Measuring What Matters

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CHAPTER 1. MEASURING WHAT MATTERS

The Consequences of Labor Market Problems

The well-being of most individuals and families is determined primarily by their success in the labor market. Since earnings account for three-fourths of total personal income, the unavailability or intermittency of employment, restricted hours of weekly work, or low wages are a major cause of economic hardship. I/

A substantial share of work force participants encounters such problems. During 1980, for instance, 21.4 million workers aged 16 and over experienced at least a week of joblessness. Another 7.6 million worked part-time involuntarily at least a week. There were an additional 7.3 million full-time and 9.1 million voluntary part-time workers who earned less than the minimum wage equivalent for the cumulative hours they were willing and able to work. Together, these groups with employment and earnings problems accounted for nearly two-fifths of the 118.3 million who participated in the 1980 work force.

Not all of these individuals suffered seriously as a result of their own employment and earnings problems. Some were secondary earners in affluent families or had other sources of income. Others had reduced, but still adequate, earnings. But for all too many, the failures in the labor market resulted in severe distress. Fifteen million work force participants resided in families with earnings below the poverty level and 8.4 million in poor families.

Our present system of labor force concepts and statistics was developed during the 1930s because of, and in order to measure, the suffering which resulted from the massive unemployment of the Great Depression. In the absence of extensive income transfer programs, with the work force composed primarily of breadwinners, and with a large share of the 1930s working population concentrated near the margin of subsistence, unemployment and hardship were synonymous. But the expansion of social welfare protections, the increasing affluence of the population, and the rise of multiple earner families, subsequently reduced the correspondence between joblessness and deprivation.

While extensive information has been gathered for many years on the hourly and weekly wages of American workers, these earnings data have received far less attention than the unemployment counts. It is usually assumed that family heads and primary breadwinners can achieve subsistence earnings if they can find jobs, hence employment has traditionally been considered the key factor affecting well-being. Most of the low-wage workers are new entrants to the labor force and secondary family earners.
Poverty concepts and statistics were developed in the 1960s to measure the dimensions of deprivation. The poverty definition and counts include both persons with labor market-related problems and those unable to work because of age, disability, family responsibilities or other barriers. Poverty is, thus, determined as much, or more, by the adequacy of transfers and private pensions and the demography of the population as by labor market conditions.

Over the years, the unemployment, earnings and poverty statistics have been disaggregated in ever finer detail in order to identify those among the unemployed who really suffer as a result of joblessness, those whose low earnings result in low income, and those whose poverty is caused primarily by labor market problems or could be cured by labor market interventions. But it is extremely difficult to piece together these separate items of detailed information in order to determine how many and who really suffer as a result of labor market problems. In the absence of simple and accepted statistical indicators which link employment and earnings data with measures of well-being, the unemployment and poverty rates tend to predominate in public policy formulation, planning, resource allocation and analysis, as proxies for the hardship resulting from the failings of or failures in the labor market. Unfortunately, these measures do not serve these purposes well.

Unemployment does not always result in deprivation, nor does employment guarantee well-being. Poverty is in many cases unrelated to labor market problems. Low wages are not usually associated with low family income.

- Less than a fifth of the individuals who experienced unemployment during 1980 lived in poor families. On the other hand, over a million persons were employed full-year, full-time—the usual standard of success in the labor market—yet they and their families still lived in poverty.

- Nearly half of the individuals with hourly earnings at or below the minimum wage lived in families with incomes above $15,000 annually, and nearly two-thirds were in families with incomes above $10,000 annually.

- Three-fifths of all poor persons 14 and over did not work at all during 1980 because of illness or disability, school, housekeeping, retirement, or other reasons unrelated to job availability.

Unemployment rates, wage data or aggregate poverty counts alone yield a distorted picture of fluctuations and long-term trends in labor market-related economic hardship.

- The number and proportion of labor force participants with inadequate annual earnings fluctuate less from year to year than the number and proportion who experience unemployment. Hardship is a chronic structural problem, exacerbated by recessions and depressions, alleviated by recoveries, but far less cyclical than joblessness.

- There has been very little improvement in the relative status of blacks as judged by unemployment and poverty rates. In contrast, there has been absolute and relative progress in alleviating labor market-related hardship, largely because of improvements in earnings rates.
At the beginning of the 1960s, two-thirds of poor family heads worked, and a third worked full-time, full-year. Two decades later, less than half worked at all, and only 16 percent full-time, full-year. In other words, a declining portion of economic hardship (as measured by the poverty counts) is labor market-related.

Policies designed to alleviate labor market-related hardship may be misdirected to the extent they are based on poverty, unemployment, or wage data alone.

Where unemployment rates are used to distribute employment and training resources, large metropolitan areas and particularly their suburbs receive a far larger share than if hardship measures were used. The volatility of unemployment rates also leads to significant year-to-year fluctuations in local funding, with adverse programmatic consequences, even though the underlying structural problems to which interventions are addressed remain relatively stable. On the other hand, the use of poverty rates for allocation tends to divert resources to areas whose problems may not be labor market-related or amenable to such interventions.

Local or national employment and training policies which target resources to population subgroups based on their relative unemployment rather than hardship rates divert scare resources to solving temporary problems with less serious consequences; conversely, targeting on the basis of poverty diverts resources to individuals and areas whose problems cannot necessary be solved by employment-oriented interventions.

Across-the-board increases in the minimum wage have a modest impact on alleviating poverty, and a substantial portion of the benefits are realized by workers in affluent families. Wage data alone suggest only the gains which are realized by minimum wage increases, while hardship measures capture the disemployment effects which may, in part, offset the positive earnings impacts of minimum wage increases.

As these examples suggest, the currently available poverty, employment and earnings statistics are inadequate for one of their primary applications--measuring the welfare consequences of labor market problems. Without a conceptual and measurement framework which links income, employment and earnings information, and without accepted indicators developed specifically to measure labor market-related hardship, it is difficult to determine who needs help most, why, or how it can best be provided. As a result, our understanding is frequently clouded and our policies misdirected.

Because of these shortcomings, there is increasing recognition of the need for a measure or set of measures which considers employment and earnings problems in light of the economic hardship which results. A variety of hardship indicators have, in fact, been developed from available labor market and income statistics, demonstrating the conceptual promise of such measures in providing a better understanding of secular and cyclical trends, income transfer and minimum wage issues, and the relative severity of need for subareas and subgroups in the economy.
However, this analytical work has also suggested the significant definitional, measurement and interpretative problems implicit in hardship measures. There are normative issues inherent in defining any labor market status or income-based needs statistics, such as agreeing on the severity standards and deciding who will and will not be counted relative to these standards. Because hardship measures link poverty, earnings and employment concepts, the issues inherent in each of these separate measurement systems must be addressed. There are conceptual issues which are inherent in seeking to link individual earnings with family or household well-being, since family composition and income other than earnings are affected, but not determined, by labor market factors. There are measurement issues and uncertainties which result from shortcomings in existing data bases. Then, there are interpretative issues related to all of these definitional, conceptual and measurement questions.

Because of these problems, no set of hardship measures or applications has gained wide acceptance. Yet taken together, previous work has provided the foundation for an acceptable and extremely useful hardship measurement system. It is now possible to derive a set of composite measures that strikes an appropriate normative balance, which overcomes many conceptual problems and provides the information for better understanding the un-resolvable issues. The composite measures cannot escape the underlying shortcomings in income and labor force statistics, but the needed improvements and their implications can be clearly identified. Based on previous work, it is also possible to dramatically expand the information yield and improve the policy relevance of hardship measures so that they can be institutionalized as a "third leg" in our system of social welfare indicators, supplementing employment and earnings statistics and the poverty measures.

This volume reviews the evolution of hardship measures as well as the underlying normative, conceptual, measurement and interpretative issues. It proposes a modified set of measures and suggests how these will overcome many of the problems in previous hardship indicators. The measures are calculated from existing labor market and income statistics covering 1974 through 1980. The hardship data are presented and analyzed in detail. The policy implications of the measures, the possible improvements, and the remaining issues are, then, discussed.

The Evolution of Hardship Measures

A Summary of Earlier Efforts

The hardship concept was first included in a 1967 Report on Employment and Unemployment in Urban Slums and Ghettos prepared by then Secretary of Labor W. Willard Wirtz. The measure, which was applied to data from a special survey of ten ghetto areas in eight major cities, included the following:
1. All persons unemployed in the survey week;
2. Individuals employed on a part-time basis but seeking full-time work;
3. Family heads with full-time jobs earning less than $60 weekly (the weekly wage needed to lift a family of four above the poverty threshold) and unrelated individuals under age 65 earning less than $56 weekly in full-time jobs (the minimum wage times 40 hours of weekly work);
4. Half of all males age 20 through 64 who were not in the labor force--an estimate of the number who would be active jobseekers if more and better paying jobs were available; and
5. Half the difference between the measured female and male adult populations--an adjustment for the undercount of males.

Another approach was developed in the 1968 Manpower Report of the President using Current Population Survey annual work experience data gathered each March covering the previous calendar year. This measure included all persons working full-time, full-year but earning less than $3,000 annually, and all persons unemployed 15 or more weeks during the year.

