many states during these

[19] Estimates of the EB exhaustion rates in the two most recent periods are subject to greater variability because the small size of the program makes phase-in and phase-out phenomena relatively more important. This variability should have relatively little impact on our calculation of total exhaustion rates because of the low participation rates for the programs.

periods.[20,21] Effective participation rates for the emergency programs are defined as first payments under the programs divided by exhaustions of either EB (when available) or regular UI (when EB is not available). These effective participation rates were between 80 and 86 percent for all the emergency programs.

The final step in our detailed calculation of total exhaustion rates is to compute weighted averages of the exhaustion rates in Table 4 using the participation rates. For the earliest period, for example, the calculation is:

$$(1)\quad \begin{aligned} r_{total} &= r_{UI}\left((1-p_{EB})+p_{EB}(1-p_{EM})r_{EB}+p_{EB}p_{EM}r_{EB}r_{EM}\right) \\ &= 0.36\cdot(0.01+0.99\cdot 0.14\cdot 0.69+0.99\cdot 0.86\cdot 0.69\cdot 0.60)=0.166 \end{aligned}$$

where the *r*'s represent exhaustion rates and the *p*'s represent effective participation rates. Calculations for the other three periods are similar, though each must take into account the peculiarities of the specifics of the programs in effect. Overall, these more complex calculations also show that extended benefit programs reduce total exhaustion rates substantially—all the total exhaustion rates calculated in the table are considerably below the regular UI exhaustion rates that prevailed before the recessions in question. The calculations also agree with the simpler calculations in the relative ranking of generosity of the emergency programs. For example, the most significant reduction in exhaustions occurred in the recession of the 1970s, when the EB/FSB policy combination reduced the estimated total rate to a very low level. For the most recent recession, on the other hand, the more complex calculation suggests that the TEUC program only succeeded in reducing the total exhaustion rate approximately back to its

[20] All estimates for the 1990s are adjusted for the optional claims feature of the EUC program.

[21] The effective EB participation rate for the recession of the early 2000s is defined as EB first payments divided by TEUC exhaustions because of the reverse ordering of the programs.

pre-recession levels. Three factors may account for this performance: (1) regular UI exhaustion rates were relatively high during 2002 and 2003, (2) the TEUC program was slightly less generous than were the FSB and EUC programs in terms of potential duration, and (3) the EB program played a very small role during this period. [22]

Table 4 explicitly highlights the importance of the "permanent" EB program. If that program had played the same role in subsequent recessions that it did in the recession of the mid-1970s, total exhaustion rates would have been much lower than they actually were. Even the high exhaustion rates for the regular UI program during the most recent period would have been nearly cut in half by a fully operational EB program.[23] Whether total exhaustion rates as low as the ones recorded during the recession of the mid-1970s are necessary for extended benefits programs to offer the kind of protection that regular UI provides during normal periods is, of course, open to debate.

2. Extended Benefits and Actual Unemployment Durations

One measure of the adequacy of extended benefits programs is how well they respond to the lengthening unemployment spells that accompany recessions. Table 5 provides evidence on this issue. The first two lines in the table look at the average length of unemployment spells as

[22] The changing nature of the TEUC caseload may also be playing a role. We discuss this possibility in our conclusions.

[23] With an assumed 100 percent participation rate in EB, an EB exhaustion rate of 0.7, and an 80 percent effective participation rate in emergency programs (and assuming the actual emergency exhaustion rates), the total exhaustion rates would have been 0.22, 0.17, and 0.23 in the three periods, respectively.

defined in the Current Population Survey (CPS).[24] Figures in the first line show how the average spell length during each emergency period related to the average spell length during nonrecessionary periods (13.3 weeks). This measure may not provide a meaningful indication of how the lengths of unemployment spells increase during recessions from the immediately preceding periods, however, because of the secular upward trend in unemployment durations.[25] Hence, the second row in Table 5 shows incremental unemployment durations that have been detrended. By this measure, average unemployment durations have tended to increase by about three to five weeks during each of the emergency periods.

