The Utilisation of U.S. Male Labor, 1975-1992:
Estimates of Foregone Work Hours

by

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1.   INTRODUCTION

The past three decades have witnessed a general decline in the labor market activity of U.S. prime aged males.   Trends in jobless rates, nonparticipation rates, unemployment rates and part-time work all show a falling proportion of males are fully active in the labor market (Buron, Haveman and O'Donnell, 1994). Inactivity is particularly pervasive among nonwhites, both younger and older males, and those with the lowest levels of education (Buron, et al., ibid). Increases in inactivity are concentrated among these same groups.

This paper documents the trend of less intensive utilisation of male labor over the 1975-92 period, and examines potential causes of it. We propose a new indicator of labor underutilisation—forgone hours—and use it to examine the proportion of working age males who are less than fully active in the labor market and the deficit of the work effort of this group from that consistent with full activity. An individual is considered fully active if he works the equivalent of full-time for the full year (FTFY); the latter is defined as working 52 weeks at 40 hours per week (2080 hours). The "activity deficit" is measured by FTFY hours less the hours an individual actually works; this is referred to as **forgone hours**, and is taken to be a measure of the difference between the actual and potential utilisation of labor resources.

We employ three indicators of labor utilisation in our discussion; each rests upon the concept of forgone hours. They are:

- **Percent with positive forgone hours (percent PFH).**

  This indicator records the share of the working age population failing to meet the 2080 hours per year norm we have chosen to define full utilisation; we refer to this indicator as percent PFH.

- **Mean forgone hours among those with positive forgone hours (MFH/P).**

> This is a measure of the extent of labor underutilisation among those failing to meet the 2080 norm, and is expressed as a percentage of the 2080 norm; we refer to it as MFH/P, indicating the measurement of mean forgone hours (MFH) among those with PFH.

- **Mean forgone hours for the entire male population (MFH).**

> This summary indicator divides the total number of forgone hours in the population by the total number of males, and is also expressed as a percentage of the 2080 norm; we refer to it as simply MFH[1].

Increasing underutilisation of male labor may result from individual choices in an increasingly wealthy society to enjoy more time in leisure activities and/or declining opportunities for attachment to the labor market. In this paper, examination is made of the causes of labor underutilisation through attribution of forgone hours to reasons given by individuals for being less than fully active.

In Section 2, we present our estimate of mean annual hours worked by 18-64 year old males over the 1975-92 period.[2] Here, and throughout the paper, the data used are from the 1976-93 Current Population Surveys (CPS). The March CPS gathers information on labor market participation and earnings, for the preceding year. The sample consists of non-institutionalised civilian males, who were not in the military or school in the previous year, and who are not currently students.[3,4] The military and students are excluded in order to focus on the pattern of labor utilization among those who are expected to be active in the labor market.[5] Examination of the distribution of annual hours worked provides justification for the choice of 2080 hours as the baseline for our definition of forgone hours.

Section 3 presents trends in the proportion of the population which has positive forgone hours—percent PFH. This section also shows mean forgone hours—MFH/P and MFH—indicating the

extent of labor underutilisation. Disaggregations by race, age and education are also presented. In the fourth section, the anatomy of labor underutilisation is revealed. The fraction of forgone hours accounted for by race/age/education defined groups is examined. Similarly, the contribution of non-work, part-year and part-time work to total forgone hours is assessed. Section 5 poses the question of why the utilisation of male labor has decreased over the past 18 years. The possibility that this is merely an artifact of a changing demographic composition of the population is considered and dismissed. Demographic standardization reveals the decline in activity would have been even greater if the structure of the population had remained constant; the question of why inactivity has increased remains.

In Section 6, forgone hours are attributed to the reasons given by CPS respondents for being less than fully employed. This allows, for example, comparison of the relative contribution made by early retirement and a lack of employment opportunities. Distinction is made between voluntary and involuntary reasons for the underutilisation of labor and the contribution of each over time is examined. The final section summarises the findings and discusses a number of the issues generated.

2.   ANNUAL HOURS WORKED

Mean hours worked per year by non-student civilian males aged 18-64 years are presented in Figure 1 for the 1975-92 period.[6] Separate trends are shown for whites and non-whites and indicate the latter have much lower rates of activity.[7] For both racial groups, annual hours largely follow the business cycle; in particular there was a severe dip during the early-eighties recession. However, during the subsequent recovery mean annual hours failed to return to the levels of the late 1970s.

Further insight into what has been happening to the distribution of annual hours can be gleaned from examination of Figures 2a-2d. Histograms are drawn for the recession years of 1975 and 1991 and two years in a cycle upswing, 1979 and 1989. The distributions are bi-modal; the

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mode is 2080 in every year,[8] with another peak at zero. The most noticeable change in the distribution is the greater proportion of males working zero hours in the later years; the figure increased from 7.7 percent in 1975 to 9.7 percent in 1991. For the same four years, Table 1 gives the percentage of the sample in four hours categories; 0, 1-2079, 2080 and >2080. The greatest change is the decline in the proportion of males who work, but less than the equivalent of FTFY. Comparison of 1991 with 1975 shows a 1.8 percentage point fall in the proportion at the mode of 2080; but this is not true for the comparison of 1989 and 1979. The fraction not working has increased substantially—by 2 percentage points (or 26 percent) using the 1975-1991 comparison by 1.4 percentage points (or 19 percent) using the 1979-1989 comparison. The proportion who work more than 2080 hours has also increased. This evidence points to a bifurcation of the hours distribution, with a hollowing out of the middle and an increase in the mass at the extremes.

3. FORGONE HOURS: A MEASURE OF LABOR UNDERUTILISATION

Consistent with our finding that the mode (and median) of the annual hours distribution is 2080 hours over the entire 1975-92 period, about one third of males report working the equivalent of 52 weeks at 40 hours per week. In the remainder of this paper, this point in the hours distribution is taken as the social norm for full utilisation of labor in a paid, market setting. We define individuals working less than 2080 hours per year to be less than fully active, and labor underutilisation is measured by 2080 less the number of hours worked by individuals with less than this norm. The latter corresponds to forgone hours; the labor input not utilised due to failure to work FTFY.[9,10]

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Proportion with Positive Forgone Hours (percent PFH)

Figure 3 shows the proportion with positive forgone hours (percent PFH)--a consequence of working less than the 2080 norm--in the aggregate, and separately for whites and non-whites. In 1992, about 39 percent of males worked less than the equivalent of FTFY; the corresponding figures for whites and non-whites were 36 percent and 50 percent, respectively. There has been a slight narrowing of this racial difference over time. As with mean annual hours, the graph largely traces the business cycle. What little sign there is of a trend is downward; percent PFH being lower in the late eighties boom than at a similar point in the cycle in the late seventies.

Figures 6a-6d show the trends in the percent PFH indicator for race/age and race/education groups. For both whites and non-whites, young male adults (18-24 years) are most likely to be less than fully active; around 59 percent of whites and 66 percent of non-whites in this age group had PFH in 1992.[11] Between 1975 and 1992, males aged 55-64 years were the only age group to show an upward trend in percent PFH. By the end of the period, the rate of labor underutilisation of the oldest group was almost as high as that for the youngest group, for both races. Middle aged males (40-54 years) have the highest rates of labor market attachment. Typically, less than 30 percent of whites and 45 percent of non-whites in this age group work less than FTFY.

The dissaggregation by education (Figures 6c and 6d) indicates the percent PFH indicators are highest for high school drop-outs, and that these rates have been increasing over time. This is particularly true of white drop-outs, who ended the period with 62 percent either completely inactive or working but less than FTFY (up from 52 percent in 1975), a rate almost as high as that for non-white drop-outs (65 percent). For whites, the clearest difference by education is between high school drop-outs and all others. This is not true for non-whites, for whom the percentage point difference is about the same between each education category. Non-white college graduates were the only group to experience a decline in percent PFH over the 1975-92 period. While at the beginning of the period,

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the rate for this group was closer to that of white high school graduates than to that of their college-graduate white counterparts, this was no longer true by the end of the period.

The disaggregation by education reveals an upward trend in the percent PFH among high school drop-outs. In Figures 7a and 7b, the rates for this education group are disaggregated by race and age. For both white and non-white high school drop-outs, 18-24 year old males have the highest percent PFH—about 73 percent for both non-whites and whites. However, this is the only age category within the group of high school drop-outs not to experience an increase in this fraction. The upward trend is most steady for the oldest age group. The result is a narrowing of the age differentials in the proportions of high school drop-outs who have PFH. Disaggregation of the percent PFH indicator for high school graduates, with no college education, by age reveals the same pattern.

This finding is at odds with the general perception that the young, least educated groups have experienced the greatest labor market deterioration in recent years. Juhn (1992) reports that, for blacks, the decline in the labor market participation of high school drop-outs over the 1967-87 period was most pronounced in the group with the least labor market experience. A number of factors may explain why we do not find this. The principal difference between our analysis and that of Juhn (op cit) is the measure of labor utilisation. She examined weeks worked as a proportion of 52, while our results are based on whether the individual works less than 2080 hours. Further, the periods of analysis differ. Juhn's results show that for white high school drop-outs, participation of the least experienced group did not fall over the 1973-75 to 1985-87 period, as it did for older males in this education group, but comparing 1985-87 with 1967-69 reveals a decline for the younger age group consistent with that for the others. Another important difference lies in Juhn's examination of blacks, as opposed to non-whites. It is plausible that there has been a decline in the labor market attachment of young black high school drop-outs which is not evident when all non-whites are taken together.

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Our finding that the activity of young high school drop-outs is falling less rapidly than is the case for older drop-outs is inconsistent with the proposition that inactivity has been increasing among high school drop-outs because, as more individuals graduate from high school, on average, the new generation of drop-outs possess less unobservable human capital than their predecessors and, consequently, have fewer labor market opportunities.

Broken down by age, the percent PFH has been increasing only for older workers—those aged 55-64 years. Figures 7c and 7d show the rates for this age group disaggregated by race and education. Among both white and non-whites, the rate is increasing for older men of all education levels.[12] However, the increase has been steepest for the more educated; resulting in some narrowing of the education differential within this age band over time.

Mean Forgone Hours among those with Positive Forgone Hours (MFH/P)

Figure 4 tracks trends in a measure of the extent of labor underutilisation—mean forgone hours as a percent of 2080 among males with PFH. This measure is equal to 0 when all individuals work 2080 hours or more, and is equal to 1 when all of those less than fully active are completely inactive. There is a clear upward trend in the extent of labor underutilisation; it increased during the early eighties recession, never recovered in the late eighties and increased again in the early nineties recession. By 1992, MFH/P exceeded .52, up from .45 in 1975. This rate is equivalent to an average of 1090 annual hours of forgone work among those with less than full utilisation, an increase from the level of 941 in the recession year of 1975.

While Figure 3 reveals no long term increase in the percent PFH, Figure 4 shows that among this group, work effort has fallen. Comparison of Figures 3 and 4 also indicates that while non-whites are less active by both measures, the difference between non-whites and whites in percent PFH (Figure 3) is greater than the race difference in MFH/P (Figure 4). The upward trend in MFH/P

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holds for both races. The greater sensitivity of labor market activity of non-whites to the business

cycle is again seen here.

Figures 8a and 8b show MFH/P by race and age. The picture here is quite different from the

age disaggregation of the percent PFH indicator (Figures 6a and 6b). While the latter rate was found

to be highest among the youngest age group, the oldest age group—those aged 55-64 years—have the

greatest MFH/P. In fact, for whites, the youngest age group has the next to lowest MFH/P.[13] The

explanation is that while older males are less likely to work less than 2080 hours than are young

males, because of retirement they are more likely to be completely inactive.

MFH/P has been increasing for all age categories, and both races. The increase among older

whites has been greater than that of older non-whites, indicating a narrowing of the race differential

for this group. However, the opposite is true for the 25-39 year old group.

Figures 8c and 8d show an upward in MFH/P for all education levels. For whites, the

difference in MFH/P across education groups has remained roughly constant. In contrast, MFH/P

have increased most rapidly for the non-whites with the highest education levels. By the end of the

period, MFH/P were approximately the same for white and non-white high school drop-outs.[14]

Mean Forgone Hours among Population (MFH)

A summary measure of labor utilisation among prime age males is obtained by multiplying

percent PFH (Figure 3) by MFH/P (Figure 4). This measure is equal to mean forgone hours across

the entire prime age male population (MFH), with those working at, or above, the 2080 norm

counted as having zero forgone hours. The trend in the measure is shown in Figure 5.[15] The MFH

index again has a range of 0-1; with the lower and upper limits indicating a fully active and

completely inactive population, respectively. Over the 1975-1992 period, MFH displays an upward

trend, reflecting the product of virtually no trend in the percent PFH (Figure 3) and a pronounced

upward trend in MFH/P (Figure 4). By 1992, the MFH index had reached a value of over .2, up

from less than .18 in 1975. For non-whites, the index stood at .29 in 1992 (up from .27 in 1975), compared to an index of .18 for whites (up from .16 in 1975).

One interpretation of the aggregate figure for 1992 is that total hours forgone due to individuals not working at the full-time, full-year norm are one fifth of the total number of hours which would be worked if all males had met this norm.[16] The complement of the index is akin to a capacity utilisation ratio, suggesting that the overall rate of male labor capacity utilisation was slightly less than 80 percent in 1992, down from 82 percent in 1975. This aggregate hours deficit is equivalent to that which would arise if 20 percent of males were completely inactive. Because only about 11 percent of males were jobless in 1992, those that did work, for at least part of the year, but less than 2080 hours contributed a substantial amount to total forgone hours.

Figures 9a-9d show MFH across the prime age male population, broken down by race/age and race/education groups. By this summary measure, labor underutilisation is greatest—and has been increasing most markedly—for the oldest age group. Young male adults are the second least active: mean forgone hours for this age group show the greatest sensitivity to the cycle and also show an upward trend. There is a large gap between the MFH of older and younger males and that of 25-54 year olds, although the forgone hours of these middle age groups also appear to be increasing slightly over time. The trends disaggregated by education show the same general picture as for the two components of the measure—labor underutilisation is by far the greatest for high school drop-outs and has been increasing most rapidly for this group.

4. THE ANATOMY OF FORGONE HOURS

The story of the previous section is one of increasing underutilisation of male labor, due primarily to a decrease in the work effort of those working less than FTFY, rather than an increase in the proportion of the male population which fails to meet this norm. Labor underutilisation is greatest

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among non-whites, the oldest and youngest age groups, and for the least educated. The largest

increases in MFH are recorded for the oldest, and least educated workers. While these patterns

indicate the segments of the male population with the greatest inactivity rates, they do not indicate the

share of forgone hours accounted for by these groups. Figure 10 shows the fraction of total forgone

hours accounted for by non-whites increased dramatically by almost 10 percentage points from 1975

to 1992, reaching almost one third of the total by the end of the period. In part, this increase reflects

the increase in the non-white population, which grew from 15.4 percent to 23.2 percent of 18-64 year

old males over the period; the difference between the 33 percent of total forgone hours and the 23

percent population share is attributable to the substantially higher underutilisation of labor by non-

whites.

Within each racial group, the fraction of total forgone hours accounted for by each age group

are shown in Figures 11a and 11b. The picture differs between whites and non-whites; for the

former, the oldest group accounts for the greatest share of forgone hours. This position is held by

males aged 25-39 among non-whites. This difference reflects the relative age structure of the two

racial groups. The share of forgone hours accounted for by the oldest group is cyclical for both

races; increasing during booms and falling during recessions, when inactivity increases among the

younger age groups.

For both races, there has been a pronounced upward trend in the proportion of forgone hours

accounted for by 25-39 year old males. By the end of the period, this age group accounted for

around 30 percent of the forgone hours of whites, almost as much as that due to 55-64 year olds, and

38 percent for non-whites. Thus although this age group has the lowest rates of inactivity, given its

size, it contributes a large and growing amount to the total underutilisation of labor resources.

Among whites, 18-24 year olds account for the smallest proportion of forgone hours and the fraction has been falling over time, reflecting the declining share of the male population in this age group, and the relative decrease in their rate of underutilisation.[17]

In 1975, high school drop-outs accounted for almost 45 percent of the forgone hours of whites, and 65 percent for non-whites (see Figures 11c and 11d). Despite the steep increase in mean forgone hours for this education group (Figures 9c and 9d), there has been a sharp decline in its share of total forgone hours, indicating a rapidly declining proportion of the population are without a high school degree.