In 1970, William Spring, Bennett Harrison and Thomas Vietorisz developed an index for the Senate Subcommittee on Employment, Manpower and Poverty based on data collected by the Bureau of the Census for 60 poverty areas in 51 large cities. The index included the following:

1. Persons unemployed in the survey week;
2. Persons working part-time involuntarily for economic reasons during the survey week;
3. Persons not in the labor force who wanted but were not seeking work because they did not think they could find employment (discouraged workers); and
4. Full-time workers paid less than $80 a week--the amount necessary on an annualized basis to support an urban family of four at the poverty level.

In 1973, Herman P. Miller developed a two-part index also utilizing the same Census Employment Survey data for the 60 poverty areas. The "subemployment" measure included:

1. Persons unemployed in the survey week;
2. Persons working part-time involuntarily during the week;
3. Persons outside the labor force, wanting jobs but discouraged by the prospects; and
4. Family heads or unrelated individuals employed and earning less than the prevailing minimum wage of $1.60 per hour or working full-time but with annualized weekly earnings below the poverty level for their households.

The Miller subemployment count excluded persons 16 to 21 years of age who were primarily students, as well as persons 65 years and over, on the assumption that their labor force attachment was minimal. The hardship measure was, then, derived by screening from the subemployed all individuals residing in families or households with above average incomes.

The Employment and Earnings Inadequacy Index was developed in 1974 by Sar Levitan and Robert Taggart and was calculated from the Current Population Survey data gathered each March covering current labor market status as well as the previous year's work experience. It was, like the Miller index, a two-part formulation, with a subemployment measure counting persons with labor market problems and an "Employment and Earnings Inadequacy" (EEI) measure excluding those subemployed residing in families or households with adequate incomes. The subemployment index included:

1. Persons unemployed during the survey week;
2. Persons outside the labor force in the survey week, wanting jobs but discouraged by the prospects;
3. Persons working part-time involuntarily for economic reasons during the survey week; and
4. Family heads and unrelated individuals currently employed full-time whose earnings in the previous 12 months were less than the poverty threshold for their families or households.

Persons age 16 to 21 whose major activity during the survey week was school attendance, as well as persons 65 years of age and over, were excluded from the subemployment count on the assumption that their labor force attachment was limited. The EEI measure, then, screened out all those individuals among the subemployed who resided in families and households with adequate incomes as judged relative to the medians for metropolitan or nonmetropolitan areas for families and unrelated individuals.

In 1975, Thomas Vietorisz, Robert Mier and John Giblin proposed a two-index approach with an "exclusion index" counting persons with individual labor market problems and an "inadequacy index" assessing earnings in light of family needs. The "exclusion index" counted:

1. Persons unemployed in the survey week;
2. Persons not in the labor force but desiring work;
3. Persons in the labor force full-time but working less than 35 hours in the survey week;
4. Persons currently employed but working less than 50 weeks in the last year for economic reasons; and

5. Full-time, full-year workers earning less than an adequate income defined by a range of annualized wages.

The "inadequacy index" was restricted to individuals counted by the exclusion index who were family heads or unrelated individuals whose incomes were below adequacy standards specified as a range of multiples of the poverty level for each family or household. All heads or unrelated individuals above these income levels were excluded.

Irwin Garfinkel and Robert Haveman in 1977 introduced the concept of "earnings capacity poverty," which was closely related to the hardship notion. 8/ "Earnings capacity" was defined as the annual income that would be produced if the household head and spouse were employed during all weeks of potential work (excluding weeks of illness, disability or unemployment) at the earnings level of other workers matched according to age, schooling, race, sex, region, work pattern and marital status. The earnings capacity poor were defined as the percentage (arbitrarily set at the poverty rate) lowest in the earnings capacity distribution. "Capacity utilization" compared actual earnings over the year to earnings capacity. Earnings capacity utilization, thus, sought to measure the work effort of families and households while earnings capacity poverty identified the household heads and spouses who would be the worst off even if their work effort and earnings were up to potential.

In 1979, Robert Stein of the Bureau of Labor Statistics proposed a simple hardship measure that included all primary earners in the labor force more than half year whose individual earnings were below the poverty line for their families or households, and whose total family or household incomes were less than double the poverty line. 9/

In its 1979 report, Counting the Labor Force, the National Commission on Employment and Unemployment Statistics (NCEUS) developed (although it did not recommend) a hardship index based on work experience and earnings over the previous year. 10/ The measure included full-year, full-time workers whose individual earnings alone were inadequate to lift their households or families out of poverty, excluding those in families or households with a total income more than double the poverty threshold. The full-time, full-year labor force was defined as persons who were in the labor force 40 weeks or more, plus those who did not work at all, sought work at least 15 weeks, but left the labor force because of discouragement over job prospects. Excluded were persons who usually worked part-time voluntarily.

Bruce Klein in 1980 sought to link the Garfinkel/Haveman earnings capacity notion with the hardship concept, assessing the portion of individuals in hardship who would have inadequate income if working and earning up to "capacity." 11/ The "subemployed" were defined as:

1. Persons who did not work during the year but spent at least 13 weeks or more looking for work and did not look in other weeks because they felt they could not find work;
2. Unemployed workers who were looking for work or on layoff 14 weeks or more, worked at some time during the year, and were in the labor force 40 weeks or more;

3. Persons who worked 13 weeks or more part-time during the year but wanted full-time jobs; and

4. Individuals employed full-time for 40 weeks or more whose earnings were below the poverty level for their families.

"Earnings capacity economic hardship" was determined by assigning "potential" earnings to the subemployed and then comparing their augmented income (not including transfers) to an adequacy standard of 150 percent of the poverty threshold for the family or household. Potential earnings were defined as 40 weeks of 40 hours weekly at the minimum wage for discouraged workers; the number of weeks in the labor force times usual weekly earnings for those unemployed during the year; actual earnings times the ratio of 40 hours per week to usual weekly hours for the involuntarily part-time workers; and actual earnings for full-time workers in poverty. In other words, the Klein measure sought to identify those with labor market-related hardship who could not earn an adequate income if fully employed.

The Underlying Issues

There are subtle yet quite significant differences between the assumptions and approaches adopted in these various subemployment, hardship, earnings capacity and earnings adequacy measures. Each had shortcomings, but it is possible to pick and choose the best features in order to develop more useful and acceptable measures:

1. Individual vs. family perspectives. Individuals with similar work force experience may have different family status, income needs and supplements to their own earnings, so that their well-being will differ despite equal earnings. Should income adequacy and hardship be judged in terms of individual needs or in terms of family needs? Three different approaches were advanced to deal with this issue. The Wirtz, 1968 Manpower Report, and Spring/Harrison/Vietorisz measures were focused on the individual--assuming that the labor market should provide a basic standard which would lift a family of four out of poverty, whether or not an individual worker had these breadwinning responsibilities.

The Miller, Levitan/Taggart, the NCEUS, Stein and Klein measures used a two-step procedure to determine hardship. The first step defined the subemployed according to individual labor market problems; the second screened out persons whose family or household incomes were adequate. However, none of these measures clearly distinguished individual vs. family problems because the low earners, who constituted a significant portion of the subemployed, were defined in terms of family or household income needs. The Garfinkel/Haveman earnings capacity poor were also defined from a family or household earnings perspective.
The Vietorisz/Mier/Giblin approach derived two indices designed specifically to separate individual earnings problems from aggregate family earnings inadequacy, judging the first relative to wage standards applied to all workers and the second relative to income adequacy standards reflecting each individual's family size and needs. This is conceptually the preferred approach.

2. Timeframes. A person employed and with adequate earnings in any given survey week may experience a reduction in hours, hourly earnings or unemployment which generates inadequate earnings over a year. On the other hand, joblessness or reduced hours of employment for a week or two may not create undue hardship if earnings the remaining weeks are adequate. The number who experience labor market problems over a year are several times the number who experience them in any week, while only a small proportion of those with problems in any week will have them recur for a significant duration. The time period for assessing the adequacy of employment, earnings and income is, therefore, critical.

The Wirtz and Spring/Harrison/Vietorisz measures were based on labor force and earnings status in a single survey week. The Miller, Levitan/Taggart and Vietorisz/Mier/Giblin measures based some components on survey week status and other components on experience over the previous year. The 1968 Manpower Report, the NCEUS, Stein, Garfinkel/Havenan and Klein measures all used the work, earnings and income experience over the previous year. This latter approach is conceptually most appropriate for several reasons: First, hardship measures seek to identify individuals with continuing structural problems, rather than those whose labor market difficulties are only short-term and do not have serious consequences for well-being. Second, it is possible to define some weekly status variables in terms of their duration where the necessary information is gathered--for example, including in a definition of hardship only the currently unemployed with 15 or more weeks of unemployment--but this is not possible for most other earnings and employment status variables which are measured only for the survey week and annually. Family or household income data are collected only on an annual basis. Third, the poverty counts, which assess the hardship resulting from both labor market and non-labor market problems, have an annual focus. It makes sense, then, to use this same time-frame in assessing the labor market-related hardship components.

3. Income and earnings standards. Assuming an annual timeframe and separate consideration of individual problems and family needs, there are several different standards which could be and have been used to define hardship. The higher the earnings or income standards, the greater the number of individuals and proportion of the population which will be counted in hardship.

