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Fundamental changes in labor market patterns among U.S. prime-age men over the past two decades have been the focus of numerous recent research studies and media accounts. Increases in wage inequality and in male joblessness are the most important of these changes; assertions of an increase in part-time and “contingent” work have also been made. In addition, there is evidence of a more general decline in the total annual hours of market work of the typical working-age male.¹

In this chapter, we use a new statistical indicator, *foregone potential earnings* (FPE), to measure the extent to which the prime-age male population (civilian nonstudent 18- to 64-year-old males) underutilizes its human capital. We define the annual value of an individual’s human capital² to be the amount that an individual would earn if he worked full time, full year (FTFY); that is, 52 weeks per year and 40 hours per week. This amount is the individual’s *potential earnings*. FPE is the gap between an individual’s actual earnings and his potential earnings and is thus an indicator of the underutilization of human capital.³

We use our FPE indicator to examine trends in human capital underutilization for the entire population of working-age males, and for various population subgroups, during the 1975–1992 period. We also examine trends in the reasons given for the failure to fully utilize human capital. We find that over the 1975–1992 period, per capita FPE

increased by almost 3 percent for all working-age males. This increase stems from a 12 percent decrease in real per capita earnings and a 10 percent decrease in the real per capita potential (or FTFY) earnings of these individuals. When we aggregate the reasons given for underutilization into exogenous constraints on working and individual preferences for not working, we find that the share of FPE attributable to the former has declined, while FPE attributable to the latter has risen. This shift is particularly pronounced for older, less educated, nonwhite men.

Our FPE indicator provides a more complete picture of economic performance than other statistical measures of labor force activity, such as the unemployment rate. Whereas the unemployment rate simply indicates the percent of individuals in the labor force looking for work, our FPE indicator applies to individuals in and out of the labor force, quantifies in dollar amounts the level of underutilization, and identifies the sources of underutilization. For example, our FPE indicator demonstrates the increased importance of retirement relative to unemployment as a source of underutilization. Similarly, it can be used to measure the effect of policy changes. For example, what happens to underutilization due to illness and disability when federal health care policy changes? It can also be used as a supplemental indicator for assessing the macroeconomic performance of the economy, measuring both the extent and composition of slack in the utilization of the nation's labor resources. In essence, FPE provides the first measure that values in monetary terms the level and trend of human capital underutilization.

TRENDS IN HOURS WORKED, 1975–1992

Figure 1 shows the trend in average annual work hours for the white, nonwhite,⁴ and total male working-age population over the 1975–1992 period, as reflected in the March supplement to the annual Current Population Survey (CPS).⁵ For both racial groups, mean annual hours decreased during the 1980–1983 recession; the subsequent recovery failed to return this value to its pre-1980s level for either racial group. Over the entire period, the trend of annual work hours is slightly negative for all working-age males and for the two racial subgroups.

Figure 1 Mean Annual Hours Worked, 18- to 64-Year-Old Males, 1975–1992

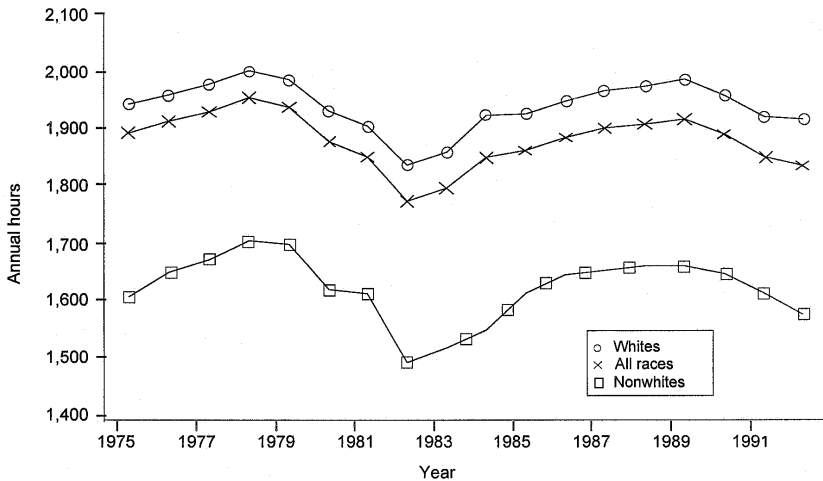


Table 1 indicates the reason for the decrease in this average value. It shows the percentage of the sample in four annual hours-worked categories for the paired recession years of 1975 and 1991 and the paired cyclical peak years of 1979 and 1989. The most noteworthy change is the 26 percent increase in the proportion of jobless males (those with zero work hours) over the 1975–991 period—an increase from 7.7 to 9.7 percent of the working-age population. However, the share of working males employed less than 2,080 hours per year decreased by about 6 percent for the paired recession years and 12 percent for the paired peak years. The share of prime-age males working exactly at capacity declined 5 percent over the recession years and remained constant over the peaks, while the share working in excess of capacity increased by about 6 percent for both pairs of years. Over the sets of paired years, then, there has been a hollowing out of the middle of the annual hours distribution, with an increase in the mass at both extremes.⁶ These hours-worked trends suggest substantial shifts in labor supply and demand over the period. Although the pattern of changes in the mean and variance in male earnings have been extensively studied, including changes in the level and distribution of both