Causes of Forgone Hours

Underutilisation of labor can arise from failure to work at all in the year, part-year work, and/or part-time work. Figure 12 displays the fraction of total forgone hours attributable to each of these three causes.[18] In 1975, working for only part of the year accounted for 46 percent of total forgone hours, a slightly larger share than not working at all (i.e., being jobless) (44 percent). By the end of the period, however, the relative contribution of these two causes had been reversed; with joblessness accounting for around 51 percent of total forgone hours and part-year inactivity accounting for 37 percent. The contribution of part-time employment is small in comparison with the other two causes; roughly constant at around 13 percent of the total. The story is similar when disaggregation is made by race (trends are not reported), with the exception that joblessness was the dominant cause of forgone hours among non-whites throughout the entire period.

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5. DEMOGRAPHIC STANDARDIZATION OF FORGONE HOURS TRENDS

As noted above, non-whites have been increasing as a proportion of the male population. Because non-whites have greater levels of forgone hours than do whites, this demographic change will have contributed to an increase in the aggregate underutilisation of labor. Figures 13a-13d show the fraction of the white/non-white population in respective age/education groups. Notice the oldest and youngest age groups, which have the highest levels of forgone hours, have been decreasing as a fraction of the population. High school drop-outs and, for whites, high school graduates with no college education, have also been declining in relative size. In contrast to changes in the race composition of the population, the changes in both the age and education structure will have reduced the mean underutilisation of male labor.

In order to identify the net effect of demographic change on labor utilisation, and to gauge the magnitude of any demographic effect, we have standardized our three indicators of inactivity—percent PFH, MFH/P, and MFH—on the race/age/education composition of the 1975 population. The demographically standardized trends in these indicators, as well as the actual trends, are presented in Figures 14a-14c.[19] Had the demographic structure of the population remained as it was in 1975, but cell specific activity changed as it actually has, labor underutilisation would have been greater than has actually been experienced in every subsequent year.[20] This is true, in particular, for the percent PFH. Indeed, if the demographic composition of the population had remained as it was in 1975, this fraction would have displayed an upward trend—from .39 to .44—rather than the flat trend evident in the actual rates. This finding indicates the increased underutilisation of male labor is not merely an artifact of a changing population structure; in fact, the decline in work effort would have been even greater if there had been no change in the demographic composition.[21]

To better understand the impact of demographic change on labor underutilisation between 1975 and 1992, this effect has been further decomposed into the separate effects of age, race and

education. This has been achieved by following the method introduced by Das Gupta (1978), which requires standardizing using the mean of the two end-point populations (1975 & 1992) as the base, rather than the 1975 composition used in Figures 14a-14c.[22] The results are presented in Table 2 for all three of our indicators of labor utilisation. The third row shows the <u>actual</u> difference between 1992 and 1975 in the three measures.[23] All changes are positive, indicating greater underutilisation in all dimensions in 1992 in comparison with 1975.

The fourth row of Table 2 shows the difference in each of the measures between the two points in time which is <u>not</u> due to demographic change; this is the 'rate effect'.[24] It is the change in the mean attributable to change in the rate of underutilisation within race/age/education cells. These within-cell changes are, of course, due to a wide variety of potential causes, including changes in macro-economic conditions, changes in labor market structure and institutions, changes in worker preferences, and changes in public policy. In all cases the rate effect is greater than the actual changes, implying that the demographic effects have partially offset the underutilisation effect of these other factors. The disparity is most substantial with respect to the percent PFH indicator, although for MFH the rate effect is still more the twice the size of the actual change. Comparison of the rate effects with the 1975 values of the indicators reveals relatively large declines in cell-specific work effort; the rate effects are approximately 12 percent, 20 percent and 35 percent of the 1975 values, respectively, for the three measures read from left to right in Table 2.

The differences between the rate effect and the actual changes point to substantial and offsetting demographic effects, which are shown in the fifth row of the table.[25] These figures show the change in the mean arising only from change in the distribution of the population across race/age/education cells, holding the rates within these cells constant.[26] The final three rows of the table show the separate contribution of changes in the race, age and education structure of the population to these demographic effects. As suggested above, the increase in the non-white

proportion of the population has raised the underutilisation of labour, by all three indicators, while changes in the age and education composition have increased work activity. For all three measures, changes in the population's education level has had the largest impact on the utilisation of labor resources. The steep decline in the fraction of the population who have not graduated from high school and the increase in those with at least some college education, ceteris paribus, reduced the percent PFH by more than 4 percentage points (11 percent) and reduced MFH/P by 118 hours (12.6 percent). The changes in the race and age structure of the population have had roughly equal, but opposite, impacts on both the percent PFH and MFH indicators. However, the positive race effect on MFH/P has been much greater than the negative age effect.

6.   REASONS FOR FORGONE HOURS

The results of the previous section leave unanswered the question of what, if not demographics, accounts for the increase in the underutilisation of male labor, as measured by MFH. Insight into this question can be gained by examining the reasons given by CPS sample members for working less than the FTFY norm. Using these responses, forgone hours have been attributed to the following reasons (see Appendix):

> - no work, or no full-time work, available
> - illness/disability
> - retirement
> - voluntary part-time work
> - housework
> - other

The proportion of forgone hours accounted for by each reason is presented in Figure 15 for the entire 1975-92 period. These proportions are also given in Table 3 for comparable recession (1975 and 1991) and boom (1979 and 1989) years.

With the exception of the late 1970s boom, a lack of employment, or full-time employment, opportunities accounts for the greatest fraction of forgone hours. On average, across the period, the unavailability of (full-time) work accounts for around 40 percent of total forgone hours. This fraction is particularly sensitive to the business cycle, which is to be expected given inactivity due to unemployment is included in this category. A lack of employment opportunities accounts for a greater fraction of the forgone hours of non-whites (48 percent in 1992) than of whites (40 percent). Further, comparison of similar points in the cycle reveals an upward trend in this fraction for non-whites (Table 3).

The second major reason for the forgone work hours of male labor is illness; which accounted for around 32 percent of forgone hours in 1975 and 26 percent in 1992.[27] The fraction dipped sharply during the early eighties, due to the increase in the proportion of inactivity arising from a lack of employment opportunities. This was also a period of retrenchment for social disability insurance (DI), suggesting the propensity to report illness as a reason for non-work may be affected by the availability of DI. Consequently, not all of the forgone hours attributed to this reason may represent physiological constraints on the utilisation of labor. This said, the magnitude of the contribution of illness indicates that, even in a developed country, the health of the population is an important determinant of the utilisation of labor resources.

In 1975, 10.6 percent of forgone hours were due to early retirement; by 1992, this figure had increased to 15 percent. Retirement accounts for a much lower fraction of the forgone hours on non-whites (7.5 percent in 1992) than those of whites (19 percent). However, the fraction has increased for both racial groups (Table 3). The increase in potential work hours lost to early retirement may simply reflect the greater propensity in an increasingly wealthy society to choose leisure over work. Of course, such choices may be non-optimal, from a societal perspective, if the tax/transfer system

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has severely distorted the price of leisure. Additionally, early retirement may be reported by individuals who have been unsuccessful in finding work and discouraged from continuing to search.

On average over the period, voluntary part-time work has accounted for around 4 percent, or so, of forgone hours; with the fraction for whites about two-thirds above that for non-whites and little evidence of a consistent trend for either racial group (Table 3). In 1975, housework contributed 1.4 percent to the forgone hours of males, by the end of the period this fraction had increased by about one percentage point.

There has been a substantial change in the reasons given for forgone hours among older males--the age group with the highest level and rate of increase in forgone hours; while illness began the period as the main determinant of forgone hours, particularly for non-whites, by 1992 retirement was the major reason for labor underutilisation among whites, and illness and retirement contributed about the same fraction among non-whites (Figures 16a and 16b). By 1992, retirement was given as the reason for almost 54 percent of the forgone hours of white males aged 55-64 years, with illness contributing 25 percent. The comparable figures for non-whites are 36 percent and 34 percent, respectively.

Actual and standardised MFH (in absolute value) for the three main reasons for forgone hours—no (full-time) work available, illness and retirement--are presented in Figures 17a-17c.[28] Standardization has little effect on the trend in MFH due to a lack of employment opportunities. The graph mainly reflects the cycle, although the low points of the late 1970s are never achieved in the 1980s, resulting in a slight upward trend in hours lost to this reason.

MFH due to reported illness falls from 1975 to 1982, but shows an upward trend from 1984 onwards. The standardized mean shows an upward trend throughout the 1975-1992 period, indicating that the fall during the first part of the period is simply an artifact of demographic change. The increase in standardized MFH due to reported illness since 1984 is marked and, as yet ill

understood.[29] MFH due to retirement shows a pronounced upward trend, almost doubling between 1975 and 1988, before levelling off. Standardization indicates the increase in retirement hours would have been even greater had there not been a decline in the proportion of males aged 55-64 years old. Comparison of the trends in mean forgone hours due to ilness and retirement in Figures 17b and 17c respectively suggests a direct relationship between the two. From 1975-84 retirement hours were increasing rapidly, while illness hours were declining. When retirement hours levelled off in the late eighties forgone hours due to illness began to increase. These trends are merely suggestive but they raise the question of the extent to which retirement and disability represent substitutable states of inactivity. The issue deserves closer examination since any interaction would have important consequences for the design of policy in relation to pensions and disability insurance.

In Table 4 we show the changes in actual and standardized mean forgone hours by reason between two recession years (1975 and 1991) and two boom years (1979 and 1989). All comparisons show the increase in forgone work hours. From 1975 to 1991 mean forgone hours increase by about 42, the increase from 1979 to 1989 was 33. Standardizing for demographic change, the increases are much greater (111 and 65 respectively). Comparing the two recession years, the increase has been greater for whites than non-whites, while the opposite is true of the two boom years. The table reveals that almost all of the increases in forgone hours across the periods are due to a decline in the availability of (F-T) work and an increase in early retirement. The increase in mean forgone hours due to the latter reason between 1975 and 1991 was greater than that for the former (23 and 16 hours respectively), but both contributed approximately equally (19 hours) to the difference between 1979 and 1989.

There is a noticeable difference between the two racial groups. For whites, retirement explains almost all of the increase in mean forgone hours. This is particularly true for the 1975-91 comparison, in which case the increase in forgone hours due to lack of employment opportunities in

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relatively minor (2 hours). Between 1979 and 1989, mean forgone hours due to this reason increased by less than half of that due to retirement (22 hours) for whites. For non-whites, a lack of employment opportunities is reported as the major reason for the increase in forgone hours. For this group, the increase in forgone hours due to retirement between 1975 and 1991 was less than two-thirds of the increase due to there being no (F-T) work available; the respective figure for the 1979-1989 comparison is two-fifths. These results suggest that while white males are increasingly choosing to underutilise their labor resources by opting for early retirement, non-white males are more likely to be working less because they have fewer labor market opportunities. However, some caution should be exercised. It could be that employment opportunities have declined equally for whites and non-whites, but given the former have greater access to pensions, they are more likely to have responded to the slacker labor market by withdrawing into retirement.

Standardization has a marked effect on the results. While the actual figures show mean forgone hours due to illness declining, the opposite is true when the demographic composition of the population is held constant (at 1975 proportions). The effect is particularly dramatic for the difference between 1975 and 1991, in which case the standardized figures show mean forgone hours due to illness increased by four-fifths of the increase due to retirement. After standardization, 'no (F-T) work available' is the leading cause of the increase in forgone hours irrespective of the period chosen for comparison. The increase in standardized forgone hours due to retirement was 86 percent of the increase due to a lack of employment opportunities between 1975 and 1991 (75 percent 1979-89). Consequently, understanding the increasing underutilisation of U.S. male labor does not require an explanation for increasing early retirement alone; according to self reports, the labor market is offering men less employment opportunities.

<u>Voluntary and Involuntary Forgone Hours</u>

Underutilisation of labor arising from constraints placed on individuals provokes quite a different reaction from that due to individual choice. For this reason, we have divided forgone hours into those arising from voluntary (retirement, voluntary part-time work and housework) and involuntary (no work available and illness) reasons for inactivity.[30] Such attribution is obviously problematic. For example, an individual who wants employment but has become discouraged from looking may report himself retired. Similarly, an individual may choose not to work, but may report illness consistent with an effort to qualify for disability benefits, or to indicate a more acceptable reason for not working.

With these caveats stated, the fraction of forgone hours due to voluntary reasons are reported in Figure 18 for the entire population of prime age males, and for whites and non-whites. Voluntary forgone hours accounted for almost 16 percent of the total in 1975. With the exception of decreases in this percentage during the early eighties and nineties recessions, this percentage has increased substantially over time; reaching almost 22 percent in 1992—an increase of 38 percent. This increase is largely due to the rise in early retirement. The fraction of voluntary forgone hours for non-whites is substantially below that for whites; peaking at about 13.5 percent in 1989, which is still less than the minimum over the period experienced by whites. The scale of this difference supports the conclusion that, among those who are less than fully active, non-whites are much less likely to be in this state through choice.

Figures 19a-19d show the fraction of forgone hours due to voluntary reasons for race/age and race/education groups. Voluntary reasons are by far the most pervasive amongst the oldest age group and have been accounting for a rapidly increasing share of their forgone hours, again reflecting the increase in early retirement. By the end of the period, voluntary reasons accounted for 60 percent of the forgone hours of whites aged 55-64 years and 40 percent for non-whites in this age group. Thus,

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while the oldest age group utilises their potential labor input the least, they are the most likely to be voluntarily underutilising their potential. This distinguishes the experience of older males from that of young male adults, the other group with high levels of labor underutilisation. While college graduates have low levels of underutilisation of labor, most of it is voluntary. Exactly the opposite holds for the low education groups, where the level is high but the voluntary portion is low. This is particularly true for high school drop-outs, although the voluntary proportion is increasing. In 1975, 14 percent of the forgone hours of white high school drop-outs was voluntary; by 1992 the figure was 20.5 percent.

7.   CONCLUSION

Trends in the utilisation of male labor from 1975 to 1992 have been examined through three measures: the fraction working less than the equivalent of full-time full-year (percent PFH), mean forgone hours among those working less than FTFY (MFH/P), and mean forgone hours for the entire male working age population (MFH). These indicators measure the rate and extent of labor underutilisation respectively. While there has been no long term increase in the percent PFH indicator, the extent of underutilisation measured by both MFH/P and MFH shows an upward trend for both whites and non-whites. Young adults are least likely to be fully active, but the percent PFH indicator has increased only for males aged 55-64 years. The percent PFH among high school drop-outs has also increased. When disaggregation is made by both education and age, percent PFH is highest among young adults who are high school drop-outs; however, this is the only age group among high school drop-outs not to exhibit an increase in the rate over the 1975-92 period. While labor market attachment is certainly very low for young high school drop-outs, it is not true, according to both the percent PFH and MFH/P indicators, that the work effort of this group has declined relative to that of other age/education categories in recent years. Work by Juhn (1992)

shows that this conclusion does not hold for young black high school drop-outs over the 1967-87 period, when labor market activity in measured by week worked in the year. MFH/P are by far greatest for males 55-64 years, and this indicator has increased for all age and education groups.

Mean forgone hours among all males (MFH) shows an upward trend. In 1992, mean forgone hours were equivalent to those which would arise if 20 percent of males aged 18-64 years did not work at all in the year. Stated alternatively, relative to the full-time full-year norm, in 1992 less than 80 percent of the male labor input was fully utilized, down from a utilisation rate of 82 percent in 1975. These figures indicate a substantial, and growing, amount of potential labor resources not productively employed in the market.

Prime aged males (25-39 years) account for an increasing fraction of total forgone hours. Despite their high levels of labor underutilisation, 18-24 year olds and high school drop-outs are responsible for a declining share of total forgone hours. These trends reflect the changing structure of the population.

Standardization, designed to eliminate the effect of demographic changes on the trends, reveals that the net impact of demographic change has been to reduce levels of labor underutilisation. If there had been no change in the race/age/education composition of the male population since 1975, but cell specific rates had changed as they did, the upward trend in underutilisation would have been substantially greater than is observed in the raw data. In fact, once standardized, the percent PFH indicator shows an upward trend over the period. The demographic effect on labor utilisation consists of a negative effect through the increasing proportion of non-whites in the population, and positive effects due to a more educated work force and declines in both the youngest and oldest age groups. The change in education levels is by far the strongest of these demographic effects.