The individual earnings standards adopted by the Wirtz, 1968 Manpower Report, Spring/Harrison/Vietorisz and Miller measures were the weekly, hourly or annual earnings needed to lift a family of four out of poverty. Miller and Wirtz also used the minimum wage as the earnings standard for some components. Klein, NCEUS and Levitan/Taggart used the poverty level or its multiple as a minimum earnings standard, thus weighing individual earnings in light of family size. Vietorisz/Mier/Giblin used a parametric approach, defining individual earnings adequacy under a range of hourly earnings standards.
Several different family income standards were utilized. Miller and
Levitan/Taggart used the mean and median incomes of families and unrelated
individuals as the upper income screens, i.e., parameters which did not
consider family size in assessing whether income was more than adequate.
NCEUS and Stein used 200 percent of the poverty threshold for each par-
ticular family, while Klein used 150 percent. Vietorisz/Mier/Giblin em-
ployed a parametric approach with a range of income standards adjusted for
family size. The other hardship measures used earnings and income stand-
ards synonymously, i.e., low earners were defined in terms of the poverty
threshold or the minimum wage, and there was no screening out based on
other sources and total levels of family income.

Probably the most defensible standards are the minimum wage for
individual earnings and the poverty level for family income. The para-
metric approach, which calculates hardship under a range of different
income and earnings standards, is complex if too many alternatives are
utilized, but a few multiples of the basic standards can be extremely
helpful in suggesting the sensitivity of hardship counts to alternative
standards of need. It is inconsistent to use the minimum wage or family
poverty level as an adequacy standard for individual earnings but to use a
mid-level income (such as the median, mean, or 200 percent of poverty) as
the cutoff point for family income hardship. Consistent income and
earnings standards should be used rather than a low-level for screening in
individual earnings problems but a mid-level for screening out families
judged to have adequate incomes.

4. Nonearned income. Given the overlap between work and welfare,
earnings alone may provide a less than adequate income but economic hard-
ship may be alleviated by income transfers or other nonearned income such
as private pensions or alimony. The Wirtz, 1968 Manpower Report, Spring/
Harrison/Vietorisz, Miller, and Vietorisz/Mier/Giblin indices were con-
cerned only with earnings. The Levitan/Taggart, Stein and the NCEUS
indices counted all income in assessing adequacy for the families and
households of the subemployed. The Garfinkel/Haveman and Klein measures
excluded transfer payments but counted other nonearned income.

Three separate but related issues are involved: Whether the labor
market is providing minimal earnings for an individual; whether the earn-
ings of family members are adequate to meet minimal family needs; and, when
this is not the case, whether nonearned income offsets earnings deficits.
Put another way, the focus is, respectively, what an individual needs or
should receive as a minimum from work; what he or she needs to earn in
light of family status in order to be self-supporting; and what is needed
in order to achieve minimal well-being in light of transfer payments or
other income. No single measure can address all of these questions.

5. Treatment of secondary earners. One of the reasons for intro-
ducing a hardship index is that the increase in multiple earner families
has reduced the hardship consequences of unemployment for any single family
member. Yet it is clearly more significant if the family member experi-
cencing labor market problems is the primary breadwinner rather than another
member who contributes minimally to the family exchequer. Many of the
hardship measures, therefore, focused in some way on those assumed to be
primary breadwinners. The Vietorisz/Mier/Giblin "exclusion index" meas-
uring individual earnings problems included all workers regardless of family status; however, the "inadequacy" measure assessing well-being included only family heads and unrelated individuals. The Stein measure was restricted to primary earners. The Miller, Levitan/Taggart and Wirtz indices included only family heads or unrelated individuals in the low earners category of the subemployed and hardship measures, although making no distinction on the basis of breadwinner status in the other component categories. The Garfinkel/Haveman measure of earnings capacity poverty considered both family heads and their spouses.

In contrast, the 1968 Manpower Report, Spring/Harrison/Vietorisz, the NCEUS and Klein measures considered all potential earners and did not exclude on the basis of breadwinner status. This is the most consistent and probably the most reasonable approach. If the family or household is considered the appropriate unit for judging income needs and adequacy, then it is inconsistent to count a dollar of actual or potential earnings from one family member differently from that of another. To exclude from the hardship counts those individuals in families with adequate earnings or incomes including the wages and salaries of secondary earners, but to fail to count secondary earners with problems who live in families with below adequate earnings, is also inconsistent. If an inclusive definition is used which counts secondary earners with problems but disaggregates by family status, then hardship due to low earnings of the primary breadwinner can be identified through disaggregation where this is appropriate.

6. Attachment to the labor force. Earnings alone will rarely provide an adequate individual or family income when the weeks and weekly hours of work availability are limited. On the other hand, earnings from even a few additional weeks of work, or from part-time employment by an extra worker, can improve a family's well-being and perhaps lift the family out of poverty. Most of the hardship measures had at least some low earnings components restricted to persons working in full-time, rather than part-time, jobs. Those measures based on annual earnings, income and work experience usually restricted attention to persons with significant labor force attachment, variously defined. The 1968 Manpower Report measure included only low earners employed 50 weeks or more and all other labor force participants who experienced 15 or more weeks of unemployment. The Vietorisz/Mier/Giblin low earnings category also required 50 weeks of attachment. The NCEUS and Klein measures used a 40 week attachment requirement, while Stein required more than half-year participation. The Levitan/Taggart measures restricted the low earners categories to currently employed household heads who were assumed to be attached to the labor force by dint of their current work and breadwinning responsibilities. The remaining indices, which were based only on employment status in the survey week, implicitly required far less continuity of attachment to the labor force.

The degree of labor force attachment is also an issue in defining discouragement. Job search demonstrates availability and desire for work, and one might reasonably doubt the commitment of an individual claiming to want work but saying none is available without having looked. The discouraged in the Vietorisz/Mier/Giblin index included all those outside the labor force claiming to want employment. Spring/Harrison/Vietorisz included persons wanting work who listed inability to find work as either a
primary or secondary reason for not looking. The Levitan/Taggart measures restricted the discouraged to those wanting work but not looking primarily because they thought they could not find a job or perceived personal employment barriers (lack of skills or age), while the Miller index was even more restrictive, excluding those who perceived personal employment barriers. The NCEUS and Klein measures included those whose main reason for not working in the last year was the belief that no jobs were available, but added a further requirement of at least 15 weeks of job search in the first case, and 13 in the second. Stein implicitly required 26 weeks of work or unemployment, with no subspecification for those individuals who were discouraged some or all of their weeks outside the labor force.

Attachment was also the basis for exclusion of groups assumed to have alternative income and activities. The Levitan/Taggart and Miller indices excluded persons over age 64 as well as 16- to 21-year-old students. Spring/Harrison/Vietorisz restricted attention to persons age 16 to 65 years. These exclusions, justifiable on average, were unreasonable in many individual cases where younger or older workers had primary breadwinning responsibilities.

There was no agreement, then, on the appropriate length of work force attachment, since the measures based on survey week status required only one week of participation while those with an annual focus had requirements ranging from 13 to 50 weeks. Each approach measured something fundamentally different and reasonable arguments were made for both restrictive and inclusive standards. Clearly, then, it is necessary to incorporate alternative attachment standards within hardship measures. An inclusive approach, i.e., with minimal attachment requirements, can be disaggregated to focus on those with longer attachment, and is preferable to an exclusionary approach defined by a strict attachment standard which, therefore, limits information available on persons with real problems but failing marginally short of the strict standard. As an example, the inclusive approach is used in defining unemployment; the definition encompasses persons seeking just one hour of work a week as well as those seeking 40-hour jobs, or those unemployed one week as well as those jobless a year or more. Attachment is handled by disaggregating part-time and full-time jobseekers and short-term or long-term unemployed.

There are some other reasonable principles which might be applied in order to further simplify the attachment issue:

First, groups of individuals should not be excluded because, on average, they have marginal attachment; inclusion or exclusion should be based, insofar as possible, on individual behavior, experience and needs, treating all individuals by the same rules. In particular, there is no justification for excluding all persons aged 65 years and over, or students, except by the same criteria used for others.

Second, attachment standards should apply consistently. Mixing timeframes so that some persons are included by survey week status but others by annual experience violates this principle. So, too, does inclusion of part-time workers who are unemployed but not part-time workers who receive a subminimum hourly wage, or a low earner who works 35 hours weekly but not one who works 34 hours more weeks which yield more annual hours of work availability.
Third, while the truly discouraged should be included in any hardship count, the definition should include a minimum job search requirement to provide a tangible demonstration of job desire and availability and some proof that the inability to find work is, in fact and not just imagination, a primary reason for nonparticipation.

7. Disaggregations and supplementary statistics. Counts of persons with inadequate income or earnings are one dimensional indicators of need, including persons with no earnings whatsoever as well as those fully employed but with earnings a dollar short of meeting adequacy standards. The Miller, Levitan/Taggart and Klein measures all estimated the average incomes of persons excluded and included in the subemployed and hardship counts, as well as the percentages living in poverty. Combined with the disaggregations by typology of labor market problems, these data provided some indication of the relative severity of different types of problems for individuals included in the counts. Klein introduced the deficit notion, already used in the poverty data system, measuring the dollar shortfall of income or earnings relative to the needs standards.

