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ABSTRACT

This study provides the first comprehensive estimates of children and youth working under conditions that violate federal and state child labor laws. Using the CPS, NLS, and other sources, it is estimated that 148,000 minors are employed illegally in an average week—working too many hours or in hazardous occupations—and 290,000 are employed illegally at some point during a year. The total number of hours worked illegally is about 113 million per year, for which these minors are paid over $560 million. Whites, males, and 15-year-olds are the most likely to be working in violation of child labor laws. Youths working illegally in hazardous jobs earn on average $1.38 per hour less than legal young adults in the same occupations, which combined with the savings from employing youths for excessive hours adds up to a total employer cost savings of roughly $155 million per year. In addition to raising important policy concerns about the health and well-being of these youths, the findings make a case for the development of high-quality employment data on children and youths, to improve estimates of illegal employment and study its effects.

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I. Introduction

To protect the health and development of children, a number of laws regulate child labor in the United States. Federal regulation of child labor in non-agricultural industries is contained in provisions of the Fair Labor Standards Act (FLSA), enacted in 1938 and amended several times since then.[1] Most states also have laws applying a variety of higher standards to regulate the employment of children. The types of restrictions imposed by the federal and state laws include restrictions on total hours worked in a day or week, hours during which work can be performed, and work in occupations or industries deemed to be hazardous. In recent years there has been substantial concern about the extent of illegal child labor in the U.S., and its effects on the health and development of children.[2]

While child labor has been consistently regulated for 60 years, there are no comprehensive estimates of how many children work in violation of child labor laws. The total number of illegally employed minors detected by the Department of Labor's Wages and Hours Division went from 9,243 in 1983 to 27,528 in 1991, but there is no reliable way to determine what share this represents of all illegally employed minors (GAO, 1992).[3] This report therefore uses a variety of datasets to generate new estimates of the extent and characteristics of illegal employment of children in the United States.[4]

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[1] This was after earlier federal laws were struck down by the Supreme Court (Pollack et al., 1990: 363-4). For research on child labor in the late 1800's and early 1900's, when these laws were being developed, see Parsons and Goldin (1989), Brown et al. (1992), and Holleran (1993). For a sampling of the politics surrounding child labor at the turn of the century, see Mitchell (1975) and MacLaury (1975).

[2] See, e.g., Corban (1988a, 1988b); U.S. GAO (1990, 1991); Lantos (1992); National Child Labor Committee (1994); Children's Safety Network (1995); Pollack et al. (1990); Landrigan et al. (1995); NIOSH (1995, 1997).

[3] Also, Corban (1988b) reports on a child labor law survey of teenagers that found 56% who reported a violation or injury, but it is not known how representative the sample was of all employed teens.

[4] Illegal employment here refers to jobs held by minors in violation of federal or state child labor laws. It does not cover activities in violation of other laws, such as prostitution or drug-dealing, and does not cover illegal immigration per se (but counts illegal immigrants working in conditions that violate child labor laws).

II. Data Sources and Limitations

The main data source used in this study is the Current Population Survey (CPS), which currently asks employment questions for those age 15 and older. To create a large sample, this study combines data from 33 monthly surveys covering January 1995 to September 1997 (including over 186,000 observations for 15- to 17-year-olds).[5] The standard monthly survey measures current employment, allowing estimates of the number illegally employed in an average week. In order to estimate the number who are illegally employed at some point during a year, estimates are also made using the March 1997 supplement asking about employment throughout 1996.

Estimates of illegal employment from the CPS are primarily based on questions about occupation and usual hours worked. Federal law restricts work in 17 hazardous occupations for those under age 18, and further restricts the type and location of work for those under 16. These restrictions were matched to CPS occupation codes (with the restrictions and matched codes listed in Appendix A) to determine which individuals appear to be engaged in illegal work. Federal law also restricts 14- and 15-year-olds to no more than 18 hours of work during a school week and 40 hours of work during a non-school week; therefore they are coded as working illegally if reported usual hours worked exceeds 40 in summer months or 18 in all other months. Because the FLSA does not apply to self-employment, and hours restrictions do not apply (although occupation restrictions do apply) to jobs in a family business, adjustments are made to ensure that these jobs are not counted as illegal work.[6] The FLSA also does not cover most small

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[5] The monthly data were re-weighted to give each month of the year equal weight.

[6] The occupation codes of those who reported self-employment were evaluated, and several were recoded as being employees (e.g., waiters/waitresses). Those who work in a family business or farm are not subject to hours restrictions; one can easily identify those who did unpaid labor in a family business, but not those who work for pay in a family business or farm. In this study, 15-year-olds from a household with a business or farm were more likely

businesses not engaged in interstate commerce, which employ about one-eighth of all workers, but those workers are generally covered by state laws (many of which apply federal or higher standards). For this study, the state restrictions (obtained from state Web sites and Research Institute of America, 1996) were coded and applied to youths in those states, so that the numbers presented here include any minors working in violation of state or federal child labor laws.[7]

To obtain estimates of illegal employment for those under 15, an imputation is made based on several other datasets. Legal and illegal employment of 14-year-olds is imputed based on 1980's CPS data (since employment questions were asked of 14-year-olds until 1989), and from two National Longitudinal Survey datasets—the NLS-Youth (NLS-Y) and NLS-Adolescent Health (NLS-AD) datasets. The employment of children younger than 14 is imputed using the NLS-AD and several sources on work-related injuries and deaths broken down by age.

There are several limitations in using CPS and other survey data to detect illegal employment. The first is that survey respondents are unlikely to report to an interviewer any behavior that they know to be illegal. While most people are probably aware that child labor laws exist, no data are available on either the awareness of the laws or the extent of knowledge about their provisions. Employers are held responsible for obeying child labor laws, but minors and parents are generally not responsible and therefore under no obligation to be aware of the laws. As will be seen, a large number of survey respondents report employment that clearly conflicts with child labor laws, which may serve as an indication that many minors and parents are not

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than others to work apparently excessive hours for a private employer, but many may have been working for pay for a family business. To adjust for possible upward bias from incorrectly coding many of these people as working illegally, the data were re-weighted so that the percentage working excessive hours for a private business was identical among those with and without a business or farm in the household.

[7] A few percent work in businesses not covered by federal or state law, so that the procedure here will somewhat overstate those working in violation of child labor laws. This is likely to be more than balanced, however, by several sources of understatement to be addressed.

aware of the laws. To the extent, however, that respondents underreport employment known to be illegal, the survey-based estimates reported here will undercount the illegal employment of minors. The estimates of sweatshop employment, where the most egregious violations occur, do not rely on employee survey data.

A second important limitation of survey data is that existing surveys do not contain enough detailed data to clearly establish in many cases whether employment is legal or illegal. None of the surveys used here have data on the specific hours worked during a day, which would help determine whether those under 16 are working during school hours or late into the night (both prohibited by child labor laws). The coding of occupational categories can also leave room for doubt over whether the actual work being done is proscribed for someone of that age. Of the over 500 3-digit occupation codes in the CPS, some clearly establish illegal employment for those under age 18 (such as an occupation in which one drives a motor vehicle most of the time), but others leave room for some ambiguity about whether the activity is proscribed (such as an occupation that may or may not involve power-driven machines, or work in a manufacturing area). For this study employment is identified as illegal when the occupational description conflicts with federal or state laws for someone of that age. It is not clear whether these problems tend to understate or overstate of illegal work performed by minors; the figures are probably more likely, however, to be understated since work was coded as illegal only where there was an obvious conflict with laws. Balancing this understatement is that some youths may be legally doing hazardous work under an apprenticeship program, for which insufficient information is available to adjust the numbers.[8]

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[8] Numbers are available on total youths enrolled in apprenticeship programs, but breakdowns by hazardous occupation could not be located.

