

A Hard Day's Night:
Evening Schools and Child Labor in the United States, 1870-1910

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Abstract

Although scholars have made considerable progress in understanding the rise of public education and the impact of legislation regarding child labor and compulsory school attendance in the U.S., the quantitative literature has neither documented nor analyzed a coincident feature of the educational movement – widespread efforts to enable children to combine work *and* schooling. Evening schools, in particular, were common throughout the U.S., and enrollment in these schools increased throughout the later part of the 19th century. This paper brings together information from a variety of sources to trace the history of the “public evening school movement” into the post-WWI period. The analysis examines the diffusion of evening schools and their impact on educational outcomes of working class children. Findings suggest that the diffusion of public evening schools comprised efforts to educate disadvantaged youths, assimilate immigrants, and alleviate overcrowding in day schools. There is some evidence that evening school enrollment figures overstate the importance of the schools for inducing out-of-school youths to enroll, since evening school attendance “crowded out” day school attendance in some cities and occurred in conjunction with day school attendance in other cities. Nonetheless, the expansion of public evening school programs in the late 1800s appears to have significantly improved literacy outcomes for working youths and children of immigrants.

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1. Introduction

During the nineteenth century, industrialization and urbanization in the United States expanded opportunities for children to work for pay outside of the home. In addition to the opportunity cost of foregoing work, families sending children to school often absorbed pecuniary costs for tuition, books, transportation, and other fees. Despite the rapid expansion of public “common schools” and claims of high private and social returns to schooling (e.g., see Dexter 1904; Cubberley 1919; Goldin 1999), the interaction of costs, benefits, and constraints continued to induce a high proportion of children, especially teenagers, to enter the labor market. As late as 1880, approximately one-half of boys (ages 12 to 17) reported a primary occupation other than “attending school”.¹ Only about one-third of these working boys reported attending school at any point in the previous year, and most of this attendance was extremely short-term.²

Economists and historians have made considerable progress in understanding the rise of public education in the United States and the impact of legislation regarding child labor and compulsory school attendance.³ However, the quantitative literature has neither documented nor analyzed a coincident feature of the educational movement – widespread efforts to enable children to combine work *and* schooling. Non-traditional forms of education – including evening schools and employer-operated schools, as well as part-time, half-time, and continuation schools – emerged to facilitate education for working children.⁴ Evening schools, in particular, were common throughout the U.S., and enrollment in these schools continued to increase throughout the later part of the nineteenth century. In 1890, 808 evening schools operated in 165 cities and towns, with a total enrollment of 150,770 students. Ten years later, although the number of cities operating evening schools had not changed significantly, enrollment

¹ This figure is based on analysis of the 1880 census sample from the Integrated Public Use Microdata Series (IPUMS) (Ruggles et al. 2004). Since the census only asked about the activity in which individuals earned the most money or spent the most time, enumerators likely missed many youths performing unpaid house (or farm) work or engaging in part-time work while attending school.

² In 1900, for example, only 17 percent of working youths attended school for 3 or more months in the preceding year and this was closer to 1 percent in urban areas (IPUMS).

³ For example, see Cubberley (1919), Landes and Solmon (1972), Peterson (1985), Margo and Finegan (1996), Goldin and Katz (1999), Moehling (1999), and Goldin (2005).

⁴ The terms “children” and “youths” are used interchangeably throughout the paper.

had increased to 203,000 pupils (Dexter 1904, p. 542).⁵ This would have represented a small fraction of total school enrollment at the national level, but the proportion was much higher in heavily industrial cities. For example, In Holyoke, Lowell, and Salem, Massachusetts, evening school enrollment represented 15, 14, and 11 percent (respectively) of total public school enrollment in 1880. Evening schools accounted for 8 percent of enrollment in both New York City and Philadelphia, 12 percent of total enrollment in Newport, R.I., and 25 percent of enrollment in Patterson, New Jersey (U.S. Bureau of Education 1880).

To quantitatively examine the diffusion and impact of evening schools, this paper brings together information from the Census, various *Annual Reports of the U.S. Commissioner of Education*, a number of states' school superintendent's reports and factory inspection reports, survey data on child workers in New Jersey, and many secondary sources. The paper begins by providing a brief history of the expansion and evolution of public evening schools and an exploration of a unique survey of working children in New Jersey that includes information on their schooling, family background, and work history. I then estimate probit and instrumental variable models to examine the city-level factors that influenced the likelihood of offering evening school programs (Section 3) and to measure the schools' impact on the probability of school enrollment and literacy of working class children (Section 4.1 and 4.2). The paper's final section discusses the findings' historical significance and relevance for present day evening schools in the U.S. and less developed countries.

The historical documents and empirical evidence both suggest that cities established evening schools to facilitate education among working youths, assimilate the children of immigrants, and relieve overcrowding in the public day schools. The case study of New Jersey child laborers indicates that evening school attendance, and any educational gains associated with attendance, varied not only by immigrant status or labor force participation, but also by nationality and occupation. In particular, youths working in industries that were well-monitored by factory inspectors were more likely to have attended

⁵ These figures are conservative since it was impossible at this time to tell how many public evening schools were in operation, except for cities of 8000 inhabitants and over. Also, these figures do not include evening schools operated by private, religious, or philanthropic organizations.

evening schools since beginning work. Overall, I find little evidence that access to evening schools had a measurable impact on the extensive margin of enrollment (i.e., probability of attending school at least once during the year). In part, this finding may reflect “crowding out” of day school enrollment in some cities, as well as the fact that a substantial portion of evening school students also attended day schools at some point during the school year. Despite the weak statistical relationship between evening school access and likelihood of attending school (at all), the findings do indicate that working children and immigrants with access to evening schools had a higher probability of being literate, even after controlling for household characteristics and the quality of the school system. These findings lend credibility to the claims of evening school proponents who argued that the schools were a better fit for working children and immigrants who could not maintain *regular* attendance at day schools even if they enrolled.

2. A Brief History of Evening Schools

2.1 The Rise and Nature of Evening Schools

Comprehensive national statistics on American educational institutions, including evening schools, do not exist prior to the late nineteenth century, but the history and character of the schools can be pieced together from a variety of primary and secondary sources. The concept of offering instruction in the evening originated long before the introduction of public evening schools. As early as 1661, Dutch colonists operated the first evening schools in (what became) New York (Seybolt 1925).⁶ However, the rise of evening schools was concentrated in the nineteenth century.

In some places, privately operated evening schools preceded public ones by several decades (e.g., Massachusetts). In the early 1800s, industrialization brought with it growing public concern that many children worked during the day and therefore missed the educational opportunities afforded other children (Cubberley 1919; Ensign 1969). This concern was particularly salient in light of public discourse that

⁶ Schoolmasters initially offered evening instruction only during the winter months (from October through January). Tuition generally exceeded that of the regular village school and the “schools were attended primarily by apprentices and boys under twelve years of age who had not learned as much as was expected of them in day school” (Margulis, 1927, p. 8).

linked schooling to moral development, viewed education as an essential part of a viable democracy, and connected ignorance to criminal behavior.⁷ Religious organizations and other philanthropic associations motivated by these concerns offered evening instruction to working children. For example, the Young Men's Christian Association actively established evening schools for children and young adults, and maintained evening schools in almost every large city by the end of the nineteenth century (Dexter 1904). Factory owners and mill operators also established evening schools in or near places of employment to comply with existing labor laws and to forestall the enactment of strict child labor and compulsory education legislation (U.S. Bureau of Education 1870-1911; NJ Factory Reports 1883-1885; Shaw 1884; Sewell 1904).⁸ Reports describing the successful operation of the schools – both in terms of enrollment numbers and academic progress – helped to later persuade public educators to incorporate evening classes into their school systems (e.g., Stone 1849).

New York, Rhode Island, and Kentucky established the first public evening schools during the 1830s.⁹ The schools were concentrated entirely in urban areas and were initially intended for school-age boys who were unable to attend regular day schools because of their employment and for young men lacking basic literacy and numeracy skills (Stone 1849, p. 87).¹⁰ Educators were initially reluctant to establish public night schools for females. The primary concerns included the propriety of girls attending school at night (specifically, the potential for females to use school attendance as a pretense for evening excursions or for socializing with male students), their safety traveling to and from classes in the evening,

⁷ It was frequently argued that educated citizens were more likely to vote and participate in other civic activities, more likely to be productive and docile workers, and less likely to engage in criminal activity (e.g., see U.S. Bureau of Education 1870; West 1968; Becker 1968; Field 1974; Gintis 1974; Cohn 1979).

⁸ For example, Connecticut passed a law in 1842 forbidding manufacturers to employ children under age 15 unless they had attended school 3 out of the previous 12 months. Several factories promptly establish night schools to satisfy this requirement for young employees (CT Board of Education 1866). In 1884, P. Lorillard Tobacco Co. in Jersey City, NJ opened an evening school a few blocks from their factory immediately after the state had enacted a law requiring youths age 12-15 employed in manufacturing or mining to attend day or evening school (Shaw 1884).