Hardship may result from low earnings despite full employment, as well as from part-time, intermittent, or no employment, and each of these work experience patterns and problems might be addressed by different policy measures. It is, therefore, necessary to isolate the typology of labor market problems causing hardship. The subemployment measures were usually derived by cumulating separate components defined according to the typology of labor force problem and these separate component totals were usually presented. For instance, the Levitan/Taggart Employment and Earnings Inadequacy count was composited of, and disaggregated for, the unemployed, discouraged workers, fully-employed low earners, the intermittently employed and persons employed part-time involuntarily.

Some of the previous hardship measures were also disaggregated by family status, race, age, sex and other key demographic variables. Geographic breakdowns were also available in a few cases. The Miller, Wirtz and Spring/Harrison/Vietorisz measures were calculated strictly for central city poverty areas, while the NCEUS, Klein and Levitan/Taggart measures included breakdowns for metropolitan and nonmetropolitan areas.

While primary emphasis in previous hardship measurement efforts went to developing acceptable indicators and explaining their meaning rather than utilizing the measurement system for analytical purposes, Levitan/Taggart, NCEUS, and Klein examined cyclical hardship patterns, as well as racial differentials over time. To better identify the causes and cures of hardship, there was some experimentation with simulations in the Garfinkel/Haveman and Klein measures, which estimated hardship after augmentation of individual earnings up to estimated "capacity." These measures also assessed variants with and without income transfers.

Some of the measures also dissaggregated according to different need standards. The Vietorisz/Mier/Giblin measures used a parametric approach in defining need and thus produced several score of alternative indices. The NCEUS and Levitan/Taggart measures were calculated (but not published) with a range of assumptions about attachment and adequacy standards. The hardship measures also, in some cases, calculated exclusion rates--i.e.,
the proportion in any labor market problem category excluded because of earnings or income above adequacy standards.

The appropriate degree and focus of disaggregation and of derivative measures is suggested not only by the previous work on hardship, which was basically exploratory in nature and focused on developing indicators rather than data systems, but also by the approaches used in presenting and analyzing labor force and poverty statistics. Both annual work experience and poverty data are published with breakdowns by age, marital and family status, number of family earners, income levels and sources, education, occupation, race and region. The poverty data calculate total and average income deficits to measure the severity of poverty. The "near-poor" population is counted using 125 percent of the poverty thresholds. There are supplementary data which identify income sources, measure poverty with and without cash transfers included, and, recently, calculate the incidence of poverty before and after the receipt of in-kind aid. The work experience measures assess severity in terms of frequency and duration of joblessness and the weeks of labor force participation. In other words, the Bureau of Labor Statistics' annual report on work experience, and its monthly report on employment and earnings, as well as the annual Bureau of the Census reports on poverty and income, provide examples of the types of disaggregation which are possible and have proven useful.

The National Commission on Employment and Unemployment Statistics argued for a comparable array of information organizing these data elements from the hardship perspective: 12/

A single indicator cannot give individual attention to the . . . components of labor market related hardship . . ., deal with multiple classifications of labor force status during a year, or give separate attention to the individual's status and to his or her family's economic status.

The commission therefore recommends that the Bureau of Labor Statistics prepare an annual report containing measures of the different types of labor market related economic hardship resulting from low wages, unemployment and insufficient participation in the labor force. These data, which refer to individuals, would be presented in conjunction with the family relationship and the household income status of the individual . . . .

The purpose of the annual report would be to present employment problems in relation to the most basic economic problem: inadequate income. The Bureau of the Census publishes statistics on the poverty population, with peripheral attention to labor force attachment. The perspective would be reversed in the recommended report from the Bureau of Labor Statistics, which would start with labor force status and labor market conditions and relate them to poverty.
Consensus and Convergence

There is, then, consensus on some hardship measurement issues and convergence on others:

First, the concepts and related indicators linking labor force and income status should differentiate between individual earnings problems disregarding family status, and family earnings shortfalls which consider differing family size and composition.

Second, hardship measures should also differentiate between family earnings shortfalls and family income deficits, while it would be desirable to further differentiate the income deficits before and after cash transfer payments as well as weighing the effects of in-kind aid.

Third, the measures should utilize an annual timeframe, drawing on work experience rather than current work status data, and annual rather than weekly earnings.

Fourth, the minimum wage is the only socially agreed-upon standard for judging the adequacy of individual earnings, while the poverty thresholds are the most frequently used and publicly accepted standards for judging the adequacy of family income. Supplemental calculations assessing hardship relative to multiples of the minimum wage and the poverty level can indicate the sensitivity of the measures to alternate needs standards, can enrich analytical potential and can reduce debate about appropriate needs standards.

Fifth, since a dollar of earnings by any family member has an equal impact on family well-being, the earnings deficits resulting from the labor market problem affecting all family members should be treated consistently. The distinction between "primary" and "secondary" earners should be handled by disaggregation not by exclusion. The severity of an individual's problems should be measured in terms of the dollar decrement which it produces in the income or earnings of the individual and family.

Sixth, various typologies of labor market experience which generate earnings problems should be identified since they result from substantially different causes and require substantially different cures. Along with the numbers affected by each type of problem, the resulting income and earnings shortfalls should also be estimated, since some types of problems usually have more severe consequences than others.

Seventh, the adequacy of earnings and labor force experience should be judged relative to an individual's hours and weeks of availability for work. All work force participants should be included if individual earnings fall short of a minimum adequacy level for their hours of availability and if this shortfall contributes to family earnings and income deficits. Labor force attachment issues should be addressed by disaggregating these more inclusive measures according to the degree of participation in the work force and the size of the individual earnings deficits.

Eighth, the hardship concepts and indicators must have the potential for disaggregation to consider family size and composition, age, race, sex,
region, occupation, and education, i.e., paralleling the disaggregations of poverty and work experience data. There should be an annual presentation and analysis of these disaggregated data supporting the composite hardship indicators.

The first step, then, is to define a set of hardship measurement concepts and related indicators that meet these various requirements.

A Measurement and Assessment System

The Primary Indicators

The proposed hardship measurement and assessment system consists of three sets of core indicators which measure the adequacy of individual earnings, the adequacy of family earnings, and the adequacy of family incomes in terms of both the numbers who fall below minimum standards and the dollar shortfalls relative to these standards:

1. The Inadequate Individual Earnings (IIE) measure counts individuals who, because of low wages or limited employment, have earnings less than what would have been provided by employment at the minimum wage (or its multiple) during the annual hours of actual or discouraged labor force participation. The Inadequate Individual Earnings Deficit (IIE Deficit) is the difference between the earnings that would have been generated by minimum wage employment for all hours of availability and actual annual earnings of persons in the IIE.

2. The Inadequate Family Earnings (IFE) measure counts work force participants whose earnings, when added to those of other family members, do not provide a minimally adequate family income as judged by the poverty standard (or its multiple) for the family. An unrelated individual is considered a family of one. The Inadequate Family Earnings Deficit (IFE Deficit) is the difference between the earnings of all workers in the IFE and the poverty levels (or multiples) for their families.

3. The Inadequate Family Income (IFI) measure counts work force participants whose earnings and nonearned incomes, combined with those of other family members, do not provide a minimally adequate family income as judged by the poverty standard (or its multiple). The Inadequate Family Income Deficit (IFI Deficit) is the difference between the incomes of families in the IFI and the poverty levels (or multiples) for these families.

These indices are calculated using three sets of adequacy standards arbitrarily defined as "severe," "intermediate" and "moderate" hardship. The severe hardship standards are the minimum wage for judging the adequacy of individual earnings (IIE) and the poverty thresholds for judging the adequacy of family earnings and family incomes (the IFE and IFI). The intermediate hardship standards compare earnings and incomes to 125 percent of the minimum wage equivalent for the individual and 125 percent of the
poverty threshold for the family. The moderate hardship standards use 150 percent of the minimum wage equivalent and 150 percent of the poverty level to define individual and family hardship.

For all those who worked or sought work during the previous year, the adequacy of individual earnings is assessed relative to their total time in the work force. Actual annual earnings are compared to an "individual earnings standard" derived by multiplying the hourly standard (the minimum wage, 125 percent of the minimum or 150 percent of the minimum, depending on whether severe, intermediate or moderate hardship counts are being derived) times each person's weeks in the work force multiplied by the hours they were seeking work or working weekly. Since the legislated minimum wage is changed irregularly, the dollar level equal to the real average minimum wage for the 1967-1980 period is used as the hourly earnings standard for severe hardship.

The adequacy of family earnings and family income are assessed relative to 100, 125, and 150 percent of the poverty standards for each family with at least one member in the work force. The poverty thresholds, of course, vary with family size and farm or nonfarm residence.

Hardship is assessed for all persons participating in the work force over the course of a year, as well as for the subsets of participants in the work force 27 weeks or more, i.e., "half-year," and those in the work force "full-year," defined as 50 weeks or more.

In summary, the system calculates nine basic variants of the IIE, IFE, IFI and their associated IIE, IFE and IFI Deficits: each measure is estimated using severe, intermediate, and moderate hardship standards considering full-year, half-year, and total work force participants.