Finally, there is the potential for measurement error, both from respondent reports and interviewer coding. Misreporting or miscoding of occupations should not bias the prevalence estimates for work in hazardous occupations, as long as such errors are equally likely for those with and without illegal employment.[9] Measurement error for usual hours worked will also cause errors in both directions, although such errors may be more likely to produce extreme values that inflate the estimate of those working excessive hours.[10] The magnitude of this potential overstatement (relevant only to those younger than 16) cannot be easily estimated; again, it may be more than counterbalanced by the sources of understatement noted above. One important source of potential measurement error in the CPS comes from the fact that over 90% of the reports on the employment of 15- to 17-year-olds do not come from the adolescents but from parents or others in the house; the results, however, do not differ markedly when comparing self-reported vs. other-reported data, so this is unlikely to seriously bias the overall numbers.

III. Estimating Total Illegal Employment

Estimates of total illegal employment are summarized in Table 1, based on data from Appendix Tables A-1 to A-3. In an average week, 147,700 children and adolescents are estimated to be working illegally in the U.S, comprising 40,800 16- and 17-year-olds, 73,200 14- and 15-year-olds, and 33,700 children less than age 14. Most of these youth—145,200—are working in non-agricultural employment, with 2,500 in agricultural employment. The total number estimated to have been employed illegally at some point during 1996 is 290,200, of whom

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[9] Such measurement error will, however, bias downward estimates of the effects of hazardous work.

285,300 worked in non-agricultural industries and 4,900 worked in agriculture. In an average week over 2 million hours of illegal work are estimated to be performed by these youth, totaling 113 million hours in one year. Total compensation for these illegally-worked hours is $10.9 million per week or $566 million per year, with an average hourly pay of $5.00.

The remainder of this section explains the derivation of these numbers.

a) Nonagricultural employment for 14- to 17-year-olds

The estimates for average weekly employment for 15- to 17-year-olds are based on 1995-97 CPS data, presented in greater detail in Appendix Table A-1. There it can be seen that even though hours standards in child labor laws are relaxed during the summer, the greater likelihood of work during the summer means that there are more in this age group working illegally in an average summer week (106,800) than in an average school week (82,000, in column 10). Of the 448,400 employed 15-year-olds, one-tenth (10.7%) are working in violations of child labor laws, compared to 1.0% of the 1.1 million employed 16-year-olds and 1.9% of the 1.5 million employed 17-year-olds (column10/column 7).

The estimate for 14- and 15-year-olds working illegally in column 3 is derived using the ratio of 14-year-old illegal employment to 15-year-old illegal employment, as found in earlier CPS and NLS surveys summarized in Table A-2.[11] In both of these surveys the proportion of 14-year-olds working illegally is very close to 40% of the proportion of 15-year-olds working illegally; therefore Table A-1's figures for 15-year-olds were multiplied by 1.4 for a survey-based estimate of 14- and 15-year-olds working illegally in non-agricultural employment. The 40% rate is very

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[10] Given the greater prevalence of legal hours values, normally-distributed errors around true values may create more incorrect illegal than legal classifications. Also, random guesses (by those who have no idea how many hours their children work, and what the law allows) may inflate the overall estimate of illegal work.

consistent with the relative rates of work-related injuries and deaths presented for studies 2, 3, 5, and 6 in Table A-3. The estimate presented in Table 1 also includes estimated sweatshop employment (to be discussed in section d), which is unlikely to be reported on surveys.

Table 1's estimate of illegal employment at some point during the year is based on the March 1997 CPS, which asked questions about employment at any point in 1996.[12] The estimate that 129,700 14- and 15-year-olds worked illegally in 1996 is smaller than the GAO (1991) estimate that 166,000 15-year-olds were illegally employed in 1988. The discrepancy is primarily due to coding in that study that appears to overstate the number of youths working too many hours or in hazardous occupations (analyzed and discussed in Appendix B).

Total hours worked illegally are estimated by summing all hours worked in hazardous occupations, plus all hours worked in excess of the maximum for those under age 16. Total pay for hours worked illegally is estimated by multiplying, and then summing, each individual's illegally-worked hours by his/her calculated CPS hourly pay (for out-going rotation groups).

b) Nonagricultural employment for children younger than age 14

No data sources provide high-quality employment data for children younger than age 14, whose legal nonagricultural work outside of a family business is restricted to newspaper delivery, acting, and wreath-making. The likely extent of illegal employment for these children is imputed using data from the NLS-AD and other sources summarized in Table A-3, relying on comparisons

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[11] The higher estimated employment rates for 14- and 15-year-olds in the NLS compared to the CPS is consistent with other comparisons of cross-sectional and longitudinal youth employment data (Freeman and Medoff, 1982).

[12] As in the GAO (1991) study of 15-year-olds, here 15- to 17-year-olds are coded as working illegally if they had worked in a hazardous occupation in the previous year, and 15-year-olds were coded as working illegally if they reported usual work hours per week exceeding 40. The GAO also coded 15-year-olds as working illegally if their reported usual work hours exceeded 18 and they reported 16 or more weeks of work (so that some were during school weeks), but here the weeks standard is increased to 32 so that the usual hours would apply to school weeks. See a comparison and discussion in Appendix B. The numbers were adjusted upward for illegal agricultural and sweatshop employment, based on information presented in sections c and d.

of this group's overall employment rates and work-related injury and death rates to the rates of older youth.

In 1992-93 the number of work-related deaths among those younger than 14 was 45.8% of the number for those age 14 or 15 (study 1, Table A-3). The relative rate of 45.8% is higher than that found when making similar comparisons using work-related deaths investigated by OSHA in 1984-87 (27.3%, in study 2), workers compensation claims in 1980 (14.3%, in study 3), New Hampshire employment in 1987-90 (21.7%, in study 4), and self-reports of working excessive hours in a school week or summer week (30% and 44%, respectively, from NLS-AD data in Table A-2).