Table 1 Percentage of 18- to 64-Year-Old Males in Annual Hours Worked

Year	0 hr.	1–2,079 hr.	2,080 hr.	>2,080 hr.
Recession years				
1975	7.7	31.1	34.6	26.6
1991	9.7	29.2	32.8	28.3
Change (1991–1975)	2.0	–1.9	–1.8	1.7
Peak years				
1979	7.4	29.7	34.2	28.7
1989	8.8	26.1	34.7	30.4
Change(1989–1979)	1.4	–3.6	0.5	1.7

SOURCE: Authors' calculations, March 1976, 1980, 1990, 1992 CPS.

wage rates and hours worked, the sources of the observed shifts remain little understood.⁷

HUMAN CAPITAL UNDERUTILIZATION OF WORKING-AGE U.S. MALES

The Concept and Estimation of FPE

We define the earnings associated with full use of human capital as potential earnings (PE) and measure this value as the product of an individual's predicted wage rate⁸ and 2,080 hours. The individual's earnings are measured as the product of the actual number of hours that the person works in a year and his predicted wage rate. FPE, then, is the number of dollars that an individual's earnings fall short of PE.⁹ It can be thought of as weighted foregone hours—hours worked less than the norm—where the weight is based on an estimate of the value of the person's productive capabilities in the labor market. For any group of working-age males, I , we measure FPE as an average value,

$$FPE_I = \frac{\sum_{i \in I} \text{Potential Earnings}_i}{N} - \frac{\sum_{i \in I} \text{Earnings}_i}{N},$$

where N is the number of individuals in I . So defined, FPE measures the extent to which the utilization of human capital deviates from a socially accepted norm of full-capacity utilization; in this case, 2,080 hours per year.¹⁰

Our measure of FPE neglects the role of important nonmarket activities in two ways. First, we assume that human capital is utilized only through paid market work. While human capital is also utilized through nonmarket activities, our purpose is to analyze trends in potential and foregone potential earnings. Since nonmarket activities are, by definition, unpaid, they cannot contribute to the realized earnings of an individual; hence, we neglect them here.

Second, we ignore the fact that certain nonmarket activities, such as child care, must be performed. If the individual does not perform them, he or she must obtain services from someone else, perhaps by purchasing them. Thus, FPE may not represent the *net* increase in either individual realized earnings or in aggregate earned income when the individual moves to full utilization.¹¹

FPE of Working-Age Males

We begin our examination of FPE with Table 2, which shows the trends in various earnings measures for the working-age U.S. male population.¹² Over the 1975–1992 period, aggregate real earnings increased from \$1.26 trillion to \$1.47 trillion, or 17 percent.¹³ During this same period, the total male working-age population grew from about 52 million to about 69 million, or 32 percent. Hence, per capita earnings for working-age males fell nearly 12 percent over the period, from about \$24,000 to \$21,000, which is consistent with other estimates of sagging mean earnings of male workers.

We estimate that over the same period, aggregate potential earnings of all working-age males in the United States rose from \$1.48 trillion to \$1.77 trillion, an increase of 19 percent. However, because of the 32 percent growth in the size of the working-age male population over this period, per capita potential earnings fell from \$28,206 to \$25,494, a decrease of 9.6 percent.

By comparing the level of per capita earnings to per capita potential earnings, we can measure the extent to which working-age males fail to utilize their stock of human capital. Over the 1975–1992 period, the gap

between aggregate earnings and aggregate potential earnings (aggregate FPE) increased from \$.22 trillion to \$.30 trillion, or 36 percent. In per capita terms, FPE increased nearly 3 percent, from \$4,201 to \$4,313.¹⁴

THE REASONS FOR FOREGONE POTENTIAL EARNINGS

Self-Reported Reasons for FPE

Table 2 shows that per capita real FPE ranged from about \$3,800 in 1978 to over \$5,000 in the recession year of 1982. From respondents'

Table 2 Per Capita Earnings Measures, 18- to 64-Year-Old Males^a

Year	Earnings (\$)	Potential earnings (\$)	Foregone potential earnings (\$)
1975	24,004	28,206	4,201
1976	24,630	28,780	4,150
1977	24,367	28,261	3,893
1978	24,966	28,801	3,836
1979	24,849	28,634	3,785
1980	24,039	28,725	4,236
1981	22,996	27,335	4,339
1982	22,380	27,424	5,045
1983	22,303	27,295	4,992
1984	22,919	27,448	4,529
1985	23,011	27,310	4,299
1986	23,892	28,329	4,437
1987	23,793	28,101	4,308
1988	23,373	27,317	3,944
1989	23,333	27,153	3,820
1990	22,285	26,176	3,891
1991	21,450	25,613	4,163
1992	21,181	25,494	4,313
Change 1975–1992 (%)	–11.8	–9.6	+2.7

SOURCE: Authors' calculations, March 1976–1993 CPS.

^a All dollar amounts are adjusted to 1993 dollars using the CPI-U-X1 cost index.

answers to questions regarding why they work less than the FTFY norm, per capita FPE for each year can be decomposed into the following comprehensive set of “reasons”:¹⁵

- work is not available (unemployed),
- discouraged from seeking work,
- illness/disability,
- retirement,
- voluntary part-time work,
- housework, including child care, or
- other.