⁹ In the case of New York City, however, the schools were quasi-public. The early evening schools were free, but the schools were financed through the general fund of the Public School Society. The schools, which were opened in 1833, were unsuccessful and reverted into the “hands of philanthropic agencies until 1847” (Margulis 1927, p. 12).

¹⁰ Although children in rural areas commonly worked in agricultural pursuits, schools were – to some extent – already organized around planting and harvesting schedules. This shorter length of school year in rural areas, the greater dispersion of potential students, and less attention focused on social problems associated with out-of-school youths likely contributed to the lack of public evening school provision in rural areas.

and lower perceived social gains to their attendance (relative to that of boys' attendance). The last of these objections centered on the higher probability of idle, uneducated boys engaging in vagrancy and crime.¹¹ Some cities experimented with female evening schools, however, either opening separate schools for their instruction or dividing the evenings during the week by gender. For example, by 1849, the New York City school system designated four of its fifteen evening schools for females. In places where females had the opportunity to attend, they attended more regularly than the males and all seemed to "take a deep interest in their studies" (NY Board of Education 1849, p. 14; Stone 1849, p. 87). The successes of these early endeavors, and evidence that the girls' safety was uncompromised by their attendance, later served to allay fears about establishing public evening schools for females elsewhere (e.g., see NY Board of Education 1849).

Specific arrangements for evening schools varied greatly by location, but classes were generally held three to five evenings per week, with sessions lasting between two and four hours (Sadler 1907, p. 649). Cities also differed in the length of time the evening schools operated during a given school year. These differences were substantial and remained so even in later decades. In 1888-89, for example, the schools opened for 50 evenings in Cambridge, 120 evenings in Malden, and 180 evenings in Salem (U.S. Bureau of Education 1889, p. 855). Since school boards were reluctant to invest heavily in this innovative form of education, funding was often inadequate to hire highly-qualified teachers.¹² In most cases teachers were recent normal school graduates, without much teaching experience, or "moonlighters" from the day schools.¹³

The schools were usually un-graded when first established, but some cities eventually divided

¹¹ Educators argued that establishing evening schools would result in significant social savings by reducing crime. One school committee stated that "...it is confidently believed that the moral influences that will result there-from will be the means of saving thousands of dollars annually in the expenses of our municipal government, by the prevention of the crime and poverty that would result from the want of proper employment for this vast number of our youthful population during their leisure hours" (NY Board of Education 1848, p. 7).

¹² Some cities allowed the schools to supplement meager appropriations by charging a nominal enrollment fee to students who could afford to pay or securing volunteer teachers to aid the staff (CT Board of Education 1850).

¹³ When current day school teachers were employed, the quality of evening school instruction was limited by the fact that moonlighters were exhausted after a full day of teaching. Cities that attempted to avoid this problem – by refusing to employ moonlighters in the evening schools – often recruited from a lower quality pool of applicants (i.e., recent graduates and teachers unable to secure or retain more desirable employment in the day schools).

classes into several age and proficiency categories as enrollments grew (e.g., establishing junior classes for ages 12-18 and senior classes for older students) (U.S. Bureau of Education 1870-1911; NY Good Government Club 1895). The course of study in the elementary evening schools mirrored that of public day schools, with greater emphasis placed on the core subjects.¹⁴ Thus, the curriculum usually consisted of instruction in reading, writing, arithmetic, geography, history, and – for older students – bookkeeping, composition, and drawing.¹⁵ In addition, most elementary evening schools offered English instruction to foreigners of all ages.

The “evening school movement” gained greater momentum in the latter half of the nineteenth century. During this period, cities also began to establish evening high schools to “supplement and extend the work of the public school” (U.S. Bureau of Education 1870-1911; NY Good Government Club 1895, p. 18).¹⁶ While the elementary evening schools were patronized almost entirely by relatively poor students, some middle class students also seized opportunities to attend the evening high schools. The course of study in the high schools was much broader and included subjects as diverse as Latin, German, chemistry, algebra, geometry and trigonometry, astronomy, history, political science, anatomy, physiology, and various vocational courses (NY Good Government Club 1895).¹⁷ By 1870, there were at least 60 public evening high schools and an even larger number of evening elementary schools throughout the U.S. (Dexter 1904, p. 541; Cubberley 1919, p. 587). Thirty-two cities operated evening schools in 1881. The system of evening instruction continued to expand and, by 1900, 165 cities were providing evening schools (Cubberley 1919, p. 587).

2.2 Public Evening School Students

The annual education reports provide broad characterizations of the students enrolled in evening

¹⁴ For example, day school subjects such as spelling, penmanship, literature, physical education, music, and art were usually not available in evening elementary schools. Courses in home arts (e.g., sewing and cooking) were offered, however, in some female evening schools (U.S. Bureau of Education 1870-1910).

¹⁵ Evening school students might select one or two courses per term (NY Good Government Club 1895).

¹⁶ The first evening high schools opened in Cincinnati (1856) and NYC (1866) (Cubberley 1919; Margulis 1924).

¹⁷ Vocational course offerings often included mechanical or architectural drawing, dressmaking, millinery, stenography, and bookkeeping (NY Good Government Club 1895; Dexter 1904).

schools during this period, but the descriptive accounts and aggregate data in the reports provide little basis for assessing how individual characteristics (e.g., gender, nationality, occupation, or household composition) influenced the likelihood of evening school attendance. Fortunately, a unique survey of working children offers further insights into evening school attendance around the turn of the century. In 1903, the State of New Jersey surveyed 943 child laborers, collecting information about wages, working conditions, and personal and household characteristics.¹⁸ This survey also included detailed questions on the amount and type of schooling, and specifically included retrospective questions on night school attendance. Since the federal Census of Population recorded school attendance *without* distinguishing between day and evening schools (except in years when enumerators were specifically instructed *not* to count evening school attendance), these individual-level data are especially valuable.¹⁹

Although a handful of children surveyed worked night shifts, the vast majority ended their workday at either five or six in the evening and thus would have potentially been free to attend evening classes. Approximately 38 percent of the children had attended night school for some length of time since beginning work and two thirds of these reported having at least one parent born outside the U.S. (most frequently from Germany, Ireland, Italy, England, and Poland).²⁰

To characterize factors that raised or lowered the likelihood of evening school attendance, conditional on being a working child, I estimate the following model:

$$\Pr(\textit{Attend}_{i,c} = 1 \mid x_{i,c}, \xi_c) = \Phi(\alpha + \beta x_{i,c} + \xi_c) \quad (1)$$

¹⁸ Summary statistics for these data are presented in Appendix A. Although the data were compiled and coded into electronic format initially in 1991 and revised in 1993, they have not been used in research on child labor or education. This data set was used for illustrative purposes in two papers describing semi-parametric econometric techniques (i.e., Poirier and Tobias 2003; Smith 2004).

¹⁹ Moreover, New Jersey provides an interesting context to examine evening school attendance since both child labor and evening schools were prevalent in large cities. From 1885 to 1904, public evening school enrollment accounted for approximately 5 to 10 percent of total public school enrollment for a sample of 29 New Jersey cities. In heavily industrial cities, however, the percentage was sometimes much greater. In 1900, for example, 24 percent of students in Harrison were enrolled in evening schools, and in Passaic 17 percent of enrollment was accounted for by evening schools (NJ Board of Education 1885-1905).

²⁰ Agents administering the survey were instructed to go into the “principal factory towns of the state...[and] find families having children at work in the local mills or factories” (Carter, Ransom, Sutch, and Zhao 1993). Despite the simple survey design, the sample is fairly representative of working youths (ages 12-18) in New Jersey in terms of both mean age and immigrant parentage. However, there is a larger proportion of girls in the sample (48 percent) than was true of working youths in census data (40 percent) (IPUMS).

where $Attend_{i,c} = 1$ if the individual i , (residing in city c) has ever attended an evening school, Φ is the cumulative density function of the standard normal distribution, and $x_{i,c}$ is a vector of individual characteristics, including age, age at which he started working, gender, nationality, separate indicators for having a deceased father or mother, and industry of employment. In the final specification I also include indicators of whether the youth “prefers school to work” and whether he perceives his wages as “necessary for his own support”. With the inclusion of fixed effects for city of residence (ξ_c), the coefficients are determined by within-city variation in working children’s characteristics.

Table 1 presents the estimates from this model. Overall, boys and girls were about as equally likely to have attended evening schools since beginning to work.²¹ Although borrowing constraints may prompt households to reduce investments in child schooling following the death of a parent, in this sample the loss of a father is not a strong predictor of the probability of attending night school.²² Of course, losing a father may have lowered *day school* attendance by increasing the child’s likelihood of working to support household consumption, but conditional on working there is little evidence that youths who had lost their father were less likely to attend *evening school*. However, the working children whose mothers had died were much less likely to have attended evening school.²³ This may be because losing a mother alters the value of older children’s time at home in the evening, reflecting greater responsibilities for caring for siblings and other household chores.