Our standardization results point to increasing underutilisation of labor within homogenous populations. Some indication of why this is so can be obtained from examination of the reasons given

for less than full labor market activity. The vast majority of forgone hours are due to individuals not working at all, or working for only part of the year. The relative contribution of these two causes has changed over time, such that joblessness is now the major determinant of forgone hours. A lack of (full-time) employment opportunities is the largest single reason offered for the failure to work at the 2080 hour norm. Roughly 40 percent of total forgone hours are attributable to this reason. This fraction varies markedly across the cycle; however, there is some evidence of a slight upward trend, particularly for non-whites and high school drop-outs. Illness and retirement are the second and third most important determinants of forgone hours. Forgone hours due to early retirement show the most marked upward trend over the period, such that this reason has been accounting for an increasing share of total forgone hours. Once standardization is made for demographic change, mean forgone hours due to illness have also shown a steady upward trend.

There is some evidence that illness and early retirement are, to an extent, inter-changeable reasons for labor market withdrawal. For all males, and those aged 55-64 years, the fraction of total forgone hours accounted for by the sum of these two reasons is roughly constant across the 1975-92 period. However, from 1975-84, forgone hours due to illness were declining, coinciding with the period of retrenchment in disability transfer programs, during which eligibility requirements were applied with increased stringency. From 1984 onwards, retirement hours have levelled off, while forgone hours due to illness have shown an upward trend. This latter period was also one in which application of the criteria for eligibility to disability insurance became more relaxed. While but suggestive, this pattern supports a direct negative—or substitution—relationship between inactivity due to disability and early retirement. This is an issue which deserves more detailed examination. If such substitution does exist, it has important consequences for the design of reforms to Social Security, private pensions, and disability insurance. Any curtailment of the former might be expected to have substantial positive effects on claims made on the latter source of non-labor market income.

Examination of the increase in forgone hours by reason reveals a lack of (F-T) employment opportunities and retirement are the two major causes of the increase in the aggregate. The latter is dominant for whites and the former for non-whites. Once standardization is made, increasing forgone hours due to illness also emerges as a substantial contributor to the increasing underutilisation of male labor. Standardization also reduces the contribution of retirement to the increase in forgone hours relative to that of the non-availability of work, such that the latter accounts for more of the increase in standardized mean forgone hours than any other reason. The increasing underutilisation of U.S. male labor is not merely the result of more early retirement; employment opportunities do appear to be declining.

Notes

[1] Those working at least 2080 hours are counted as having zero forgone hours. See section 3.

[2] The analysis begins with the year 1975 (1976 CPS) since prior to this CPS data on hours and weeks worked are only available in categorical form.

[3] Up to the 1983 survey, people in the military last year were identified through responding that they did not work at all, or for part of the year, because they were in the armed forces. From the 1984 survey onward, they were identified as being in the military last year if they list their occupation at their longest job last year as the armed forces.

[4] Individuals were identified as being in school in the last year if they give this as the reason for not working at all or working for only part of the year. Current students are identified through main economic status in the last week. Additionally, 'school/housework' can be given as a reason for part-time work. Since the vast majority of males giving this reason are likely to be engaged in school, rather than housework, we exclude all of those in the category.

[5] Much of the analysis was repeated with students included. At the aggregate, there is little difference in the trends in labor underutilisation with and without students. Obviously the absolute

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level of underutilisation is greater when students are included and this is particularly true for the youngest age group and those with 13-15 years of school. The main differences in the detailed results when students are included are noted in the text.

[6]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, weeks worked part-time and hours worked last week, are also used in the estimation of annual hours. 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 simply 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. Individuals who usually work full-time but work part-time in some weeks are not asked for their hours during part-time employment. To fill in this data gap, 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.

[7]'Whites' refers to white, non-Hispanics. 'Non-whites' are all others.

[8]The histograms are drawn with a bandwidth of 100 hours, making the range 2001-2100 the mode. With a bandwidth of 1, 2080 is the mode in every year.

[9] A reference point different from our 2080 norm may, to an extent, change the activity trends. Further, the estimate of the fraction of forgone hours attributable to particular demographic groups,

and of the relative contribution of various causes of forgone hours are dependent upon the choice of baseline. For example, a demographic group which has many part-time workers, but few non-workers, will account for a greater proportion of forgone hours, the higher is the chosen baseline.

[10]Note, all forgone hours are weighted equally here. In subsequent work, predicted market wage rates will be used to weight hours by their productive potential.

[11]If students are included in the sample, the respective figures for whites and non-whites in this age category are 75 percent and 79 percent.

[12]For non-whites, the trends in the rate shows a great deal of volatility for older males with at least 12 years of schooling. This is probably due to the relatively small numbers in these cells; for this reason the trend is not shown for non-whites, aged 55-64 years with 16 or more years of school.

[13]If students are included, MFH/P amongst the youngest group are much higher, but still less than for the oldest group.

[14]Disaggregation of MFH/P of drop-outs reveals increasing trends for all age groups (figure not shown). For whites, the increase is least marked for 18-24 year old high school drop-outs. Dissaggregation also reveals increasing MFH/P for 55-64 year old males of all education levels (figure also not shown).

[15]Since the hours worked beyond 2080 of those meeting this norm do not affect this measure, it should be interpreted as a measure of labor underutilisation, rather than overall labor market activity. If those working above 2080 hours were given negative, rather than zero, forgone hours, the measure would simply be an additive transformation of mean annual hours. Trends in this indicator are shown in Figure 1.

[16]Forgone hours are less than 20 percent of actual hours worked since many males work more than 2080 hours per year.

[17]The picture changes greatly when students are included in the population, in which case, this age

group accounts for the greatest fraction of forgone hours.

[18]Attribution was made by decomposing forgone hours (f) as follows:

$$f = 52*40 - w^{ft}h^{ft} - w^{pt}h^{pt}$$

$$= (52-w^{ft}-w^{pt})40 + (40-h^{pt})w^{pt} + (40-h^{ft})w^{ft} \qquad (1)$$

where: w^{ft} = weeks worked full-time, h^{ft} = hours per week in full-time work, w^{pt} = weeks worked part-time, h^{pt} = hours per week in part-time work. The first term on the RHS of (1) represents hours forgone due to non-work—in which case it equals 2080—or to part-year work. The second term on the RHS of (1) is hours forgone due to part-time work. The third term is zero if $h^{ft}=40$. Otherwise, this term represents negative forgone hours arising in cases where, $h^{ft}>40$ but total forgone hours are positive, $f>0$. This residual term is small for those with $f>0$ and is not allocated to either non-work, part-year or part-time forgone hours. For this reason, the fractions reported in Figure 13 add up to slightly more than 1.

[19]The standardised rates are given by:

$$\sum_{ijk} \frac{n_{ijk}}{n} T_{ijk}$$

where i is age group (18-24, 25-39, 40-54, 55-64 years), j is race (white, non-white) and k is years of schooling (<12, 12, 13-15, 16+). n_{ijk} is the number of individuals in the ijk cell in 1975 and n is the size of the 1975 population. T_{ijk} is the mean of the dependent variable in the ijk cell in a given year.

[20]The choice of the 1975 population as the base for standardization is, of course, arbitrary.

However, experimentation with two alternatives, the 1992 population and the mean population 1975-92, revealed, in this case, that the effect of standardization is insensitive to the choice of base.

[21]A caveat is required; it is possible that the impact of demographic change could be altered with the standardisation for other factors in addition to race, age and education.

[22]A disadvantage of the Das Gupta (1978) method is that it only allows decomposition of the demographic effect between two points. Liao (1989) extends the purging method of Clogg and Eliason (1988) to allow decomposition of a demographic effect operating over a time period, rather than between two points. However, this method is applicable only with binary dependent variables.

[23]Mean forgone hours are not divided by the benchmark of 2080 in this table.

[24]The rate effects in the table differ from those given by comparing the 1992 standardised values with the 1975 values in Figures 14a-14c because of the difference in the base populations used. The rate effects shown in Table 2 are given by:

$$\sum_{ijk}\left(\frac{\dfrac{n_{ijk}}{n}+\dfrac{N_{ijk}}{N}}{2}\right)\left(T_{ijk}-t_{ijk}\right)$$

where lower cases refer to 1975 values and upper cases to 1992 values.

[25]The total demographic effect is given by:

$$\sum_{ijk}\left(\frac{t_{ijk}+T_{ijk}}{2}\right)\left(\frac{N_{ijk}}{N}-\frac{n_{ijk}}{n}\right)$$

[26]It should be emphasized that these demographic effects are hypothetical; they show how the mean would change if the demographic composition changed but cell specific rates remained constant. Since a change in the relative size of a cell may affect activity within it, mechanical standardizations,

such as these, cannot reveal the actual contribution of changes in demographic structure to aggregate activity rates.

[27]With students included in the sample, school attendance was the second greatest contributor to forgone hours; 28 percent of the total in 1975 and 22 percent in 1992.

[28]These are the means across the population, rather than across those with positive forgone hours, since the latter would be directly affected by the size of the less than fully active population, which is a function of the cycle. As before, individuals working more than 2080 hours are counted as having zero forgone hours.

[29]Haveman and Wolfe (1990) examine changes in the prevalence of disability over the 1962 to 1984 period. Disability was measured in three ways: 1) individuals who are constrained in the amount they are able to work because of health, 2) individuals who receive benefits from disability transfer programs reserved for the health impaired, and 3) individuals who meet either or both criteria. Using definition 3), they find that the percentage of working-age men classified as disabled rose from 9.5 in 1962 to nearly 15 percent in 1976, then decreased to 10.5 percent by 1984. The same, hump-shaped pattern is also found for the other two definitions, and is consistent with other studies of the prevalence of disability among males. However, the time series examined is prior to the late eighties, the period which shows the most rapid increase in hours forgone due to illness.

[30]The category 'other' is not attributed to either group. The voluntary reasons are expressed as a fraction of forgone hours excluding those due to 'other' reasons.

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Clogg, Clifford and Scott Eliason (1988) "A flexible procedure for adjusting rates and proportions, including statistical methods for group comparisons", American Sociological Review, 53, 267-83.

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Appendix: Attribution of Forgone Hours to Reasons

Allocation of forgone hours to the six reasons was made as follows. First forgone hours were split into hours per week and weeks deficits as described in note 18. These separate components were then allocated to the six categories.

In the CPS, civilian adults who did not work at all in the last year are asked for the main reason for not working (CPS variable - **rnowrk**). Categories corresponding to ours are available for illness/disability, housework/family care and retirement. Those whose response was "could not find work" were included in our category of "no (f-t) work available". The remainder of the responses were included in our "other" category. In each case, these individuals were counted as having 2080 forgone hours - all of which were allocated to one of these categories.

If an individual works for at least one week, but less than 50, they are asked how many weeks, if any, they were unemployed (**wklkun**). We multiplied weeks in unemployment by 40 and included the total in forgone hours due to "no (f-t) work available". If weeks working and in unemployment sum to less than 52, the individual is asked what they were doing for most of the remaining weeks (**remact**). The available response categories correspond to those for not working at all in the year. Again we multiplied weeks spent in these activities by 40 and allocated them to the respective categories. If an individual works less than 52 weeks but more than 49, no enquiry is made as to what they did in the remaining weeks. These forgone hours are included in the "other" category.

Individuals who report working part-time for at least one week in the last year are asked for the main reason for doing so. Only four response categories are available: i) could only find part-time ii) wanted part-time iii) slack work/material shortage iv) other. In order to allocate forgone hours arising from part-time work to our six categories, we supplemented the information on reason for working part-time last year with information available from current economic activity status, reason for working part-time in the last week (if they usually worked part-time) and reason for working part-year.

Specifically, if an individual's reason for working part-time last year was i) or iii) from above, their forgone hours due to part time work were allocated to the "no (full-time) work available" category. If their response was ii), and, even if they worked part-time last week and reported usually doing so, they did not give 'illness' or 'housework' as their reason, and if their current activity was not housework, and if they did not give 'illness' or 'housework' as a reason for working part-year, then they were allocated to the "voluntary part-time" category. If their response was ii) or iv) and they reported working part-time in the last week and usually did so and gave illness (housework) as the reason for this, or if they gave illness (housework) as the reason for working part-year, then their part-time forgone hours were allocated to "illness" ("housework"). If their response was ii) or iv) and their part-time hours had not yet been allocated, they were included in "other".

If an individual usually works less then 40 hours per week but at least 35, they are not asked why they did not work 40 hours. The part-time hours of individuals in this group were allocated to the "other" category. If an individual usually worked more than 40 hours per week, but worked less than 2080 hours over the year as a consequence working for only part of it, a negative number of forgone hours, equal to 40 less their usual hours/week mulitplied by the number of weeks worked, was included in the "other" category.

TABLE 1

Percentage of 18-64 Year Old Males in Annual Hours Categories

Year	Annual Hours			
	0	1-2079	2080	>2080
1975	7.7	31.1	34.6	26.6
1991	9.7	29.2	32.8	28.3
'91-1975	2.0	-1.9	-1.8	1.7
1979	7.4	29.7	34.2	28.7
1989	8.8	26.1	34.7	30.4
1989-1979	1.4	-3.6	0.5	1.7

Source: Own calculations, 1976, 1980, 1990, 1992 CPS.

TABLE 2

Decomposition of Change in Labor Underutilisation, 1975-1992

	Underutilisation Measure		
	Fraction with hours <2080	Mean Forgone Hours-Positive	Mean Forgone Hours-All
1975	0.3880	941.4	365.2
1992	0.3905	1089.9	425.6
Actual Difference: 1992-1975	0.0025	148.5	60.3
Difference not due to demographics	0.0472	187.4	126.3
Difference due to demographics:			
Total	-0.0447	-38.9	-66.0
-Race	0.0104	89.7	16.5
-Age	-0.0123	-10.4	-17.1
-Education	-0.0428	-118.2	-65.4

Source: Own calculations, 1976 and 1993 CPS.

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TABLE 3

Percentage of Forgone Hours Due to Each Reason, Selected Years

Reason	All				White				Non-White			
	1975	1991	1979	1989	1975	1991	1979	1989	1975	1991	1979	1989
No (F-T) Work Available	42.8	42.2	30.7	33.4	42.4	39.5	28.8	30.5	44.1	48.0	36.4	39.7
Illness	31.7	27.3	35.0	30.4	30.2	26.9	34.6	29.6	36.8	27.9	36.2	31.9
Retirement	10.6	15.2	13.7	17.7	12.6	19.1	16.2	22.4	4.0	7.0	5.7	7.8
Voluntary Part-Time	3.5	3.7	3.8	4.6	3.9	4.2	4.4	5.5	2.5	2.5	2.0	2.8
Housework	1.4	2.3	1.7	2.7	1.3	2.2	1.7	2.5	1.7	2.7	1.9	3.1
Other	9.9	9.3	15.1	11.2	9.6	8.1	14.3	9.6	10.8	11.9	17.7	14.6
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source: Own calculations 1976, 1980, 1990, 1992 CPS.

TABLE 4

Change in Mean Forgone Hours by Reason, Selected Years

| | Changed in Actual and Standardized Means[1] | | | | | | | |
| | 1991-1975 | | | | 1989-1979 | | | |
	Actual	White	Non-White	Standardized	Actual	White	Non-White	Standardized
Total	42.23	29.01	13.88	110.70	32.76	17.63	42.08	65.13
Reason								
No (F-T) Work Available	15.55	1.78	27.96	37.99	19.89	10.23	32.62	29.76
Illness	-4.89	-2.92	-45.49	25.86	-5.1	-9.42	-7.01	9.22
Retirement	23.31	26.77	17.95	32.72	18.99	22.02	13.20	22.37
Voluntary Part-Time	2.00	2.42	0.28	3.82	4.09	4.06	4.95	6.81
Housework	4.49	3.67	5.52	6.16	3.96	2.90	6.73	4.56
Other	1.77	-2.71	7.67	3.15	-9.07	-12.15	-8.42	-7.59

Source: Own calculations, 1976, 1979, 1990, 1992 CPS.

[1]Standardized means hold the race-age-education composition constant at the 1975 levels.