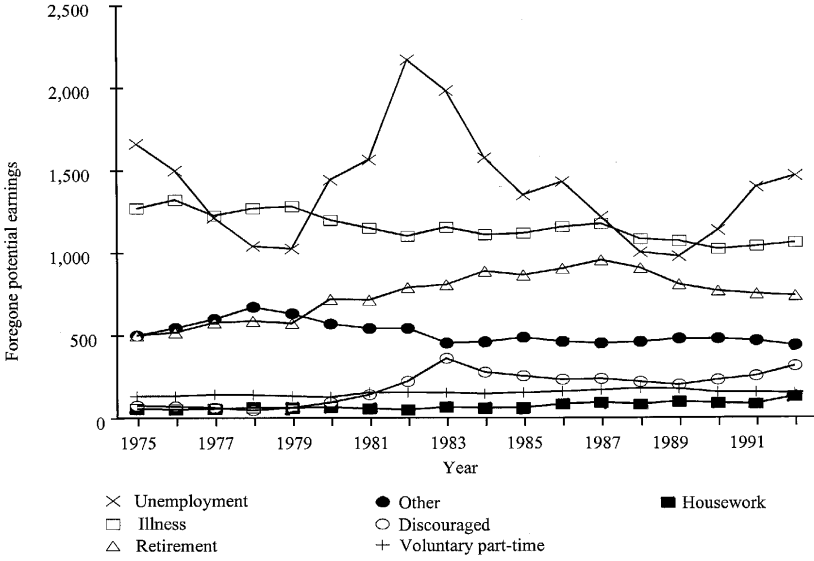
The level and trend of these components of per capita FPE are presented in Figure 2 for the 1975–1992 period. The vertical sum of the component values for each year equals per capita FPE.

With the exception of the late 1970s and late 1980s booms, a lack of employment opportunities for those seeking work is the largest component of FPE. This unemployment component peaked during the recession of the early 1980s, when it accounted for nearly \$2,200 per person of FPE, and was at its lowest at the end of the expansion of the late 1980s, when it fell to less than \$1,000 per person. Over the period, per capita FPE due to unemployment shows a slight downward trend of about \$120 per decade.¹⁶

The second component of FPE is labeled “discouraged workers,” and it too reflects macroeconomic conditions. The value of this discouraged worker effect ranged from a low of about \$100 per person (or about 2 percent of total FPE) at the end of the 1970s, to a high of nearly \$400 (nearly 6 percent of the total) during the early-1980s recession. While this value declined during the expansion of the 1980s, it never fell below \$200 per person, and rose to over \$300 by the end of the period. Due to this discouraged worker effect, per capita FPE showed an upward trend over the period of about \$140 per decade.

Illness or disabling health conditions forms the second most important reason for FPE, and accounted for a per capita value of about \$1,000 to \$1,300 per year over the period. The trend in FPE due to this factor is clearly downward, however, at about \$150 per person per decade. This downward trend in foregone earnings due to illness/dis-

Figure 2 The Per Capita Gap between Earnings and Potential Earnings, 18- to 64-Year Old Males, by Reason



ability contradicts a growing incidence of illness/disability problems among the working-age population reported in other studies.¹⁷

Retirement is the third most important reason for FPE, and accounted for \$500 per capita to nearly \$1,000 per capita. This source of FPE is the most rapidly growing among the set of reasons given by working-age males for the failure to fully use human capital. Per capita FPE due to retirement has grown about \$190 per decade, or nearly \$350 over the 1975–1992 period.

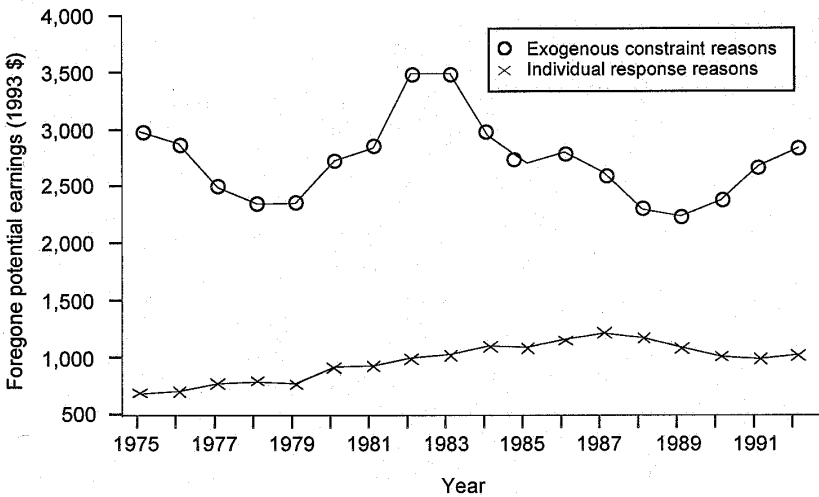
The remaining reasons for FPE (housework, voluntary part-time work, and other) account for a relatively small share of total FPE per person—ranging from 14–23 percent of the total over the period. Aggregate FPE attributable to this set of reasons has crept up slowly over the period.