An alternative measure of the lengths of unemployment spells is the proportion of spells that last longer than 26 weeks. During nonrecessionary times, about 10 percent of all spells are that long. Again, there has been a secular increase in the prevalence of long unemployment spells, so the detrended data may provide a better measure of workers' extra insurance needs that a recession induces.[26] By this measure, the proportion of workers experiencing long unemployment spells increased by between 5.5 and 8.6 percentage points during the emergency periods. The incidence of long-term unemployment may be more meaningful for extended benefits policy than is average unemployment duration, since the increased prevalence of long spells poses greater risk to workers, who have fixed potential durations of benefits provided under regular state UI programs.

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[24] The spell length measured in the CPS is subject to a number of biases that arise both from the truncation of the measure at the survey week and the tendency for longer spells to be overrepresented. We do not adjust for these biases in this exploratory study.

[25] A simple time series fit indicates that average unemployment durations have increased at a rate of approximately 0.03 weeks per quarter since 1971.

[26] The proportion of spells that exceed 26 weeks has been increasing at a rate of approximately 0.0004 per quarter since 1971.

To assess how well extended benefits policy met the needs implied by these increasingly long spells of unemployment, we have calculated an implied duration "elasticity" for each of the emergency periods. In general, the elasticities based on the average length of unemployment spells exceeded by a substantial margin the elasticities based on the proportion of workers with long unemployment spells—a finding consistent with the greater skewedness in the distribution of unemployment spells during recessions. As with the findings on exhaustion rates, experiences under the FSB program of the mid-1970s appear to be the outliers in the table. Elasticities under FSB were more than double those for any of the other emergency programs. For the other programs, elasticities with respect to average spell length were in the range of 1 to 2, whereas elasticities with respect to the incidence of long unemployment spells were in the range of 0.5 to 0.8.

Focusing on the long-term unemployment elasticities in the table suggests that extended benefits policy clearly underresponded to the recession of the early 1980s and that potential durations in recent recessions also have been relatively modest. The literature on optimal UI does not characterize what an "efficient" elasticity of potential duration with respect to the incidence of long-term unemployment might be. However, if the distribution of longer unemployment spells can be characterized by an exponential distribution, then the elasticity of potential durations with respect to the proportion of unemployed workers with long unemployment spells should be approximately 1.0 if the unemployment compensation system is to keep constant the fraction of workers for whom their complete unemployment spell is compensated. The figures for recent recessions fall short of this 1.0 threshold.

3. Extended Benefits and Wage Replacement

Our final measure of the performance of the emergency programs focuses on how much of the earnings lost because of recessionary downturns are replaced by benefits paid. That is, we seek to estimate a macroeconomic equivalent of the UI wage replacement rate for emergency programs. The first step in doing so is to calculate by how much workers' aggregate real compensation during the emergency periods fell short of the trend. These statistics, shown in the first line of Table 6, were estimated using a linear time trend regression for total real compensation over 32 quarters centered at the NBER cyclical trough for each of the respective periods. In general, the results of the time trend regressions were sensitive to the precise specification and periods used, though the results reported in Table 6 are representative of what the data show. In addition, because the data are truncated for the final (TEUC) period, a forecasting method was used to measure the shortfall in compensation.[27] Hence, the data in Table 6 should not be regarded as providing a precise estimate of recessionary wage losses, but rather as broadly indicative of those losses. Overall, the losses estimated ranged from $136 billion to $269 billion (in year 2004 dollars) during the emergency periods.

Table 6 looks at the replacement of these losses in real compensation from three programs: (1) regular UI, (2) EB, and (3) the emergency programs. Overall, it appears that the emergency programs replaced about the same fraction of lost compensation as did recession-induced extra regular UI benefits with EB providing virtually no replacement in recent times. For EB and the emergency programs, these replacement fractions were calculated by using actual benefits paid during the periods. For the regular UI program, however, only those "incremental" benefits

[27] Specifically, the trend regressions were fit over the 16-quarter period 1998.1 to 2001.4 and then forecast through the emergency period, 2002.2 to 2004.1. Data were adjusted so that forecast and actual values agreed for 2002.1.

attributable to recessionary circumstances were used.[28] Such incremental UI benefits replaced between 7 and 16 percent of the shortfall in aggregate real compensation during the periods examined. The emergency programs provided a more roughly similar degree of wage replacement. If we disregard the unreasonably large estimate for the early 1990s as being unduly influenced by our very small estimate for wages lost during that period, the emergency programs replaced between 7 and 12 percent of lost compensation during the emergency periods.