Figure 1: Mean Annual Hours, Males 18–64 yrs., 1975–92
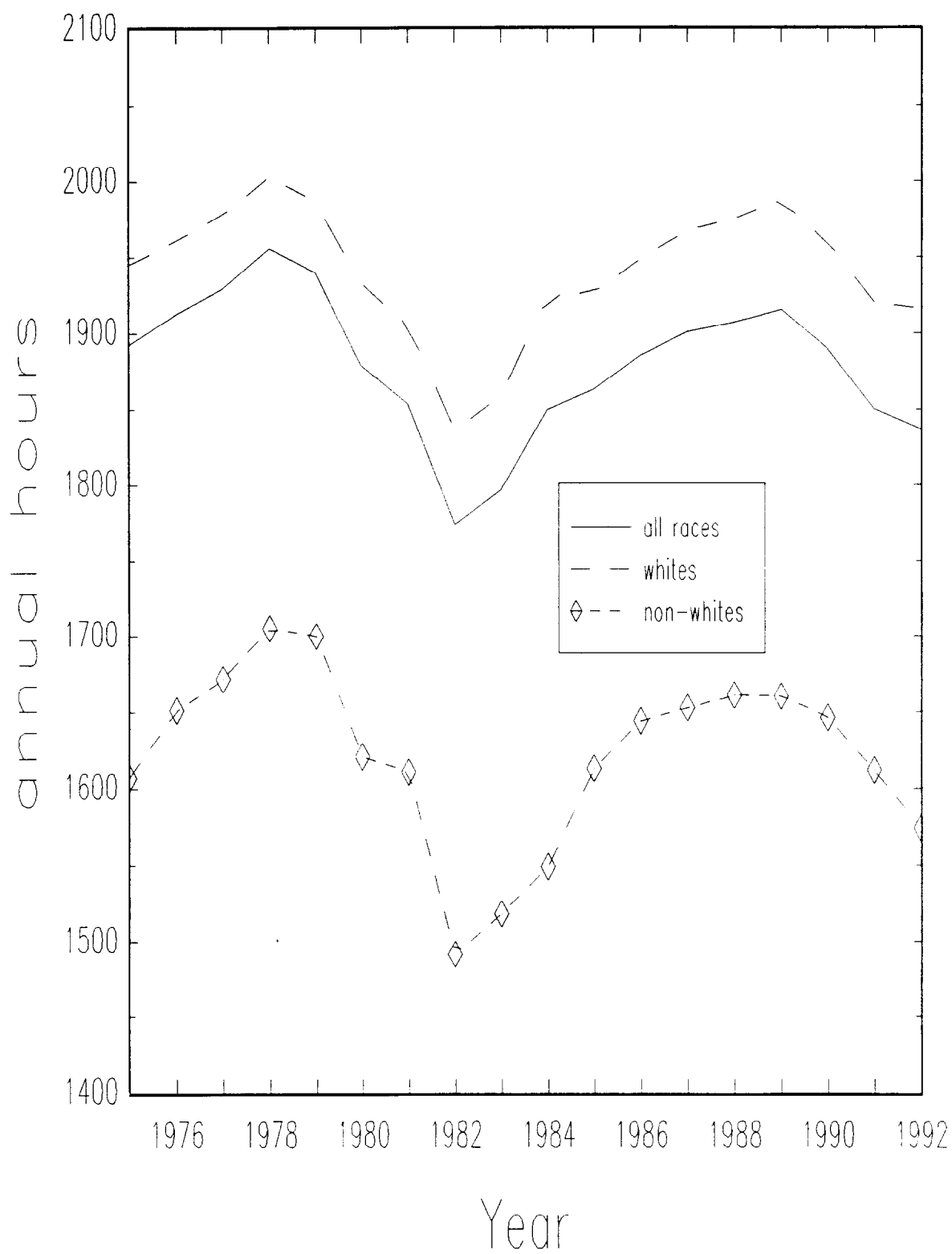
Figure 2a: Annual Hours Distribution, Males 18-64 yrs, 1975
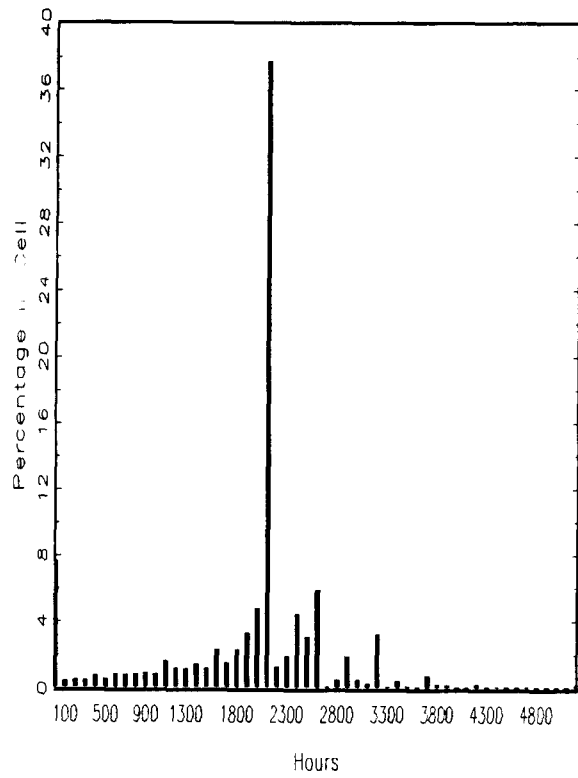
Figure 2b: Annual Hours Distribution, Males 18-64 yrs, 1991
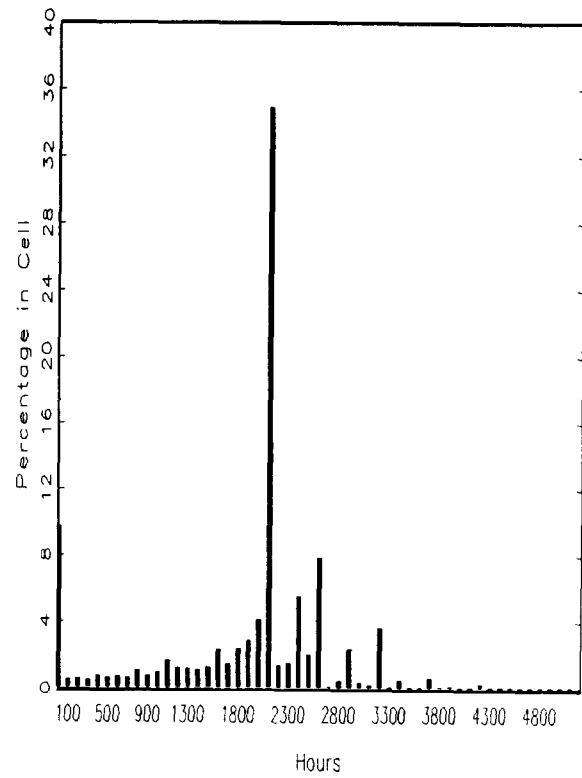
Figure 2c: Annual Hours Distribution, Males 18-64 yrs, 1979
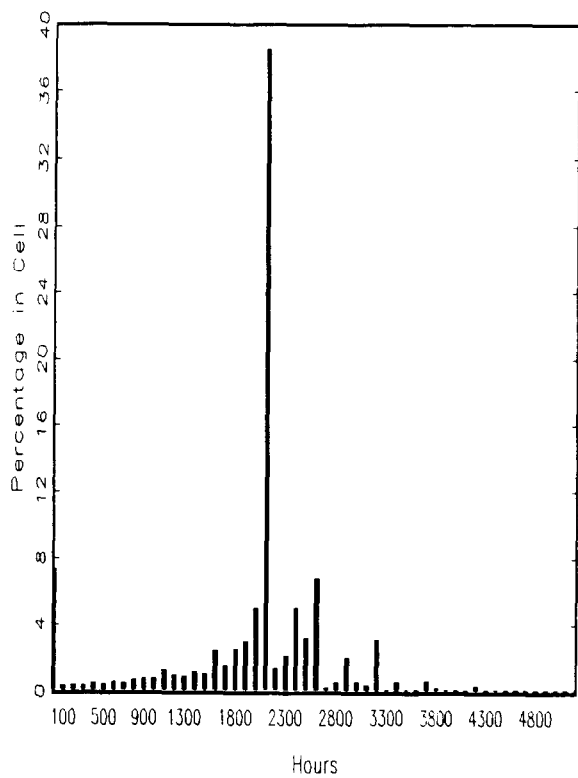
Figure 2d: Annual Hours Distribution, Males 18-64 yrs, 1989
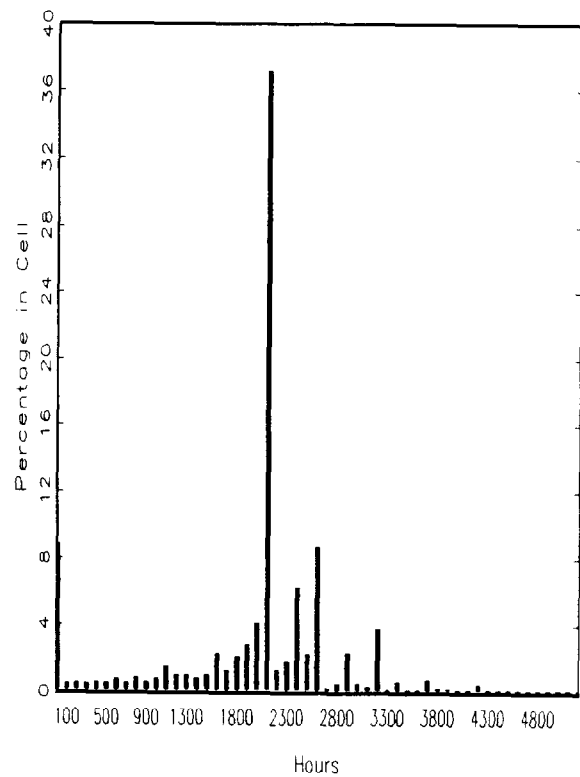
Figure 3: Proportion with Positive Forgone Hours (percent PFH),

Males 18-64 yrs., 1975-92
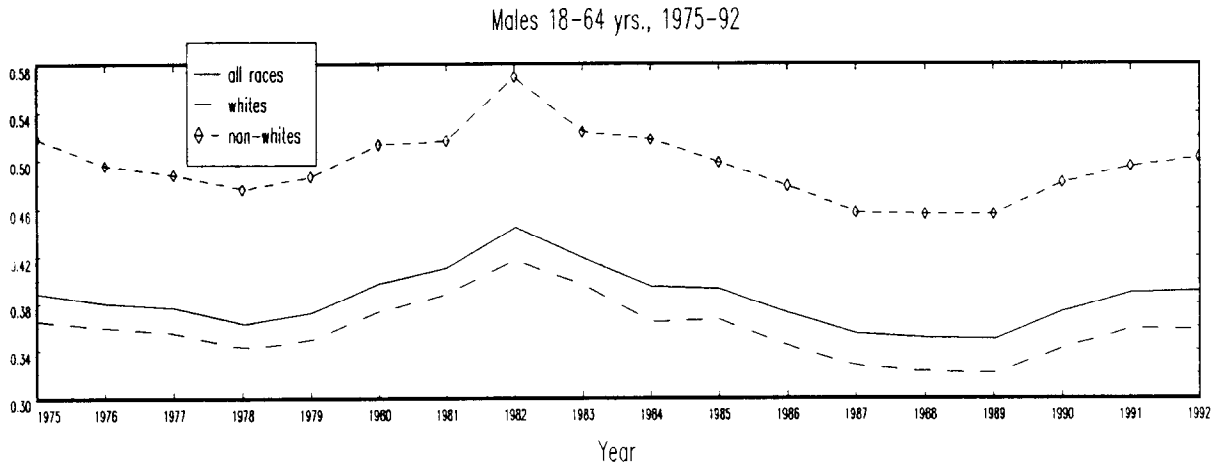
Figure 4: Mean Forgone Hours/2080 (MFH/P),

Males 18-64 yrs. with Annual Hours < 2080, 1975-92
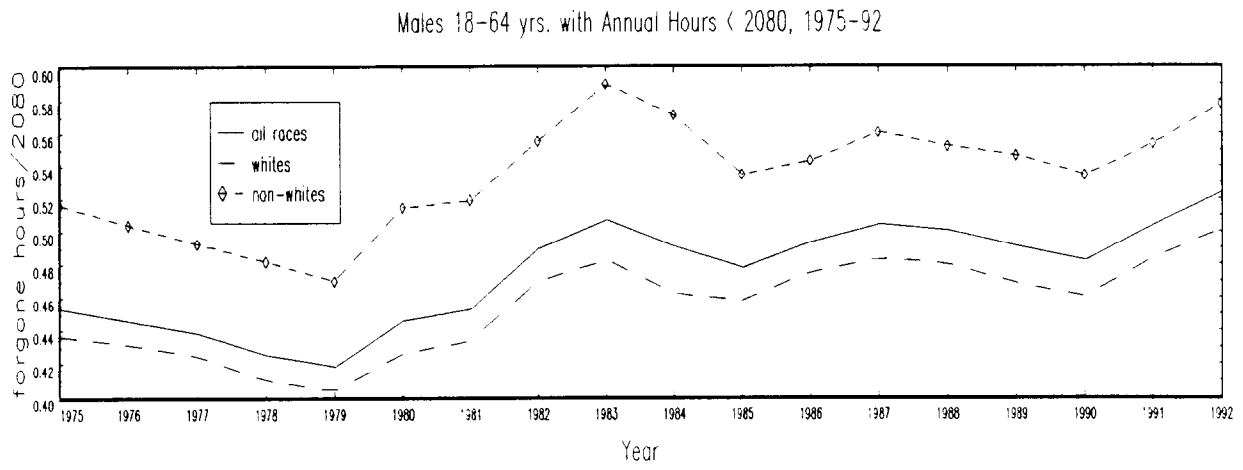
Figure 5: Mean Forgone Hours/2080 (MFH), Males 18-64 yrs., 1975-92
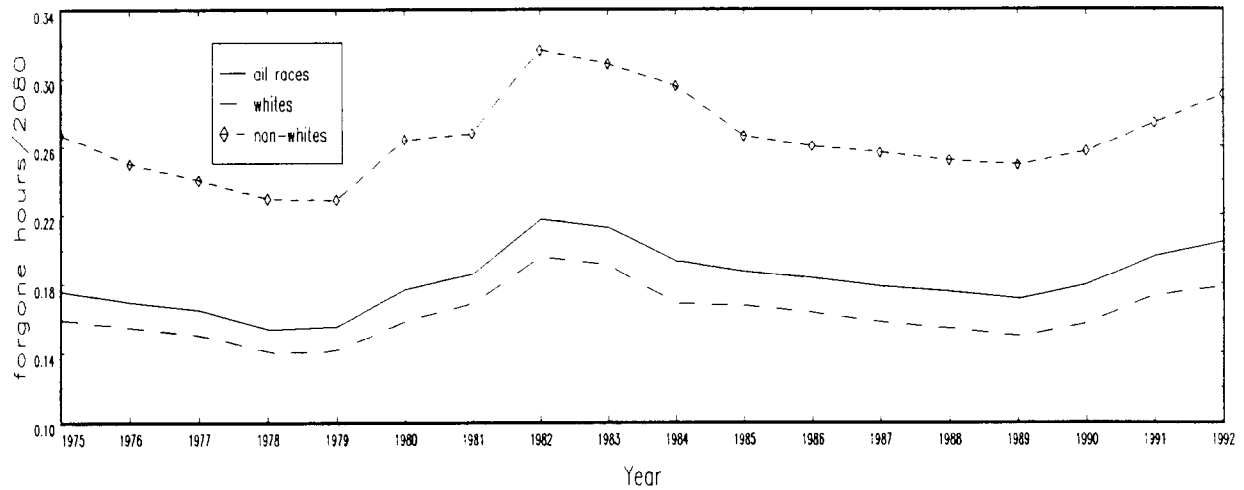
Figure 6: Proportion with Positive Forgone Hours (percent PFH), 1975–92