Underutilization Due to Exogenous Constraints and Individual Response

The underutilization of human capital due to exogenous constraints placed on individuals carries quite different social and policy implications than that due to voluntary, individual choices. For this reason, we have divided per capita FPE into two components—that arising from individual responses to incentives (retirement, voluntary part-time work, and housework), and that stemming from exogenous constraints on the utilization of human capital (work not available, discouraged from seeking work, and illness).¹⁸

Figure 3 shows the level of per capita FPE due to exogenous constraint and individual response reasons for the working-age male population. An upward trend for individual response reasons is observed, while the trend for exogenous constraint reasons is negative. At the beginning of the period, FPE due to individual response reasons was 23 percent as large as exogenous constraint reasons for FPE; by the end of the period, the individual response reasons had grown to over 36 per-

Figure 3 Exogenous Constraint and Individual Response Reasons for Foregone Potential Earnings, 18- to 64-Year-Old Males



cent of the value of the exogenous constraint reasons. Over the 1975–1992 period, per capita FPE attributed to individual response reasons increased by about \$240 per decade, while per capita FPE due to exogenous constraint reasons fell by about \$130 per decade.

FOREGONE POTENTIAL EARNINGS PATTERNS AMONG RACE, AGE, AND EDUCATION SUBGROUPS

The overall patterns of working-age male human capital underutilization described above conceal substantial differences among race/age/education subgroups. In this section, we summarize a few of the more prominent of these differences.¹⁹ We begin with a discussion of racial differences and then present differences among age and education subgroups.

Racial Differences in FPE

Over the 1975–1992 period, the ratio of nonwhite to white potential earnings fell from 0.74 to 0.71. The earnings potential of the mean white male fell by an average of \$1,104 per decade; that for the mean nonwhite male fell by \$1,188. As a result, the racial gap in potential earnings increased slightly over the period.²⁰ Table 3 shows 1975 levels of PE and FPE for both nonwhites and whites, along with the reasons for FPE in that year, and the constraint/response breakdown in the causes for FPE. It also summarizes trends in all of these categories expressed in “dollars of average per decade change” over the 1975–1992 period.

The most striking pattern is the decline in per capita FPE for nonwhites over the period, in contrast to virtually no change in per capita white FPE. The difference in the “Per decade change” columns implies that the racial gap in the FPE indicator of labor underutilization narrowed by nearly \$240 over the 1975–1992 period—or by more than one-fifth of its initial level of about \$1,170.

While the contribution of unemployment to underutilization or FPE decreased over the period for both racial groups, the decrease in the unemployment reason for FPE was larger for nonwhites than for

Table 3 Foregone Per Capita Potential Earnings, 18- to 64-Year-Old Males, by Race^a (\$)

	Nonwhites		Whites	
	1975 Level	Per decade change	1975 Level	Per decade change
Potential earnings	21,663	-1,188	29,400	-1,104
Total FPE	5,190	-129	4,021	3
Unemployment	2,163	-264	1,569	-118
Discouraged	174	240	59	102
Illness	1,838	-196	1,167	-163
Housework	74	46	55	27
Retirement	230	130	551	229
Voluntary P/T	120	14	138	24
Other	592	-103	481	-98
Individual response FPE	424	190	744	280
Exogenous constraint FPE	4,174	-216	2,795	-180

SOURCE: Authors' calculations, March 1976-1993 CPS.

^a All dollar amounts are adjusted to 1993 dollars using the CPI-U-X1 cost index.

whites. The failure of the economy to perform at full capacity appears to have taken a smaller toll on nonwhites (relative to whites) at the end of the period than it did at the beginning.

FPE due to being discouraged from seeking work is quantitatively small relative to FPE due to unemployment. However, this discouraged-worker FPE was three times larger for nonwhites than for whites at the beginning of the period, and increased at twice the rate for nonwhites relative to whites over the period.

For both racial groups, a large share of the decrease in capacity utilization is attributable to the increase in pre-age-65 retirement. Per capita "early" retirement FPE for whites was double that for nonwhites at the beginning of the period and increased more rapidly over the period. Primarily because of the more rapid growth in FPE due to retirement for whites, the individual response reasons for FPE grew more for whites over the period than for nonwhites.

Age Differences in FPE

Table 4 shows the trends in potential earnings and FPE for the youngest (ages 18–24) and oldest (ages 55–64) groups, as most of the interesting patterns are concentrated in these groups. Per decade, the earnings potential of 18- to 24-year-olds fell by \$2,700, while mean potential earnings of older working-age males decreased only \$960. Over the entire period, the ratio of the potential earnings of the youngest group to that of the oldest group fell from 0.64 to 0.52—a radical drop of 12 basis points.

FPE is higher for the older group than for the younger group, which is not surprising given the substantially higher potential earnings of the older group. Moreover, the old-to-young gap in FPE has been rising over time. Over the entire 1975–1992 period, per capita FPE for

Table 4 Foregone Per Capita Potential Earnings for the Youngest and Oldest Age Groups^a (\$)

	Age 18–24		Age 55–64	
	1975 Level	Per decade change	1975 Level	Per decade change
Potential earnings	17,645	–2,700	27,725	–960
Total FPE	4,207	–379	7,369	1,130
Unemployment	2,592	–503	1,133	–29
Discouraged	218	193	62	126
Illness	283	7	2,985	–602
Housework	27	39	71	11
Retirement	1	7	2434	1,562
Voluntary P/T	357	19	235	129
Other	729	–142	448	–67
Individual response FPE	385	66	2,740	1,702
Exogenous constraint FPE	3,093	–303	4,181	–506

SOURCE: Authors' calculations, March 1976–1993 CPS.