Supplementary Measures

The hardship measurement system includes several supplementary measures, as well as subclassifications and disaggregations of the primary indicators:

First, all work force participants (whether in the labor force full-year, half-year or less-than-half-year) are classified into mutually exclusive categories based on their work experience patterns over their weeks of participation in the previous year:

1. Employed full-time (35 hours or more weekly) during all weeks of work force participation.

2. Employed part-time some or all weeks for persons employed throughout their period of participation. Subcategories include persons involuntarily employed part-time at least one week and the remainder employed part-time voluntarily.

3. Intermittently employed, combining weeks of employment and weeks of unemployment. Subcategories include those "mostly unemployed" (two-
thirds or more of their weeks in the work force), "mostly employed" (working two-thirds or more of their weeks of participation), and the remainder with a "mixed" pattern.

4. Nonemployed during weeks of availability for work. Subcategories include persons "unemployed" throughout all weeks in the work force and those searching for work at least four weeks but "discouraged" the remainder of the year.

Second, incidence rates are derived for the IIE, IFE, and IFI, by dividing the number with inadequate individual earnings, family earnings, and family incomes, respectively, by the number in the work force. The IIE index measures the probability that a work force participant will have earnings less than the minimum wage (or a multiple of the minimum) for the hours and weeks of work that individual is an active or discouraged work force participant. The IFE index measures the proportion of the work force whose earnings, combined with those of other family members, would result in some degree of hardship in the absence of other income sources. The IFI index measures the incidence of hardship among work force participants after nonearneed income is added to family earnings.

Third, aggregate and average IIE, IFE and IFI Deficits are calculated for individuals in different work force experience categories. The IIE Deficits of persons in any given work experience category are straightforwardly added and averaged. Family earnings and income deficits are allocated among family work force participants in proportion to their shares of the combined individual earnings deficits of family members. Where the combined IIE Deficits of family members are less than the family's earnings or income deficit, the difference is distributed according to family members' shares of family earnings if each received at least minimally adequate individual earnings. This procedure for allocating family deficits among members suggests the relative impact of each member's employment and earnings problem on family hardship. The distribution of the total deficits among persons in each work experience category are also calculated, suggesting the relative severity of different labor force pathologies.

Fourth, all these measures—the IIE, IFE, and IFI counts, their incidence rates and distributions, plus the IIE, IFE, and IFI Deficits, average deficits and deficit distributions as calculated for individuals based on their category of work force experience—are further disaggregated according to age, race, sex, family size and number of earners, individual family status, educational attainment, individual earnings, individual earnings deficit, family income, region and area of residence, and occupation. These calculations parallel the standard disaggregations of the poverty and work experience data.

**Interpretative Indices**

Individual earnings may be inadequate because of low wages, periods of nonemployment or less than desired hours of weekly employment. A person with Inadequate Individual Earnings may be in a family with adequate family
earnings, as exemplified by the teenager in a family with a fully employed and well-paid head. Likewise, a person with adequate individual earnings may reside in a family which, because of large size or few work force participants, may have Inadequate Family Earnings even though no members have Inadequate Individual Earnings. Family income inadequacy, which is assessed only for persons in the adjusted work force, results when family earnings are low and are not adequately supplemented by transfers and other sources of nonearned income.

To help sort out the causes, consequences and cures for hardship, there are a range of interpretative indices in addition to the primary indicators and supplementary measures. To better assess the underlying labor market pathologies and the effectiveness of various labor market interventions, the earnings and incomes of individuals in hardship are augmented in several different ways to simulate certain "what if" conditions. For instance, the IFE and IFE Deficit are calculated after augmenting the earnings of all unemployed and involuntarily part-time workers by providing minimum wage (or multiple) earnings for all hours of idleness. Under a closely related augmentation scheme, these same individuals are ascribed "capacity employment" defined as their usual hourly earnings rate for all hours of forced idleness. The impact of increased hourly wages or earnings supplements is simulated by the "enhanced earnings augmentation" which raises the actual earnings of all workers in the IFE by 10 percent. The attainment of minimally "adequate employment" for all work force participants is simulated by augmenting each worker's annual earnings up to the level of the minimum wage multiplied by the annual hours of availability for work. The impacts of more comprehensive solutions for labor market problems are simulated by an "enhanced capacity" augmentation which first provides workers in the IFE their usual wage for any hours of forced idleness, then increases everyone's annual earnings by 10 percent.

To better assess the interaction between family size and composition and the family's earnings patterns and problems, a variant of the IFE is calculated which considers only persons who also have Inadequate Individual Earnings. The difference between this smaller total and the regular IFE suggests the number whose family hardship results from large families and limited work effort rather than the failure of family members to earn minimum wages during their hours of availability.

To determine the marginal effect of solving the problems of significant segments of the population in hardship, the IFE and IFE Deficit are calculated by augmenting the earnings of particular family member subgroups (such as heads, wives or other family members) and age subgroups, and then determining how many families would remain with earnings below the poverty level (or its multiple), as well as the size of their deficit. The augmentations include providing minimum wage and usual earnings for all hours of forced idleness, and increasing earnings up to the individual earnings standard for all hours of availability.

To better understand the effectiveness of cash and in-kind aid in alleviating the consequences of labor market problems, the IFI and IFI Deficit are calculated with cash transfers excluded from family income. Differencing the Net-of-Transfers IFI and the regular IFI suggests the number of work force participants lifted out of poverty by cash transfer
payments. An Earnings Supplementation Rate-Total is also calculated indicating the proportion of persons with Inadequate Family Earnings who are lifted out of hardship by other income sources, and an Earnings Supplementation Rate-Nontransfers indicates the proportion of the IFE escaping poverty (or its multiple) by the receipt of nontransfer earnings supplements alone. Finally, the IFI and IFI Deficit are calculated after adding the estimated value of food stamps to cash income; they are also calculated after adding the estimated values of food stamps, housing subsidies and school lunches.

Thus, the hardship measurement system consists of an array of thirty measures which are calculated separately for individuals in the labor force full-year, half-year, and at any point during the year, using, in each case, the severe, intermediate, and moderate hardship standards (Table 1.1). For each of these nine variants of the data matrix, there are disaggregations of the measures according to work experience patterns, and then these complete data sets are further disaggregated by age, race, sex, family status, occupation, family income, individual earnings and area of residence of the work force participants.

Assumptions and Approaches

All measures involve normative judgments and assumptions translated into a set of decision rules and definitions which are used in considering the information gathered about the status and experience of each individual. The detailed definitions used in the calculation of the hardship measures from the March Current Population Survey responses are presented in Appendix A, but the general assumptions and approaches which are implicit must first be understood.

Inclusiveness

The proposed set of hardship measures is inclusive rather than exclusive, encompassing diverse labor market problems, work force attachment levels, as well as family earnings and income patterns. The adequacy of individual earnings is judged by the standard that each work force participant should earn at least the minimum wage for the hours and weeks he or she is willing and able to work, and that each family with work force participants should be able to at least earn enough to escape poverty. All earnings and earnings shortfalls are considered from an individual as well as family perspective, considering each individual's work experience and his or her family needs. The disaggregation of individuals in the hardship counts according to work experience patterns and duration of work force participation, and the disaggregations by family status and individual characteristics, are used to identify the portion of hardship accounted for by persons with continuous work force attachment, primary breadwinning responsibilities or particular patterns of work experience which may be of concern.
Table 1.1 HARDSHIP MEASURES

Primary Indicators

1. IIE--Number of work force participants failing to earn the minimum wage (or its multiple) for their annual hours in the work force.

2. IIE Deficit--Shortfall of individual annual earnings relative to the minimum wage equivalent.

3. IFE--Number of work force participants in families with earnings below the poverty level (or its multiple).

4. IFE Deficit--Shortfall of family earnings relative to the poverty level (or its multiple) for families with at least one work force participant.

5. IFI--Number of work force participants in families with incomes below the poverty level (or its multiple).

6. IFI Deficit--Poverty deficit for families with at least one work force participant.

Supplementary Measures

7. IIE Incidence--Percent of work force with Inadequate Individual Earnings.

8. IFE Incidence--Percent of work force with Inadequate Family Earnings.

9. IFI Incidence--Percent of work force with Inadequate Family Income.

10. IIE Average Deficit--IIE Deficit divided by IIE count.

11. IFE Average Deficit--IFE Deficit divided by IFE count.

12. IFI Average Deficit--IFI Deficit divided by IFI count.

Interpretative Indices

13. Full Employment IFE--IFE if every individual were employed at minimum wage (or its multiple) for all hours of involuntary idleness.

14. Full Employment IFE Deficit--IFE Deficit if every individual were employed at minimum wage (or its multiple) for all hours of involuntary idleness.
Table 1.1 (Continued)

15. Capacity Employment IFE--IFE if every individual were employed at his or her usual hourly wage for all hours of involuntary idleness.

16. Capacity Employment IFE Deficit--IFE Deficit if every individual were employed at his or her usual hourly wage for all hours of involuntary idleness.

17. Enhanced Earnings IFE--IFE if annual earnings of all workers were raised by 10 percent.

18. Enhanced Earnings IFE Deficit--IFE Deficit if annual earnings were raised by 10 percent.

19. Adequate Employment IFE--IFE if all persons earned at least the minimum wage equivalent (or its multiple) for all hours in the work force.

20. Adequate Employment IFE Deficit--IFE Deficit if all persons earned at least the minimum wage equivalent (or its multiple) for all hours in the work force.

