Economic Outcomes & Mental Health

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Introduction

This paper discusses the relationship between economic factors and societal well-being for the United States over the post World War II period. This is an interesting time to consider because during this period both wage inequality and poverty initially declined and then began to increase. We examine how changes in the distribution of wage income and poverty generate conditions which may contribute to an intensification of negative mental health outcomes thereby affecting societal well-being. At the outset we would like to point out that there is controversy regarding the causes of mental health problems. Serious disagreement exists regarding the degree of psychological, cultural, biological, social, and economic factors that underlie mental health problems such as anxiety, stress, suicide, and criminal behavior. In many cases, these behavioral outcomes are the result of complex interactions of individual and environmental factors in conjunction with feedback effects making the determination of causality by any one factor difficult. Economic factors, however, appear to have a reasonably large impact on mental health. In Cantril’s 1965 study surveying factors mentioned most frequently by Americans in discussing their hopes, approximately 65 percent of the survey respondents related personal hopes to economic factors. Davis (1965, p. 68) writes that "study after study shows that mental health is positively related to socioeconomic status in a variety of measures of mental health and SES."   We examine both theoretical and empirical aspects of the relationship between the economic factors of wage inequality and poverty and mental health.

Mental Health and the Distribution of Income: Absolute and Relative Income Effects

Economists have generally assumed that economic growth results in greater economic welfare or happiness. While cross sectional evidence is overwhelming for a positive relationship between income and subjective well-being -- defined as a positive evaluation of one’s life -- real increases in income within a country over time may not make people happier (see Easterlin, 1973 and Deiner, 1984, for a summary of this literature). Extensive evaluations of surveys of happiness for the United States over the period 1946 to 1970 indicate:

> "*In all societies, more money for the individual typically means more individual happiness. However, raising the incomes of all does not increase the happiness of all*. The happiness-income relations provides a classic example of the logical fallacy of composition - *what is true for the individual is not true for society as a whole*." (Easterlin, 1973, p. 4; author’s italics)

What is key to this finding is the importance of both the relative and absolute economic position of an individual in their assessment of welfare or happiness.[1] What complicates the implications for mental health of this type of finding is that what constitutes an acceptable standard of living is subjective. Needs and wants are not fixed but are generated within a society which is constantly creating new expectations of wants and needs. In fact, it has been shown that when individuals assess what income they need, the absolute amount changes over time and this amount tends to be indexed to the average family consumption of the day (Thurow, 1973, p. 67) which can be informally summarized as "keeping up with the Joneses." Changes in an income distribution may therefore affect societal well-being by altering both absolute and relative socioeconomic status affecting individuals' assessment of their well-being and mental health.

The relationship between an absolute level of socioeconomic status (SES) and mental health is well documented. Williams and Collins (1995) report that the largest study of psychiatric disorders ever conducted in the United States finds that SES predicts elevated rates over a broad range of psychiatric disturbances (pg. 351). Dohrenwend (1990) points out there is a consistency in research, dating from 1855, that document important correlations between SES and mental health. The direction of causation, however, remains a controversial issue. Some argue that higher rates of substance abuse, schizophrenia, personality disorders, and anti-social behaviors are the result of environmental adversity. Lack of access to education, housing, and household possessions, each of which are related to wealth, puts people at risk (Fox, et. al., 1985). Others believe that these types of mental disorders cause a downward drift to lower SES status; people with psychiatric disabilities and high rates of substance abuse are simply unable to gain or maintain employment. It is probably correct that causation runs both ways. The design of research in this paper is descriptive in nature: to uncover significant linkages that exist between economic stress and health outcomes. We do not purport to solve the riddle of causation.

The relationship between relative economic status and mental health is based upon the theory of relative deprivation or what has also been termed the "envy effect" (Wilson and Herrnstein, 1985). The theory of relative deprivation contends that individuals compare themselves to a reference group (the Joneses) when determining their subjective well-being. The reference group towards which an individual orients themselves is critical in determining the extent of relative deprivation. These reference groups could be contemporaneous (How am I doing now with respect to my peers?) or historical (How am I doing now with respect to myself or someone else in my position a decade ago?). Dissatisfaction with one's relative position occurs not because of differences in rewards but, rather, differences in the ratio of rewards to effort. Psychologists have found that assessment of relative position is an important predictor of satisfaction and mental health outcomes (Deiner, 1984, p. 567). [2]

[1] Psychologists argue for the importance of relative position in an individual's assessment of their subjective well being (Diener, 1984).
[2] Indeed, arguments have been made that populations are more likely to revolt when periods of rising expectations are followed by periods when those expectations are no longer met (Tocqueville, 1955).