Figure 6a: Whites by Age
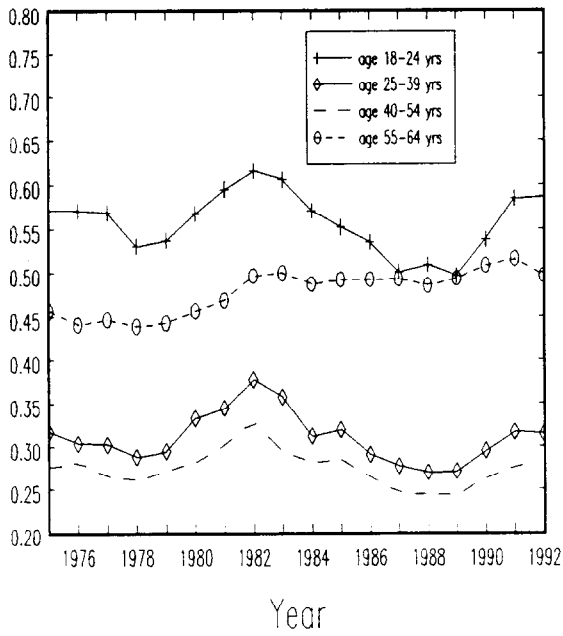

Figure 6b: Non-Whites by Age
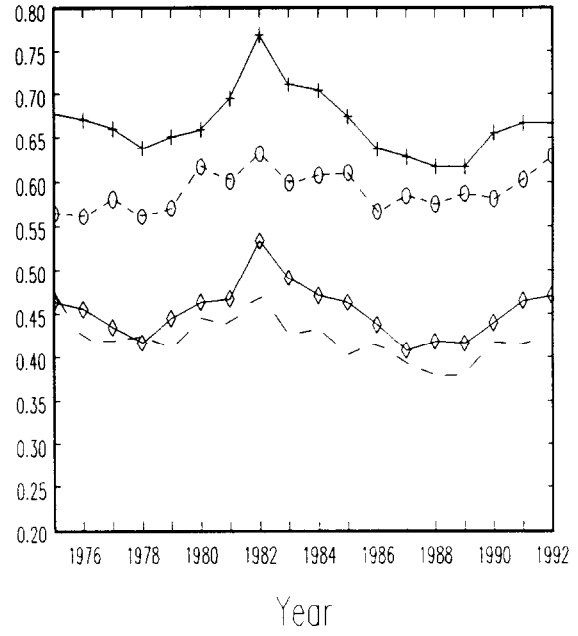
Figure 6c: Whites by Years in School
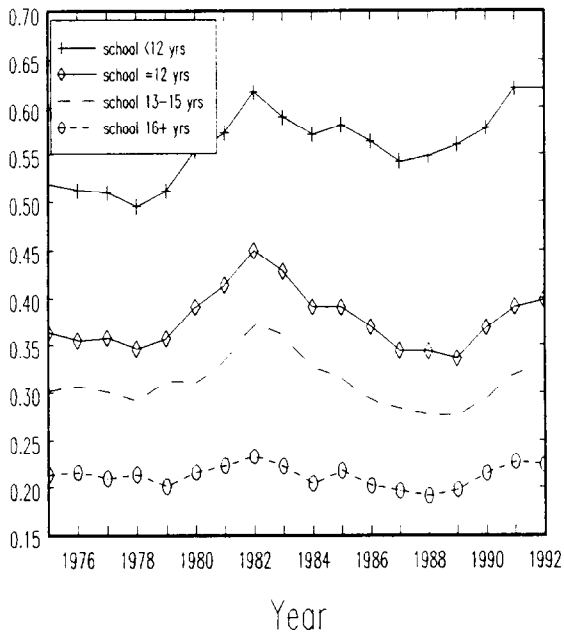
Figure 6d: Non-Whites by Years in School
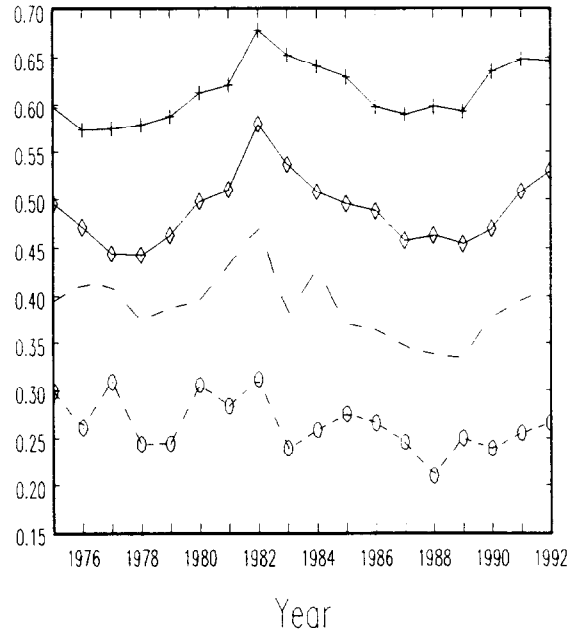
Figure 7: Proportion with Positive Forgone Hours (percent PFH), 1975–92

Figure 7a: White High School Drop-outs by Age
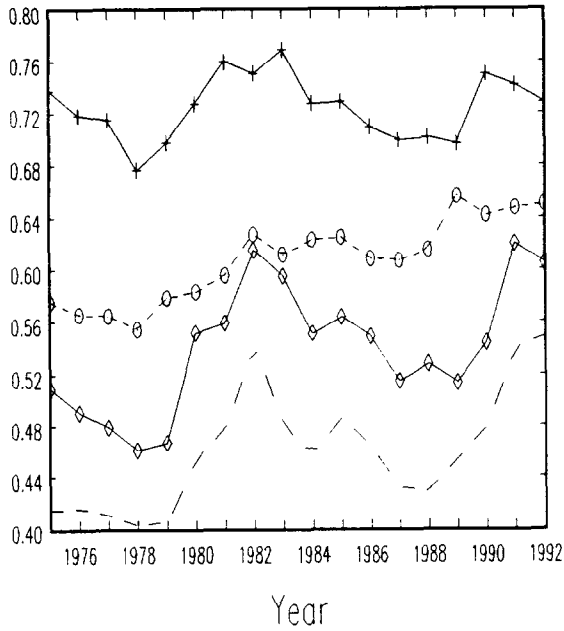
Figure 7b: Non-White High School Drop-outs by Age

Legend:
- + age 18–24 yrs
- θ age 25–39 yrs
- – – age 40–54 yrs
- θ – – age 55–64 yrs
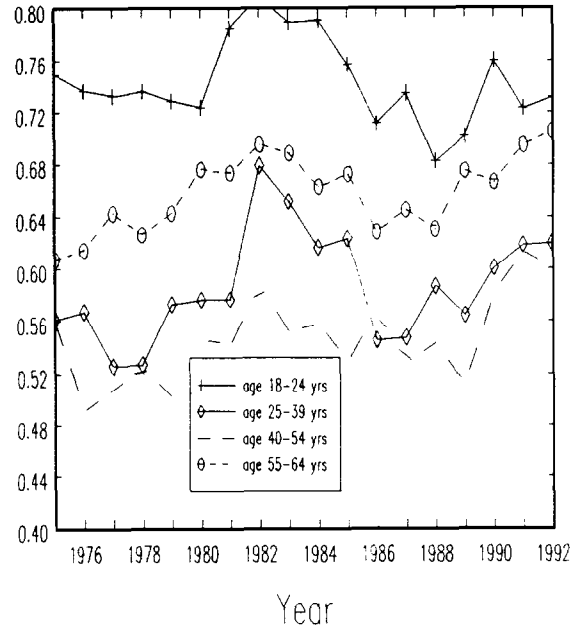
Figure 7c: White 55–64 yr. olds by Years in School

Legend:
- + school<12 yrs
- θ school=12 yrs
- – – school 13–15 yrs
- θ – – school 16+ yrs
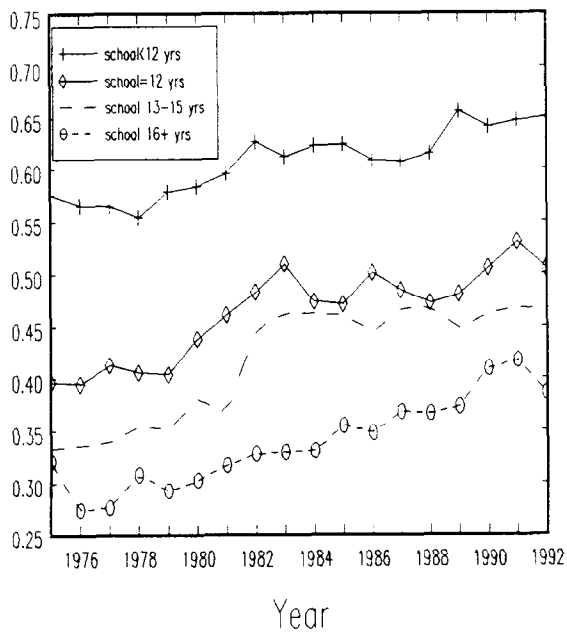
Figure 7d: Non-White 55–64 yr. olds by Years in School
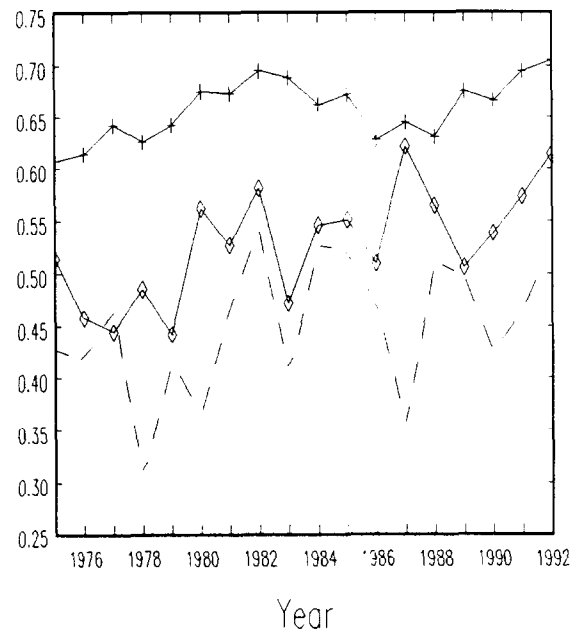
Figure 8: Mean Forgone Hours/2080 (MFH/P), 1975–92

Figure 8a: Whites by Age
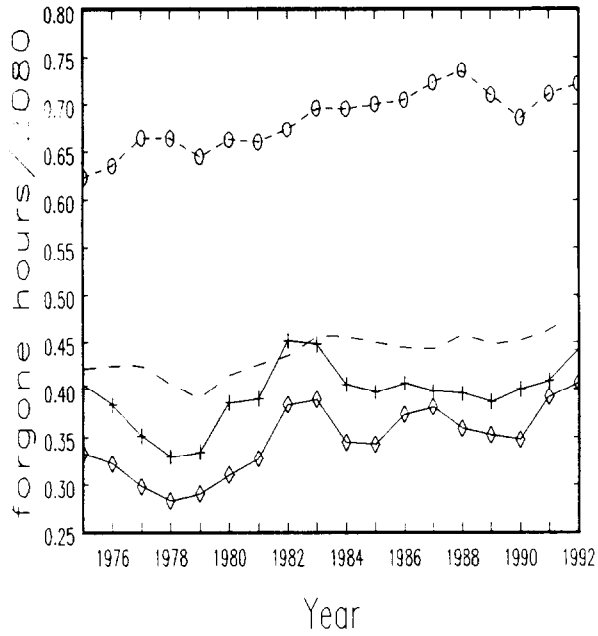
Figure 8b: Non-Whites by Age

Legend:
- + age 18-24 yrs
- ◇ age 25-39 yrs
- – – age 40-54 yrs
- θ – – age 55-64 yrs
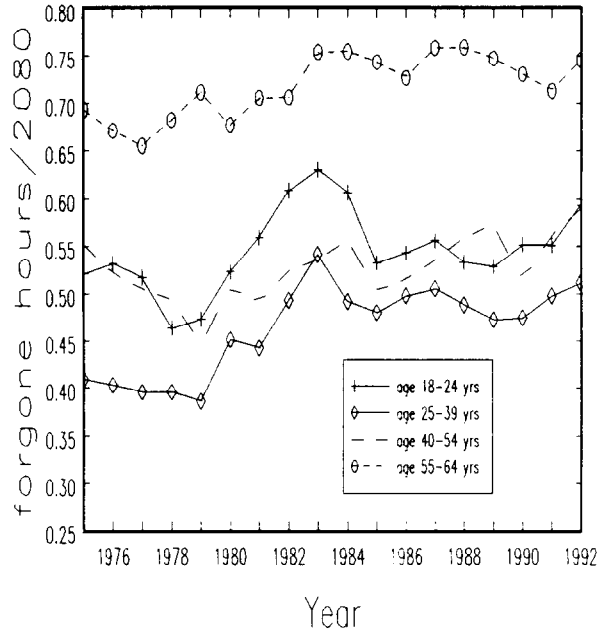
Figure 8c: Whites by Years in School

Legend:
- + school <12 yrs
- ◇ school =12 yrs
- – – school 13-15 yrs
- θ – – school 16+ yrs
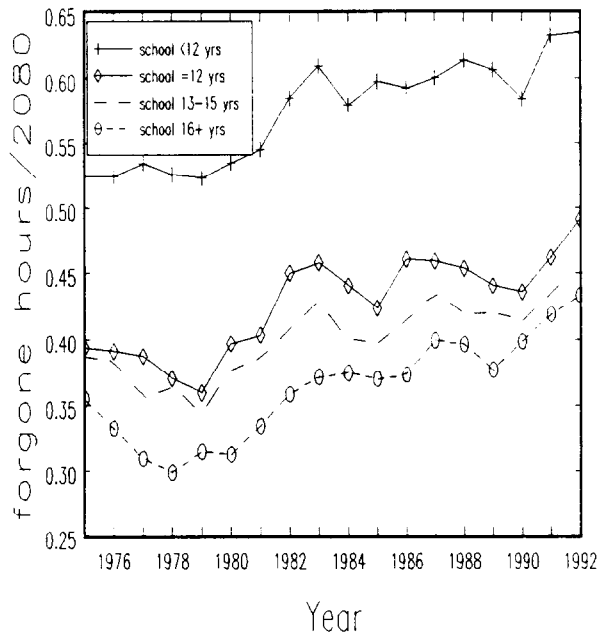
Figure 8d: Non-Whites by Years in School
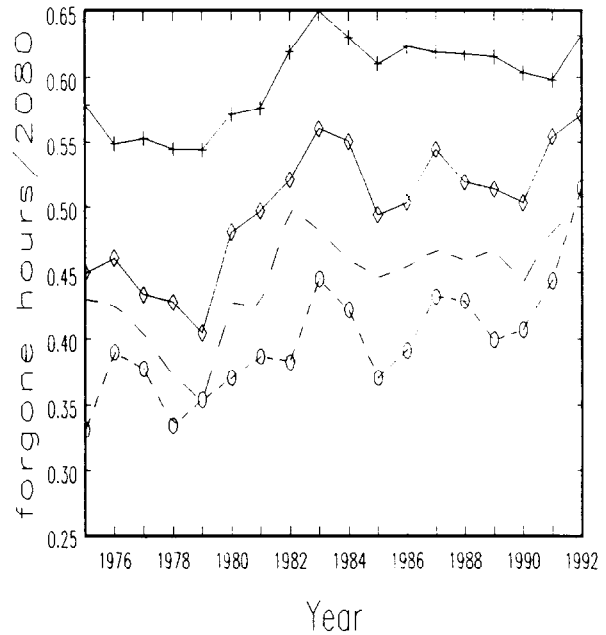
Figure 9: Mean Forgone Hours/2080 (MFH), Males 18-64 yrs., 1975-92