Given that the latter four data sources exclude children younger than 12, the higher 45.8% relative rate from study 1 of Table A-3 is used to impute illegal employment for children younger than age 14. Total pay for hours worked illegally also takes account of lower pay levels for those younger than 14.[13] It must certainly be recognized, however, that this provides only a rough approximation for illegal employment of children less than age 14—better estimates await better datasets.

c) Agricultural employment

Child labor laws for agricultural employment are much less stringent than for nonagricultural employment. The most important restrictions are that, with some exceptions, a child under age 16 who does not work on the family farm is not permitted to operate power-driven machinery or to work with certain pesticides. The CPS provides information on whether a person works as a farmer or farm worker, but no information on work with power-driven

[13] From the NLS-AD, which has the only data on pay rates for those younger than 14, the hourly pay of 12- and 13-year-olds in 1994-95 was 86% that of 14- and 15-year-olds. The under-14 value for total pay in Table 1 is therefore estimated by multiplying the age 14-15 figure both by .46 and .86.

machinery or pesticides. From the CPS, an estimated 229,600 youth age 14-17 worked in agriculture at some point during 1996, while 147,000 do so in an average week. The only other comprehensive data on agricultural workers come from the National Agricultural Workers Survey (NAWS), from which it is estimated that 123,000 youth age 14-17 work in crop agriculture in the course of a year (slightly higher than the 109,000 estimated to work in crop agriculture from CPS data).[14] Like the CPS, however, NAWS contains no information on which youths appear to be working under illegal conditions.

To estimate the number of youths working under illegal conditions, this report uses detected violations of child labor laws broken down by agricultural status. Detected violations in agriculture were 1.7% of all child labor violations detected by the Wage and Hours Division of the U.S. Department of Labor over the 1987-91 period (GAO, 1993). Applied to Table 1's estimate of 285,300 minors working illegally in nonagricultural businesses, this ratio would indicate that approximately 4,900 minors work under illegal conditions in agricultural jobs in the course of a year. This assumes that enforcement activity is similar for agricultural and nonagricultural jobs, which may not be accurate. Given, however, the lenient standards for farm labor and the exceptions for work with one's parents, the magnitude of this estimate is reasonable, and it is used in the absence of better information.

d) Sweatshop and home-based work

Children employed in "sweatshops", defined as businesses that regularly violate laws regarding safety and health, wages, or child labor, may not be fully accounted for in the survey data, leading to an underestimate of the overall number of children employed illegally.

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[14] The NAWS estimate was provided by Rick Mines, U.S. Department of Labor. The NAWS estimate is slightly higher than the CPS estimate (from the March 1996 CPS, with 14-year-old employment imputed based on

Sweatshops are thought to exist most in the apparel, restaurant, and meat processing industries (U.S. GAO, 1990a). Arriving at estimates of employees—particularly children—in sweatshops is complicated by problems in inspection (not enough inspectors, fewer bilingual inspectors, and the small size of many sweatshops). Of the 7,000 apparel firms with 105,000 employees in New York City, about 4,500 with 50,000 employees (of all ages) are estimated to be sweatshops. An investigation of 339, or 5%, of the apparel firms found a total of 130 minors employed illegally (U.S. GAO 1989). While it is not clear that this was a random sample (perhaps targeted to the most likely offenders), this would imply an estimated 2,600 minors employed illegally in New York City apparel firms. In comparison, CPS data indicate about 1,000 15- to 17-year-olds employed in the New York City apparel industry, none of whom are coded as working illegally. The CPS appears to miss much sweatshop employment (as would most surveys, due to insufficient coverage of this population, problems with measuring illegal conditions, or difficulties with honest reporting). Therefore the total number of children working illegally in U.S. apparel sweatshops is roughly estimated by assuming that the 2,600 number for New York bears the same proportion to total U.S. children working illegally in apparel sweatshops as does the number of urban non-citizen apparel workers in New York relative to the rest of the country (since the problem is concentrated in this population). Based on this, it is estimated that 7,400 minors are working illegally in U.S. apparel sweatshops in an average week, and 13,100 in a year, which are added to the survey-based numbers in Table 1.[15]

1980's CPS data) probably because NAWS is a field-based survey that is more likely to capture both legal and illegal migrant workers.

[15] Of the 178,000 urban non-citizens working in the apparel industry, about one-third are in New York (35.2%) while one-third are in Los Angeles (33.6%, based on CPS data); illegal child labor in apparel sweatshops across the U.S. is therefore estimated as 2600/.352=7386. (We are indebted to Alan Krueger and Lisa Schur for development of this approach. The estimate is similar when using all immigrants, not just non-citizens. While data are not available on illegal immigrants, who are often employed in apparel sweatshops, this approach will produce an unbiased estimate as long as the ratio of illegal to legal immigrants is the same in New York and non-

The other two industries in which sweatshops are thought to be a problem are the meat processing and restaurant industries. Legal and illegal immigrants constitute the primary workforce for hazardous jobs that may often violate labor laws, particularly in meat processing (Stanley, 1992; U.S. News and World Report, 1996; Cooper, 1997) where about 96,000 non-citizen immigrants represent 20% of total employment (based on CPS data). The CPS numbers in Table A-1 include some youths coded as working in violation of child labor laws in meat processing and restaurants,[16] but there are no data available to make a reasonable estimate of how many more youths may be working illegally in sweatshop conditions and not reflected in survey data (due to coverage, measurement, or reporting problems). Differences in the type and location of work make it risky to generalize from the apparel industry to these other industries. Therefore no estimate is added on top of the survey numbers to reflect illegal child labor in non-apparel sweatshops—the true number could be in the hundreds or thousands. Better information may allow reasonable estimates for non-apparel sweatshops and improve the estimate for apparel sweatshops.

Surveys may also undercount illegal home-based work, in which employees who do work at home have their children do some of the work. No good estimates exist on the extent of this problem. The May, 1991 CPS survey asked respondents about home-based work, from which it was estimated that 7.4 million people do job-related work at home for pay. Most of these people, however, are self-employed, and about half have managerial and professional jobs. When

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New York apparel sweatshops.) In Table 1 this number is allocated to the <14 and 14-15 age groups, where sweatshop conditions violating child labor laws are likely to be concentrated, based upon their employment ratios from the survey-based data.

[16] In an average week, 950,000 15- to 17-year-olds are working in eating and drinking places with 17,000 estimated to be violating child labor laws, while about 2000 are working in meat processing with fewer than 500 estimated to be violating child labor laws (the sample size is too small, however, for reliable estimates in meat processing).

restricted to non-managerial and non-professional employees in manufacturing firms, about 105,000 are estimated to do some work at home for pay, of whom 39,000 have a total of 68,000 children between the ages of 5 and 14 in the household.[17] The problem may be particularly likely among apparel workers, of whom an estimated 7,900 do work at home and have 11,600 children age 5-14 in their households. While these numbers establish upper bounds for the number of children who may do home-based work for these adults, there is no further information to determine whether the best estimate is in the hundreds or thousands. Without further information for a reasonable estimate, the approach taken here is not to include these children in the overall estimates.

IV. Demographic and Job Characteristics

Table 2 provides demographic breakdowns of legal and illegal employment for 15- to 17-year-olds, and compares those rates to the younger and older adult populations, while Table 3 presents results of probit regressions predicting illegal employment among teens.

Males in the 15-17 age range are more than twice as likely as females to be working illegally, both among all youth (1.2% of males vs. 0.4% of females) and just among those employed (4.2% of males vs. 1.5% of females). The gender difference is strongly significant in the probit regressions presented in Table 3, with larger gender differences for hazardous work than for excessive hours. The regressions show that 15-year-olds are the most likely to be working illegally, both in doing hazardous work (defined more broadly for those younger than 16) and in being subject to hours restrictions. African-Americans and Asian-Americans are the least likely to be working illegally, either as a percentage of all youths or just of workers. Hispanics are

[17] This is based on analysis of the May 1991 CPS, restricted to employees in manufacturing firms who are

less likely than non-Hispanics to be employed, but once employed, are equally likely to be employed illegally. In contrast, while non-citizens are less likely to be employed, those who are employed are significantly more likely to be working illegally.