While simply having a foreign-born parent is not correlated with night school attendance, choices did differ significantly across ethnicities.²⁴ In particular, children with one or more parent from Italy, Poland, or Hungary were much less likely than the native population (omitted category) to have ever attended evening school, while children of Dutch parentage attended evening school with greater

²¹ Further investigation of gender differences in night school attendance among the workers reveals that younger boys were more likely than girls to have attended evening school, while the reverse was true for children ages 14 and above.

²² See Becker and Tomes (1986) for a discussion of the relevant theory. An example of empirical work that does find a negative effect of parental death on children’s schooling is Gertler et al. (2004).

²³ Interacting the *deceased mother* indicator with gender (or running the regressions separately by gender), I find this was especially true for working girls.

²⁴ Perlmann (1989) documents ethnic differences in schooling norms and outcomes during this time period.

likelihood. Since the regression specification includes city and industry fixed effects, the cross-ethnicity differences cannot be explained by group tendencies to cluster in particular cities and industries. Instead, the patterns might reflect group differences in income or in norms regarding youths' time allocation. Van Kleeck (1911), for example, noted that Italian families were especially reluctant to allow their daughters to venture out in the evenings to attend school since they would incur "unpleasant gossip in the neighborhood" and forgo household responsibilities that served as preparation for married life (p. 25). Group differences in expectations regarding the returns to educational investments or in family-based house work (such as taking in laundry, sewing, tobacco preparation, et cetera) may also contribute to the observed patterns.²⁵

Employment in glassworks, silk, and flax industries was associated with increased probability of evening school attendance.²⁶ In other specifications not shown, girls working in textiles or tobacco manufacturing were also more likely to have attended evening schools. These results suggest that enforcement of compulsory education requirements influenced youths' evening school enrollment. Glassworks, silk, flax, and textile industries were infamous for employing very young children in New Jersey (and other northeastern states) and these industries received a great deal of attention from labor inspectors.²⁷ In contrast, however, state law prohibited inspectors from entering any establishments aside from factories (e.g., grocery stores, bakeries, and barber shops). Moreover, regulations banned truancy officers, to the extent they were even employed, from entering any place of employment to search for children out of school (Field 1910, p. 55).

Since children in poor households may enter the labor force before completing their desired amount of schooling, it is not surprising that children in this sample who were working out of (perceived)

²⁵ de Graffenried (1890) describes family work in tenements writing, "Here is brought tobacco for the whole household to work up, and every family in the huge structure must engage in this occupation or be turned out of their home. Parents and older sons and daughters roll cigars while the younger prepare the weed, even the school children being compelled to work in the afternoons and far into the night" (p. 100).

²⁶ This is relative to employment in miscellaneous manufacturing jobs, which did not fit into any of these categories, and that were not reportedly major employers of children as described in Field (1910).

²⁷ The NJ factory inspector's report for 1888 stated that children under age 16 comprised up to 48 (20, 37, 87) percent of employment in silk mills (flax mills, glass manufactures, glass tube works, respectively). Other years' reports discuss the schools that factory operatives were supposedly attending and described dismissals for violation of school-related (or minimum work age) regulations (Field 1910, p. 115).

necessity were more likely to have taken advantage of opportunities to advance their schooling by attending evening school. Finally, the results are suggestive of positive selection into evening schools in the sense that youths who indicated they would rather be in school than working (and thus probably viewed school as worthwhile, obtainable, or relatively easy compared to work tasks) exhibited higher propensities of attending evening schools.

2.3 The Transformation of Public Evening Schools

Around the time this survey was conducted in New Jersey, evening schools throughout the U.S. were expanding and beginning to experience a major shift in focus. State legislation that raised the minimum working age, strengthened compulsory education requirements, and improved enforcement in both of these areas played an important role in this progression.²⁸ These laws reduced the need for elementary evening schools because younger children were forced to attend day school regardless of their employment status. Many states also required older child workers to attend continuation or part-time schools if they had not completed a minimal level of schooling, had not obtained a basic level of proficiency, or were simply under a specific age. Given some of the challenges of evening school attendance (e.g., exhausted pupils), most of the laws required that compulsory continuation attendance be fulfilled between the hours of 8 am and 5 pm.

Along with these legislative changes, the focus of evening schools began to shift away from educating working children toward providing the children of foreign-born parents and adult immigrants with the basic elements of English education and to preparing them for citizenship. This change occurred gradually over the period 1900 to 1920, and was accelerated by the beginning of World War I (U.S. Bureau of Education 1870-1911; Cubberley 1919). Concerned about the presence of a “new class of immigrants” that was unable to speak English or participate fully in American society, more than 40 states partnered with the U.S. Bureau of Education in 1915 to set up “Americanization” programs to

²⁸ See Ensign (1969) for a summary of child labor and compulsory education legislation in the early twentieth century.

promote literacy and facilitate assimilation into U.S. culture (Cubberley 1919, p. 586).

The federal government and private organizations also began directing funds to support various adult education initiatives aimed at improving basic skill levels and providing vocational training. This helped to transform the evening school systems from primarily educating young students to teaching more mature pupils, and the standard curriculum grew to include more scientific, technical, home arts, commercial, and industrial lines of study. The enactment of the 1917 Smith-Hughes bill for vocational education further advanced the movement of evening high schools toward vocational training and evening schools for children almost entirely disappeared (Cubberley 1919).

Although the timing of the rise and fall of evening schools can be accurately documented from historical sources, understanding the factors that promoted the schools and identifying the impact that the schools had on educational outcomes is far more difficult. The remainder of this paper makes use of newly compiled information on evening schools and large samples of individual-level census data (IPUMS), to examine the diffusion of evening schools and to measure the schools' influence on youths' school attendance and literacy.

3. The Provision of Public Evening Schools, 1870 – 1910

The qualitative historical records suggest that concerns regarding the prevalence of child labor, the size of the immigrant population, and the extent of school overcrowding drove calls for the establishment of public evening schools.²⁹ To gauge the influence of these factors on school boards' decisions about offering evening schools, I first collected city-level data on the existence of evening schools from the *Annual Reports of the U.S. Commissioner of Education* for 1871, 1880, 1899-1900, and 1909-1910. The reports also provided information about enrollment in day schools, the receipts of the public school system, and – in 1880 and 1900 – the availability of spaces for study (which school systems reported based on classroom and desk availability) in the cities' day schools. After coding these data into

²⁹ Faced with rapidly growing populations and political resistance to higher taxes, urban school systems pursued a number of creative strategies to avoid turning away potential students, including the use of temporary structures, basements or hallways, and operating schools in double shifts (Bliss 1898; Hall et al. 1905; Seller 1976).

electronic format, I use this information to create an “overcrowding” indicator variable, which equals 1 if the day school enrollment exceeded the available spaces for study. To supplement the education data, I calculated various city-level characteristics using individual-level census data from the Integrated Public Use Microdata series (henceforth IPUMS) and used city identifiers to match these characteristics with the administrative school data (Ruggles et al. 2004).³⁰

The following probit model measures the correlates of evening school provision and allows a quantitative assessment of the factors that are frequently featured in qualitative accounts of the rise of evening schools:

$$\Pr(NS_{c,s,t} = 1 | \gamma_t, \xi_s, x_{c,s,t}) = \Phi(\alpha + \gamma_t + \xi_s + \beta x_{c,s,t}) \quad (2)$$

where $NS_{c,s,t} = 1$ is the case that at least one evening school is operational, Φ is the cumulative density function of the standard normal distribution, c denotes the city, s denotes the census region or state, and t denotes the year of the observation (either 1871, 1880, 1900, or 1910). $x_{c,s,t}$ is a vector of time-varying city characteristics, including the percentage of children (ages 10-17) who report occupations in the census, population size, and variables associated with a more educated and prosperous population (namely, the adult literacy rate and the percentage of adults working in professional occupations). Other characteristics, such as the percentage of the population that is foreign born and percentage elderly, are included to examine whether cities with more homogeneous or stable populations were more (or less) willing to establish evening schools. This also facilitates comparisons with the existing literature’s description of the rapid expansion of high schools that would occur in subsequent decades (Goldin 1998; Goldin and Katz 1999, 2006).