Figure 9a: Whites by Age
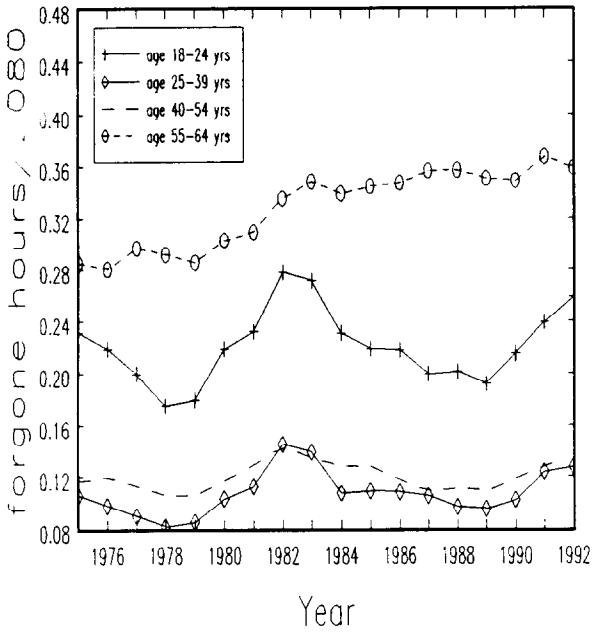
Figure 9b: Non-Whites by Age
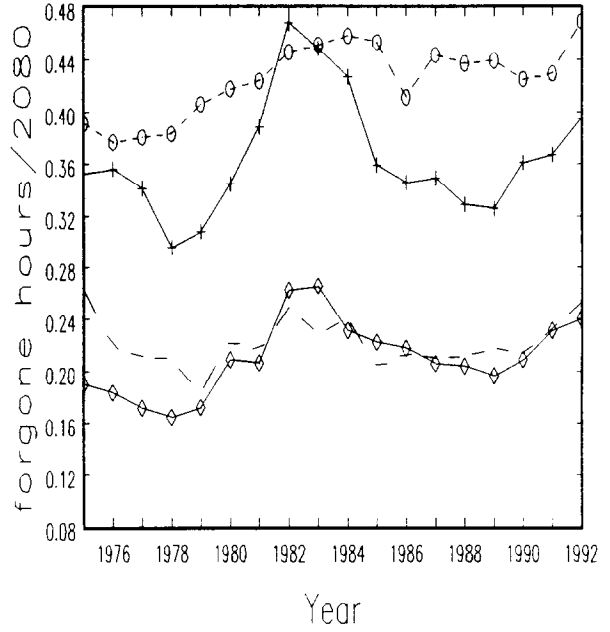
Figure 9c: Whites by Years in School
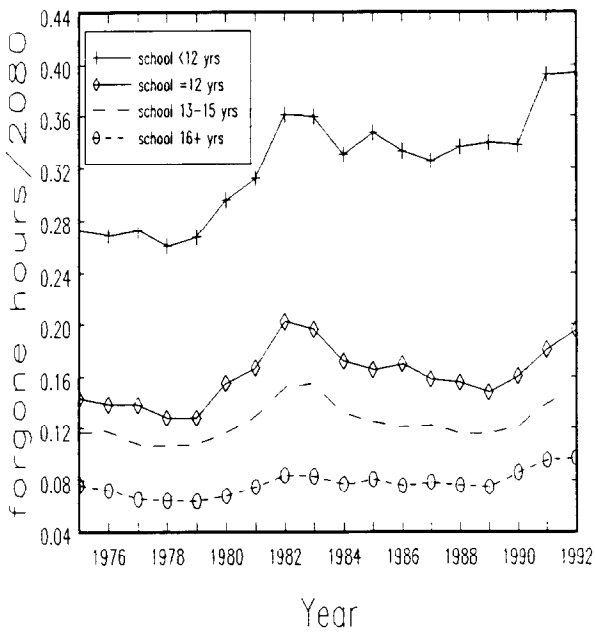
Figure 9d: Non-Whites by Years in School
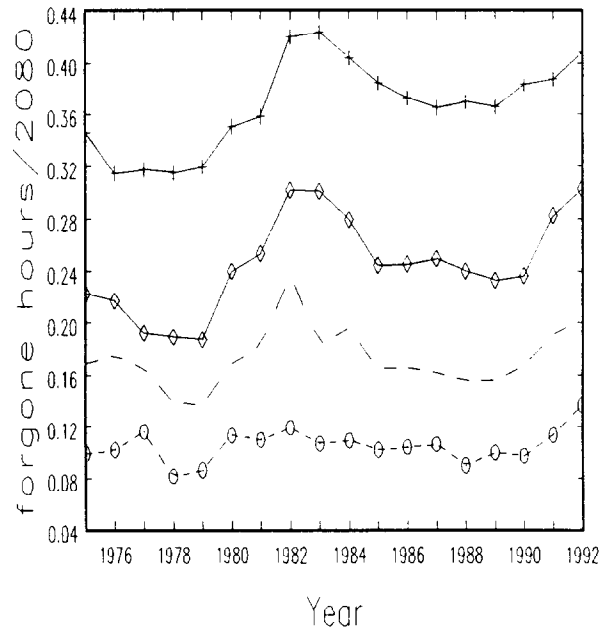
Figure 10: Fraction of Forgone Hours Due to Non-Whites, 1975-92
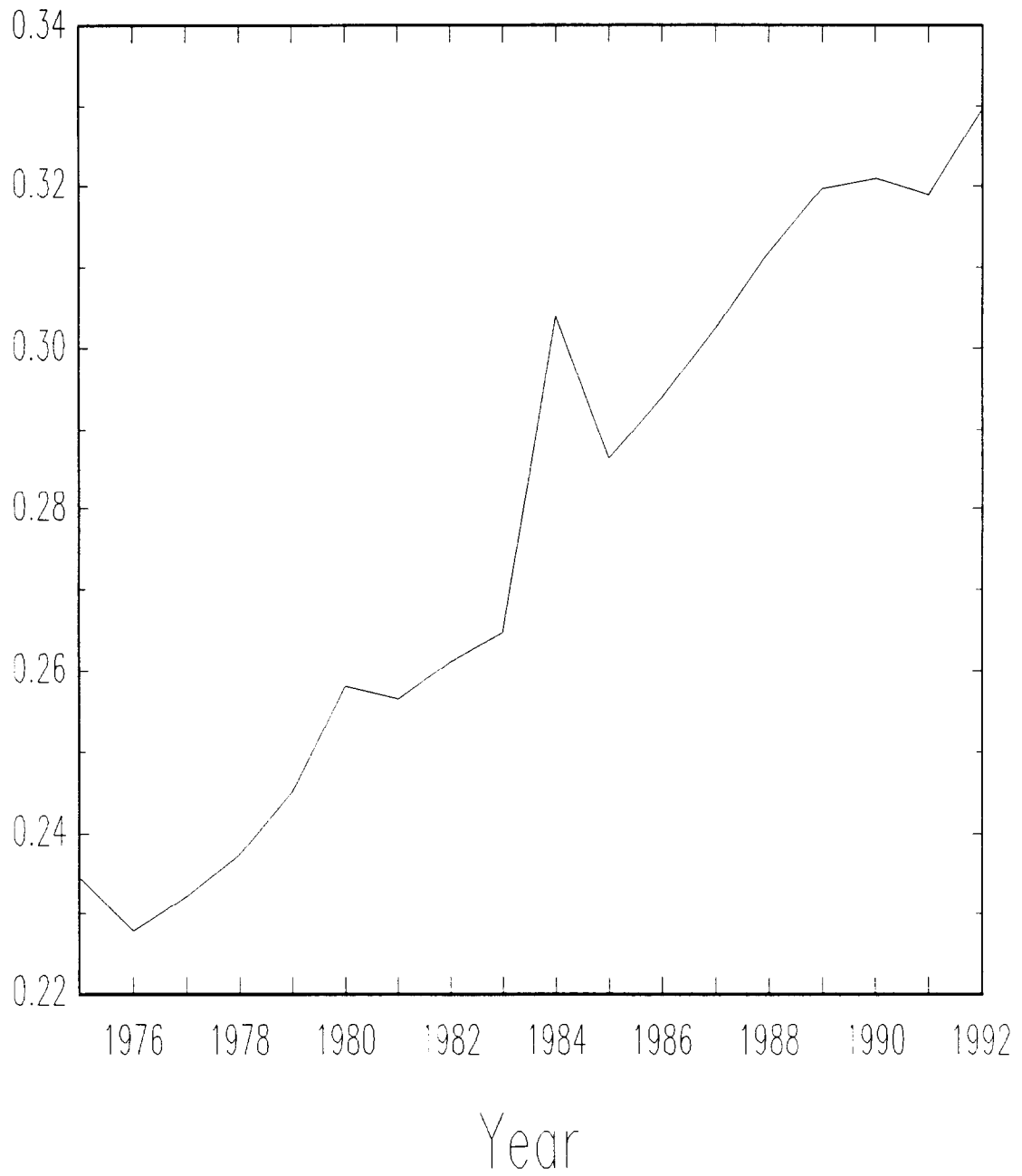
Figure 11: Fraction of Forgone Hours by Race/Age and Race/Education

Figure 11a: Whites by Age
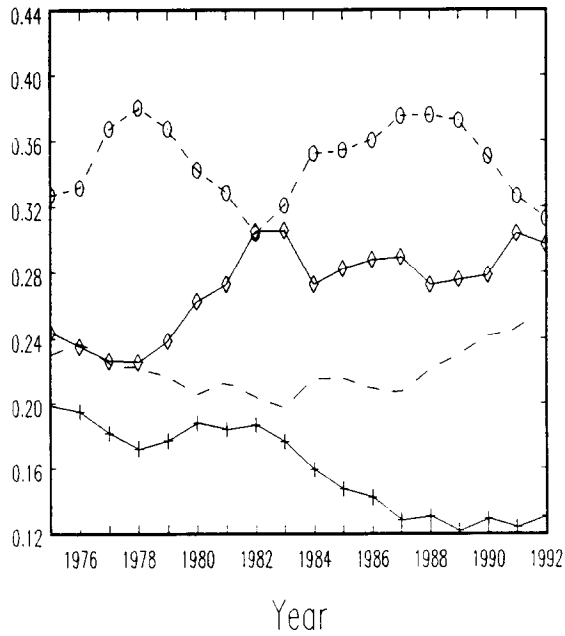
Figure 11b: Non-Whites by Age

age 18-24 yrs
age 25-39 yrs
age 40-54 yrs
age 55-64 yrs
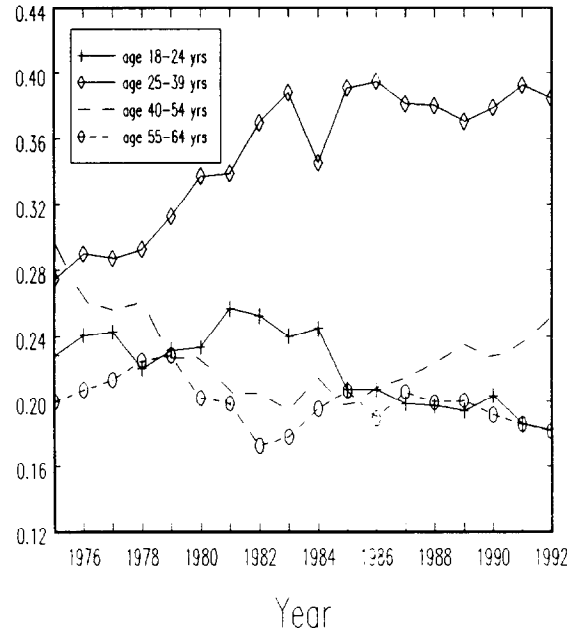
Figure 11c: Whites by Years in School

school <12 yrs
school =12 yrs
school 13-15 yrs
school 16+ yrs
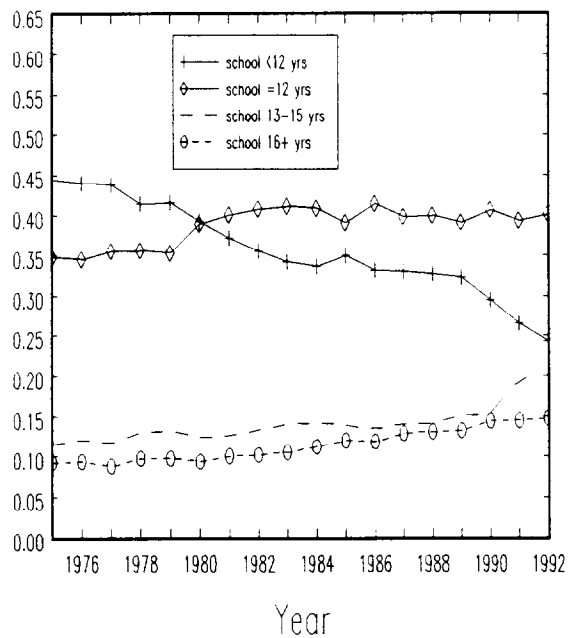
Figure 11d: Non-Whites by Years in School
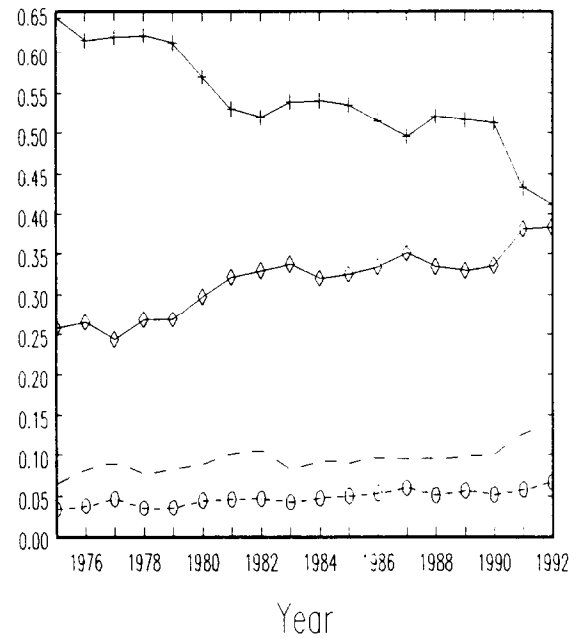
Figure 12: Proportion of Forgone Hours due to each Cause,

Males 18-64 yrs, 1975-92
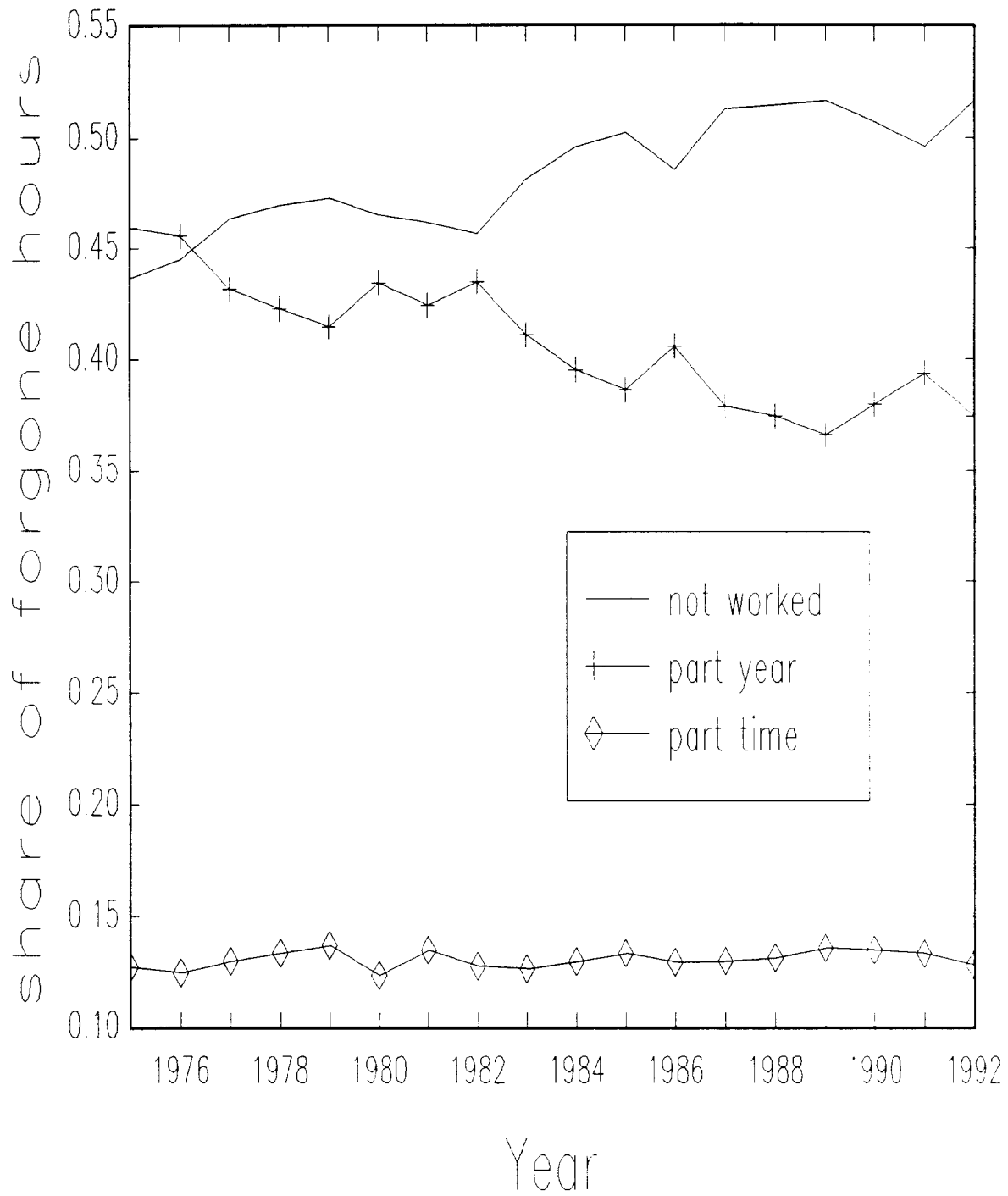
Figure 13: Fraction of Male 18-64 yrs. White/Non-White Population