21. Enhanced Capacity IFE--IFE if all persons were provided employment at the usual wage for all hours of forced idleness, and earnings of all persons were increased by 10 percent.

22. Enhanced Capacity IFE Deficit--IFE Deficit if all persons were provided employment at the usual wage for all hours of forced idleness, and earnings of all persons were then increased by 10 percent.

23. Earnings Supplementation Rate-Total--Proportion of persons in IFE who escape poverty as a result of nonearned income.

24. Earnings Supplementation Rate-Nontransfers--Proportion of persons in IFE who escape poverty as a result of nontransfer earnings supplements.

25. IFI Net-of-Transfers--Work force participants in families with cash incomes, excluding transfers, which are below the poverty level (or its multiple).

26. IFI Net-of-Transfers Deficit--IFI Deficit when cash transfers are subtracted from family income.

27. IFI Including Food Stamps--IFI when estimated value of food stamps is added to cash income.

28. IFI Deficit Including Food Stamps--IFI Deficit when estimated value of food stamps is added to cash income.

29. IFI Including In-Kind Aid--IFI when estimated value of food stamps, school lunches and housing subsidies are added to cash income.

30. IFI Including In-Kind Aid Deficit--IFI Deficit when estimated value of food stamps, school lunches and housing subsidies are added to cash income.
As noted previously, this inclusive approach was adopted because the exclusion rules used in previous measures to focus on breadwinners and individuals with a serious commitment to work, treated certain situations and individuals inconsistently. For instance, the restriction of hardship counts to "full-year" labor force participants using a 40-week attachment standard excluded an individual unemployed 39 weeks but too ill to work the remainder of the year despite the fact that this individual's labor market experience would have been just as much a source of economic hardship as that of a low earner unemployed for 8 weeks during the year. Likewise, the restriction of previous hardship measures to primary earners and their problems implicitly and incorrectly assumed that an extra dollar of earnings to the primary earner would alleviate hardship while an extra dollar to a secondary earner would not, or that problems of primary earners could be cured more easily (which may or may not be true) or should have higher priority than those of others in the family.

By measuring hardship relative to individually derived standards based on annual hours of work availability, by treating all earners equally in considering family earnings and income adequacy, and by providing disaggregations to get at the issues usually handled by exclusion, these anomalies were reduced. Inclusive measures can be disaggregated to the exclusive measures but the inverse is not true. For instance, if 40 weeks of participation were the standard for counting hardship, data would not be available to assess the problems of those with, say, 35 to 39 weeks of participation. Clearly, then, the information yield is enriched by the inclusive approach adopted in the proposed hardship measures.

How Much Not Just How Many

The use of the earnings and income deficit approach to supplement the hardship counts provides an indicator of the severity of individual and family problems. Previous hardship measures were usually one-dimensional—once included, each individual counted the same as another regardless of the degree of hardship, making it necessary to exclude by definition all those considered to have less serious problems, such as voluntary part-time workers. They are included in the proposed measures if earning less than the minimum wage or living in families with inadequate earnings or income. They might contribute only a small amount to the budget of their families, and the increment from raising their wages to the minimum might be small, but this is revealed by the average earnings and income deficits for such workers. With such information and the weighting which is implicit, there is no reason for arbitrary exclusion.

There is some inherent arbitrariness in allocating family earnings and income shortfalls among family members. While the decision rule is complex, the principle is not. To the extent that family members earn less than the minimum wage equivalent for their hours in the work force, and that these individual shortfalls cause the family earnings or income deficits, these family deficits can reasonably be distributed according to the relative severity of members’ individual problems. If all members had at least minimally adequate earnings, any remaining family deficit would require greater earnings from all family members in proportion to their relative contribution to total family earnings.
The hardship counts can be straightforwardly disaggregated to focus on the subsets of all work force participants who are available for work full-year or half-year. However, assumptions are required in order to allocate family income and earnings shortfalls among family members where some may be participating full-year or half-year but others less-than-full-year or less-than-half-year. Where the hardship measures are restricted to full-year or half-year participants, the adopted approach allocates the family deficit by the same two-step procedure outlined above, except that only the individual earnings deficits of the full-year or half-year participants are considered in the first step. In other words, to the extent the individual earnings problems of the full-year or half-year participants lead to a family's earnings or income shortfall, the full-year or half-year participants are assigned this share of the family shortfall. The relative contributions of all family earners are considered in allocating any remaining family earnings or income deficit. This means that the share of the family IFE and IFI Deficits allocated to full-year and half-year participants under the full-year and half-year disaggregations of the hardship measures are not the same as the shares allocated to them under the hardship calculations for the total work force.

Hardship Standards

The choice of the minimum wage to assess the adequacy of individual earnings and the poverty level to measure the adequacy of family earnings and income are based on the fact that the minimum wage and the poverty levels are unquestionably the most accepted and understood needs indicators. Yet there are some implications which must be recognized and some adaptations which must be made.

Because the legislated minimum is adjusted sporadically, sometimes lagging behind the cost of living and then suddenly catching up in a single step, its use would produce irregular fluctuations in the individual earnings adequacy measures reflecting the irregular changes in the law rather than changes in well-being. In years when the legislated minimum was eroded by inflation, the individual hardship count would go down even though real purchasing power of low wage earners would probably be declining. Conversely, there would appear to be an increase in individual hardship in years when the legislated minimum was raised because wage adjustments would not be instantaneous. To avoid this anomaly, the proposed hardship measurement system does not use the legislated minimum wage as the basis for the individual earnings standard, but rather an average of the real value of the legislated minimum, with adjustments to maintain purchasing power from year to year.

Since an indexed minimum rather than the legislated minimum wage is used as the individual earnings standard, its acceptability depends on the base level and the cost index which are used. The Minimum Wage Study Commission suggested indexing the legislated minimum relative to nonfarm earnings because of problems with the Consumer Price Index, particularly the weight given to fluctuating housing mortgage interest costs. However, the poverty level used to assess the adequacy of family earnings and incomes is an absolute rather than relative standard, i.e., it is adjusted
each year for the CPI. Thus, the CPI index minus housing interest costs is used to calculate the minimum wage standard for each year, thereby overcoming many of the problems with the regular CPI, while achieving consistency in the use of absolute adequacy standards for both family and individual earnings.

There is no reason to assume that the real value of the legislated minimum wage in any specific year is a better base than another, which is why the adopted approach was to average the real value (adjusted for the CPI minus housing interest costs) of the legislated minimum wage from 1967 through 1980 (using the minimum legislated for pre-1966 covered workers). This relatively long period included minimum wage increases legislated in 1966, 1974, and 1977, as well as the erosion periods of 1969 through 1973 when the minimum was stable despite inflation, and 1980, when it rose but not enough in light of unexpectedly high rates of inflation. The 1966 Fair Labor Standards Act amendments completed most of the extensions in coverage. In other words, the average for the 1967-1980 period reasonably represents the real standard selected by society over the years when coverage was relatively comprehensive and stable, over periods of minimum wage activism and neglect, as well as during economic growth and recession and changing political cycles.

Another base period would yield different individual earnings standards for each year. For instance, if the average for the 1974-1980 period had been used as the baseline rather than the average for the 1967-1980 period, the standard for each year would have been 1.2 percent lower. Likewise, the use of the total CPI, rather than the CPI minus housing mortgage costs, would have yielded different standards, particularly in 1980 when interest rates rose so much faster than other CPI components.

<table>
<thead>
<tr>
<th>Minimum wage standards</th>
<th>Minimum wage standards</th>
<th>Minimum wage standard</th>
<th>Legislated minimum wage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1974</td>
<td>$1.99</td>
<td>$1.96</td>
<td>$1.98</td>
</tr>
<tr>
<td>1975</td>
<td>2.16</td>
<td>2.14</td>
<td>2.16</td>
</tr>
<tr>
<td>1976</td>
<td>2.29</td>
<td>2.26</td>
<td>2.29</td>
</tr>
<tr>
<td>1977</td>
<td>2.44</td>
<td>2.44</td>
<td>2.30</td>
</tr>
<tr>
<td>1978</td>
<td>2.61</td>
<td>2.58</td>
<td>2.62</td>
</tr>
<tr>
<td>1979</td>
<td>2.87</td>
<td>2.84</td>
<td>2.92</td>
</tr>
<tr>
<td>1980</td>
<td>3.21</td>
<td>3.17</td>
<td>3.31</td>
</tr>
</tbody>
</table>

There is no adjustment for the student learners differential since it is impossible to determine which of the students in the labor force are covered by certificates. Likewise, there is no way to identify workers in jobs not covered by the Fair Labor Standards Act. The disaggregations in the hardship tallies permit adjustments where these are considered appropriate. For instance, teenage students or agricultural workers can be subtracted from the totals.

The use of severe, intermediate and moderate hardship standards not only accommodates varying judgments about what constitutes hardship, but it also increases analytical potential. For instance, one policy might reduce the number in severe hardship more than another, but alter the intermediate
hardship count by less. Likewise, some subgroups in the work force may be more concentrated above the severe hardship line but below the intermediate hardship cutoff, while others are concentrated among those with severe hardship. The different data sets can be used like scissors to cut through many critical issues concerning the relative severity of problems, thus supplementing the dimension added by the deficit measures.