A heightened sense of relative deprivation can increase psychological stress which may result in two possible outcomes. The first is a proactive response to alter one's relative position so that current negative feelings of relative deprivation dissipate. In this respect, relative deprivation motivates competition among individuals to improve their economic standing by furthering their education or searching for better jobs. In fact, this is one of the adjustment processes that occurs in a dynamic, capitalistic economy as individuals adapt to changing economic opportunities. The second possibility is socially unacceptable responses such as criminal or self-destructive behavior. While predictions for individual outcomes are not possible, certain groups are at a greater risk of responding with criminal or self-destructive behavior. For example, criminal activity is primarily committed by young males (Wilson and Herrnstein, 1985); low income and low socioeconomic status are associated with high rates of mental disorder (Belle, 1990); and child abuse is more likely to occur in very poor families (though most poor families do not abuse or neglect their children) (U.S. Congress, Office of Technology Assessment, 1988, p. 177).

We now consider the trends in the distribution of wage income over the post World War II period and examine their affect on mental health. This is not a particularly straightforward task as anytime there are changes in a distribution of income some people become relatively better off and others relatively worse off. While it is easier to measure changes in absolute income levels, the net effects on relative deprivation is problematic. It may be possible, however, to make general statements about societal well-being if an equitable distribution of income is followed by one that is considered less equitable - a situation that we argue has occurred over the post World War II period in the United States. This allows us the possibility to considered what may be happening over time to the level of well-being in the United States.

The post W.W.II period up until the early 1970's is generally characterized as a period of capital-labor accord and a "golden age of growth." Economic growth during this time period was characterized by falling inequality and rising real wages. Growth with rising real wages across all groups implies significant opportunities for individuals to make adjustments in their contemporaneous relative economic positions and also see improvements in their relative economic position over time. In addition, falling poverty rates reduce pathologies associated with low socioeconomic status. Given these good economic trends, their is a temptation to draw a conclusion that society's level of mental health or well-being must have been improving during this time period. Expectations, however, were also increasing due to greater incomes and education and this may have heightened a sense of relative deprivation. As has been noted by Campbell (1976) the average level of happiness reported by both blacks and whites declined over the period 1957 through 1972. In addition, blacks with more education, income, and status suffered a sharp decline in their self-reported happiness over the period 1946 to 1966 (Gibbs, 1973). Interestingly there was no comparable decline among white elite and black farm workers (Deiner, 1984, p. 555). Evidence such as this makes it difficult to make any broad statement about income distribution and well-being over this period. However, this evidence clearly points out that rising expectations without ample opportunity to realize those heightened expectations can generate stress (Merton, 1938, p. 680). In fact, the heightened expectations generated by the "golden age" may be an important factor towards understanding why the widening of the income distribution post 1970 may have a substantially greater impact upon societal well-being -- particularly with respect to the income and relative economic position of high school educated workers.

Aside from this historic juxtaposition, increasing wage inequality since the late 1970's may have more serious repercussions for societal well-being for two additional reasons. First, the changes in the wage distribution of income are the consequence of factors -- primarily technological change and globalization -- yielding economic benefits for society as a whole but the economic cost of achieving these benefits have not been shared equally. Second, significant groups are becoming both absolutely and relatively worse off compared to past cohorts with similar education/skills. There is ample evidence that these two principles of equity (Thurow, 1973, p.70) have been violated with respect to high school educated male workers. High school educated males have suffered significant declines in both their absolute and relative economic status over this period. For example, over the period 1979 - 1989, the real wage for men with a high school education fell by 12.3 percent (Mishel and Bernstein, 1994, pp. 144-145). Young high school educated males were targeted even more with entry level wages falling by 21.8 percent over the 1979-1989 period (Mishel and Bernstein, 1994, p. 147). If we consider the percent of workers earning poverty level wage (less than $6.93 per hour in 1993 dollars) we find that for white men the proportion in this category was approximately 11 percent in the 1970s rising to nearly 18 percent by 1993; the comparable figure for black men is about 23 percent in the 1970s rising to 33 percent in 1993 (Mishel and Bernstein, 1994, p. 130). The number of workers affected by these wage trends is substantial. While the share of employment of high school educated workers with 1-5 years of work experience has fallen over the 1973 to 1993 period, they still represent roughly one-third of employment (Mishel and Bernstein, 1994, p. 147). In contrast to the position of high school educated workers, the wages of college educated workers have been rising, albeit somewhat slowly. The college/high school wage differential has increased to an historic high over the 1978 to 1988 period. The end result is a widening in the wage distribution of income by educational level that could be viewed as increasingly unfair.

