

100 jobs at 5 yrs
50,000 return
3,000,000

100 jobs worth 15 million over 3 yrs.

THE VALUE OF A NEWLY CREATED JOB

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THE WILLIAM C. NORRIS INSTITUTE

THE VALUE OF A NEWLY-CREATED JOB *

Introduction

The benefits that make up the value to the nation of the productive effort associated with each new job created in the private sector of the economy include much more than the increase in the new worker's income. Specifically, the industry employing the worker will now purchase additional inputs from other industries which, in turn, will increase purchases from their suppliers, and so on. These additional payments to labor, capital, and other factors of production, together with the new worker's income, will set off a "multiplier" effect as new rounds of interindustry purchases and consumption spending are instigated. Moreover, social benefits such as avoided expenditures for illness and for countering criminal activities may be realized.

Economic Benefits

The four classes of benefits, described below, sum to a value of \$77,872 (in 1986 dollars) for an average full-time job in the private sector. This is contrasted to the 1982 finding of an average value of \$52,682 (in 1980 dollars).¹ The four benefit classes are:

- o Increase in New Worker's Compensation: It has been estimated that the creation of one job in the private sector reduces the poverty population by one person.

Thus, the increase in compensation arising from the creation of a job is equal to the annual employee compensation for a full-time worker minus the median annual income of a person under the poverty cutoff level.

- o Input Purchases: The industry employing the new worker will purchase additional products from other industries in order to increase output. This increase in interindustry purchases leads to an increase in national income.
- o Consumption and Production Expenditure: Both the new worker's income and the increase in input spending result in increased consumption and production expenditures. This sets off a "multiplier effect" as new rounds of spending and interindustry purchases are instigated.
- o Social Benefits: The creation of jobs will also result in avoided expenditures for illness and criminal aggression. It will also lead to additional income attributable to a longer working life.

Calculation of Total Benefits

Annual employee compensation for a full-time worker in the U.S. economy averaged \$26,146 in 1986.² This compensation, which includes wages, supplemental pay, social security payments, and insurance, pension and other benefits paid by the employer, represents the value of the output (i.e., share of GNP or "value-added") produced by the average worker.

The new worker's increase in income will be \$26,146 minus previous income, which has been calculated to be \$2,111.³ Thus, the worker's compensation will have increased by \$24,035. Because most of this income will be spent on consumption purchases, aggregate demand will be further increased and a new round of production will result.

In addition, the industry employing the worker will purchase intermediate products from other industries in order to increase output. The latest available data indicate that, at producers' prices, an average of \$1.999 of production is required from all industries in order to deliver a dollar's worth of a commodity from the private sector to final demand.⁴ The additional contribution to GNP generated by these industry input purchases will be \$12,009 for each new job.⁵ Thus, the initial total increase in GNP will be $\$36,044 = \$24,035 + \$12,009$. Taking into account the additional payments to production factors (including jobs created elsewhere) resulting from interindustry purchases and subsequent consumption spending (the so-called "multiplier effect"), national income will increase by an additional \$39,648 over and above the initial \$36,044 increase in GNP.⁶

Another benefit to the nation results from any public transfer payments in the new worker's previous income that can now be avoided. While they may be significant, there is no reliable way to estimate these particular savings due to job creation. Because avoidable transfer payments vary from worker to worker given the different eligibility tests for different social programs, these savings are ignored in this analysis, which is illustrative of the conservative nature of the results.

Finally, there are social benefits attributable to the integration of previously unemployed persons into the work force. For example, economists and other social scientists have become interested in the relationship between economic opportunity and the incidence of crime, disease and mortality among various population groups. A study by M.H. Brenner estimates the value of avoiding these pathologies on a national scale.⁷ Specifically, he views the average social value of a job as including the additional income attributable to a longer working life plus avoided outlays for illness and criminal aggression. Brenner's estimates average out to a benefit of \$2,179 per job per year (in 1986 dollars).⁸

Thus, the total value of the creation of a full-time "average" job in the private sector includes the following:

Increase in New Worker's Compensation	\$24,035
Additional Payments to Factors of Production Due to Interindustry Purchases	\$12,009
Additional Income Generated by Consumption Purchases	\$39,648
Social Benefits	\$ 2,179
Total Benefits	<u>\$77,872</u>

Estimates for Particular Occupations

The same methodology applied to individual occupations yields interesting and useful results. Among other things, it permits estimates to be made of the social value associated with job promotion as well as job creation. The data follow:

<u>Occupation</u>	1986 <u>Median Compensation</u>	<u>Total Benefits</u>
Manager	\$36,243	\$109,670
Professional	\$35,902	\$108,596
Technical Support	\$28,799	\$ 86,227
Craft and Repair	\$28,435	\$ 85,080
Sales	\$26,601	\$ 79,305
Transportation	\$25,729	\$ 76,558
Machine Operator	\$21,041	\$ 61,795
Laborer	\$20,333	\$ 59,565
Administration and Clerical	\$20,539	\$ 60,214
Service	\$16,709	\$ 48,152
Minimum Wage	\$ 8,355	\$ 21,843
All	\$26,146	\$ 77,872

NOTES

1. In this study, 1986 dollars were used to calculate economic benefits because the most recent earnings and poverty statistics available from the government in 1988 were 1986 census data. Likewise, in 1982 the most recent available statistics were 1980 census figures.

2. Median earnings by occupation were obtained from the Statistical Abstract of the United States (1988), p. 395. Earnings were then multiplied by the ratio of total compensation to total earnings across the U.S. economy to arrive at compensation per worker. Total compensation and total earnings were obtained from the Survey of Current Business, April 1988, Table 1.14, p. 12.

3. The increase in compensation is equal to total compensation minus previous income. It has been estimated that the creation of one job in the private sector reduces the poverty population by one person. See E.M. Gramlich, "The New York City Fiscal Crisis: What Happened and What is to be Done?," American Economic Review (May 1976), Footnote 2, pp. 416-7. The median annual income of people under the poverty cutoff level (as defined in the Current Population Survey) was estimated to be \$2,111. This estimate was derived from data in: U.S. Bureau of the Census, Current Population Reports, Series P-60, No. 157, Money Income and

Poverty Status of Families and Persons in the United States: 1986 (Advance Data from the March 1987 Current Population Survey), U.S. Government Printing Office, Washington, DC, 1987. This income includes any money received from wages and salaries, social security, SSI, public assistance, interest, dividends, unemployment compensation, etc.

4. This number was derived by dividing the total output for industries 1-77 in the 1982 Input-Output Use of Commodities table by the total value-added for these industries. "Annual Input-Output Accounts of the U.S. Economy, 1982," Survey of Current Business (April 1988), pp. 32-39.

5. The increase in value-added due to input purchases is equal to the increase in gross output minus any double counting of intermediate output. (Double counting would occur when output of Industry 1 is sold to Industry 2 and is embodied in Industry 2's sales to Industry 3, and so on.) To determine the value-added portion of increased input purchases, it is necessary to multiply $\frac{1}{(1.999)}$ times the increase in input purchases or $[(1.999) (WAGE) - WAGE]$. This yields \$12,009.

6. In the present analysis, it has been assumed that the creation of a job has the same effect on an individual's consumption patterns as a decrease in personal income taxes. Used here is the average long-run multiplier given by M.K.

Evans, Macroeconomic Activity, New York: Harper & Row, 1969, pp. 557-562. The multiplier is 2.1, so that the increase in national income is: $(\$24,035 + \$12,009) \times 2.1$ or \$75,692. The multiplier effect is therefore \$75,692 MINUS $(\$24,035 + \$12,009) = \$39,648$.

7. M.H. Brenner, Estimating the Social Costs of National Economic Policy: Implications for Mental and Physical Health and Criminal Aggression, prepared for the Joint Economic Committee of Congress (October 26, 1976). Because this work is the first of its kind, the results should be viewed as being preliminary. Many recent works, such as Myers (1983), have established links between unemployment and crime, but no general body of literature exists on the national implications of economic opportunity on criminality or health, although significant work has been done at local levels. As the literature evolves, more sophisticated models will be employed to test Brenner's hypotheses. Furthermore, Brenner's analysis is for jobs lost; the assumption made here is that the effects are symmetrical. These estimates are adjusted for inflation using the GNP deflator because, typically, health and criminal costs keep pace with inflation.

8. The present value of these benefits is used here.

May 3, 1989

REGIONAL VERSUS NATIONAL VALUE OF JOBS

	<u>National</u>	<u>Regional*</u>
Worker Income	\$26,146	\$26,146
Less Poverty Income	<u>2,111</u>	<u>2,111</u>
Net Increase in Income	24,035	24,035
Payments to Factors and Additional Income	51,657	26,438
Social Benefit	<u>2,179</u>	<u>2,179</u>
Total Value--1986	\$77,872	\$52,652
GNP Deflator	1.053	1.053
Total Value--January 1989	<u>\$81,999</u>	<u>\$55,443</u>

*Based on the Dallas economy.