Equation 2 includes state and year fixed effects (ξ and γ) that will absorb time-invariant differences across states and place-invariant differences across time periods (such as national legislation

³⁰ IPUMS datasets provide city identifiers only for cities with more than 10,000 inhabitants in 1870, the 98 largest cities in 1880, and cities with greater than 25,000 inhabitants for 1900 and 1910. Among the identifiable cities, the sample was further restricted to include only those cities providing data for at least 30 adults (ages 18-45). Only 46 of the cities have complete data for all years of observation, so I report the results from the full panel (of 186 cities). Appendix B presents the summary statistics for all available cities; Appendix C lists the cities and indicates which ones operated evening schools in each census year.

or relevant political and economic conditions) that affected evening school provision. Consequently, the β coefficients are identified by *within-state* variation in city characteristics.³¹

The first column of table 2 omits the state fixed effects and simply summarizes regional differences in evening school provision conditional on city-level economic and social characteristics. With the exception of New England, where evening schools proliferated, cities in all other regions were less likely than the Middle Atlantic region (omitted category) to establish night schools, sometimes by wide margins. For cities in the West North Central region, for example, the probability of establishing evening schools was 31 percentage points lower than among cities in the Middle Atlantic region. This regional pattern stands in sharp contrast to the diffusion patterns apparent in the expansion of public secondary schools. In that context, Goldin (1998) and Goldin and Katz (1999; 2006) found that the Middle Atlantic region was the slowest to expand secondary education while the Great Plains (West North Central and West South Central regions) and West (Mountain and Pacific regions) led the high school movement.³²

The second column and subsequent specifications all incorporate state fixed effects. In each specification, a 10 percentage point increase in the foreign-born share of the adult population (about 0.6 standard deviation) is associated with about a 5 percentage point increase in the likelihood of evening school provision (evaluated at sample means). This is strongly consistent with the hypothesis that evening schools were established to accommodate and assimilate immigrants and the children of immigrants, and it is also consistent with a model of school provision in which there are strong perceptions regarding the positive externalities of evening schools (as so often argued by proponents of the schools). Interestingly, it provides another contrast with the story of the high school movement in which more homogeneous communities led the way (e.g., see Goldin 1998; Goldin and Katz 1999, 2006).

³¹ This specification does not eliminate bias induced by state-specific or city-specific shocks that may be correlated with both the explanatory variables and evening schools. The introduction of an instrument for child labor in subsequent specifications helps address this issue.

³² The concept and measure of expansion used in this paper, however, differ from those in Goldin (1998) and Goldin and Katz (1999; 2006). I examine the availability of (one or more) evening schools, whereas Goldin and Katz examine high school graduation rates.

Column 3 and subsequent specifications includes a measure of youth employment. In columns 3 to 6, a 10 percentage point rise in the youth employment rate (about one standard deviation) is associated with an increase in the likelihood of maintaining an evening school of 9 to 13 percentage points. Again, this is strongly consistent with the qualitative accounts of evening school provision that emphasize evening schools as a response to concerns about working children. In column 4, I break down youth employment into manufacturing, retail, and domestic service industries. The results indicate that manufacturing employment, a highly visible target of progressive reformers, drives the correlation between youth employment and evening school provision.

The results in column 6, which are estimated from the subset of cities for which an “overcrowding” variable could be constructed, suggest that some cities maintained evening schools to alleviate the strain on overcrowded day schools. Cities with overcrowded schools were nearly 26 percentage points more likely to offer evening schools, conditional on other covariates. This finding is consistent with evidence that, “population continued to grow so fast that building programs could not keep pace with need and... economy minded taxpayers were not willing to allocate enough resources to solve the problem properly” (Seller 1976, p. 189). This overcrowding led some schools to hold classes in hallways, in basements, or during evening hours, and it appears to have been an important predictor of evening school provision.

Although the results square well with the historical narratives of evening school provision, some care must be taken in attaching a strong causal interpretation to the econometric estimates in table 2. First, the estimates are vulnerable to the omission of city-specific variables that were correlated with both evening school provision and the variables in $x_{c,s,t}$. Unfortunately, there is not enough within-city variation in $x_{c,s,t}$ and evening school provision to identify coefficients of interest after including city fixed effects.³³

Second, it is possible that child employment might respond endogenously to the provision of

³³ All coefficients are statistically indistinguishable from zero when city fixed effects are included in the model.

evening schools. That is, children may have shifted out of day school and into work once an evening school option was made available, leading to a positive correlation between children working and evening school provision. The qualitative evidence, to my knowledge, does *not* suggest that this happened, but the possibility merits attention. Therefore, I constructed a “simulated instrument” for the proportion of children working in each city.³⁴ The instrument exploits plausibly exogenous variation in child labor due to differences in industry structure across cities. Specifically, for each year of data, and for each 3-digit industry category in the IPUMS, I multiplied the ratio of child-to-adult workers at the national level by the number of adult workers at the city level to get a predicted number of children in the year-city-industry cell. Then, summing over all industries in each city gives the predicted number of children working. Expressing this as a percentage of the total number of children in the city provides a measure of child labor that is (arguably) uncorrelated with the error term in equation (2). Intuitively, the rationale for the instrument is that child labor in a given city is a function of the general production technology of industries in the city and an unobservable city-specific component. The instrument allows me to separate out these sources of variation in child labor and discard the city-specific variation that is prone to be correlated with the error term in equation (2). The results from an instrumental variable probit model, estimated by maximum likelihood, are shown in column (7). The point estimate in the IV model is approximately zero (and no longer statistically significant).³⁵ Although the Rivers-Voung test fails to reject the null hypothesis of exogeneity for child labor, the weak power of this test and potential endogeneity of child labor suggests caution in accepting the initial probit estimate as measuring causal effects.

4. The Effects of Evening Schools

4.1 School Enrollment

Cities established evening school programs primarily with out-of-school youths in mind, and the

³⁴ See Hoxby and Kuziemko (2004), Hoxby (2001), Bertrand et al. (2000) for examples of simulated instruments.

³⁵ The first-stage results suggest that the instrument does not suffer from weak instrument bias. In the first stage, the coefficient on the instrument is 0.408 (std. error 0.045).

raw evening school enrollment figures suggest that, especially in industrial cities, many youths took advantage of these educational opportunities. Essentially, evening schools offered a low opportunity cost schooling option (relative to day schools) because students could continue working and earning wages.³⁶ The high incidence of child labor, the low average daily attendance in day schools, and the exasperation expressed by truancy officers during this period, suggest that opportunity costs of attendance were important for youths' decisions to enroll in any type of school (and to attend regularly if enrolled).³⁷

Of course, it is unlikely that every evening school enrollee was a net addition to the city's public school rolls. There is evidence, for example, that evening schools also attracted students who had enrolled in the day schools at some point during the school year, but found themselves unable to attend regularly due to work obligations and family responsibilities.³⁸ In 1849, for example, a New York City principal in charge of both day and evening schools stated that some parents "removed their children, who were irregular in their attendance at [the] day school and presented them ...for admission into the Evening School, as among those whose occupations prevented their attendance at day school" (NY Board of Education 1849, p.22). In such cases, evening schools may have been a better fit for students, though the total number of students enrolled in the public schools that year would not change.³⁹

In addition to drawing in students who had registered for the day schools at some point during the year, it is possible that evening school enrollment "crowded out" some day school enrollment from the onset of the school year. That is, some youths who would have registered for day schools in the absence of evening schools may have elected to enroll in the evening schools once the option was available.

³⁶ Even though parents could (and sometimes did) allow children to attend day school and work at night, employment opportunities were much more plentiful during the daytime. States also began restricting (or completely banning) night work for younger teens during the latter part of the 19th century.

³⁷ Statistics from Jersey City in 1869 illustrate this point well. Approximately 7000 children (58 percent of the school-age population) enrolled in the public schools at some point during the school year. But, since many of the students were struck from the rolls for a lack of regular attendance (or failure to report to classes at all), the average number of students registered throughout the year was only 3835 and average daily attendance was even lower (2923 pupils) (U.S. Bureau of Education 1870, p. 222).

³⁸ In the case of Jersey City (in 1869), for instance, approximately 16 percent of the evening school students had enrolled in day schools, as well (U.S. Bureau of Education 1870, p. 222).

³⁹ Along these lines, economists and historians have found that the expansion of common schools during the nineteenth century entailed significant enrollment shifts from private schools to lower-cost public schools (e.g., Fishlow 1966, Kaestle and Vinovskis 1980). Similar forces may have been operating in the expansion of evening schools.

Determining the extent to which this occurred provides greater insight into the distributional impacts of evening schools. To explore this question empirically, I again make use of information on evening schools included in the Annual Reports of U.S. Commissioner of Education. Using the reports, I have constructed a panel data set for 79 cities in New York, New Jersey, and Massachusetts that spans the twenty year period from 1873-1892. The data set contains indicators for whether a city operated evening schools in a given year, as well as the size of the school-age population, total enrollment in day and evening schools, the sittings available for study in the public schools, and the total receipts available for use by the city school system.⁴⁰ Because school statistics are unavailable for some cities in each year, the panel is unbalanced and cities are observed an average of 13 times in the dataset.