Geographically, both the simple breakdowns and probits show illegal employment to be more common in the Midwest and in non-metropolitan areas, but this mainly reflects a higher likelihood of any employment since the differences largely disappear when restricted to those who are employed. State-by-state estimates cannot be reliably determined even with the combined monthly surveys, due to small sample sizes for most states. The ten largest states, however, each have sample sizes of more than 5,000, providing greater confidence for estimation. Among these ten, the highest rate of illegal employment is found in Michigan, where 1.8% of all youths and 4.9% of employed youths are working under illegal conditions. North Carolina and Illinois have the next highest rates, both with 3.0% of employed youths working under illegal conditions, while the lowest rate of illegal employment among employed youths is 1.9% in Florida.

Does poverty force youths into illegal employment? Table 4 relates 1996 family income data (from the 1997 CPS March supplement) to legal and illegal youth employment during 1996. As seen there, the percentage of all youths who worked illegally at some point in 1996 does not vary much (or significantly) over the income categories—from 1.5% of youths in poverty families to 1.6% of youths in families with incomes at least twice the poverty level.[18] Youths in poverty families are, however, less likely to work at all, so that the illegally-employed youths comprise 6.0% of all employed youths in poverty families compared to less than 5% among non-poverty families. Table 4 also indicates the role of illegal child labor in pulling families out of poverty.

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not managers, professionals, or sales workers.

[18] So that the income categories do not reflect youth employment, the family income used in determining these categories comprises only income of other members of the family.

Without the illegal youth employment, 18.4% would be in poverty families, while the income from illegally-employed youths pulls 2.7% of them out of poverty status. In contrast, legally-employed youths are less likely to be in poverty before or after their employment, and the income from youth employment pulls 1.7% of them out of poverty status. Therefore poverty does not appear to be related to the probability of illegal employment, but illegal employment may be more important than legal employment in pulling the families of youths out of poverty.

What kinds of jobs do these youths have? Table 5 provides a breakdown of job characteristics for legally and illegally employed youth, and compares those characteristics to younger (age 18-24) and older (age 25-64) adults. Partly by definition, 15-year-olds working illegally work a greater number of hours per week (mean=24.9) than those working legally (mean=13.0). This pattern is also true among the 16- and 17-year-olds, where no hours restrictions apply, but the mean hours worked in both legal and illegal jobs is much lower than among younger or older adults (not surprisingly, since those older than 17 are less likely to be in school).

While average hourly pay is slightly lower among illegally working 15-year-olds, and slightly higher among illegally working 16- to 17-year-olds, compared to their legally working counterparts, the differences are not statistically significant.[19] The weekly pay figures reflect the hours and hourly pay differences, showing significantly higher average weekly pay for youths working illegally, but still well below average pay for younger and older adults.[20]

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[19] These numbers are not comparable to Table 1's estimates of average pay for hours worked illegally, since the latter are weighted by number of illegal hours worked.

[20] The CPS censors pay values at $1923 per week. To provide an estimate of the uncensored mean, the censored values have been adjusted upward using the assumption that weekly earnings are lognormally distributed (Greene, 1990: 726).

The occupational breakdowns show that illegal employment for 15-year-olds is concentrated among sales workers (due to excessive hours, or working in liquor stores which is forbidden by many state laws), food preparation and service (due to excessive hours or use of slicing machines), and operators, fabricators, helpers, and laborers (primarily due to working in manufacturing or construction settings, or with power-driven machinery). This pattern is different for 16- and 17-year-olds working illegally, where almost half are working in jobs driving motor vehicles or material moving equipment, and one-fourth are working with power-driven machinery in precision production, craft, and repair jobs.

The industry breakdowns show that illegally-employed youths are disproportionately likely to be in construction and manufacturing, with about one-third in these two industries compared to less than one-tenth of legally-employed youths, and less likely to be in services. A majority of employed 16- and 17-year-olds work in wholesale and retail trade, with a higher likelihood of such work by those who are legally-employed (62.3% compared to 51.9% among the illegally-employed). In contrast, legally-employed 15-year-olds are slightly more likely than those who are illegally-employed to work in wholesale and retail trade (38.4% compared to 35.6%).

V. Cost Savings for Employers

How much, if anything, do employers save by employing minors illegally? It is very difficult to derive an adequate answer to this, primarily because little is known about what types of workers would be employed in the absence of the illegally-employed minors. It is likely that the nature of the substitution depends on the type of illegal employment: youths in hazardous occupations are substituting for adults, while the excessive hours worked by 14- and 15-year-olds may be substituting for work hours of adults or of legally-employed youths.

The cost savings are estimated here by comparing the wages of illegally-employed youths to those of other youths and young adults under age 25 without high school degrees who work in the same occupations. After restricting the sample to those working in 3-digit occupations where youths are employed illegally, a multiple regression of hourly pay was run on dummies for illegal hazardous work, excessive hours worked by a 15-year-old in a non-hazardous job, legal work by a 15-year-old, and 20 occupations. The coefficients indicate that youths working in hazardous jobs earn an average of $1.38 less than young adults legally working in those jobs, while 15-year-olds working too many hours in non-hazardous jobs earn an average of $.57 less than other youths and young adults working legally in those jobs.[21] Applied to the total hours figures, the cost savings from all illegal employment of youths is about $3.0 million per week, or $155 million per year.[22] Combined with the estimate that youths working illegally are earning about $566 million per year (Table 1), this indicates that legally-employed 15- to 24-year-olds would be earning about $721 million, or 27% more, in those same jobs.

VI. Trends in Illegal Employment Since 1970

How has the rate of illegal employment of youths changed over time? This question was addressed using March CPS datasets from 1971 to 1997. Youths age 15-17 were coded as

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[21] The sample was restricted to those less than 25 who had not completed high school, and were in a 3-digit CPS occupation held by at least five illegally-employed youth (n=12,998). The dependent variable was hourly pay (in dollars), adjusted for censoring. The coefficients (T-statistics) were –1.38 (–3.34) on the hazardous work dummy, –0.57 (–1.10) on the excessive hours dummy, and -.17 (-.95) on the dummy for legal work by a 15-year-old. While the point estimates indicate that 15-year-olds working excessive hours earned only $.40 less than those working legal hours, the assumption made here is that the excessive hours are substituting for extra hours of existing employees age 16 and over (with a $.57/hour saving), rather than for hours of legally-employed 15-year-olds (which would likely entail new hiring with recruiting and search costs).

[22] It was found that 68.9% of illegal work hours for 15-year-olds are due to hazardous work, which is applied to the total hours figures in Table 1 for those 15 and under in order to calculate total cost savings. Given that the NLS-AD hourly pay of 12- and 13-year-olds was 86% that of 14- and 15-year-olds, the additional savings from employing those younger than 14 (an estimated 72 cents per hour) were added to the employer cost savings.

working illegally if their employment appeared to violate federal standards on excessive hours and hazardous occupations, which have not changed over that time. Because the sample size for any one March survey is small, this analysis combines the 1971-90 surveys into four groups with five years each, and divides the 1990's into the 1991-94 and 1995-97 periods.