While there has always been changes in the structure of employment in the context of a dynamic economy, the current trends are the result of economic changes that benefit society as a whole but with the consequences of increasingly reducing both the absolute and relative economic position of high school educated workers. In sum, the real issue is not income inequality per se, but rather the underlying processes generating this inequality and the unequal distribution of economic costs that are being paid.

Given these adverse developments, what has been the response of workers and what can we say about changes in the level of well-being? We answer this question by considering both individual choice and the constraints on these choices. First, in the face of falling real wages for high school educated labor and rising college/ high school wage differentials, many workers can protect their absolute and relative economic position by augmenting their human capital. The returns for a college education and the demand for college educated labor have generally been increasing in all industries over the period 1968 to 1989 (Murphy and Welch, 1994). In response to this we see an increase in the fraction of labor input of college educated labor increased from 26.7 percent in 1968 to 43.6 percent in 1988 as estimated by Murphy and Welch (Murphy and Welch, 1994, p. 120).[3] These choices represent a positive response to changing economic opportunities. For these workers who accumulate human capital to obtain the better jobs, their level of well-being may increase. Not only have they obtained higher paying jobs than they would have had with a high school education, but those jobs may be more interesting.[4] However, why have a substantial number of workers have not obtained a college degree? If we put this individual choice in an historical context, we see that during the period 1973 to 1978, the college/high school wage differential was decreasing and was at an historic low (Murphy and Welch, 1994). Both a declining college/high school wage differential and the fact that real wages of high school educated workers had not yet begun their serious fall would have indicated that a high school degree was adequate to achieve a desired standard of living. Based upon these expectations, the decision not to go to college was rationale. As a result, some workers in the 1970's that might have gone to college did not. Once this decision was made, however, it became increasingly clear as we move past the 1981-82 recession into the 1980's that, unbeknownst to these workers, the rules of the game were changing. Those optimal decisions of the 1970s turned out to be sub-optimal as both high wage employment for high school educated workers and their real wages began to decline. In sum, economic signals were followed and rational choices were made based upon expectations, however, these expectations turned out to be wrong for many workers.

While the decision to obtain a college degree is one aspect, not everyone has the ability or are in a situation to complete a college degree. The standard of living of these workers is constrained by the structure of employment and wages offered in the economy. For these workers, an alternative response to adverse changes in the structure of employment and wages is to increase hours of work and, for married couples, pursue joint incomes. In fact, for employed parents, hours of market work have increased over the period 1969 to 1989 by approximately an average of 72 hours more per year or 3.75 percent overall (Leete-Guy and Schor, 1992; Mishel and Bernstein, 1994, p. 73). Mothers in these families have shown the most significant increase in hours of market work of about 27 percent (Leete-Guy and Schor, 1992; Mishel and Bernstein, 1994, p. 73). What is indicative of these trends is that the greatest increases in hours of work occur in families who are in the lowest fifth of the income distribution (4.6 percent compared to 2.0 percent for families in the top fifth.) (Mishel and Bernstein, 1994, p. 71) Wives are also contributing an increasing share of family income rising from 14 percent in 1968 to 22 percent in 1988 (Cancian, Danziger, and Gottshalk, 1994, p. 206). The growth of family income over the 1978-1988 period was largely due to increased earnings and labor force participation of the wife which is estimated to account for 64 percent of the growth in family income (Cancian, Danziger, and Gottshalk, 1994, p. 206). While the higher income obtained from working more is a plus, there may be significant offsetting impacts which vary in degree by

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[3] Other estimates of these trends show an increase in the share of the workforce with college degrees over this time period (see Mishel and Bernstein, 1994, p. 140).

