

**Employment Capacity Utilization:
A New Measure to Help Explain Income Variation**

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Public policy analysis related to unequal income distribution and poverty often notes that variations in income are related to the amount of labor effort in the household. The Census Bureau Current Population Survey Annual Social and Economic Supplement (CPS) is the starting point for most income analysis.

Table 1 shows the income ranges that determine the income quintiles for household income along with some of the standard published characteristics of households within each quintile. Census publishes money income which includes earnings, interest, dividends, Social Security, and some cash government benefits. It excludes many large government transfers such as Medicare, Medicaid, and Supplementary Nutritional Assistance Program (SNAP or food stamps). No consideration is given for the effect of taxes.¹

Table 1: Household characteristics by money income quintile

Household characteristics by money income quintile, 2015						
Characteristic	Income quintile					Total
	Lowest	Second	Middle	Third	Highest	
Lower limit of income (dollars)	-	22,800	43,507	72,000	117,002	n/a
Proportion of householders (percentage)						
Age 65 and over	36	32	23	18	15	25
Worked at full-time job	18	46	62	71	77	55
Worked at part-time job	14	12	11	10	10	11
Did not work	68	42	28	20	13	34

Source: United States Census Bureau, Current Population Survey, 2016 Annual Social and Economic Supplement, 2016, Table HINC-05, percentages calculated by author.

At retirement, one's income typically declines, so it is not surprising that the lower income quintiles have a higher proportion of householders over the age of 65. But it is noteworthy that although 36 percent of the lowest quintile are age 65 and above, 68 percent of householders do not work. That means that at least 32 percent of the householders in the lowest income quintile are younger than age 65 and are not working.

As household income rises, the proportion of householders working full time more than quadruples and the proportion not working falls by a factor of five. Clearly, at least one factor contributing to income inequality is the degree to which adults are engaged in the workforce. This paper explores the

¹ For a fuller examination of the Census definition and a more complete accounting of spendable income by quintile see John F. Early, *Reassessing the facts about Inequality, Poverty, and Redistribution*, Policy Analysis Number 839, April 24, 2018, Cato Institute, Washington. <https://www.cato.org/publications/policy-analysis/reassessing-facts-about-inequality-poverty-redistribution>

composition of this engagement in more detail and develops a summary measure of “employment capacity utilization.”

The data used in this analysis are the public-use individual micro files of the data underlying the published reports in Table 1.² The units of analysis begin with all individuals age 19 and above. Table 2 shows the distribution of these individuals by labor force status within each of the income quintiles. The definition of unemployed for the CPS is that the individual does not have a job, has actively been looking for a job in the last four weeks, and is available to take a job. Other not-working individuals have not been looking for a job.

Table 2: Percentage over age 18 within money income quintile by labor force status, 2015

Percentage over age 18 within money income quintile by labor force status, 2015						
	Income quintile					
Labor force status	Lowest	Second	Middle	Third	Highest	Total
Employed	28.29	49.80	64.24	73.32	79.04	61.57
Unemployed	5.60	3.33	3.15	2.61	2.11	3.20
Disabled	17.12	7.55	4.43	2.61	1.39	5.84
Retired	31.50	26.44	17.58	11.97	8.67	17.98
Full-time student	4.24	2.95	2.84	2.99	3.47	3.26
Other not working	13.25	9.94	7.76	6.51	5.32	8.15

Source: United States Census Bureau, Current Population Survey, 2016 Annual Social and Economic Supplement, 2016, calculations by author from public-use micro files.

Capacity utilization of factories has long been a significant measure for economic analysis. It is defined as the ratio of the actual factory output divided by the potential output were the factory to operate full time, fully staffed, with raw materials fully available. It is expressed as a percent of full capacity. It is never expected that utilization will reach 100%. In fact, when it is in the high nineties, analysts will generally begin to worry about capacity constraints.

A measure of employment capacity utilization begins with an estimate of potential capacity. Clearly, employed, unemployed, and other not-working individuals constitute a pool of potential capacity. Full-time students and retired individuals are reasonable exclusions from the potential capacity. Although in theory they might be drawn into productive work, this analysis will exclude them from the potential pool.

Disabled individuals will also be excluded from the potential resources. This is a very conservative assumption because the proportion of the working-age population on federal disability payments has trebled since 1973 as criteria for eligibility have been systematically weakened by administrative

² Current Population Survey, 2016 Annual Social and Economic (ASEC) Supplement [machine-readable data file] / conducted by the Bureau of the Census for the Bureau of Labor Statistics. –Washington: U.S. Census Bureau [producer and distributor], 2016. Note that the 2016 survey collect data relative to 2015.

practice. A significant portion of the disabled beneficiaries no longer meet the statutory requirement of not being able to perform any job in the economy.³

Table 3 shows the distribution of labor force status by income quintile for the individuals considered to be in the available employment capacity. More than one-third of the lowest quintile are not working or even looking for a job. The proportion of other-not-working individuals declines sharply with each quintile rise in income. Individual choices to seek employment are clearly one important contributor to disparities in income.

Table 3: Labor force status for employment capacity pool by income quintile

Percentage over age 18 within money income quintile by labor force status, 2015						
Excluding retired, full-time students, and disabled						
	Income quintile					
Labor force status	Lowest	Second	Middle	Third	Highest	Total
Employed	60.01	78.96	85.48	88.94	91.41	84.43
Unemployed	11.88	5.28	4.19	3.17	2.44	4.38
Other not working	36.31	11.97	5.89	3.16	1.61	8.01

Source: United Census Bureau, Current Population Survey, 2016 Annual Social and Economic Supplement, 2016, calculations by author from public-use micro files.

Even among working individuals there are different levels of engagement. Some work full time, others part time. Some may hold two or even three jobs to improve their income. And even within a single full-time job some folks will work only 35 hours a week, while others may work 60. There are also differences in the number of weeks per year that a person works.

The CPS data include not only whether respondents are working, but also the number of weeks they worked during the previous year and the number of hours they typically work in a week. This analysis combines the number of weeks worked and the typical hours worked to calculate an estimate of the hours worked in a year for each respondent.

For purposes of this study I define full capacity employment as 52 weeks per year and 40 hours per week. Working more than 52 weeks is impossible (unless one wishes to argue about the extra day per year and two in leap year). The choice of 40 hours is a bit arbitrary, and certainly low in terms of actual capacity. But it is a typical standard workweek, and so long as we use the same standard for all groups, the comparative ratios will still have the same relationships no matter which workweek we select.

Table 4 contains the employment capacity utilization rates for each of the money income quintiles.

³ John F. Early, *Inequality and Redistribution: The Facts, Policies, and Implication*, draft, 2017, pp. 147 ff.

Table 4: Employment utilization rate by money income quintile, 2015

Employment utilization rate (percentage) by money income					
Income quintile					
Lowest	Second	Middle	Third	Highest	Total
35.33	63.71	73.84	80.11	85.16	73.14

Source: Author calculations from United Census Bureau, Current Population Survey, 2016 Annual Social and Economic Supplement, 2016, public-use micro files.

The lowest quintile utilizes less than half as much of its employment capacity utilization as the middle quintile and only slightly more than half the utilization of the second quintile. Every quintile utilizes more of its labor potential than the quintiles beneath it, but by far the largest discrepancy is in the step from the lowest to the second where greater numbers of people hold regular, full-time jobs.

Additional research is required to establish the causes for these differences in utilization, but they are an important part of the underlying reasons for income inequality.