Illegal employment, as shown in Table 6, appears to have been slightly more prevalent in the 1970's than in the 80's and 90's. An estimated 1.3% of all youths, and 4.8-4.9% of employed youths, were working illegally in the 1970's (columns 3 and 6). These percentages declined in the 1980's and early 1990's, although the 1995-97 period shows a slight upturn again.[23] This pattern holds true for the percentages working in hazardous occupations and excessive hours (columns 4-5). It does not mesh with the pattern of detected child labor law violations, which almost tripled from 1983 to 1991 (U.S. GAO, 1992), indicating either that enforcement activity became more intense over that time or that illegal child labor increased in ways that do not appear in CPS data (e.g., in sweatshops or among children younger than age 15[24]). The declines in the percentages working illegally in each decade, as well as negative linear time trends, are statistically significant for the data in columns 3-6. Overall, an estimated 169,000 youths age 15-17 were working illegally in an average school week in the late 1970's, which declined to 100,000 in the early 1990's and increased slightly (but not significantly) to an estimated 114,000 in 1995-97. Future research can profitably address these changes over time and see how they may be explained by changes in the economy and family circumstances.

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[23] The 1995-97 numbers will not exactly match numbers elsewhere in this report since this is limited to March surveys. The slight upturn in 1995-97 is not statistically significant. Some of the change after the 1970's could be due to a new occupational coding scheme introduced in 1982; however, there was no clear break in the hazardous occupation percentages at that time, and the overall decline from the 1970's to the 1980's was principally due to the decline in excessive hours worked.

[24] The trend for 14-year-olds through 1988 (the last year for which employment data were collected for them) was similar to the trend for 15- to 17-year-olds.

VII. Conclusion

This study has sought to provide comprehensive estimates of the likely extent of illegal child labor in the United States, along with indications of its relationship to demographic and job characteristics. Lacking high-quality data on employment of children, it has drawn on several data sources to impute illegal employment. The overall estimates are that about 148,000 children and youths work in violation of federal or state labor laws in an average week, while 290,000 do so at some point during a year.

This high number is a valid policy concern, given many of the documented hazards and deleterious effects that working excessive hours or in unsafe conditions can have on children (Landrigan et al., 1995; NIOSH, 1997). It is roughly five times the number of violations detected by the federal Wages and Hours Division in a given year. Given this high number, another lesson from this study is that there is a strong case for developing better data regarding employment of children, in order to document and study both the good and bad effects that child labor can have. One of the recommendations of the recent report of the NIOSH Child Labor Working Team is that NIOSH "should encourage BLS to conduct surveys and report data in a form that provides information about young workers," including workers under age 15 (NIOSH, 1997: 42). The new National Longitudinal Survey of Youth is one venue where employment questions could profitably be added, going beyond hours and occupation questions to identify other ways in which youths may be working under illegal conditions.

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Appendix A:
Coding of Hazardous Occupations

The Fair Labor Standards Act restricts hours of employment for those age 14 and 15 to no more than 18 hours in a school week and 40 hours in a non-school week. In addition it restricts work in 17 hazardous occupations for those age 17 or under, with additional restrictions for those age 15 or under. The restricted occupations, and the CPS codes used to identify them for this study, are as follows.

FLSA hazardous occupation	CPS occupation code
Restricted for all age 17 or under:	
1. Manufacture or storage of explosives	none
2. Motor vehicle operations	802-812, 814, 843-859
3. Coal mining	613-617
4. Logging and sawmilling	494-496
5. Power-driven woodworking machine operation	726-733
6. Exposure to radioactive substances	none
7. Power-driven hoisting apparatus operation	848-849
8. Power-driven metal machine operation	703-725, 628-655
9. Mining other than coal	covered in (3)
10. Meat packing/slaughtering	686
11. Power-driven bakery machine operation	763
12. Power-driven paper products machine operation	734
13. Manufacture of brick, tile, or kindred products	none
14. Power-driven saw or shears operation	726-728, 769
15. Wrecking, demolition, and shipbreaking	none
16. Roofing operations	595
17. Excavation operations	none
Restricted for 14- and 15-year-olds:	
1. Any manufacturing occupation	628-655, 703-799
2. Any mining occupation	613-617
3. Food processing, and laundering occupations	748

(continued)

4. Any work in workrooms or workplaces where goods are manufactured, mined, or processed	none[25]
5. Public messenger service	355[26]
6. Operation or tending or power-driven machinery (except office and other specified machines)	848-849
7. Any of the 17 hazardous occupations	above
8. Operations in connection with transportation, warehousing, communications, and construction (except office or sales work not in direct contact with transportation media or construction site)	553-577,584-599, 823-834, 866-874
9. Specific occupations in retail, food service, or gasoline service establishments (including operation of slicing machines, and car repair work)	505-519, 769

[25] Other than the occupations involving operation of manufacturing/processing machines or work in mining (covered above), no occupations specifically identify work performed where the employee is in close physical proximity to manufacturing, mining, or processing.

[26] Messengers are identified by CPS code 357, but these are not coded as necessarily illegal because it includes a potentially large number of private (within-firm) messengers.

Appendix B:
Comparison to the GAO study of 15-year-olds

The only other recent systematic attempt to estimate illegal child labor is reported in GAO (1991), where it was estimated that 166,000 15-year-olds were illegally employed in 1988. In this study, it is estimated that 83,800 15-year-olds—close to half the 1988 GAO estimate—were illegally employed in 1996. This appendix discusses the difference between these numbers, based upon an analysis of the March, 1989 CPS dataset that re-creates the GAO estimates and decomposes the difference from this study's estimates.

The discrepancy is accounted for by methodological differences in defining apparent illegal employment. Those differences, and their relative importance, are:

1. The GAO estimate overcounts illegal employment in several important industries. It counted 15-year-olds as working illegally if their principal job was in a firm in the manufacturing, construction, mining, public utilities, communication, or transportation industries. As that study notes (1991: 41), this will overcount those working illegally because non-manufacturing and non-mining occupations within manufacturing and mining firms are legal for 15-year-olds, as are office and sales jobs in the other industries provided the work is away from transportation equipment and the actual construction site. In contrast, the current study counts illegal employment based on restricted occupations rather than industries.[27] When this study's codes are used to re-classify 1988 employment, 55,100 is subtracted from the GAO's estimate of 166,000 illegally employed in a year.

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[27] The exceptions are that the agricultural industry is excluded from the CPS estimates, and several industry codes are used to denote illegal employment for minors under state laws (generally based on whether the business sells or serves alcohol).

2. The GAO estimate overcounts illegal employment by including youths who are self-employed or working for family businesses. The former are not covered by the FLSA (which applies to employers), while youths working for family businesses are covered by the hazardous occupation restrictions but not by hours restrictions. When the adjustments are made, 9,500 is subtracted from the GAO's estimate of 166,000 illegally employed in a year.