The severe, intermediate and moderate income and earnings standards are arbitrary. Rather than 100, 125 and 150 percent of the minimum wage and poverty thresholds, any other multiples could have been used. The choice was dictated largely by the conventions in previous hardship studies and by value judgments based upon examination of the income and earnings distributions in the population. In 1979 the poverty threshold for a nonfarm family of four was $7,412 and for an unrelated individual, $3,800. The minimum wage standard of $2.87 would have produced annual earnings of $5,800 assuming 2,020 annual hours of employment. The median income for households with four members was $22,576. For all unrelated individuals, the median was $7,542, but, perhaps more appropriately, it was $13,321 for unrelated individuals in the labor force full-year. The severe, intermediate and moderate income and earnings standards, thus, represented the following percentages of the medians:

<table>
<thead>
<tr>
<th></th>
<th>Severe hardship standards</th>
<th>Intermediate hardship standards</th>
<th>Moderate hardship standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family earnings and income standards as percent of median income of--</td>
<td>(100 percent of minimum wage or poverty thresholds)</td>
<td>(125 percent of minimum wage or poverty thresholds)</td>
<td>(150 percent of minimum wage or poverty thresholds)</td>
</tr>
<tr>
<td>Nonfarm family of four</td>
<td>.33</td>
<td>.41</td>
<td>.49</td>
</tr>
<tr>
<td>Unrelated individuals</td>
<td>.50</td>
<td>.63</td>
<td>.76</td>
</tr>
<tr>
<td>Unrelated individuals in labor force full-year</td>
<td>.28</td>
<td>.36</td>
<td>.43</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Severe hardship standards</th>
<th>Intermediate hardship standards</th>
<th>Moderate hardship standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual earnings standards for full-time, full-year worker as percent of median income of--</td>
<td>(100 percent of minimum wage or poverty thresholds)</td>
<td>(125 percent of minimum wage or poverty thresholds)</td>
<td>(150 percent of minimum wage or poverty thresholds)</td>
</tr>
<tr>
<td>Nonfarm family of four</td>
<td>.25</td>
<td>.32</td>
<td>.39</td>
</tr>
<tr>
<td>Unrelated individuals</td>
<td>.77</td>
<td>.96</td>
<td>1.15</td>
</tr>
<tr>
<td>Unrelated individuals in labor force full-year</td>
<td>.44</td>
<td>.54</td>
<td>.65</td>
</tr>
</tbody>
</table>

Obviously, minimum wage level earnings and multiples provide better for the needs of unrelated individuals than for families, and for small families than for large ones. In 1980, for instance, the Minimum Wage
Commission estimated the hourly earnings needed for an individual full-time worker to provide poverty level annual earnings for households of different sizes:

<table>
<thead>
<tr>
<th>Family members</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hourly wage required:</td>
<td>$1.82</td>
<td>$2.41</td>
<td>$3.00</td>
<td>$3.58</td>
<td>$4.17</td>
<td>$4.76</td>
</tr>
</tbody>
</table>

Conversely, the poverty threshold is based on family size so that a sole worker in a large family must earn more than a sole worker with fewer breadwinning responsibilities. The divergence between what society considers adequate earnings for an individual and the self-support needs of families is the reason why there are separate measures and standards for individual earnings adequacy and family earnings adequacy.

The minimum wage standards do not vary with residence while the poverty thresholds are lower in farm areas. The income needs of farm residents were estimated to be 25 percent less than those of nonfarm residents when poverty was first defined; the accepted differential was reduced to 15 percent in the poverty counts covering the 1974-1980 period for which the hardship measures are calculated. The minimum wage is uniform for the entire nation and, therefore, does not account at all for cost-of-living differentials. Thus, for rural compared to urban areas, the IIE measures will be relatively larger than the IFE and IFI measures because of the cost adjustment in the poverty standard but not in the minimum wage standard.

It might make sense to utilize cost-of-living adjustments for all earnings and income standards. For instance, the BLS lower living standards which vary for metropolitan areas based on cost survey data, might be utilized rather than the poverty levels. This option would be important if the hardship measures were to be utilized in resource allocation (although the poverty measures which do not utilize such adjustments are used currently without much debate).

**Typologies of Work Experience**

The categorization of the work force according to their work experience pattern during their weeks of participation is critical in order to understand the nature of the underlying labor market problems and hence the appropriate solutions. This classification is relatively straightforward. The work experience categories include full-time employment during the full-period of work force participation at one extreme, no employment whatsoever at the other extreme, with intermittent employment and unemployment, as well as part-time employment falling between these extremes. The
intermittently employed are subcategorized by the proportion of their weeks in the labor force they are employed and unemployed, just as work experience measures subclassify participants according to weeks of joblessness. The intermittently employed include workers whose usual employment is part-time voluntary, part-time involuntary, full-time, or a mixture. The nonemployed and intermittently employed may include individuals seeking part-time work for some or all weeks not working. Workers employed full-period but with some weeks of part-time employment are subcategorized into those who worked part-time voluntarily and those who worked part-time because full-time work was not available. The involuntarily part-time employed include some who worked full-time most of the period, while the voluntarily part-time employed include individuals wanting full-time work some weeks but restricted by reasons other than the lack of full-time work. The important point is that any individual can be classified in one and only one work experience pattern category.

Because the Current Population Survey questions used in calculating the hardship measures are limited, assumptions must be made about the hours of work for individuals who mix full-time and voluntary part-time employment in order to calculate the individual earnings standard. Where an individual works predominantly part-time, 40 hours of availability are assumed during weeks this individual indicates he or she wants more than 35 hours of employment. Where work is predominantly full-time, hours worked when employed part-time are assumed to be 20 hours per week.

Finally, the nonemployed are subcategorized into those who are discouraged vs. those unemployed. The discouraged workers include persons who did not work in the last year, who claimed that the inability to find work was the primary reason, and who looked for a job at least a month. This job search requirement is used in order to weed out individuals who claimed they wanted to work and could not find jobs, but might not have been really eager for employment, or might not have known about available opportunities because of the absence of job search. A more rigorous job search requirement would alter some but not all of the hardship measures. For instance, an individual with five weeks of unemployment, counted as discouraged according to the above definitions, would appear among the totally unemployed in the hardship measures for the total work force even if two months of job search were required to classify an individual as discouraged; on the other hand, this individual with five weeks of unemployment would be excluded from the full-year tallies if a two-month search period were used in the discouraged worker classification. The deficits and interpretative measures which augment earnings are also affected by the stringency of the job search requirement, since those counted as discouraged are ascribed 50 weeks of work force participation in calculating individual earnings standards and deficits, whereas they would only be ascribed their weeks searching for work if included among the totally unemployed. The intermittently employed who were outside the labor force for some weeks might also have been discouraged, but this cannot be determined from the CPS questionnaire since inability to find work is not included as one of the possible reasons for nonparticipation unless it occurs throughout the year. Because earnings adequacy is judged relative to weeks in the labor force for the intermittently employed, the inability to estimate their weeks of discouragement leads to a slight understatement of the number with Inadequate Individual Earnings.
"What If" Measures

The Full Employment, Capacity Employment, Enhanced Earnings, Adequate Employment and Enhanced Capacity IFE and IFE Deficit measures augment the earnings of work force participants in different ways, and then determine how many would remain with family earnings below the poverty level (or its multiple). The aim of these interpretative indices is to help in assessing the impacts and implications of policy alternatives. For instance, the Full Employment IFE yields a general sense of the costs and consequences of a large-scale job creation approach, while the Enhanced Earnings IFE yields some notion of what would occur if minimum wages were raised. This does not mean that guaranteeing minimum wage jobs or increasing the legislated minimum would have these exact effects on hardship. For instance, if minimum wage jobs were guaranteed, there is no doubt that most workers fully employed at less than the minimum would leave their existing jobs for the new positions. Many persons would be attracted from outside the labor force. Likewise, minimum increases would have disemployment effects as well as attracting more workers into the labor force. The augmented measures, thus, provide indicators of relative magnitudes and directions of change associated with alternative policies, but are hardly the last word on their relative impacts.

The augmented measures are disaggregated by the same work force attachment, work experience pattern and demographic categories as are used for the other hardship indicators. In the disaggregations for full-year and half-year workers, only the earnings of the full-year or half-year participants are augmented in the prescribed ways. The "what if" question addressed by these measures is "how many full-year or half-year participants would remain in families with earnings below the poverty level (or multiple) if the earnings of the full-year or half-year participants in the family were augmented in the prescribed ways?"

The work experience and demographic disaggregations for any of the nine hardship severity/work force attachment combinations for the augmented measures include persons in the disaggregated group who are in families with inadequate earnings after all work force participants with the required attachment have their earnings augmented. For instance, in the Full Employment IFE for the total work force, the earnings of the voluntary part-time workers are not augmented because they have no hours of forced idleness; nevertheless, the number of voluntary part-time workers in the Full Employment IFE will be lower than in the regular IFE because some have other family members whose earnings are augmented, raising their families out of poverty.