These comparisons of wage replacement yield a different ranking of the performance of the emergency programs in terms of overall generosity than do our previous calculations. By this ranking, both EUC (1990s) and TEUC (2000s) were more generous that either the EB/FSB program combination of the 1970s or the EB/FSC program combination of the 1980s. From the perspective of the emergency programs alone, EUC and TEUC were considerably more generous than FSB in the mid-1970s—a program that is usually regarded as the most generous emergency extension. Of course, these calculations are necessarily imprecise and rely on highly imprecise estimates for losses in real compensation. But the results do highlight the relatively milder nature of the two most recent recessions and cast some doubt on the notion that the emergency programs were too small during these periods.

D. CONCLUSIONS AND LESSONS FOR POLICY

Three general conclusions emerge from our consideration of the optimality of extended benefits policy over the past 30 years:

1. The goal of having an automatic extended benefits policy response to recessions (as embodied in the EB program) has clearly failed. EB played virtually no role in the

[28] These estimates were calculated as departures from a linear time trend for total real regular UI benefits over the entire period from 1971 to early 2004.

policy response to the two most recent recessions and, in its present form, the program seems unlikely to be important in future recessions as well.

2. The emergency programs have done a better job of meeting the needs of workers during recessions. Although administrative details of the programs have varied widely, the programs have provided extra insurance protection to workers along such measurable dimensions as reducing overall exhaustion rates, covering lengthening unemployment spells, and replacing wages lost.

3. Our measures give conflicting evidence about the relative generosity of recent emergency programs. In terms of the lengths of unemployment spells being experienced by workers and benefit exhaustion rates, the recent emergency programs (EUC and TEUC) appear to be considerably less generous than was the FSB program of the 1970s. In terms of replacing lost income, however, the recent programs appear to be relatively generous.

Although there are undoubtedly many underlying causes for these findings, we believe it is changing characteristics of the U.S. labor market, in combination with the relatively low overall unemployment rates in the two most recent recessions, that may go the furthest in providing a unified explanation for most of them. With regard to EB, it seems clear the lower overall TURs, in conjunction with the relative decline in UI claims, have made it very difficult to ensure that trigger formulas work as intended. Especially problematic have been the operations of "thresholds" in the triggers that require that unemployment indicators exceed historical averages by certain minimum amounts before benefits become payable. Given the widespread difficulties with calibrating both trigger levels and thresholds, it is not surprising that EB has not performed as anticipated since the 1970s.[29] Hence, although the idea of an "automatic" program response to recessionary downturns remains conceptually attractive, widespread differences in both labor markets and UI systems across the states makes it unlikely that there is any simple fix to the EB trigger mechanism.

[29] See Corson and Rangarajan (1994).

The primary consequences of changes in the labor market and accompanying lower unemployment rates for the one-time emergency programs derive primarily from changes in the nature of the caseload being served. Lower overall unemployment rates may be acting as a filter providing reemployment to workers who can find jobs more easily and relatively quickly. Those workers remaining unemployed long enough to reach exhaustion of regular benefits (and entry into the emergency programs) will, on average, experience longer unemployment spells than did participants in the emergency programs in earlier recessions. Viewed in this way, the findings of Section C are not paradoxical. The recent emergency programs do not look especially generous when measured by the extra insurance protection they are providing to their participants (who are experiencing long unemployment spells). On the other hand, the programs look fairly generous when compared to the overall severity of the recessions and to the wage losses being experienced by all workers.

These findings may pose difficult trade-offs for policymakers. On the one hand, they could opt for emergency benefit packages in future recessions that offer relatively short potential durations, and such a choice might be consistent with overall measures of the severity of the recession. But such a policy choice would result in providing relatively meager extra insurance to those workers who are experiencing long unemployment spells. Alternatively, policymakers could opt for generous, FSB-like emergency extensions that would cover the needs of these workers but would appear excessively generous by prior standards.