[4] Professor Lance Girton at the University of Utah pointed out during a discussion that jobs today may be more interesting and enjoyable than in the past when mass production was more the norm.

income groups. For some families, the higher income may be sufficient to purchase market goods and services that were previously supplied in the home such as child care, housekeeping, and meal preparation. For others, however, income may not be sufficient to purchase these goods resulting in an increasing amount of pressure on time.

What do these wage and employment trends and accompanying adaptations imply about societal well-being and mental health? While many workers are doing well and improving their economic position, concern should be directed at those who lack the educational background to reap the benefits of today's economy. While we cannot make general statements regarding changes in the overall level of societal well being, we can say that for high school educated male workers it has definitely worsened for the following reasons. First, current changes in the distribution of wage income may be viewed as increasingly unfair by high school educated workers who are bearing proportionally more of the costs that are a consequence of economic changes producing benefits for society as a whole. Second, high school educated workers, particularly young males, are seeing their absolute and relative socioeconomic position dramatically worsen with reference to their historical earnings capabilities. Third, the high school educated male's position as breadwinner in a family is eroding. Finally, people working for lower wages are working more and likely lack sufficient income to purchase market products to alleviate time pressures for household activities. In fact, low income workers, especially women with children, are at a high risk of stress related health problems (Northwestern National Life, 1992). These four factors may create economic conditions that, at the very least, do not alleviate pressures for poor mental health outcomes among groups most at risk. The fact that these wage and poverty trends have been continuing in an economy that is characterized by low inflation, full employment, and reasonable economic growth may exacerbate people's worries regarding their economic future as these trends become increasingly viewed as a more permanent feature of economic life.

Empirical Findings

In this section we use linear regression models to empirically describe the relationship between economic variables and stress outcomes. The units of analysis are selected Standard Metropolitan Statistical Areas (SMSA's) merged over the period 1975 to 1990. SMSA data was pooled to achieve a parsimonious model with selection based on cluster analysis of population characteristics. Primary SMSA's include New York, Los Angeles, Chicago, Detroit, and Philadelphia.[5] Economic stress variables include the Gini coefficient, the poverty rate, and the unemployment rate. The Gini coefficient is a widely used measure of income inequality and is calculated from hourly wages reported by samples of workers drawn from the Current Population Surveys from 1975 to 1990. A higher Gini coefficient indicates greater inequality. The sample of workers are those who usually work 30 hours per week or more. This set of workers is representative of those who have a significant commitment to the work force. Data on unemployment rates are from the Geographic Profile of Employment and Unemployment published by the Bureau of Labor Statistics. Data on poverty are computed from the Current Population Survey Annual Demographic Files. The poverty variable is an estimated percentage of families whose income from the previous year was below the government's established poverty line. Descriptive statistics for the economic stress variables for major metropolitan areas are shown in Table I.

Table I
Income Inequality, Unemployment, and Poverty Averages
Major Metropolitan Areas, 1975 to 1990*

Variable	**1975**	**1980**	**1985**	**1990**
Gini Coefficient	0.26	0.25	0.27	0.29
Unemployment Rate	9.74	8.92	7.86	6.26
Poverty Rate	10.13	13.90	17.89	15.03

*Annual averages from New York, Los Angeles, Chicago, Philadelphia, and Detroit.

Table II presents descriptive statistics for the stress outcome measures. Mortality data, which include Major Cardiovascular Disease, Cerebrovascular Disease, Accidents, Suicides, and Homicides, are from the Vital Statistics of the United States, 1975-1988, U.S. Department of Health, Education, and Welfare. Aggravated Assault and Forcible Rape data are from the Uniform Crime Reports for the United States, 1975-1990, Federal Bureau of Investigation, U.S. Department of Justice. These sets of variables are rates, computed as the number of incidences reported per 100,000 population.

[5] Complete documentation is available from the authors on request.