^a All dollar amounts are adjusted to 1993 dollars using the CPI-U-X1 cost index.

youths fell by almost \$700, while per capita FPE for the group of older workers rose by over \$2,000.

For youths, the \$700 drop in FPE has been driven by a decrease of more than \$500 per decade in FPE attributable to reduced unemployment-generated nonutilization. However, the sizable increase in FPE among youths due to the discouraged worker effect—about \$350 over the period, a twofold increase—is disturbing and runs in the opposite direction to the unemployment effect. The very large increase in FPE for the older age group—over \$2,000 during the 18-year period—is more than explained by the rapid increase in retirement over the period. However, the retirement-induced increase in FPE for this older group was offset by a substantial decrease in the amount of foregone earnings due to illness/disability; from an average of about \$3,000 per year in FPE at the beginning of the period, to about \$2,200 by the end of the period.²¹

Education Differences in FPE

Table 5 summarizes the pattern of potential earnings and the utilization of this potential over the 1975–1992 period for the two lowest education groups—dropouts and those with a high school degree but no college. Over the 18-year period, potential earnings for both groups fell dramatically. The average per decade decrease in potential earnings is \$4,265 for dropouts and \$3,571 for high school graduates. Of the four education groups, only college graduates showed an increase in potential earnings over the period (not shown in table). The increasing return to years of schooling is clearly seen in the widening gap in potential earnings among the education groups, even between high school dropouts and those with a terminal high school degree.

Per capita FPE for the high school dropouts decreased slightly over the period, by about \$80 per decade, while FPE for those with a high school degree increased about \$200 per decade. The reasons for the level of and change in FPE for these low-education groups are dominated by unemployment, discouragement over finding work, and illness. Earnings foregone due to unemployment decreased for both low-education groups over the period. However, per capita FPE due to the discouraged worker effect increased by \$264 per decade for the group of dropouts and by nearly \$100 per decade for those with a high school

Table 5 Foregone Per Capital for Those with No College^a (\$)

	High school dropouts		High school graduates	
	1975 Level	Per decade change	1975 Level	Per decade change
Potential earnings	22,280	-4,265	27,491	-3,571
Total FPE	5,901	-81	3,865	202
Unemployment	2,023	-137	1,787	-132
Discouraged	103	265	84	154
Illness	2,548	-302	905	85
Housework	73	40	46	37
Retirement	550	138	481	147
Voluntary P/T	104	7	110	5
Other	500	-91	452	-94
Individual response FPE	727	185	636	189
Exogenous constraint FPE	4,674	-175	2,777	107

SOURCE: Authors' calculations, March 1976–1993 CPS.

^a All dollar amounts are adjusted to 1993 dollars using the CPI-U-X1 cost index.

degree. A large increase in underutilization due to retirement is also recorded for both groups.

FOREGONE POTENTIAL EARNINGS PATTERNS FOR VULNERABLE GROUPS

The patterns discussed in the previous section reveal substantial variation in human capital underutilization among subgroups of the male working-age population. In general, nonwhite youths and older males—especially those with low schooling levels—have the highest levels of underutilization. These same groups display the largest increases in human capital underutilization over time. Here, we focus on the youngest and oldest nonwhite groups with the lowest schooling levels, and compare their FPE patterns with those of the average male in their age group and the average working-age male, irrespective of age.

Low-Education Minority Youths

Consider, first, low-education minority youths (Table 6). The top row of the table, potential earnings, shows vividly the declining prospects of low-education minority youth. Over the 18-year period, real potential earnings fell by 16 percent per decade for both nonwhite youths who dropped out of high school and those with a terminal high school degree. This compares with a 15 percent decadal drop for all youths and a 5 percent drop for all males.

For both low-education groups of minority youths, FPE fell over the period. However, the decrease in FPE must be interpreted in the context of a decreasing level of potential earnings. The ratio of per capita earnings to total potential earnings, which reflects the percent of potential earnings utilized, fell over the period for both low-education minority groups, by over 3 percentage points for the dropouts and 4 percentage points for the terminal high school graduates.

For all of the groups, unemployment accounted for the largest portion of unused earnings potential. Although this share fell over the period for all four groups, discouragement over finding work accounted for an increasing share of FPE. For all the groups, the individual response reasons for FPE increased over the period.

Older, Low-Education Minority Males

Table 7 shows that potential earnings decreased substantially for older, low-education minority workers (by 9 percent for dropouts and 6 percent for high school graduates, per decade), relative to both all older working-age men (3 percent) and all males (5 percent).

Similarly, our indicator of the underutilization of human capital—FPE—is very high for older, low-education minority males, especially relative to their earnings potential. At the beginning of the period, these groups utilized only about 60–65 percent of their earnings potential, compared to 73 percent and 85 percent for all older workers and all males, respectively. However, compared to low-education minority youths, FPE for the older, low-education minority workers rose substantially over the 1975–1992 period.