An approach that might escape this dilemma would be to customize emergency extensions to the likely characteristics of the expected caseloads, especially with regard to the underlying

reasons for their long unemployment spells.[30] More detailed information on the likely nature of these caseloads could help policymakers choose among policy packages designed to target aid to workers on the basis of their reasons for having long unemployment spells. One recent innovation in that regard was a special provision of the TEUC program that provided longer benefits to airline and related workers who lost their jobs because of disruptions stemming from the 9/11 attacks. Although special extensions had been targeted to specific categories of workers before (as, for example, in the Trade Adjustment program), this was the first instance of focusing UI attention on the likely reemployment problems in a specific industry. To the extent that such targeting can provide extra insurance where it is most needed, it might be useful to consider similar customized strategies in the future. An alternative approach, with a somewhat different rationale, might be to accompany more generous extended duration provisions for all workers with declining benefit schedules (as suggested in much of the theoretical literature) to encourage those workers who may be unnecessarily prolonging their job search processes to take up employment sooner.

[30] Of course, implementing customized emergency extensions poses difficult problems as well, including (1) delays in recognizing the need for such programs, (2) tailoring the programs to needs in a charged political environment, and (3) avoiding needless administrative complexity. Customized emergency programs also may be more difficult to terminate than programs that automatically end on the basis of economic indicators.

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TABLE 1

CHARACTERISTICS OF EMERGENCY BENEFITS PROGRAMS, THE EB PROGRAM, AND THE REGULAR UI PROGRAM DURING EMERGENCY BENEFITS PROGRAM PERIODS SINCE 1970

Recessionary Time Period				
NBER Dates for the Recession	1973.4 to 975.1	1981.3 to 1982.4	1990.3 to 1991.1	2001.1 to 2001.4
Quarter of Peak TUR	1975.2	1982.4	1992.3	2003.2
Emergency Benefits Programs				
Dates of Operation	1975.1 to 1977.4	1982.3 to 1985.1	1991.4 to 1994.2	2002.2 to 2004.1
Program Name	Federal Supplemental Benefits (FSB)	Federal Supplemental Compensation (FSC)	Emergency Unemployment Compensation (EUC)	Temporary Extended Unemployment Compensation (TEUC)
Potential Durations Provided (Weeks)	13 to 26	8 to 12	7 to 27	13 to 20
Total Benefits Paid ($Billions)	20.4	17.6	37.1	23.4
Number of First Payments (Millions)	6.1	7.6	9.2	7.5
Average Benefits per First Payment ($)	**$3,340**	**$2,320**	**$4,030**	**$3,120**
EB Program				
Total Benefits ($Billions)	22.8	6.0	0.3	0.4
First Payments (Millions)	10.1	2.5	0.2	0.2
Average Benefits per First Payment ($)	**2,260**	**2,400**	**1,440**	**2,350**
Regular UI Program				
Regular UI Total Benefits ($Billions)	99.0	87.2	84.6	83.2
Regular UI First Payments (Millions)	27.7	25.0	23.9	19.6
Average Benefits per First Payment ($)	**3,570**	**3,490**	**3,540**	**4,240**

Note: All dollar amounts are in year 2004 dollars.
NBER = National Bureau of Economic Research; TUR = Total Unemployment Rate.

TABLE 2

SUMMARY PROGRAM CHARACTERISTICS, BY EMERGENCY BENEFITS PROGRAM PERIOD

	1975.1 to 1977.4	1982.3 to 1985.1	1991.4 to 1994.2	2002.2 to 2004.1
General Economic Conditions				
TUR	7.7	8.7	7.0	5.9
Average Unemployment Duration (Weeks)	14.8	18.3	17.8	18.3
Regular UI Program				
Average Benefit Collection (Weeks)	14.7	16.1	16.0	16.1
Average Potential Duration (Weeks)	24.2	24.0	23.8	23.7
Exhaustion Rate (Percent)	36.2	37.2	38.3	42.1
EB Program				
Weighted Potential Duration for EB (Weeks)	12.0	2.5	0.3	0.2
Emergency Benefits Program				
Average Potential Duration (Weeks)	17.3	10.5	15.8	14.0
Estimated Total Potential Duration (Weeks)	**53.5**	**37.0**	**39.9**	**37.9**

TUR = Total Unemployment Rate.