Table II
Selected Stress Variables
Means Over SMSA's
(Standard Deviations in Parentheses)

Variable	1975-1979	1980-1984	1985-1990
Major Cardiovascular Mortality	395.83	405.81	390.18[a]
(per 100,000)	(99.97)	(102.07)	(107.80)
Cerebrovascular Mortality	70.65	63.59	58.60[a]
(per 100,000)	(14.01)	(14.53)	(14.14)
Accident Mortality	38.86	36.98	34.40[a]
(per 100,000)	(5.79)	(7.58)	(6.22)
Homicides	10.94	11.88	11.04[a]
(per 100,000)	(5.31)	(6.93)	(6.18)
Suicides	12.99	12.94	13.04[a]
(per 100,000)	(3.61)	(3.34)	(3.39)
Forcible Rape	38.59	44.46	46.08
(per 100,000)	(11.90)	(12.96)	(18.71)
Aggravated Assault	279.53	331.47	424.11
(per 100,000)	(139.51)	(150.36)	(195.42)

Based on 28 Major Metropolitan Areas over the period 1975-1990.
a. Time period is for 1985-1988.

We use a linear regression models of the form $Y_{i,t} = \beta_0 + \Sigma_j\beta_j X_{j,i,t} + \Sigma_k\Gamma_k z_{k,i,t} + \varepsilon_{i,t}$ where $Y_{i,t}$ is a stress outcome measure for the i^{th} SMSA for the t^{th} time period; $X_{j,i,t}$ represents the j^{th} stress variable; $Z_{k,i,t}$ the k^{th} control variable; β's are unknown economic stressor parameters; Γ's are unknown control parameters; and ε is an unknown disturbance. We use estimates of the stressor parameters to assess the effects of changes on economic variables on health and crime outcomes. These estimates are shown in Table III which show the effects of a one percentage point increase in the unemployment and poverty rates and a one percent change in wage inequality.

Table III

Estimated Proportionate Effects of Unemployment, Poverty and Wage Inequality on Social Stressors: Data Period 1975-1990

	Unemployment[a]	Poverty[a]	Wage Inequality[b]
Stress			
Major Cardiovascular Mortality[c]	2.21	-0.39	0.11
Cerebrovascular Mortality[c]	1.85	-0.19	0.10
Suicide	1.01	2.08*	0.04
Accident Mortality	0.82	0.93*	0.18*
Homicide	5.62*	5.64*	0.59*
Aggravated Assault	1.77	5.67*	0.57*
Forcible Rape	1.90	2.92*	0.01

An '*' indicates the OLS t-statistic was significant at the 5 percent level.
a. Effects of a one percentage point change in unemployment and/or poverty evaluated at the mean of the stressor variable.
b. Elasticity coefficient evaluated at the means. Wage inequality measure was a GINI coefficient computed over hourly wages.
c. Computations were based on coefficients with tight bounds from EBA results.

With the exception of the effect of poverty on cardiovascular and cerebrovascular mortality, all estimated coefficients are positive. Effects from poverty on the other stressors is statistically significant. For accidents, homicide, and aggravated assaults, the effect from wage inequality is also significant. In other words, the effects of wage inequality on crime are unambiguous. Using these estimates, we can compute the anticipated effects on the number of events due to changes in the economic stressor variables. These are shown in Tables IV.

Table IV
Estimated Annual Effects of a One Percentage Point Increase in the Unemployment & Poverty Rate on Social Stressors

	Unemployment Estimate	Poverty Estimate
Stress		
Major Cardiovascular Mortality	7138	-1289
Cerebrovascular Mortality	974	-100
Suicide	107	219
Accident Mortality	247	279
Homicide	516	518
Aggravated Assault	5057	16119
Forcible Rape	667	1026

Conclusion

In this paper we have looked at the relationship between economics and mental health from a wide perspective. Theory suggests that associations between economic factors and physical and mental health are important. The paper argues that economic effects should be considered in both absolute and relative terms -- needs and wants are not fixed, but are referenced against societal norms which change through time. Using pooled time series and cross sectional data from 1975 to 1990, a period of diverse economic growth accompanied by changing income inequality and poverty, we show there are unambiguous associations between key economic variables and significant measures of health outcomes. These relationships are in accord with theoretical expectations -- that increasing poverty, inequality, and unemployment correlate with increasing rates of mortality, suicides, homicides, aggravated assaults, and rape. Although these results may not be surprising, they are disturbing and as such, should be seriously considered by policy makers when assessing the economic costs and benefits of reform programs which may affect poverty, unemployment, and the distribution of wages.

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