To shed light on secondary earner issues, the Full Employment, Adequate Employment and Capacity Employment IFE measures are also calculated by augmenting only the earnings of specified subgroups while leaving constant the earnings of all other individuals in the work force. The combined earnings of family members are, then, compared to the poverty standard or multiple, and all family members in the work force are included in the marginally augmented tallies if they fall below the standards or multiples. Because marginal augmentation involves extensive computer time and cost, it is only undertaken for the age/student status and family relationship disaggregations. The disaggregations of the marginally aug-
mented measures for age/student and family status subgroups count all work force participants in families which remain with inadequate earnings after augmentation of the earnings of the specified age/student or family status subgroups. In contrast, the age/student and family relationship disaggregations for the regularly augmented IFE measures include just the subgroup members who remain in families with inadequate earnings after every family member has their earnings augmented in the specified manner.

Valuing In-Kind Aid

The IFI Including Food Stamps and the IFI Including In-Kind Aid estimate how many work force participants remain with a below-poverty living standard after receipt of in-kind aid. These measures are derived from responses to the supplemental questions on noncash benefits which were added to the March 1980 Current Population Survey questionnaire and continued in March 1981. The valuation of food stamps is relatively straightforward, since food stamps are very similar to cash income and since individuals are queried concerning the dollar amount of food stamps received. The IFI Including Food Stamps as income simply adds cash and food stamps received for each family with at least one work force participant and compares this with the poverty level (or its multiple).

The IFI Including In-Kind Aid adds the estimated value of school lunches and housing subsidies to food stamps and cash income. These estimates are much more problematic because the CPS questions concerning lunches and housing are not as specific, and a range of plausible assumptions yields quite different valuations. The CPS asks how many children in the household received free or reduced price lunches. According to federal program statistics, about 9.9 million children from poor and near-poor families received free meals in 1979, at an average federal subsidy of 93c per meal, while 1.7 million received reduced-price lunches, at an average subsidy of 73c. Another 13 million received lunches at prices modestly below cost because of the provision of federal commodities. It is assumed that families in the latter category will not perceive that they are getting a free or reduced-price meal. This squares with the aggregate counts from the March 1980 in-kind questionnaire, where 11.3 million youth age 5 to 18 lived in households reporting that their children usually received free or reduced price lunches in 1979. The poverty threshold in 1979 for an urban family of four was based on a $1.71 daily feeding cost for each family member. Since six out of seven of the persons receiving free or reduced price lunches got free lunches, and since the subsidy for the reduced price lunch exceeded the amount budgeted for each poverty meal, it is reasonable to assume that all families who reported receipt of a free or reduced price meal, in fact, had their food needs reduced by one-third per person each day a lunch was received. Assuming that meals were available for 182 school days, with a twenty percent absentee rate, that the lunches reduced food costs of each recipient by one-third (i.e., covering one of three meals), and that food costs represented a third of the poverty level (which is the basis of the poverty definition), then each recipient in a family would have augmented family cash income by .044 of its poverty threshold per household member (one-half year times 80 percent attendance times one-third reduction in daily food...
costs times the one-third of a poverty income which presumably is allocated for food). The estimated value of free lunches for a family of four with two children receiving lunches was $164 in 1979, whereas the supply price to the government was estimated to be $271. Though the subsidized lunch might have supplied more calories and nutrients than the poverty budgeted diet, and certainly cost more to deliver, it hardly eliminated the need for breakfast and dinner for the student.

Valuation of housing benefits is even more conjectural. If benefits were valued at government subsidy cost and added to cash incomes, many of the residents of subsidized housing would be considered nonpoor simply because the units are more costly and presumably more adequate than the alternatives which would have been secured in the absence of housing subsidies. Yet the income remaining after rent might still be less than what is necessary to purchase other needed goods and services. For instance, a family of three with a cash income of $4800 living in a new public housing unit might pay only $100 monthly in rent even though an equivalent unsubsidized unit would rent for $500 monthly. The annual subsidy would cost the government $4800 and the sum of cash and housing valued at this subsidy would be above the poverty threshold for this family. But can a family of three survive on $3600 net of housing costs? Not if housing costs equal just a fourth of the poverty threshold, with three-fourths required for other needs, as the poverty index assumes. Therefore, the crude valuation procedure adopted in the hardship calculations caps the housing subsidy at the estimated housing expenditure share for unsubsidized low income families. In 1979, according to the annual housing survey, occupants of unsubsidized units paid a median of 24 percent of cash income for gross rent (the public housing formula, for instance, allowed for a rent of 30 percent of adjusted income). Among all households (subsidized and unsubsidized) with less than $3000 cash income, the median percent of cash income going for gross rent was in excess of 60 percent. For renter households with $3000 to $7000 cash incomes, the median was 44 percent; for those with $7000 to $10,000, the median was 31 percent; and for the $10,000 to $15,000 income group, it was 24 percent. Adjusting for the estimated proportions below the median who were in subsidized units, the medians for each income class are estimated to be roughly 65, 50, 35 and 30 percent, respectively, for residents of unsubsidized units with each level of family cash income. Subtracting the 24 percent of cash income that is usually paid as rent in subsidized units means that housing expenditures were reduced by approximately 40, 25, 10, and 5 percent, respectively, of the cash incomes for households in the different cash income classes. This is, admittedly, a very crude estimation procedure. For instance, large and small families with the same cash incomes are estimated to spend the same proportions of income on housing, which is unlikely. Regression analysis from the annual housing survey data could derive a predicted housing cost percentage for each household, and rent subsidy formulae could be used to predict subsidized housing rents. However, such detailed calculations were not justified for the present purposes. Further, since two-thirds of the 2.3 million households in public and leased housing had no reported earners, only a small proportion of all persons in hardship were affected by in-kind housing aid, and in most of the cases where the low-income families with work force participants resided in subsidized units, the estimation procedures should have yielded a reasonable "best guess" of the impacts of housing subsidies on well-being. It is important to stress, however, that the in-kind valua-
tions for housing, like the valuations for school lunches, are below the subsidy costs. The principle which is applied in both cases is to determine whether the cash income, which remains after the specific need is met by in-kind aid, will provide for a poverty level "market basket" after subtracting the price which this "market basket" assumes for each element provided in-kind.

A Comprehensive System

The thrust of this effort is not just to develop an acceptable hardship indicator, but to design a comprehensive system of measurement and analysis to supplement the poverty and labor force statistics systems, as well as the massive body of analytical work covering labor market problems and appropriate public policies which has been based on the poverty and unemployment measures. In particular, the disaggregations and the interpretative measures were designed to provide data usable with minimum adaptation or manipulation to address a range of important theoretical and policy issues. For instance, previous hardship indicators have suggested that the number of persons in hardship fluctuates less than the number unemployed over the business cycle because those who already have structural problems are the ones who suffer most in recessions, i.e., their hardship simply becomes more severe. The proposed measures permit a much better assessment of the shifting severity of need over the business cycle. Because the labor force categories are mutually exclusive and descriptive of all possible work experience patterns, recession or recovery-induced shifts from one category to another can be identified; for instance, shifts from the mostly employed category to the mostly unemployed category as economic conditions worsen. The comparison between the severe, intermediate, and moderate adequacy counts enriches the analysis of the severity issues. The family responses to changing economic conditions such as increased labor force participation and earnings of added family members can be assessed by analysis of the disaggregations. The augmented earnings IFE measures provide varied perspectives on the changes in the composition and causes of hardship over the business cycle. The effectiveness of income transfer programs in protecting against cyclical fluctuations can be determined from relative movements in the IFI and the IFI Net-of-Transfers. In other words, the tabulated data can be added, subtracted and multiplied to address most analytical issues concerning the hardship consequences of macroeconomic changes. The tabulated data are equally useful in assessing secular trends, the problems of minorities, the impacts of changing family size, composition and work patterns, allocation and targeting issues, transfer program impacts, as well as the potentials of policy tools, such as minimum wage increases and full-employment job creation. Such applications are demonstrated in the following analyses using the annual hardship data calculated for the 1974-1980 period.

There are tradeoffs, however, in seeking to develop a hardship measurement system rather than a single indicator, and in trying to accommodate the criticisms of previous hardship measures. The departures from previous approaches overcome most of the criticisms but increase the complexity. There are three primary sets of hardship measures rather than one or two in other hardship systems, and these sets include deficit meas-
ures of hardship severity as well as body counts of those who fall below specified standards. Because the measurement system is inclusive, disaggregation is necessary for acceptability in certain contexts, since the aggregated measures include some individuals who may have only minimal attachment to the work force and thus only a small potential contribution to the well-being of their families. The use of severe, intermediate, and moderate income and earnings standards further complicates the picture. Finally, the incorporation of interpretative indices as an integral part of the measurement system increases potential understanding of causes and interactions, but generates even more numbers for consideration.

The critical issue is whether the added complexity of the hardship approach adds to understanding of the interface between work and well-being, whether it leads to increased attention to the structural employment problems which have the most severe consequences, and whether it provides an improved framework for assessing policy alternatives. The subsequent analysis seeks to document the meaningfulness and reasonability of the measures and their utility in analysis of the causes and cures for the critical labor market problems which undermine the well-being of our nation's citizens.
Notes

1. Proprietors' income is included along with wages and salaries as earnings in the hardship calculations.


13. The majority of the additional workers covered in 1974 were government employees and the coverage of these state and local workers was subsequently reversed by a Supreme Court decision.