TABLE 3

CHARACTERISTICS OF EMERGENCY PROGRAM PARTICIPANTS AND UI EXHAUSTEES

	Emergency Programs				
Program	FSB	FSC	EUC	UI Exhaustees	
Year(s)	1975-1977	1982-1985	1991-1994	1988	1998
Percent Female	47.4	36.7	43.8	41.1	44.4
Median Age	38.6	35.5	39.0	36.5	40.1
Percent More than High School	20.7	23.2	33.4	24.0	28.5
Percent in Manufacturing	44.1	39.6	32.6	39.5	32.5
Mean Years on Job	5.0	NA	6.5	5.6	6.3

Sources: The FSB data are from Corson and Nicholson (1982). The FSC data are from Corson, Grossman, and Nicholson (1986). The EUC data are from Corson, Needels, and Nicholson (1999). The Exhaustees data are from Needels, Corson, and Nicholson (2002).

EUC = Emergency Unemployment Compensation; FSB = Federal Supplemental Benefits; FSC = Federal Supplemental Compensation; TEUC = Temporary Extended Unemployment Compensation.

TABLE 4

EXHAUSTION RATES, BY EMERGENCY BENEFITS PROGRAM PERIOD

	1975.1 to 1977.4	1982.3 to 1985.1	1991.4 to 1994.2	2002.2 to 2004.1
Simple Total Exhaustion Rate	0.13	0.24	0.21	0.28
Regular UI Program				
Exhaustion Rate	0.36	0.37	0.38	0.42
EB Program				
Participation Rate	0.99	0.25	0.02	0.03
Exhaustion Rate	0.69	0.63	0.35	0.53
Emergency Benefits Program				
Participation Rate	0.86	0.82	0.80	0.86
Exhaustion Rate	0.60	0.79	0.54	0.72
Total Exhaustion Rate	**0.17**	**0.28**	**0.24**	**0.32**

Note: The simple total exhaustion rate is emergency exhaustions divided by UI first payments over the period. See the text for a description of the calculation method used to derive the more complex rates. Except for during the TEUC period, the EB participation rate is calculated as EB first payments divided by exhaustions of the regular UI program. During the TEUC period, it is calculated by using TEUC exhaustions in the denominator because of the reversed ordering of the programs during that period. Except for during the TEUC period, the emergency benefits program participation rate is calculated as the first payments in the emergency program divided by EB exhaustions. For the TEUC period, it is calculated by using regular UI exhaustions in the denominator because of the reversed ordering of the programs during that period.

TABLE 5

RESPONSIVENESS OF THE POTENTIAL DURATION TO LENGTHS OF UNEMPLOYMENT SPELLS, BY EMERGENCY BENEFITS PROGRAM PERIOD

	1975.1 to 1977.4	1982.3 to 1985.1	1991.4 to 1994.2	2002.2 to 2004.1
Unemployment Spell Length, in Weeks:				
Increment	1.44	5.01	4.49	5.02
Detrended Increment	2.93	5.50	3.73	2.92
Proportion Who Were Unemployed for More than 26 Weeks:				
Increment	0.036	0.080	0.074	0.085
Detrended Increment	0.055	0.086	0.065	0.059
Incremental Potential Duration (Weeks)	28.0	11.6	14.4	12.4
Implied Elasticity for:				
The Detrended Unemployment Spell Length	4.2	1.1	1.7	1.9
The Detrended Proportion Who Were Unemployed for More than 26 Weeks	2.0	0.5	0.8	0.8

TABLE 6

ESTIMATED REPLACEMENT OF AGGREGATE REAL COMPENSATION,
BY EMERGENCY BENEFITS PROGRAM PERIOD

	1975.1 to 1977.4	1982.3 to 1985.1	1991.4 to 1994.2	2002.2 to 2004.1
Estimated Loss in Real Compensation ($2004 Billions)	256.8	269.2	135.6	186.6
Percent of Lost Real Compensation Replaced by:				
Incremental Regular UI	10.4	6.9	9.7	15.7
EB	8.9	2.2	0.0	0.0
Emergency Programs	8.0	6.5	27.1	12.5
Total Replaced (Percent)	**27.3**	**15.6**	**36.8**	**28.2**