3. The GAO estimate potentially overcounts hours violations with its procedure for imputing hours violations during the school year. The March CPS asks respondents for the number of weeks worked and the usual hours worked during those weeks. The GAO study counts youths as employed illegally if they reported more than 40 hours usually worked per week, since that is not allowed at any time of the year for 15-year-olds. It also counts youths as employed illegally if they reported more than 18 hours usually worked per week and 16 or more weeks worked last year, since those working that many weeks would have worked some during the school year. A problem is that youths may not have worked more than 18 hours during a school week but still reported "usually" working more than 18 hours since that was the summer schedule. If one excludes those youths who report usually working 19-39 hours for 32 or fewer weeks (since half or more of those weeks were probably worked during non-school weeks, leading the respondent to refer to non-school weeks for "usual" hours), 43,200 is subtracted from the GAO's estimate of 166,000 illegally employed in a year.

When the adjustments for potential overcounts described in 1-3 above are combined (eliminating overlap), the result is that 74,300 15-year-olds are estimated to have been employed in violation of federal law at some point in 1988. This estimate does not include those employed in violation of state laws, most of which apply federal or higher standards.[28] When the latter

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[28] This GAO estimate was adjusted downward to reflect incomplete FLSA coverage.

number is adjusted upward to include all those working in apparent violation of federal or state laws in an average week, the 1988 estimate becomes 84,600, which is remarkably close to this study's 1996 estimate of 83,800.

In sum, the difference between the two estimates can be traced to differences how illegal employment was coded—the elimination of apparent overcount in the GAO study reduces that estimate by about half. The methods in this study were chosen to produce the most solid estimates, but there clearly remain a number of ways in which the survey-based data can undercount illegal youth employment (discussed both here and in GAO, 1991). While some further knowledge may be gained by using different methods and assumptions on existing datasets, a more important project is to generate new high-quality data on youth employment.

TABLE 1: Estimates of Illegal Child Labor in U.S.

	Age <18 (1)	Age 16-17 (2)	Age 14-15 (3)	Age <14 (4)
Total working illegally in average week	147,700	40,800	73,200	33,700
Non-agricultural	145,200	40,800	71,500	32,900
Agricultural	2,500	0	1,700	800
Total working illegally sometime during year	290,200	100,900	129,700	59,600
Non-agricultural	285,300	100,900	126,300	58,100
Agricultural	4,900	0	3,400	1,500
Total hours worked illegally				
Per week	2,179,000	890,600	882,500	405,900
Per year	113,308,000	46,311,200	45,890,000	21,106,800
Total pay for hours worked illegally				
Per week	$10,890,200	$4,576,600	$4,523,900	$1,789,700
Per year	$566,290,400	$237,983,200	$235,242,800	$93,064,400
Average pay for hours worked illegally				
Per hour	$5.00	$5.14	$5.13	$4.41
Percent of population working illegally in average week	0.5%	0.5%	0.9%	0.2%

* Calculated as percentage of those age 10+ in columns 1 and 4.

TABLE 2: Legal and Illegal Employment by Demographic Characteristics

		15- to 17-year-olds				Percent working among age:		
		Sample size	Total population	Illegal workers as % of: Population	All Workers	15-17	18-24	25-64
		(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total		186,480	11,491,000	0.8%	2.9%	26.9%	64.9%	76.1%
Sex	Male	95,001	5,896,000	1.1%	4.2%	26.5%	68.4%	83.6%
	Female	94,079	5,595,000	0.4%	1.5%	26.9%	61.3%	68.8%
Race	White	149,531	9,044,000	0.9%	3.0%	30.1%	68.4%	77.2%
	African-American	25,162	1,848,000	0.3%	2.1%	14.0%	49.5%	69.4%
	Native American	3,129	112,000	0.7%	4.0%	16.7%	57.2%	65.6%
	Asian-American	6,774	402,000	0.2%	1.6%	14.8%	52.1%	73.7%
Ethnicity	Hispanic	17,285	10,137,000	0.5%	3.1%	15.3%	60.1%	69.4%
	Non-hispanic	169,195	1,354,000	0.8%	2.9%	28.3%	65.6%	76.7%
Citizenship	Native citizen	176,460	10,797,000	0.8%	2.9%	27.4%	65.9%	76.8%
	Naturalized citizen	1,408	92,200	0.4%	1.9%	20.0%	62.0%	76.4%
	Non-citizen	8,612	601,600	0.5%	3.4%	14.5%	55.7%	67.3%
Region	Northeast	38,312	2,106,000	0.7%	2.7%	25.4%	60.0%	75.2%
	Midwest	48,440	2,788,000	1.1%	3.0%	36.9%	70.5%	79.3%
	South	56,621	4,068,000	0.6%	2.6%	23.0%	64.2%	75.2%
	West	45,107	2,528,000	0.7%	3.2%	22.4%	63.9%	74.8%
City status	Central city	34,994	2,370,000	0.6%	3.0%	18.4%	59.8%	73.1%
	Outside of central city	60,894	4,266,000	0.8%	2.8%	27.4%	66.5%	78.5%
	Non-metropolitan	45,941	2,385,000	0.9%	3.2%	28.9%	64.9%	74.7%
Ten largest states	New York	11,523	760,800	0.4%	2.1%	19.7%	53.7%	71.9%
	New Jersey	5,815	321,900	0.6%	2.4%	24.2%	61.3%	77.3%
	Pennsylvania	7,561	489,600	0.7%	2.5%	29.4%	63.0%	74.8%
	Ohio	7,487	488,300	0.7%	2.0%	32.4%	67.5%	76.0%
	Illinois	7,649	518,900	0.9%	3.0%	31.4%	66.2%	78.1%
	Michigan	7,330	428,700	1.8%	4.9%	36.1%	67.8%	75.9%
	North Carolina	5,363	219,200	0.9%	3.0%	29.9%	68.3%	77.0%
	Florida	6,854	525,600	0.5%	1.9%	24.1%	65.8%	74.9%
	Texas	9,759	927,100	0.5%	2.5%	20.9%	63.5%	76.5%
	California	14,511	1,340,000	0.4%	2.7%	15.6%	60.6%	73.2%

[A] Based on CPS data, which excludes agricultural and sweatshop illegal employment.

Table 3: Prediction of Illegal Employment

Based on probit regressions. Numbers represent estimated difference in probability for given group compared to excluded group (Z-statistics in parentheses).