The reasons for FPE among nonwhite, low-education, older males are dominated by unemployment, retirement, and illness. For both

Table 6 Foregone Per Capita Potential Earnings, 18- to 64-Year Old Males^a (\$)

	Nonwhite dropouts, ages 18–24		Nonwhite high school degree, ages 18–24		All males, ages 18–24		All working-age males	
	1975 Level	Per decade change	1975 Level	Per decade change	1975 Level	Per decade change	1975 Level	Per decade change
Potential earnings	14,210	–2,221	16,475	–2,607	17,645	–2,700	28,206	–1,518
Total FPE	6,134	–721	4,846	–455	4,207	–379	4,201	17
Unemployment	3,085	–877	3,090	–717	2,592	–503	1,661	–122
Discouraged	719	324	323	332	218	193	76	140
Illness	793	–91	365	52	283	7	1,271	–150
Housework	90	77	63	38	27	39	58	32
Retirement	0	15	0	1	1	7	502	189
Voluntary P/T	212	10	316	1	357	19	135	19
Other	1,236	–179	688	–162	729	–142	499	–91
Individual response								
FPE	302	102	379	40	385	66	695	240
Exogenous constraint FPE	4,597	–643	3,778	–333	3,093	–303	3,008	–132

SOURCE: Authors' calculations, March 1976–1993 CPS.

^a All dollar amounts are adjusted to 1993 dollars using the CPI-U-X1 cost index.

Table 7 Foregone Per Capita Potential Earnings, 18- to 64-Year-Old Males^a (\$)

	Nonwhite dropouts, ages 55–64		Nonwhite high school degree, ages 55–64		All ages, 55–64		All working-age males	
	1975 Level	Per decade change	1975 Level	Per decade change	1975 Level	Per decade change	1975 Level	Per decade change
Potential earnings	17,607	–1,610	24,977	–1,626	27,725	–960	28,206	–1,518
Total FPE	7,201	134	8,019	1,438	7,369	1,130	4,201	17
Unemployment	1,261	–131	1,673	–143	1,133	–29	1,661	–122
Discouraged	30	228	0	248	62	126	76	140
Illness	4,616	–598	3,158	96	2,985	–602	1,271	–150
Housework	111	–4	110	43	71	11	58	32
Retirement	770	686	2,111	1,387	2,434	1,562	502	189
Voluntary PT	161	27	255	121	235	129	135	19
Other	252	–74	712	–314	448	–67	499	–91
Individual response FPE	1,042	709	2,476	1,551	2,740	1,702	695	240
Exogenous constraint FPE	5,906	–501	4,831	201	4,181	–506	3,008	–132

SOURCE: Authors' calculations, March 1976–1993 CPS.

^a All dollar amounts are adjusted to 1993 dollars using the CPI-U-X1 cost index.

groups—and for all older males—illness is the single largest reason for FPE; in 1975, it accounted for nearly two-thirds of FPE for the dropout group, and 40 percent of FPE for the older workers with a terminal high school degree.²² For the dropout group, FPE attributed to illness declined over the period, as it did for the two comparison groups. For all of the older groups, retirement accounted for an increasingly large share of FPE over the period, while unemployment as a reason for FPE declined. It is noteworthy that nonwork due to the discouraged-worker effect accounted for very little of FPE for the nonwhite, low-schooling older group at the beginning of the period; however, this source of FPE grew rapidly over the period for this vulnerable population.

Largely because of the increase in retirement, individual response reasons for FPE grew for all of the older groups. This growth, in combination with the decrease in potential earnings, caused the percentage of potential earnings realized by older, low-education minority males (not shown) to fall substantially over the period, by 14–16 percentage points for the two low-schooling groups, compared with decreases of 9 percentage points for all older males and 1.6 percentage points for all males.

EXOGENOUS CONSTRAINT AND INDIVIDUAL RESPONSE REASONS FOR FPE

The patterns of underutilization described here raise the question of the extent to which the reduction in human capital utilization has derived from changes in the exogenous constraints that people face or in their individual responses to incentives. As we noted above, underutilization of human capital due to exogenous constraints placed on individuals carries quite different social and policy implications than that due to voluntary individual choices.

Over the 18-year period, an upward trend in individual response reasons for underutilization is observed, while the contribution of exogenous constraints to underutilization appear to be decreasing. At the beginning of the period, individual response reasons accounting for FPE were about 23 percent as large as those associated with exogenous constraints. However, by the end of the period, individual response

reasons were 36 percent as large as the exogenous constraint reasons. Over the 1975–1992 period, per capita individual response reasons for underutilized human capital increased by about \$240 per decade, while per capita exogenous constraint reasons fell by about \$130 per decade.

Our calculations allow an even deeper assessment of these response/constraint sources of human capital underutilization among various age/race/education subgroups. In Table 8, we break the gap between earnings and potential earnings into the two components of individual response and exogenous constraint reasons, and show the ratio of these two values for the subgroups, for 1975 and 1992. We also show the percentage change in this measure over the two years for each of the subgroups. Overall, and for each of the subgroups, the individual response/exogenous constraint ratio increased rapidly over the 1975–1992 period. For all working-age males, the ratio rose by 57 percent. For the oldest individuals, the ratio increased by 122 percent, indicating the increasing importance of individual retirement decisions in explaining the growth in foregone potential earnings. Large per decade increases in this ratio are also recorded for older, nonwhite high school dropouts and graduates, and for young, nonwhite high school dropouts.