Since the question of interest is whether the existence of night schools increased the overall proportion of children enrolled in school (at all during the year) or merely shifted the enrollment away from day school, I use these data to estimate separate models of the overall enrollment rate in public schools (including day and evening school enrollment) and the enrollment rate in public day schools only. Specifically, I model the city-level school enrollment rate as follows:

$$EnrRate_{c,t} = \alpha + \gamma_t + \xi_c + \beta x_{c,t} + \delta(NS_{c,t} = 1) + \varepsilon_{c,t} \quad (3)$$

where in the first specification $EnrRate_{c,t}$ is the percentage of the school age population (in city c , in year $t=[1873, \dots, 1893]$) enrolled in any public school. I then re-estimate the model with $EnrRate_{c,t}$ equal to the percentage of the school age population enrolled in public day schools. If evening school students are drawn entirely from youths that would not have otherwise attended (or who enrolled in both evening and day schools during the year), opening an evening school in the city ($NS_{c,t} = 1$) should have a positive effect on overall enrollment and no negative effect on public day schools (i.e., $\hat{\delta}$ should be positive in the model of overall public school enrollment and approximately zero in the model of day school enrollment). The model is estimated separately for each state, and each specification includes the

⁴⁰ These states were selected since both child labor and evening schools were especially common there. For example, 63 of the 147 cities operating evening schools (and 52 percent of the students attending the schools) were located in NY, NJ, and MA in 1888 (U.S. Bureau of Education 1888, p. 224).

school system's receipts per student ($x_{c,t}$), to control for the commitment of resources to public education. Since the overall enrollment rate may be influenced by unobservable time and location-specific factors, I include city and year fixed effects (ξ_c and γ_t). Therefore, identification of the evening school effect depends on changes in evening school provision within cities, over time. The results are presented in table 3.

The existence of a night school is associated with an increase in overall enrollment of about 2 percentage points for New Jersey (although the coefficient is not statistically significant at conventional levels) and 4.5 percentage points for Massachusetts.⁴¹ In the case of New York, however, there is no apparent increase to overall enrollment rates when an evening school is opened. This suggests that a substantial portion of evening school students in New York were drawn from the group of students who would have (at least) enrolled in day schools if evening schools were unavailable. To further test whether students were shifting enrollment away from day schools to attend evening classes, I estimate the same model using the proportion of children enrolled in day schools as the dependent variable (4th, 5th, and 6th columns). In each state, the coefficient on evening schools is negative and, in the case of New York, statistically significant. These results are consistent with a substantial "crowding out" effect of evening schools in New York and, perhaps, New Jersey, but the substitution of evening for day school attendance seems less relevant for cities in Massachusetts.⁴²

To some extent, the differences by state may reflect differences in state child labor laws. In Massachusetts, for example, students under age 14 were required to attend 20 weeks of day schools regardless of their work status, but could apply for work certificates as long as they fulfilled this

⁴¹ There is no way to determine how much of this increase represented out-of-school youths entering the school system to attend evening schools and how much of the increase represented double counting youths who attended both day and evening schools when the latter were available.

⁴² Since the consistency of the fixed effects estimator requires that night school provision be "strictly exogenous", if previous day school enrollment rates influence current night school provision or there is state dependence in day school enrollment rates (even after controlling for the unobserved city fixed effect), the estimator may be inconsistent (e.g., see Wooldridge 2002). The qualitative results are unchanged, however, with the inclusion of lagged enrollment rates or the use of lagged evening school indicators. Controlling for overcrowding, which was shown in the previous section to influence evening school provision), estimating the model separately for cities with overly-crowded schools, or including city-specific time trends does not change the qualitative results.

schooling requirement. Illiterate youths, however, were not allowed to work even after fulfilling the schooling requirement unless they attended evening schools (with attendance to be certified weekly). In both New York and New Jersey, however, the compulsory schooling and school requirements of child labor laws permitted two weeks of evening school to count as one week of day school attendance. It is reasonable, then, to expect students to substitute evening for day attendance with greater frequency in these two states.

These results also help shed light on an unexpected finding based on the census “school attendance” question: that exposure to evening schools was not a (statistically significant) determinant of school attendance among working youths. Specifically, for a sample of youths (ages 12-18) in 1900 and 1910, I estimate the following probit model of school enrollment:

$$\Pr(\text{Attend}_{i,c,t} = 1 \mid \gamma_t, \xi_c, x_{i,c,t}, NS_{c,t}) = \Phi(\alpha + \gamma_t + \xi_c + \beta x_{i,c,t} + \eta(NS_{c,t} = 1)) \quad (4)$$

where $\text{Attend}_{i,c,t} = 1$ if the youth attended school for any length of time during the reference period, $NS_{c,t} = 1$ if (one or more) evening schools were available in the youth’s city of residence at time t, and $x_{i,c,t}$ includes household characteristics (race, nativity and literacy of household head, number of siblings, and an indicator for having either parent absent) and the length of the day school term. Table 4 presents the estimates from this model for the entire sample and for subsets of individuals most likely to enroll in evening schools: working youths and the children of immigrants. With the inclusion of city and year fixed effects (therefore identifying from openings and closings of evening school programs between 1900 and 1910), the coefficient on the evening school indicator is close to zero and statistically insignificant for both boys and girls.

We would expect this to be the case if – as the previous results suggest – many evening school students also attended day schools for even a short time (e.g., in Massachusetts) or enrolled in evening schools instead of day schools once they became available (e.g., in New York). In either scenario, opening an evening school in one’s city would not necessarily increase the likelihood of attending school at any point during the reference period (which is how the census defines school attendance) (see Ruggles

et al. 2004). The nature of the census question regarding school attendance limits the analysis in other ways, as well. As mentioned in a previous section, the census questions did not distinguish between day and evening schools – and specifically excluded attendance in evening schools prior to 1900 (Ruggles et al. 2004). Although the instructions in 1900 asked enumerators to record school enrollment (not further defined), it is possible that the failure to explicitly include evening schools in the new instructions resulted in undercounting. The limited time period (i.e., exclusion of 1870 and 1880 from the analysis) is also unfortunate since the age distribution of evening school students was shifting upward by the turn-of-the-century.⁴³ Thus – compared with earlier decades – youths in the age range of interest here (ages 12-18) would have comprised a smaller proportion of evening school enrollment.

4.2 Literacy

Although the preceding discussion suggests that evening schools added fewer students to total enrollments than the evening school counts would indicate, it is possible that exposure to evening schools translated into literacy gains for youths – even in cities where the extent of “crowding out” was substantial. If the students who attended evening schools had been (or would have been) frequently absent from day school, then substituting evening for day attendance could actually improve their learning outcomes.⁴⁴ Also, since elementary evening schools pared down their standard curricula to emphasize only the essential parts of day school curriculum (fundamentals of reading, writing, and arithmetic), students with work or household responsibilities may have been more able to keep pace in the more narrowly-focused evening school courses. Finally, the lower opportunity costs of evening schools, and laws requiring illiterates to attend evening school even after satisfying the compulsory attendance

⁴³ In 1849, for example, approximately 7000 students enrolled in New York City evening schools. Fifty percent of the students were under age 16, another 42 percent were aged 16-21, and a small minority was over 21 years old. By 1895, however, the mean age of evening school students in New York City was 20 years (NY Board of Education 1849, p. 5; Margulis 1924, p. 47)

⁴⁴ In some cities, the ratio of average daily attendance to total enrollment in the evening schools was equal to (or greater than) the ratio in the day schools. This was the case in New York City in 1869, for example. The ratio was .45 for the evening schools and .44 in the day schools (U.S. Bureau of Education 1870, p. 235). This is especially remarkable since evening school students were frequently working full time and tending to various other household responsibilities in addition to their studies.

requirements, may have caused students to stay in school longer than they would have persisted in the day school.⁴⁵

Indeed, evening school teachers, principals, and state superintendents, describe the literacy gains of evening school students with great satisfaction (U.S. Bureau of Education 1870-1911). New York City evening school reports from 1847 illustrate this point well. Although 69 percent of students in one female school could not read at the beginning of term, almost all of them could read reasonably well (or better) at the level of *Cobb's Second Reader* by the close of term.⁴⁶ The schools for males showed a much lower incidence of illiteracy among incoming students (usually ranging from about 9 to 11 percent), but most of these boys could also read with “tolerable ease” by the close of term (NY Board of Education 1849, p. 24).

To examine whether access to evening schools had a measurable impact on literacy, I again make use of individual-level census data from 1870 to 1910.⁴⁷ Table 5 (Panel A) presents results from estimating a probit model of literacy using the entire sample of youths (ages 12-18). The model, which is similar to equation (4) replacing literacy for school attendance as the outcome of interest, includes household characteristics (race, immigrant status, and an indicator for having either parent absent from the household), characteristics of the school system (availability of an evening school and the length of the school year), and fixed effects for city of residence and year. The literacy of the head of household is strongly positively related to the child's likelihood of being literate, while other household variables are

⁴⁵ Survey responses of working children in NJ (see section 2.2) are at least consistent with this possibility. Youths who had attended evening school for some length of time had satisfied a slightly higher percentage of the required compulsory schooling on average (68 percent of the time required as opposed to 65 percent). The percentage of compulsory schooling satisfied for each child was calculated by dividing the length of time the child attended school by the length of time required for a child of his age. T-tests reject the null hypothesis of equivalent means across groups attending evening school for some length of time and non-attendees.