in Age and Education Cells, 1975-92

Figure 13a: Whites by Age
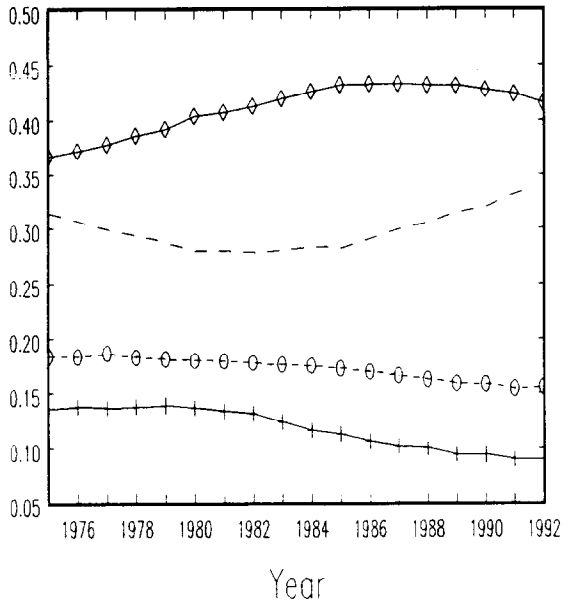
Figure 13b: Non-Whites by Age
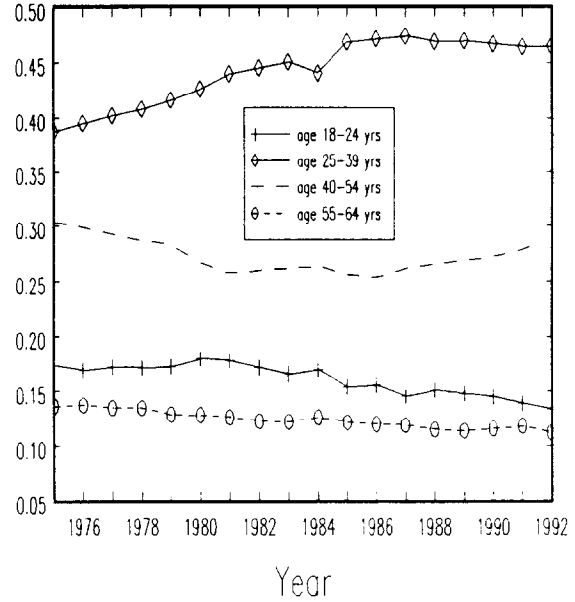
Figure 13c: Whites by Years in School
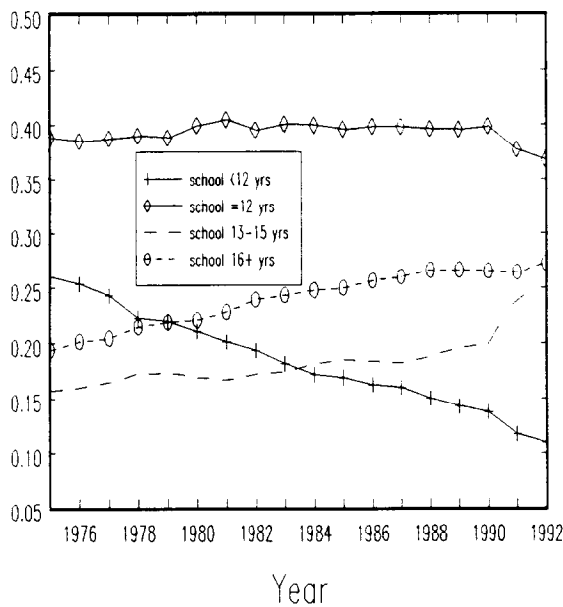
Figure 13d: Non-Whites by Years in School
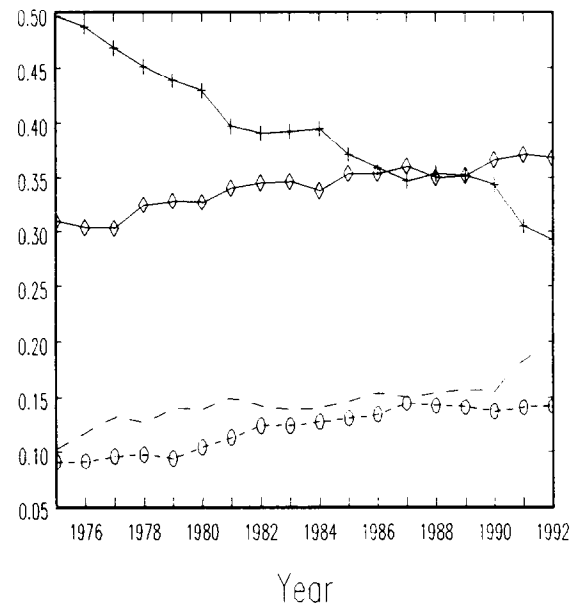
Figure 14a: Proportion with Positive Forgone Hours (percent PFH),

Actual and Standardised, Males 18-64 years, 1975-92
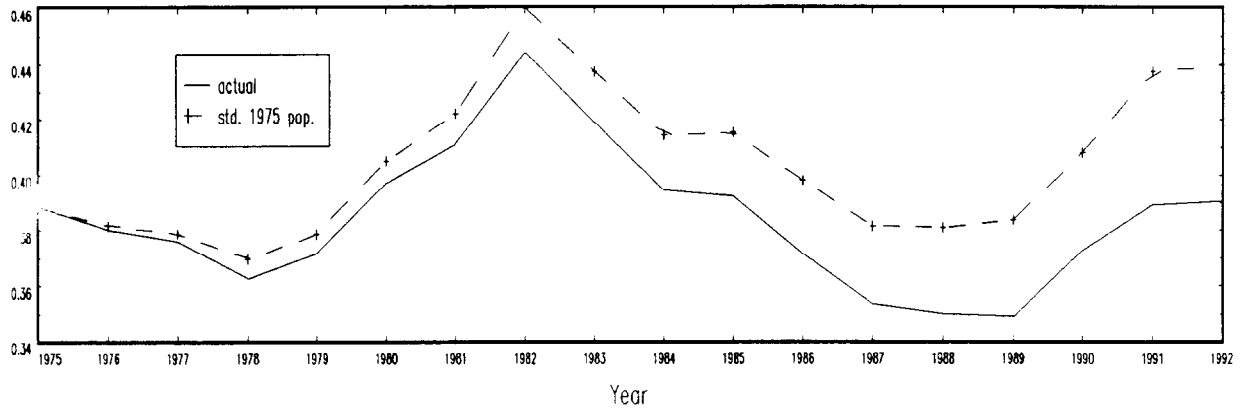
Figure 14b: Mean Forgone Hours/2080 (MFH/P),

Males with Annual Hours < 2080, Actual and Standardised, 1975-92
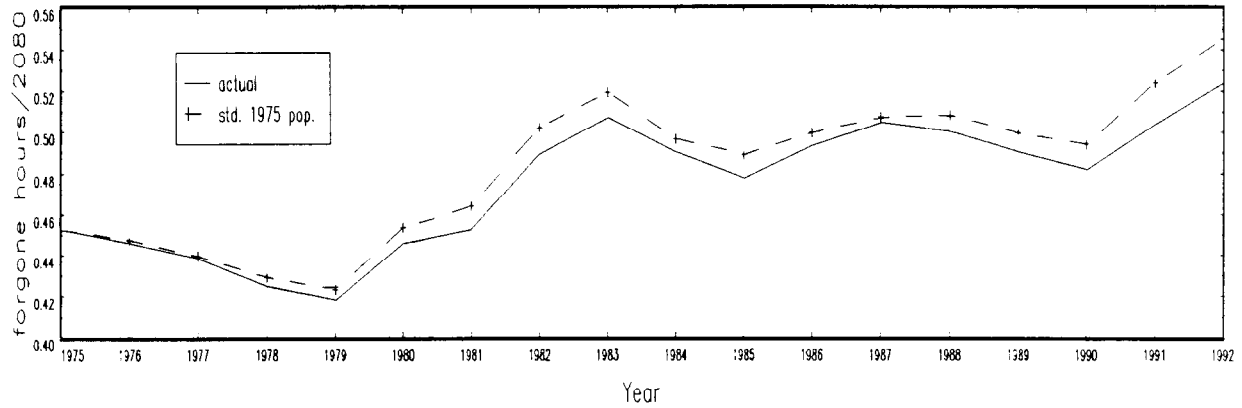
Figure 14c: Mean Forgone Hours/2080 (MFH), Actual and Standardised,

Males 18-64 years, 1975-92
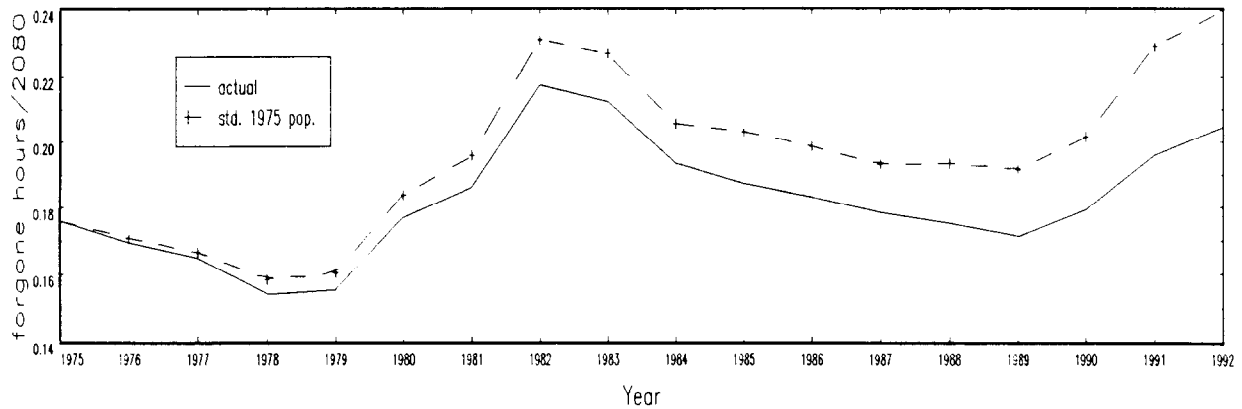
Figure 15: Proportion of Forgone Hours due to each Reason,

Males 18-64 yrs., 1975-92
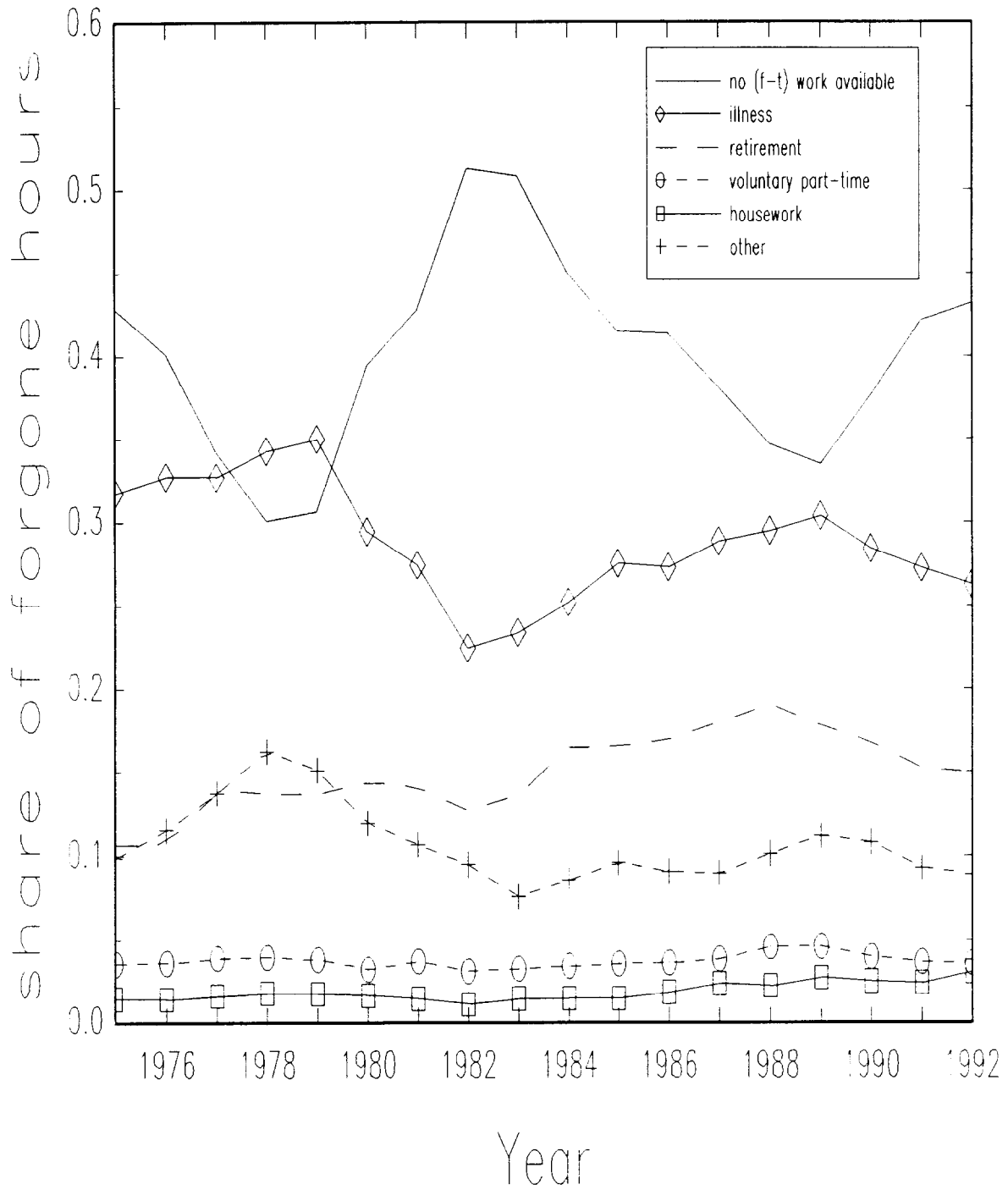
Figure 16a: Proportion of Forgone Hours due to each Reason,

White Males 55-64 yrs., 1975-92
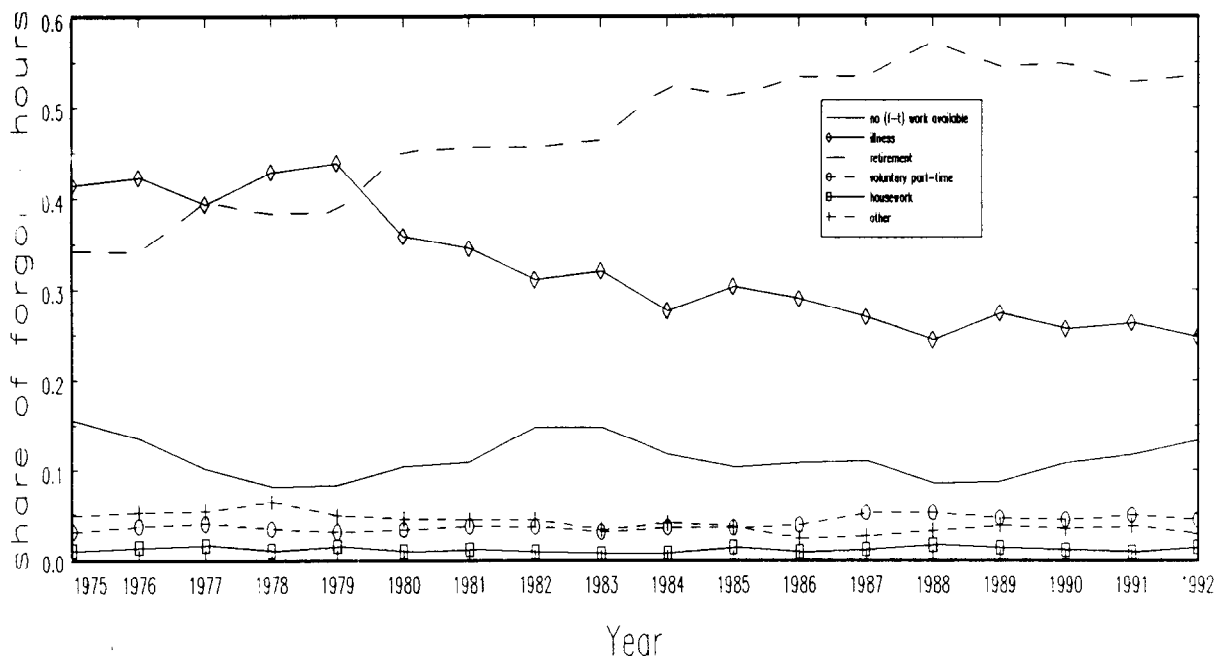
Figure 16b: Proportion of Forgone Hours due to each Reason,