		Among all youth			Among employed youth		
		Any illegal work (1)	Too many hours (2)	Hazardous occupation (3)	Any illegal work (4)	Too many hours (5)	Hazardous occupation (6)
Gender	Female	-0.006 *** (18.32)	-0.001 * (1.71)	-0.006 *** (20.67)	-0.024 *** (20.12)	-0.008 (1.54)	-0.025 *** (21.91)
Age	15 (excluded)						
	16	-0.007 *** (19.28)		-0.002 ** (6.99)	-0.041 *** (33.39)		-0.018 *** (17.25)
	17	-0.003 *** (9.25)		0.001 ** (4.93)	-0.042 *** (32.83)		-0.013 *** (12.67)
Race and ethnicity	White (excluded)						
	African-American	-0.004 *** (9.66)	-0.003 *** (2.68)	-0.003 *** (9.82)	-0.005 *** (2.87)	0.035 *** (3.09)	-0.008 *** (5.09)
	Native American	-0.002 (1.19)	0.002 (0.61)	-0.002 ** (2.02)	-0.001 (0.17)	0.032 (1.05)	-0.006 (1.19)
	Asian	-0.004 *** (4.99)	-0.005 *** (2.75)	-0.002 *** (4.50)	-0.008 ** (2.27)	-0.028 (1.23)	-0.007 ** (2.47)
	Other race	-0.001 (0.51)	0.004 (0.98)	-0.002 (1.45)	0.000 (0.00)	0.070 (1.47)	-0.006 (1.06)
	Hispanic	-0.003 *** (5.06)	-0.003 ** (2.39)	-0.002 *** (4.65)	0.001 (0.39)	0.028 ** (1.98)	-0.001 (0.59)
Citizenship	Citizen (excluded)						
	Naturalized citizen	-0.001 (0.51)	0.013 ** (2.22)	-0.003 * (1.77)	-0.005 (0.63)	0.157 *** (2.62)	-0.011 * (1.81)
	Non-citizen	0.000 (0.16)	-0.001 (0.51)	0.000 (0.61)	0.007 ** (1.97)	0.047 * (1.80)	0.005 * (1.68)
Region	Midwest (excluded)						
	Northeast	-0.002 *** (5.53)	-0.005 *** (5.75)	-0.001 *** (2.55)	-0.001 (0.59)	-0.019 ** (2.44)	0.001 (1.09)
	South	-0.003 *** (7.43)	-0.004 *** (5.34)	-0.001 *** (5.29)	0.001 (0.59)	0.011 (1.57)	0.000 (0.29)
	West	-0.002 *** (4.84)	-0.004 *** (5.20)	-0.001 ** (2.23)	0.001 (0.75)	-0.012 * (1.64)	0.003 ** (2.02)
City status	Urban (excluded)						
	Suburbs	0.000 (0.21)	0.002 ** (2.23)	0.000 (1.43)	-0.003 * (1.94)	0.003 (0.37)	-0.004 *** (2.94)
	Rural	0.001 ** (2.32)	0.002 * (1.79)	0.001 ** (2.00)	-0.001 (0.67)	-0.009 (0.98)	0.000 (0.17)
	Not identified	0.001 * (1.94)	-0.001 (0.59)	0.001 *** (2.80)	-0.004 ** (2.63)	-0.035 *** (4.08)	-0.001 (0.87)
Dep. var. mean		0.008	0.008	0.005	0.029	0.070	0.020
n		186,447	63,629	186,447	53,332	8,572	53,332
Log-likelihood		-8026	2941.4	-5764.7	-6045	-2137.2	-4712

* p<.10 ** p<.05 *** p<.01

Based on 15- to 17-year-olds reporting from January 1995-September 1997. Descriptive statistics in Table 2.

Regressions in columns 2 and 5 limited to 15-year-olds.

TABLE 4: Youth Employment and Family Income

	Ratio of 1996 family income to poverty level			
	<1.00	1.00-1.99	2.00+	n
Employment rates by income category*				
Percent of youths in income category who:				
Worked at all in 1996	25.4%	31.7%	39.3%	6050
Worked illegally in 1996	1.5%	1.5%	1.6%	6050
Percent of employed youths in income category who worked illegally in 1996	6.0%	4.8%	4.1%	3854
Distribution of 1996 family incomes^				
Percent in income category among:				
All youths	18.5%	19.6%	61.9%	6050
Youths who were not employed	22.0%	21.0%	57.0%	3854
Youths who were employed legally				
--excluding youth income	13.6%	17.9%	68.5%	2089
--including youth income	11.9%	16.7%	71.4%	2089
Youths who were employed illegally				
--excluding youth income	18.4%	19.3%	62.3%	107
--including youth income	15.7%	17.9%	66.4%	107

Data based on 1996 family income and employment for 15- to 17-year-olds from the March, 1997 CPS.

* The family income categories used in calculating youth employment rates exclude any of the youth's employment income. The overall employment rates, but not the illegal employment rates, differ significantly by income category.

^ The income distributions differ significantly between non-employed and legally-employed youths, but not betweeen either of these and illegally-employed youths (before or after including youth income).

TABLE 5: Employment Characteristics of Legal and Illegal Workers, by Age

		Age 15		Age 16-17		Age 18-24	Age 25-64
		Legal (1)	Illegal (2)	Legal (3)	Illegal (4)	(5)	(6)
Usual weekly hours	Mean	13.0	24.9	19.8	24.4	35.4	41.5
	1-18	78.4%	19.7%	48.3%	33.9%	9.8%	3.3%
	19-25	11.2%	49.6%	30.5%	28.1%	20.7%	4.8%
	26-40	9.4%	23.7%	18.9%	32.7%	54.6%	63.4%
	41+	1.0%	7.1%	2.3%	5.4%	14.9%	28.6%
Hourly pay	Mean	$5.24 ^	$5.08	$5.44 ^	$6.00	$7.70	$14.16
	(s.e.)	(0.20)	(0.28)	(0.06)	(0.19)	(0.02)	(0.02)
	Median	$4.75	$5.00	$5.00	$5.30	$6.76	$12.00
Weekly pay	Mean	$62	$127	$101	$137	$267	$577
	(s.e.)	(1.5)	(8.9)	(0.8)	(8.4)	(0.8)	(0.7)
	Median	$50	$100	$88	$115	$240	$480
Occupation	Mgt./professional/technical	3.4%	2.4%	3.3%	0.0%	17.2%	39.1%
	Sales	15.7%	12.7%	26.4%	0.6%	14.2%	7.1%
	Administrative support	6.6%	4.5%	8.0%	0.7%	16.1%	14.5%
	Private household service	13.0%	3.7%	2.4%	0.0%	0.9%	0.5%
	Food preparation/service	20.3%	19.3%	28.5%	0.7%	11.3%	3.1%
	Other service	13.9%	7.8%	9.3%	4.9%	9.5%	8.0%
	Farming, forestry, fishing	17.9%	1.4%	6.0%	4.2%	3.1%	2.5%
	Precision production, craft, repair	0.6%	8.7%	2.0%	24.1%	8.5%	11.6%
	Operators, fabricators, laborers	0.1%	14.7%	1.3%	14.3%	6.9%	6.4%
	Transportation, material moving	0.1%	2.6%	0.2%	45.8%	3.4%	4.3%
	Helpers and laborers	8.5%	22.3%	12.8%	4.7%	8.9%	3.1%
Industry	Agriculture, forestry, fisheries	14.9%	0.8%	5.1%	2.7%	2.9%	2.5%
	Mining	0.0%	0.0%	0.1%	0.6%	0.3%	0.5%
	Construction	0.8%	19.7%	2.3%	12.0%	5.8%	6.5%
	Manufacturing	6.4%	10.8%	3.0%	22.0%	12.5%	17.4%
	Transportation	0.5%	0.8%	0.5%	1.5%	3.0%	4.9%
	Communications, utilities	0.3%	0.0%	0.3%	0.0%	1.4%	2.8%
	Wholesale and retail trade	35.6%	38.4%	62.3%	51.9%	36.1%	17.4%
	Finance, insurance, real estate	1.0%	1.6%	1.4%	0.9%	4.8%	6.7%
	Private household services	15.0%	3.9%	2.7%	0.1%	1.0%	0.6%
	Other personal services	3.2%	3.9%	2.4%	0.9%	3.2%	2.6%
	Other services	21.6%	19.0%	19.5%	7.6%	27.4%	32.8%
	Public administration	0.7%	1.0%	0.5%	0.0%	1.7%	5.2%
Sample size for hours, occupation, industry*		7691	881	44095	665	58419	415089
Sample size for hourly and weekly pay*		1623	205	10396	153	58419	415089

^ Difference between legal and illegal categories is not significant at 95% level. All other differences are significant at the 95% level.