⁴⁶ Twenty-nine percent of students in the other female school that reported progress could not read at the beginning of term, and the students made similar gains by the end of the year. For both sexes, the gains in arithmetic were even more striking. Approximately 85 percent of incoming female students and – depending on the school being considered – between 25 and 65 percent of male students were unfamiliar with even the basic rules of arithmetic. The vast majority of students understood the simple rules by the close of term; many progressed through compound rules, reduction, and fractions; a smaller number had advanced through multiplication and division (NY Board of Education 1849).

⁴⁷ The comparability of these data over the entire period offers advantages over the school enrollment data employed in the previous section.

negatively related to literacy. Having (potential) access to an evening school is associated with a small increase in literacy (about 1.0 percentage point for girls and 0.5 percentage points for boys) in the whole sample (columns 1 and 2). Breaking the sample into children that do and do not report an occupation in the census (columns 3-6) suggests that the evening schools had measurable impacts on only the former. In particular, the evening school indicator is associated with a 3.3 percentage point increase in literacy for working girls and a 1.4 percentage point increase for working boys, while the coefficients are not statistically different from zero for youths without an occupation. Similar results hold for the sub-sample of individuals with foreign parentage (Panel B), but the night school coefficient is only statistically significant for working girls in these regressions. As Panel C illustrates, exposure to evening schools was associated with higher probabilities of being literate primarily in the early part of the period. Estimates for the sub-sample of observations in 1870 and 1880 are two or three times as large as estimates for the full sample.

5. Conclusion

Advocating for evening schools in England and Wales, Horace Mann wrote, "...there is something so natural and inevitable in [the] tendency to early labour, that instead of lamenting the existence of this state of things as the cause of our ill-success, we ought probably to be led to suspect that our educational machinery is ill-adapted to the circumstances of our condition" (Mann 1862). The public evening school movement, which Mann and other educators helped to bring about in the late nineteenth century, represented a fresh approach to increasing school enrollment through adapting the "educational machinery" to the economic realities that children faced. As such, evening schools provide yet another example of the flexibility of American educational institutions in the past (e.g., see Goldin 1999; 2003). The availability of evening schools significantly reduced the opportunity costs of schooling since working youths could attend evening classes without forfeiting wages or work experience to do so. Consequently, the expansion of evening schools was most relevant for economically disadvantaged children. By documenting and analyzing this relatively neglected aspect of public education in the nineteenth century,

and bringing new data to light, this chapter represents a first quantitative look at the expansion of evening schools in the U.S., and holds broader relevance for understanding the role of non-traditional education alternatives in the schooling decisions of working youths.

The empirical and qualitative evidence in this paper indicate that cities operated evening schools to further the education of working children, to better assimilate the foreign-born population, and to relieve crowding in public schools. City-level (panel) data from New York, New Jersey, and Massachusetts suggest that some students shifted enrollment from day to evening schools, when the latter became available. Despite this “crowding out” effect, the schools appear to have benefited their intended targets. In particular, examining large-scale, individual-level data from the Census, I find that exposure to evening schools significantly increased the probability of being literate among working children and the children of immigrants. Since evening school curriculum also comprised mathematics and various other academic and vocational subjects, the literacy gains discussed here represent only a single aspect of the schools’ impacts on the educational outcomes of these groups of children.⁴⁸

Although this paper examines evening schools in the historical context of the U.S., it is notable that Mann’s calls to adapt school schedules to the needs of working children are being echoed more than a century later. Striving to reduce dropout rates and nonattendance among economically disadvantaged youths, educators throughout the world are increasingly incorporating non-traditional school alternatives into their overall education strategies.⁴⁹ Despite the growing relevance of this type of educational alternative, little quantitative research has examined attendance at these schools, the effectiveness of evening schools (or similar alternatives) at improving outcomes for working children, or the potential for these schools to have unintended consequences. The broad-based quantitative evidence and historical perspective offered in this paper lends insights into these considerations. In particular, the results

⁴⁸ Also, see footnote 37.

⁴⁹ For example, a recent World Bank report describes the expansion of “double shift” schools that help to solve problems of overcrowding in schools, lack of monetary resources to expand education infrastructure, and high dropout rates among working youths (Linden 2001). Flexible school alternatives are increasingly being incorporated into urban school districts in the U.S. as part of comprehensive plans to improve high school retention and graduation rates. (e.g., see MA Department of Education, 2006; Medina 2007).

presented here suggest that establishing evening schools may be a practicable strategy to help poor working children advance their education even in settings where compulsory schooling (or child labor) laws are found to be ineffective policy instruments or where overcrowded schools cannot accommodate growing population pressure.

Bibliography

- Becker, Gary S. 1968. "Crime and Punishment: An Economic Approach," *Journal of Political Economy*, 76(2): 169-217.
- Becker, Gary S. and Nigel Tomes. 1986. "Human Capital and the Rise and Fall of Families," *Journal of Labor Economics* 4(3): S1-S39.
- Bertrand, Marianne, Erzo Luttmer, and Sendhil Mullainathan. 2000. "Network Effects and Welfare Cultures," *Quarterly Journal of Economics* 115: 1019-1056.
- Bliss, William D. P. 1898. *The Encyclopedia of Social Reform; including Political Economy, Political Science, Sociology, and Statistics*. New York: Funk & Wagnalls Co.
- Carter, Susan B. Ransom, Roger L. Sutch, Richard and Hongcheng Zhao. 1993. "Codebook and User's Manual: A Survey of 943 Child Laborers in New Jersey, 1903." Reported in the Twenty-Sixth Annual Report of the New Jersey Bureau of Statistics of Labor and Industries. Berkeley: Institute of Business and Economic Research
- Cohn, Elchanan. 1979. *The Economics of Education*. Cambridge, Mass.: Ballinger.
- Connecticut Board of Education. 1849-1910 (Various Years). *Annual Report of the Board of Education*. Hartford: Connecticut Board of Education.
- Cubberley, Ellwood. 1919. *Public Education in the United States*. Boston: Houghton Mifflin Company.
- de Graffenried, Clare. 1890. "Child Labor," *Publications of the American Economic Association*, 5(2): 71-149.
- Dexter, Edwin. 1904. *History of Education in the United States*. New York: Macmillan Company.
- Ensign, F. C. 1969. *Compulsory School Attendance and Child Labor: A Study of the Historical Development of Regulations Compelling Attendance and Limiting the Labor of Children in a Selected Group of States*. New York: Arno Press and the New York Times; first published in 1921.
- Field, Alexander J. 1974. "Educational Reform and Manufacturing Development in Mid-Nineteenth Century Massachusetts." Ph.D. dissertation, UC Berkeley.
- Field, Arthur S. 1910. *The Child Labor Policy of New Jersey*. Cambridge: American Economic Association.
- Fishlow, Albert. 1966. "The American Common School Revival: Fact or Fancy? In Henry Rosovsky, ed., *Industrialization in Two Systems: Essays in Honor of Alexander Gerschenkron*. New York: Wiley.
- Gertler, Paul, David I. Levine, and Minnie Ames. 2004. "Schooling and Parental Death," *Review of Economics and Statistics* 86(1): 211-225.
- Gintis, Herbert. 1974. "Education, Technology, and Characteristics of Worker Productivity," *American Economic Review* 61: 266-279.
- Goldin, Claudia. 1998. "America's Graduation from High School: The Evolution and Spread of Secondary Schooling in the Twentieth Century," *Journal of Economic History* 345-374.
- 1999. "Egalitarianism and the Returns to Education during the Great Transformation of American Education," *Journal of Political Economy* 107: S65-S94.
- 2003. "The 'Virtues' of the Past: Education in the First Hundred Years of the New Republic," NBER Working Paper no. 9958.
- Goldin, Claudia and Lawrence F. Katz. 1999. "Human Capital and Social Capital: The Rise of Secondary Schooling in America, 1910 to 1940," *Journal of Interdisciplinary History*, XXIX: 683-723.
- 2006. "Why the United States Led in Education: Lessons in Secondary School Expansion, 1910 to 1940," In D. Eltis, F. Lewis, and K. Sokoloff, eds., *Factor Endowments, Labor and Economic Growth in the Americas*. New York: Cambridge University Press.
- Hall, Frederick S., Hugo S. Grosser, Dora Keen, Thornton D. Apollonio, Hugh S. Hanna, F. E. Stevens, A. C. Richardson, Max B. May, Edwin Z. Smith, James J. McLoughlin, John A. Butler, George S. Wilson, Sidney A. Sherman, Henry L. McCune, Delos F. Wilcox, J. Allen Smith, and W. G. Joerns. 1905. "Notes on Municipal Government. Educational Organization and Progress in