SUMMARY AND CONCLUSIONS

In this chapter we have defined a new indicator of the level of human capital, potential earnings, and a new indicator of labor underutilization, foregone potential earnings. FPE is the gap between the norm of full time-full year work and the hours a person actually works, weighted by his predicted hourly wage. We measure this value in 1993 dollars and interpret it as the amount of potential earnings that the individual foregoes. We have used this concept to assess the levels and trends of human capital and its utilization among U.S. working-age males from 1975 to 1992. Overall, the time-related patterns in both potential earnings and the utilization of this potential indicate that underutilization of the stock of male human capital has been increasing over the period. This trend in human capital underutilization has been concentrated among very young and old workers, those with the lowest

Table 8 The Levels and Percent Changes in the Ratio of Individual Responses to Exogenous Constraint Sources of Foregone Per Capita Potential Earnings^a

	1975 Level of FPE (\$)		1975 IR/EC ratio	1992 Level of FPE (\$)		1992 IR/EC ratio	Change in IR/EC (%) 1975 to 1992
	Individual responses	Exogenous constraints		Individual responses	Exogenous constraints		
All working-age males	695	3,008	0.23	1,025	2,846	0.36	57
All nonwhites	424	4,174	0.10	757	3,748	0.20	102
All whites	744	2,795	0.27	1,106	2,573	0.43	59
Ages 18–24	385	3,093	0.12	495	2,563	0.19	61
Ages 25–39	140	2,318	0.06	227	2,437	0.09	55
Ages 40–54	340	3,126	0.11	476	3,227	0.15	34
Ages 55–64	2,740	4,181	0.66	4,961	3,387	1.46	122
High school dropouts	727	4,674	0.16	981	4,216	0.23	45
High school graduates	636	2,777	0.23	937	3,048	0.31	37
Some college	678	2,287	0.30	949	2,637	0.36	20
College graduate	778	1,321	0.59	1,263	1,822	0.39	17
Nonwhite dropouts, ages 18–24	302	4,597	0.07	405	3,435	0.12	68
Nonwhite high school graduates, ages 18–24	379	3,778	0.10	388	3,317	0.12	17
Nonwhite dropouts, ages 55–65	1,042	5,906	0.18	2,674	5,008	0.53	197
Nonwhite high school graduates, ages 55–64	2,476	4,831	0.51	4,798	4,843	0.99	94

SOURCE: Authors' calculations, March 1976–1993 CPS.

^a All dollar amounts are adjusted to 1993 dollars using the CPI-U-X1 cost index.

education levels, and nonwhites. Finally, we note that while exogenous constraints on human capital utilization outweigh individual choices to underutilize, the relative contribution of choice-based FPE has increased over the period.

Notes

1. A December 1, 1994, front page *New York Times* story inquired, “So why are so many men—healthy men in the prime of life—working less than ever before?” (Nasar 1994). See also Buron and Haveman (1995), Buron, Haveman, and O’Donnell (1995), Freeman (1994), Katz and Murphy (1992), and Juhn (1992).
2. The human capital embodied in an individual is taken to be the value of the “bundle” of his characteristics—for example, schooling, skills, age, race, and health status—when fully used in productive economic activities. The independent effect of any one of these characteristics on the individual’s observed (or estimated) wage rate is taken as an estimate of the market valuation of the hourly rental value of the characteristic. Hence, the market-determined “use-value” of an hour of the individual’s work time—his wage rate—measures the economic value of an hour’s worth of his human capital. This convention implies that the returns to race and gender found in human capital studies reflect real productivity differences and not discriminatory treatment of these traits in the labor market.
3. We assume those working full time, full year or more are using their human capital at capacity; no credit is given for work in excess of, 2,080 hours per year. While work patterns above 2,080 hours per year are also of interest, this chapter concentrates on underutilization of human capital, and hence, those individuals who work less than the full-time, full-year norm. Therefore, we cap each individual’s work hours at 2,080 and count those with 2,080 or more hours of work as having zero unutilized hours.
4. “Whites” refers to white non-Hispanics; “nonwhites” are all others.
5. The standard method of calculating annual hours from the CPS is to multiply weeks worked in the last year by hours usually worked in a week. If reports of the latter correspond to modal hours rather than mean hours, as seems likely, this estimate is incorrect. In this analysis, we adopt a different convention and employ information on weeks worked part time and hours worked last week in the estimation of annual hours for some individuals. If an individual usually works full time (i.e., at least 35 hours per week) and does not report working part time in any week, then annual hours are estimated in the standard way as the product of weeks worked and hours usually worked per week. The same formula is used if an individual reports working part time throughout the year. However, individuals who usually work full time but work part time in some weeks (or who usually work part time but work full time in at least one week) are not asked for their hours during part-time (full-time) employment. To fill in this data gap for these workers, we use information on individuals who worked part time in the last week (not

year), but who usually work full time. We regress hours worked by such individuals in the last week on race, age, education, and usual hours/week and use the estimates to obtain a conditional expectation of the part-time hours/week of usually full-time workers. Annual hours are then calculated as the product of weeks worked full time and hours usually worked per week, plus weeks worked part time multiplied by the estimate of part-time hours. An analogous procedure is used to calculate the annual hours of individuals who usually work part time but work full time in at least one week.