* The samples for 15-17-year-olds include all who have employment in a full monthly sample between 1/95 and 9/97, while the samples for those age 18+ include only those employed in the outgoing rotation groups over that period.

TABLE 6: Trends in Legal and Illegal Employment Since 1970

Numbers refer to 15- to 17-year-olds, estimated from the March CPS for 1971-97.

Year	Sample size (1)	Percent of population working: At all (2)	Illegally (3)	Percent of workers working: Hazardous occupations (4)	Excessive hours (5)	Illegally (6)	Number working illegally (7)
1971-75	42,113	25.8%	1.3%	2.6%	2.4%	4.9%	156,000
1976-80	42,197	27.7%	1.3%	2.4%	2.6%	4.8%	169,000
1981-85	42,570	24.5%	1.0%	2.1%	2.0%	4.0%	112,000
1986-90	35,312	26.0%	1.0%	1.9%	2.1%	3.9%	112,000
1991-94	19,528	21.4%	0.7%	1.6%	1.5%	3.0%	100,000
1995-97	16,698	24.3%	0.8%	1.9%	1.4%	3.1%	114,000

TABLE A-1: Estimates of Legal and Illegal Child Labor from Current Population Survey

Numbers represent estimates for an average week, based on 33 combined monthly files from January 1995 to September 1997.

	Age	Sample size (1)	Estimated total population (2)	Percent engaging in: Any paid work (3)	Excessive hours (4)	Hazardous occupation (5)	Any illegal labor (6)	Numbers engaging in: Any paid work (7)	Excessive hours (8)	Hazardous occupation (9)	Any illegal labor (10)
AVERAGE ACROSS YEAR	15-17	186,480	11,492,000	26.7%	0.3%	0.5%	0.8%	3,070,500	29,000	62,100	88,200
	15	63,630	3,871,400	11.6%	0.8%	0.6%	1.2%	448,400	29,000	21,300	47,400
	16	62,556	3,840,800	28.3%	0.0%	0.3%	0.3%	1,087,000	0	11,100	11,100
	17	60,294	3,779,700	40.6%	0.0%	0.8%	0.8%	1,535,100	0	29,700	29,700
DURING SCHOOL YEAR	15-17	135,196	10,986,800	24.2%	0.3%	0.4%	0.7%	2,779,000	35,300	50,000	82,000
	15	46,121	3,865,700	9.4%	0.9%	0.4%	1.2%	362,800	35,300	14,600	46,600
	16	45,333	3,839,100	25.5%	0.0%	0.2%	0.2%	977,500	0	8,600	8,600
	17	43,742	3,769,600	38.3%	0.0%	0.7%	0.7%	1,441,000	0	26,800	26,800
DURING SUMMER	15-17	51,284	11,538,200	34.1%	0.1%	0.9%	1.0%	3,937,000	10,000	98,300	106,800
	15	17,509	3,886,300	18.2%	0.3%	1.1%	1.4%	706,600	10,000	41,200	49,700
	16	17,223	3,845,200	36.8%	0.0%	0.5%	0.5%	1,415,700	0	18,600	18,600
	17	16,552	3,806,700	47.7%	0.0%	1.0%	1.0%	1,817,200	0	38,500	38,500

TABLE A-2: Estimates of Legal and Illegal Child Labor from National Longitudinal Surveys and 1980's Current Population Surveys

	Age	Sample size (1)	Percent engaging in: Any paid work (2)	>18 hours in school week (3)	>40 hours in summer week (4)	Hazardous occupation (5)	Any illegal labor (6)
CPS, March, 1981-88							
School year	14	20,950	9.9%	0.6%		0.1%	0.7%
	15	21,321	13.2%	1.4%		0.3%	1.6%
	16	21,630	23.9%			0.3%	0.3%
	17	21,975	36.5%			0.9%	0.9%
NLS-Youth, 1979							
School year	14	944	19.7%	1.9%		0.8%	2.7%
	15	1,537	27.5%	5.2%		1.8%	6.5%
	16	1,537	26.2%			1.7%	1.7%
	17	1,470	26.6%			1.2%	1.2%
NLS-Adolescent Health, 1994-95							
School year	12	466	30.6%	0.8%			
	13	690	36.9%	4.0%			
	14	859	35.4%	3.8%			
	15	867	44.2%	12.2%			
Summer	12	466	49.6%		1.0%		
	13	690	56.7%		2.9%		
	14	859	55.6%		5.0%		
	15	867	62.0%		3.9%		

Note: The CPS and NLS-Y employment figures refer to work in the prior week. The NLS-AD school year employment figures denote any paid work outside the home in the prior four weeks where typical hours exceed zero, and the summer employment figures denote any paid work in a typical summer week.

TABLE A-3: Other Datasets with Work Data by Age

		Total	Age breakdowns								
			<14	14-15	16-17	12	13	14	15	16	17
1. Work-related deaths, 1992-93 (non-family business)	Number	107	11	24	72						
	Percent of total	100.0%	10.3%	22.4%	67.3%						
	Proportion of 14-15 number		0.458	1.000	3.000						
2. Work-related deaths investigated by OSHA, 1984-87	Number	104	3	11	90	1	2	1	10	27	63
	Percent of total	100.0%	2.9%	10.6%	86.5%	1.0%	1.9%	1.0%	9.6%	26.0%	60.6%
	Proportion of 14-15 number		0.273	1.000	8.182						
3. Workers Compensation claims in 24 states, 1980	Number	23823	306	2093	21424		306	586	1507	7241	14183
	Percent of total	100.0%	1.3%	8.8%	89.9%		1.3%	2.5%	6.3%	30.4%	59.5%
	Proportion of 14-15 number		0.146	1.000	10.236						
4. Adolescents in New Hampshire, 1987-90	Percent employed		7.6%	34.9%		1.4%	13.7%	37.0%	32.7%		
	Proportion of 14-15 number		0.217	1.000							
5. Work-related injuries in Mass., 1979-82	Number	1176		111	1065			45	66	352	713
	Percent of total	100.0%		9.4%	90.6%			3.8%	5.6%	29.9%	60.6%
6. Working adolescents in New York state, 1980-87	Number	427578		146016	281562			54845	91171	118959	162603
	Percent of total	100.0%		34.1%	65.9%			12.8%	21.3%	27.8%	38.0%

Sources:

1. Derstine (1994)
2. Suruda and Halperin (1991)
3. Schober et al. (1988)
4. Yasuda (1991) Data come from payroll records for cohort in 8th grade in 1989, when age is assumed to be 14.
5. Brooks et al. (1993)
6. Belville et al. (1993)