- American Cities. A Symposium on Present Educational Conditions and Needs," *Annals of the American Academy of Political and Social Science* 25: 157-188.
- Hoxby, Caroline. 2001. "All School Finance Equalizations are Not Created Equal," *Quarterly Journal of Economics* 116(4): 1189-1231.
- Hoxby, Caroline and Ilyana Kuziemko. 2004. "Robin Hood and His Not So Merry Plan," *NBER Working Paper* 10722.
- Kaestle, Carl F. and Maris A. Vinovskis. 1980. *Education and Social Change in Nineteenth-Century Massachusetts* Cambridge: Cambridge University Press.
- Landes, William and Lewis C. Solmon. 1972. "Compulsory Schooling Legislation: An economic Analysis of Law and Social Change in the Nineteenth Century," *Journal of Economic History* 32(1): 54-91
- Linden, Toby. 2001. "Double-Shift Secondary Schools: Possibilities and Issues," *Secondary Education Series Report* Washington D.C.: World Bank.
- Lleras-Muney, Adriana. 2002. "Were Compulsory Attendance and Child Labor Laws Effective? An Analysis from 1915 to 1939," *Journal of Law and Economics*, 45: 401-435.
- Mann, Horace. 1862. "The Resources of Popular Education in England and Wales: Present and Future," *Journal of the Statistical Society of London*, 25(1): 50-71.
- Margo, Robert A. and Aldrich T. Finegan. 1996. "Compulsory Schooling Legislation and School Attendance in Turn-of-the-Century America: A 'Natural Experiment' Approach," *Economics Letters* 53: 103-10.
- Margulis, Herman. 1927. "A History of the Evening Elementary Schools of New York City" Master's Degree Thesis; School of Education in the College of the City of New York.
- Massachusetts Board of Education. 1849-1910 (Various Years). *Annual report of the Board of Education together with the ... Annual report of the Secretary of the Board*. Boston: Board of Education.
- Massachusetts Department of Education. 2006. "Dropouts in Massachusetts Public Schools: District Survey Results," Online. Retrieved December 3, 2007, from MA DOE website: <http://www.doe.mass.edu/infoservices/reports/dropout/06survey.doc>
- Medina, Jennifer. 2007. "More Students Finish School, Given the Time," *New York Times*, August 21, Education Section.
- Moehling, Carolyn. 1999. "State Child Labor Laws and the Decline of Child Labor," *Explorations in Economic History*, 36: 72-106.
- New Jersey Board of Education. 1885-1904. *Annual report*. Trenton: State Board of Education.
- New Jersey Inspector of Factories and Workshops. 1883-1885. *Annual report of the Inspector of Factories and Workshops of the state of New Jersey*. Trenton, N.J.: Inspector of Factories and Workshops.
- New York Board of Education, Committee on Evening Schools. 1848. "Report of the Committee on Evening Schools, in Favor of Making Application to the Legislature to Increase the Appropriation for Evening Schools, and also in Favor of the Establishment of Evening Schools for Females," New York: Board of Education.
- New York Board of Education, Committee on Evening Schools. 1849. "Report on the Amount of Money Paid on Account of Each School, and the Purposes for Which the Same has been Expended, the Number of Teachers Employed, and the Number of Pupils in Each School," New York: Board of Education.
- New York: Good Government Club "E". 1895. "Progress in School Reform: Report of the Committee on Education and Public Schools for 1895," *Publication No. 9*. New York: Good Government Club "E".
- New York (State). 1850-1900 (Various Years). *Annual report of the Superintendent of Public Instruction, of the State of New-York*. Albany, N.Y.: Dept. of Public Instruction.
- Pennsylvania Department of Public Instruction. 1849-1909 (Various Years). *Report of the Superintendent of Public Instruction of the Commonwealth of Pennsylvania for the year ending*. Harrisburg: Department of Public Instruction.

- Perlmann, Joel. 1988. *Ethnic Differences: Schooling and Social Structure among the Irish, Italians, Jews, and Blacks in an American City, 1880-1935*. Cambridge: Cambridge University Press.
- Peterson, Paul E. 1985. *The Politics of School Reform, 1870-1940*. Chicago: University of Chicago Press.
- Poirier, D. J. and Justin Tobias. 2003. "On the Predictive Distributions of Outcome Gains in the Presence of an Unidentified Parameter," *Journal of Business and Economic Statistics*, 21: 258-268.
- Rhode Island. 1849-1910 (Various Years). *Annual report of the Board of Education, together with the ... annual report of the Commissioner of Public Schools of Rhode Island*. Providence: Providence Press Company, Printers to the State.
- Ruggles, Steven, Matthew Sobek, Trent Alexander, Catherine A. Fitch, Ronald Goeken, Patricia Kelly Hall, Miriam King, and Chad Ronnander. 2004. *Integrated Public Use Microdata Series: Version 3.0* [Machine-readable database]. Minneapolis: Minnesota Population Center.
<http://usa.ipums.org/usa/>
- Sadler, Michael E. 1907. *Continuation schools in England & elsewhere; their place in the educational system of an industrial and commercial state*. Manchester: University Press.
- Seller, Maxine. 1976. "The Education of Immigrant Children in Buffalo, New York 1890-1916." *New York History* (April): 183-199.
- Sewell, Hannah. 1904. "Child Labor in the United States," *Bulletin of the Department of Labor, Special Report, no. 52*.
- Seybolt, Robert F. 1925. *The Evening School in Colonial America*. Urbana: University of Illinois.
- Shaw, William H. 1884. *History of Essex and Hudson Counties, New Jersey*. 2 vols. Philadelphia: Everts & Peck.
- Smith, Murray D. 2004. "On the Effect of Literacy on Child Labour: Modelling Switching Regimes Using a Copula Approach."
- Van Kleeck, Mary. 1914. *Working Girls in Evening Schools: A Statistical Study*. New York: Russell Sage Foundation.
- West, E. G. 1968. *Economics, Education, and the Politician*. Norwich: Soman-Wherry Press, Ltd.
- Wooldridge, Jeffrey M. 2002. *Econometric Analysis of Cross Section and Panel Data*, Cambridge, MA: MIT Press
- United States Bureau of Education. 1870-1911 (Various Years). *Annual Report of the U.S. Commissioner of Education*. Washington: G.P.O.

Table 1: Evening School Attendance of Working Youths (Ages 12-18) in New Jersey, 1903

	(1)	(2)	(3)
Father deceased	0.026 (0.052)	-0.016 (0.032)	-0.066 (0.020)**
Mother deceased	-0.213 (0.031)**	-0.190 (0.032)**	-0.264 (0.025)**
Service industry	-0.038 (0.042)	-0.014 (0.032)	-0.040 (0.034)
Retail industry	-0.121 (0.065)	-0.092 (0.051)	-0.102 (0.058)
Glass industry	0.578 (0.033)**	0.574 (0.023)**	0.563 (0.027)**
Tobacco industry	0.077 (0.186)	0.209 (0.167)	0.202 (0.169)
Textiles industry	0.088 (0.071)	0.105 (0.057)	0.098 (0.061)
Silk industry	0.341 (0.092)**	0.399 (0.125)**	0.402 (0.122)**
Flax industry	0.465 (0.066)**	0.484 (0.088)**	0.487 (0.084)**
Age began working	-0.062 (0.049)	-0.082 (0.056)	-0.070 (0.054)
Male	0.029 (0.048)	0.038 (0.059)	0.042 (0.064)
Foreign-born parent(s)	-0.050 (0.065)		
Austrian parent(s)		0.074 (0.093)	0.074 (0.086)
Dutch parent(s)		0.183 (0.050)**	0.172 (0.044)**
English parent(s)		0.039 (0.071)	0.036 (0.070)
German parent(s)		-0.047 (0.056)	-0.053 (0.048)
Hungarian parent(s)		-0.378 (0.036)**	-0.377 (0.039)**
Irish parent(s)		0.006 (0.060)	-0.000 (0.056)
Italian parent(s)		-0.351 (0.040)**	-0.364 (0.030)**
Parent(s) other ethnicity		-0.237 (0.151)	-0.263 (0.136)
Polish parent(s)		-0.243 (0.093)**	-0.247 (0.092)**
Scottish parent(s)		0.307 (0.061)**	0.308 (0.054)**
Wages necessary for own support?			0.110 (0.043)**
Prefers school to work?			0.444 (0.040)**
Observations	780	780	775

Notes: Coefficients shown are from probit model estimation and are reported as the change in probability of having attended a night school since beginning work given a one unit change of the independent variable. Specifications include city of residence fixed effects. Robust standard errors, clustered at the city level, are shown in parentheses; * significant at 5% level; ** significant at 1% level.

Source: "Survey of 943 Child Laborers in NJ, 1903" (Carter et al. 1993); NJ Annual Reports (1900; 1901).