Non-White Males 55-64 yrs., 1975-92
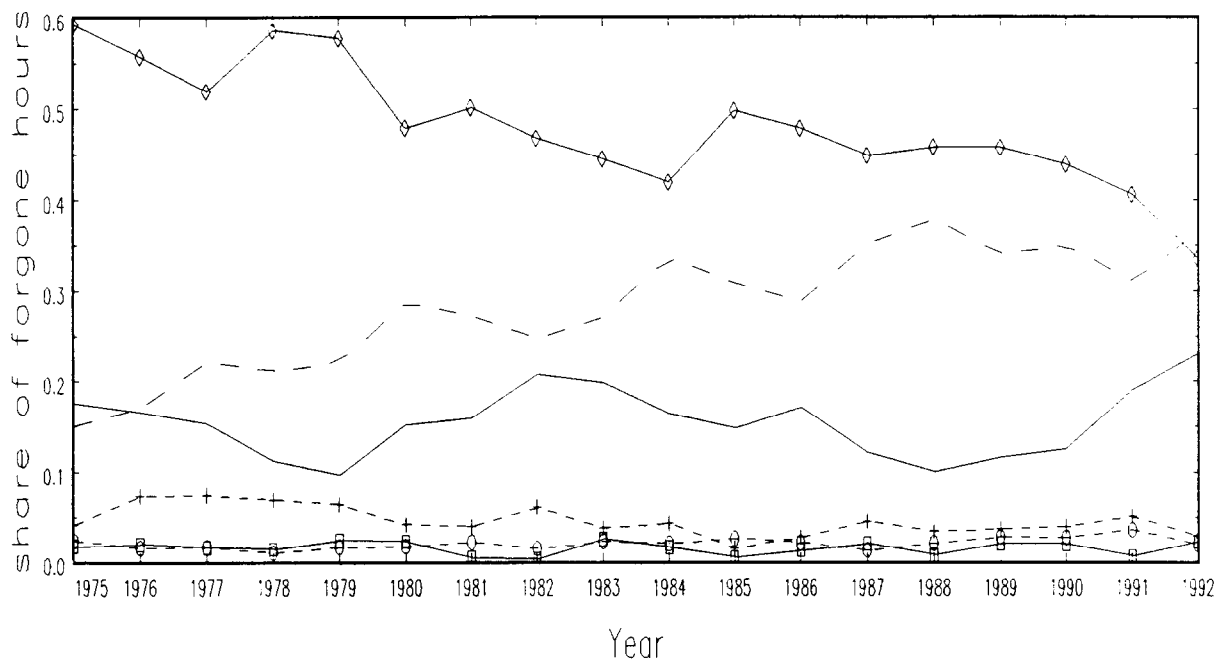
Figure 17a: Mean Hours Forgone Because No (f-t) Work Available,

Actual and Standardised, Males 18-64 years, 1975-92
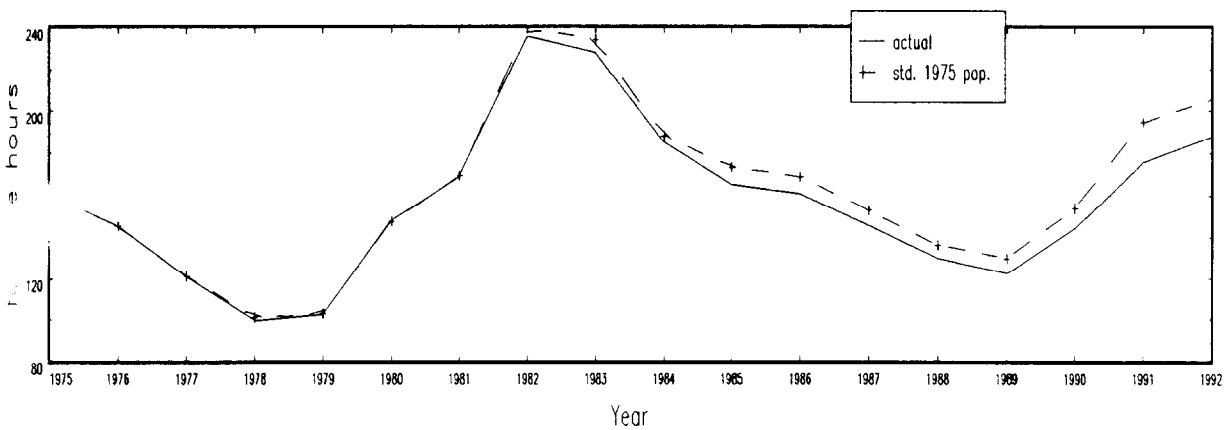
Figure 17b: Mean Hours Forgone Because of Illness,

Actual and Standardised, Males 18-64 years, 1975-92
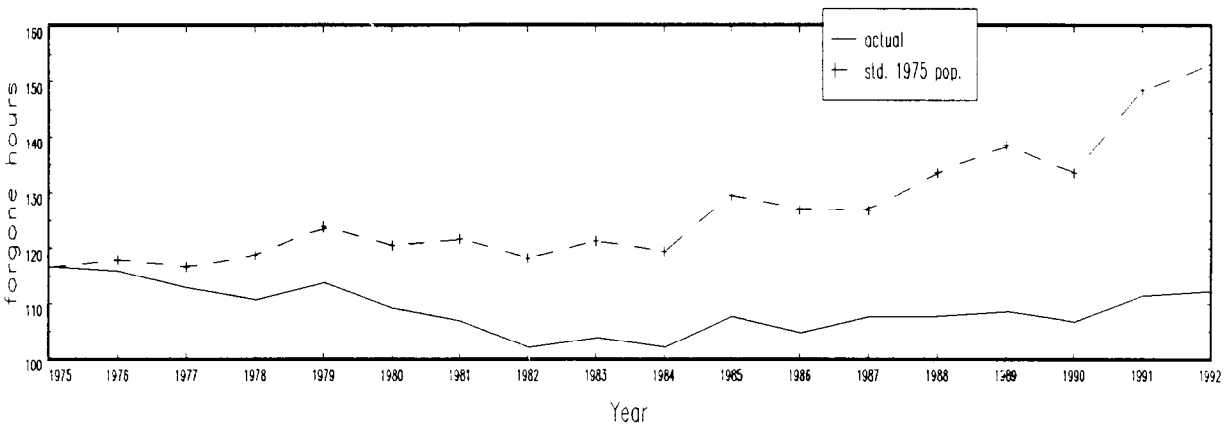
Figure 17c: Mean Hours Forgone Because of Retirement,

Actual and Standardised, Males 18-64 years, 1975-92
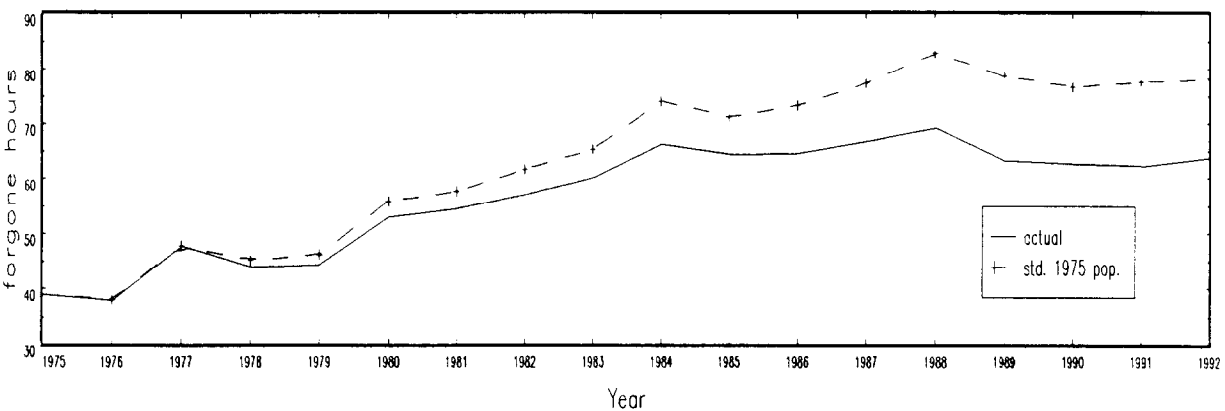
Figure 18: Fraction of Forgone Hours Due to Voluntary Reasons
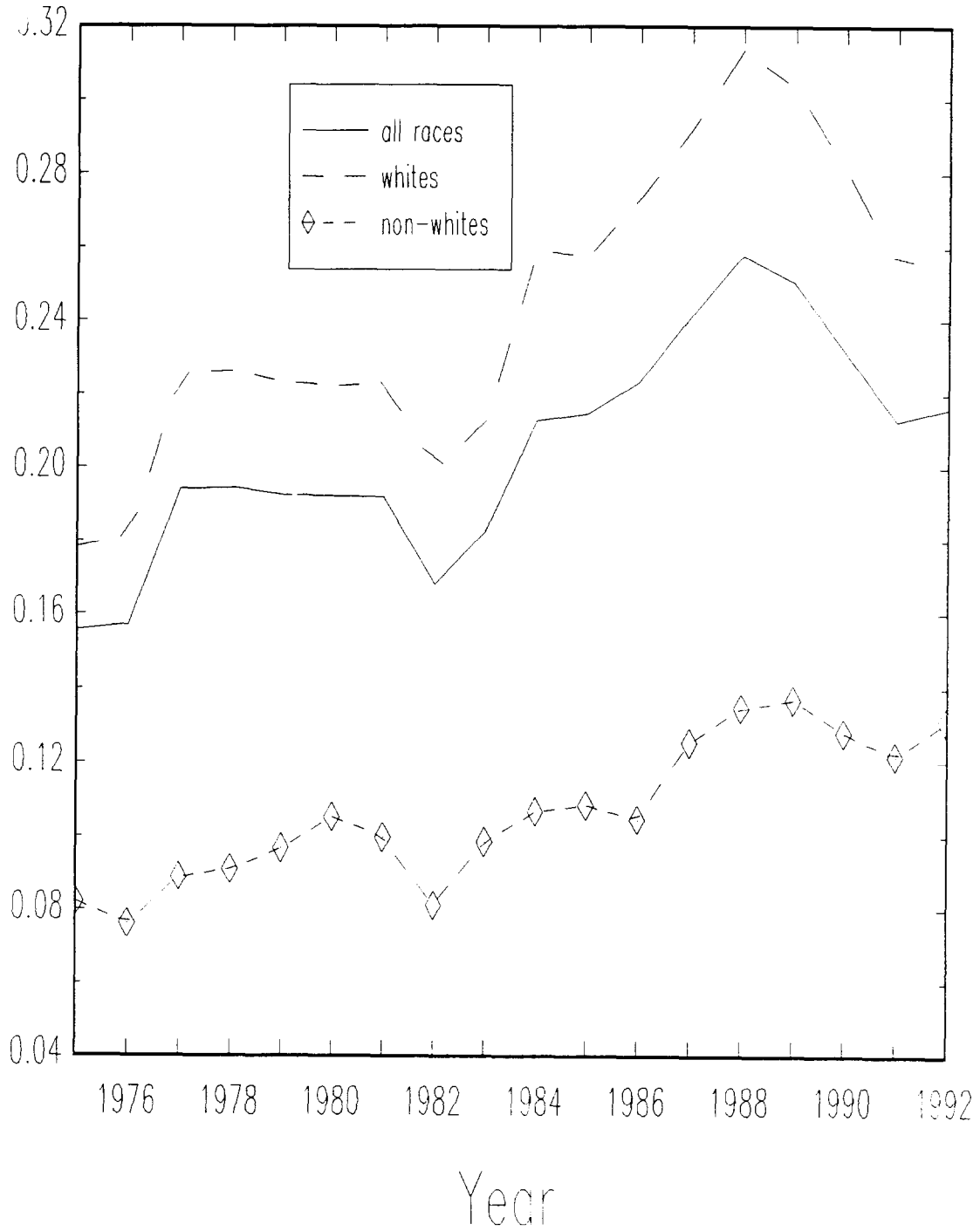
Males 18–64 yrs., 1975–92

Figure 19: Fraction of Forgone Hours Due to Voluntary Reasons

by Race/Age and Race/Education Cells, 1975–92
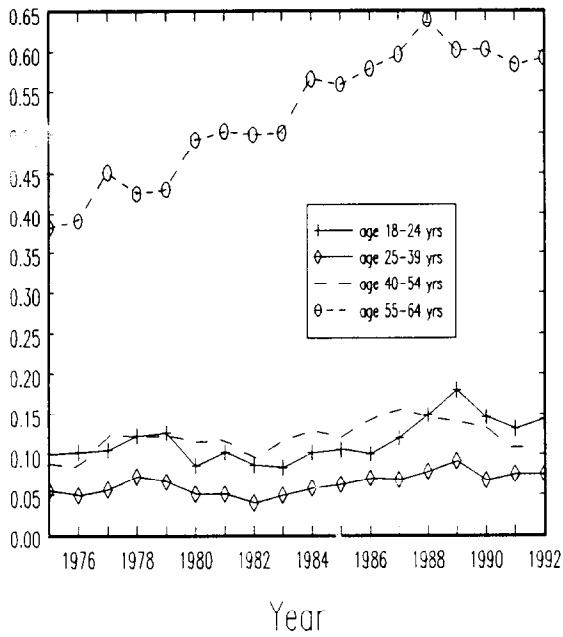

Figure 19a: Whites by Age
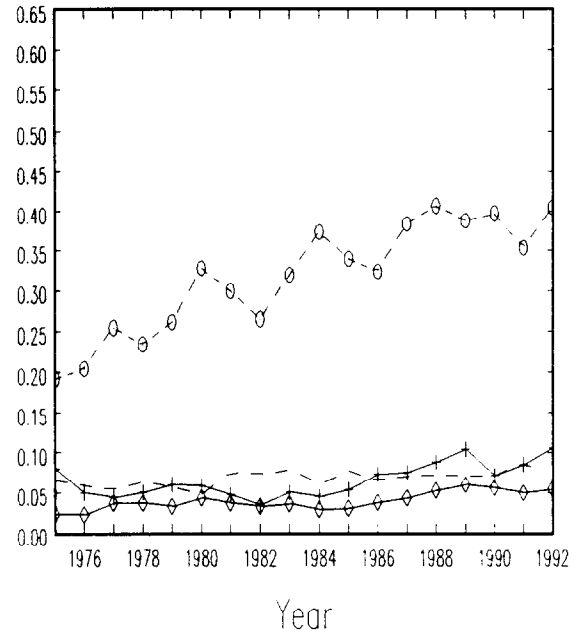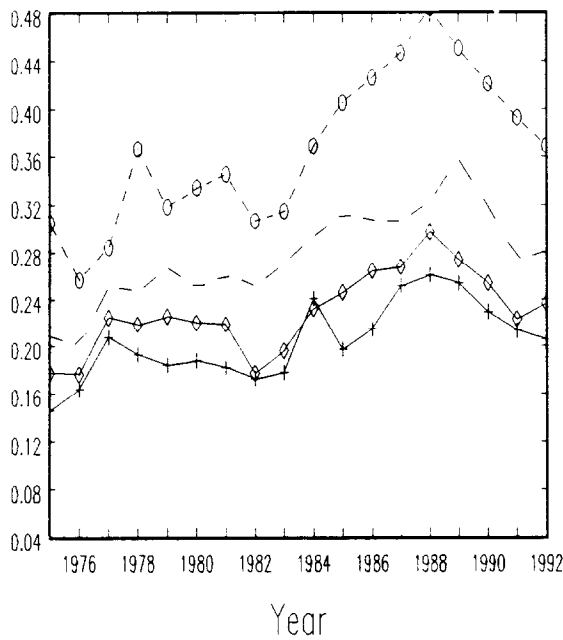
Figure 19b: Non-Whites by Age

Figure 19c: Whites by Years in School

Figure 19d: Non-Whites by Years in School