6. These results are consistent with other recent studies; see Schor (1991) and Coleman and Pencavel (1993).
7. See Bound and Johnson (1992), Burtless (1990), Haveman and Buron (1994), Karoly (1992), Levy and Murnane (1992), and Moffitt (1990).
8. In predicting individual hourly wages, we first estimate annual selectivity corrected (Heckman 1976, 1979), hourly wage functions over all wage and salary nonwhite workers and white workers from data in the annual March CPS from 1976–1993. The independent variables are those exogenous human capital determinants of market productivity that are recorded in every CPS year. The race/year-specific coefficient estimates are used to predict each person's hourly wages based on his values for each of the attributes in the wage function. A more complete description of the procedure is found in Buron, Haveman, and O'Donnell (1995) and Haveman, Buron, and Bershadker (1997). The parameter estimates for the two race-specific wage functions for each year are available from the authors, as well as the probit equations that provide the basis for selectivity correction.
9. While labor market distortions may cause observed (and, hence, predicted) wages to be an imperfect measure of the productivity of an individual's work time, we accept these market values as the most appropriate weighting factor available for estimating the value of both earnings and potential earnings. We note that changes in labor market distortions over time will be reflected in the trend of aggregate measures of both earnings measures. For example, the presumed reduction in the influence of labor unions on wages (associated with the fall in union membership over the past two decades) could lead to a downward trend in both earnings and potential earnings due to a decrease in estimated wage rates. It should also be emphasized that the estimated wage rates used to weight actual and potential (2,080) work hours reflect the interaction of supply and demand factors in individual markets at a point in time. Hence, individual potential earnings estimates can only be aggregated to indicate the total, or per capita, value of potential earnings under the assumption that the structure of wage rates would not change in any important way if all males were to increase their annual work time to 2,080 hours, reflecting the full use of their human capital.
10. Given this convention, underutilization indicators could be calculated by comparing the actual hours that individuals work to the full capacity work hours norm of 2,080 hours. However, because we are interested in human capital utilization rather than labor hours utilization, we account for individual productivity as mea-

sured by the predicted wage rate in measuring both the earnings and the potential earnings components of FPE.

11. It should also be noted that in these cases, new jobs will be created in place of do-it-yourself activities.
12. Another indicator of the extent of labor underutilization is the percent of all working-age males who work less than the "full activity" norm, and hence record some level of FPE. We have studied this indicator of the "prevalence" of FPE and reported the results in Buron, Haveman, and O'Donnell (1995) and Haveman, Buron, and Bershadker (1997).
13. Aggregate earnings is the sum of the individual earnings of working-age males, which we described above as the product of an individual's actual annual hours of work and the individual-specific predicted wage rate. Dollar comparisons are in 1993 prices throughout the paper.
14. A regression of each of the three series in Table 2 on a time trend reveals average annual decreases of per capita earnings and potential earnings of \$154 and \$152, respectively, and an annual per capita increase in FPE of nearly \$3. These findings indicate that the decrease in per capita earnings is the result of a decrease in both the level and realization of potential earnings.
15. In allocating foregone work hours to these seven reasons, we first split foregone work hours into hours per week and weeks worked deficits, and then allocated these separate components to the categories. For individuals who worked during the year, the unemployment reason was obtained from responses to a question regarding the number of weeks an individual was not working but was looking for work. In the survey, workers were then asked what they were doing for most of the remaining weeks of the year, with the following potential responses: illness/disability, taking care of home/family, retired, no work available, other. Any worker responding "no work available" had the value of these hours allocated to the discouraged worker effect. Other responses had these hours allocated as indicated. Individuals who did not work at all are also asked how many weeks they were in the labor force looking for work and these hours are attributed to the unemployment reason. These workers were then asked the reason for not working, with the following potential responses: illness/disability, taking care of home/family, could not find work, other. These responses were allocated in the same way as for workers. Individuals who report working part time for at least one week in the last year are asked for the main reason for doing so, with the following categories indicated: 1) could only find part-time, 2) wanted part-time, 3) slack work/material shortage, 4) other. In order to allocate foregone hours arising from part-time work to our categories, we supplemented the information on reason for working part time last year with information on the reason for working part time in the last week, and reason for working part year, and then proceeded to allocate responses similar to the procedures for workers. A more detailed description of these procedures is found in Buron, Haveman, and O'Donnell (1995) and in Haveman, Buron, and Bershadker (1997).

16. The average annual changes described hereafter were calculated from regressions of the relevant series on a time trends.
17. See Chirikos (1986) and Colvez and Blanchet (1981).
18. The attribution of FPE into “exogenous constraint” and “individual response” categories rests on a judgment over which people can disagree. For example, an individual may choose not to work, but may report illness (included in our “involuntary” category) in order to indicate a more acceptable reason for not working. The reason “other” is excluded from these estimates.
19. Tables describing the detailed subgroup patterns are available from the authors upon request.
20. The decreasing ratio of nonwhite to white potential earnings reflects the overall increase in wage inequality over the period. Because nonwhites are concentrated at the lower end of the education and skill distributions, increased wage disparity between the higher and lower end of these distributions is also reflected in increased wage and potential earnings disparities between racial groups over the 1975–1992 period. Recall that potential earnings is the product of the individual wage rate and a constant (2,080 hours).
21. It is possible that a growing fraction of older workers are switching from illness to retirement as the reason for not working.
22. Surprisingly, the dropout group reported that FPE due to retirement in 1975 (\$770) was less than 20 percent of FPE due to illness (\$4,616).

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Working Time in Comparative Perspective

Volume I

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