Table 2: City-level Provision of Evening Schools, 1870-1910

	(1)	(2)	(3)	(4)	(5)	(6)	(7) IV
% Immigrants	0.005 (0.001)**	0.005 (0.001)*	0.005 (0.002)*	0.005 (0.002)*	0.004 (0.002)*	0.007 (0.004)	0.005 (0.002)*
Adult Lit Rate	0.011 (0.005)*	0.012 (0.006)*	0.009 (0.006)	0.008 (0.006)	0.009 (0.006)	0.026 (0.015)	0.007 (0.006)
% Professionals	-0.016 (0.012)	-0.021 (0.015)	-0.018 (0.016)	-0.017 (0.016)	-0.018 (0.016)	-0.070 (0.031)*	-0.022 (0.016)
Receipts per child	0.004 (0.002)	0.004 (0.002)	0.009 (0.004)*	0.008 (0.004)*	0.009 (0.004)*	0.012 (0.011)	0.007 (0.004)
Ln (population)	0.248 (0.044)**	0.314 (0.063)**	0.287 (0.064)**	0.290 (0.064)**	0.289 (0.064)**	0.265 (0.070)**	0.293 (0.063)**
% Youths Wkg			0.009 (0.004)**		0.010 (0.004)**	0.013 (0.006)*	-0.001 (0.011)
% Youths in Mnfg				0.008 (0.004)*			
% Youths in Ret				0.004 (0.009)			
% Youths in Dom				0.002 (0.006)			
% Elderly					-0.017 (0.021)		
Overcrowded=1						0.257 (0.105)*	
NewEng division	0.375 (0.054)**						
ENC division	-0.207 (0.036)**						
WNC division	-0.305 (0.121)*						
Mtn division	-0.183 (0.044)**						
Pac division	-0.044 (0.190)						
S.Atl division	-0.016 (0.111)						
ESC division	-0.109 (0.049)*						
WSC division	-0.176 (0.147)						
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State dummies	No	Yes	Yes	Yes	Yes	Yes	Yes
City dummies	No	No	No	No	No	No	No
Obs p(ns=1)	0.55	0.55	0.56	0.56	0.56	0.53	0.56
Observations	549	549	448	448	448	188	448

Notes: Coefficients shown are from probit model estimation and are reported as the change in probability of opening an evening school given a one unit change of the independent variable. Robust standard errors, clustered at the state level, are given in parentheses. * significant at 5% level; ** significant at 1% level. Sources: Evening school data, receipts for the school system, and information regarding sittings available for study/enrollment are taken from the Annual Reports of the U.S. Commissioner of Education. All other variables are constructed from decennial population census data available through the IPUMS.

Table 3: City-level Enrollment Rates for New York, New Jersey, and Massachusetts (1873-1892)

	All Public Schools			Public Day Schools		
	NY	NJ	MA	NY	NJ	MA
Night School==1	-0.241 (0.994)	2.390 (1.589)	4.587 (1.831)**	-3.328 (0.934)**	-3.132 (1.648)	-2.754 (1.932)
Receipts per student	1.096 (0.232)**	0.188 (0.102)	0.697 (0.246)**	1.063 (0.222)**	0.158 (0.095)	0.725 (0.241)**
Obs	367	158	373	367	158	373
R-squared	0.80	0.75	0.60	0.82	0.71	0.67

Notes: The night school indicator is equal to one if the city of residence operated evening schools that year. The sample includes 79 cities (30, 16, and 33 cities in NY, NJ, and MA, respectively) that reported school statistics in the Annual Reports of the Commissioner of Education for at least two years. The cities are observed an average of 13 times. No data are available for 1891. Ninety percent of the observations have a population of 10,000 or more and 46 percent of the observations report operating an evening school. The receipts available for use in the school systems are net of loans and cash on hand from the previous year. Since the age range of the school age population (the denominator of the dependent variable) differs in the three states the model is estimated separately for each state. The school age range is 4-21, 6-18, and 5-15 for NY, NJ, and MA. All regressions include city and year fixed effects. Robust standard errors are shown in parentheses; ** significant at 1% level.

Source: U.S. Annual Report of the Commissioner of Education

Table 4: School Enrollment of Youths, Ages 12-18 (1900-1910)

	All		Working		Immigrants	
	Girls	Boys	Girls	Boys	Girls	Boys
Night School=1	0.001 (0.023)	0.005 (0.021)	-0.031 (0.024)	-0.006 (0.012)	0.025 (0.038)	0.020 (0.040)
Black=1	-0.041 (0.023)	-0.104 (0.032)**	0.011 (0.014)	-0.017 (0.008)*		
HOH literate=1	0.146 (0.019)**	0.128 (0.016)**	0.005 (0.005)	0.002 (0.006)	0.152 (0.021)**	0.125 (0.019)**
Absent Parent=1	-0.167 (0.009)**	-0.147 (0.008)**	-0.010 (0.003)**	-0.012 (0.003)**	-0.124 (0.012)**	-0.133 (0.010)**
Days taught (50s)	-0.057 (0.077)	0.081 (0.087)	-0.042 (0.056)	-0.041 (0.054)	-0.007 (0.116)	0.159 (0.133)
HOH immigrant=1	-0.129 (0.009)**	-0.096 (0.010)**	-0.008 (0.005)	-0.005 (0.003)		
N(siblings)	-0.010 (0.002)**	-0.013 (0.003)**	-0.001 (0.001)	-0.002 (0.001)	-0.004 (0.002)	-0.006 (0.004)
Observations	30013	28452	9041	12530	14768	14514

Notes: Coefficients shown are from probit model estimation and are reported as the change in probability of having attended school in the previous year given a one unit change of the independent variable. Age dummies are included, and the specifications also include city and year fixed effects. Robust standard errors, clustered at the city level, are shown in parentheses; * significant at 5% level; ** significant at 1% level. The night school indicator is equal to one if the city of residence operated evening schools that year. School attendance measures whether the respondent attended “any type of school (not further defined)” in 1900 or “any school, college, or educational institution” in 1910. The attendance reference period is one year or previous 7.5 months in 1900 or 1910, respectively. Since the question regarding school enrollment excludes night school attendance in the 1870 and 1880 instructions, I examine only the later years. The household head is considered literate if he/she can read and write, and immigrant status is based on his/her place of birth. School Term is the number of days taught (divided by 50). Source: Decennial population census data for 1900 and 1910 available through the Integrated Public Use Microdata Series (Ruggles et al. 2004); Night School information and the length of school year are from U.S. Annual Reports of the Commissioner of Education.

Table 5: Literacy of Youths (Ages 12-18): 1870-1910

A. Probit Models of Literacy, Whole Sample

	All		Not Working		Working	
	Girls	Boys	Girls	Boys	Girls	Boys
Night School=1	0.009 (0.004)**	0.005 (0.003)*	0.004 (0.003)	0.001 (0.003)	0.033 (0.014)*	0.014 (0.005)**
Black=1	-0.039 (0.009)**	-0.033 (0.009)**	-0.029 (0.008)**	-0.027 (0.008)**	-0.060 (0.020)**	-0.051 (0.018)**
HOH Literate=1	0.077 (0.006)**	0.080 (0.007)**	0.072 (0.008)**	0.056 (0.008)**	0.107 (0.010)**	0.115 (0.010)**
Absent Parent=1	-0.014 (0.001)**	-0.009 (0.001)**	-0.007 (0.001)**	-0.004 (0.001)**	-0.027 (0.004)**	-0.015 (0.002)**
School Term	0.008 (0.005)	0.001 (0.004)	-0.000 (0.005)	0.002 (0.004)	0.042 (0.016)**	0.004 (0.008)
HOH Immig=1	-0.012 (0.002)**	-0.008 (0.001)**	-0.008 (0.001)**	-0.007 (0.002)**	-0.021 (0.004)**	-0.011 (0.002)**
Observations	34297	32113	21817	15202	9959	13983

B. Probit Models of Literacy, Immigrants

	All		Not Working		Working	
	Girls	Boys	Girls	Boys	Girls	Boys
Night School=1	0.017 (0.007)*	0.003 (0.004)	0.008 (0.006)	-0.003 (0.004)	0.054 (0.023)*	0.014 (0.010)
HOH Literate=1	0.103 (0.007)**	0.095 (0.008)**	0.097 (0.008)**	0.069 (0.010)**	0.128 (0.011)**	0.128 (0.011)**
Absent Parent=1	-0.023 (0.003)**	-0.018 (0.002)**	-0.010 (0.003)**	-0.008 (0.004)*	-0.040 (0.006)**	-0.026 (0.003)**
School Term	0.013 (0.010)	-0.006 (0.008)	0.002 (0.010)	-0.005 (0.010)	0.057 (0.021)**	-0.004 (0.018)
Observations	17389	17024	10422	7384	5948	7988

C. Probit Models of Literacy, by Time Period (Reporting Coefficients on the Evening School Indicator)

	Working		Immigrants	
	Girls	Boys	Girls	Boys
1870 and 1880	0.080 (0.051)	0.037 (0.018)*	0.029 (0.017)	0.042 (0.021)*
1900 and 1910	0.025 (0.019)	0.005 (0.007)	0.043 (0.030)	-0.001 (0.004)

Notes: Coefficients shown are from probit model estimation and are reported as the change in probability of having attended school in the previous year given a one unit change of the independent variable. Regressions include city and year fixed effects. The night school indicator is equal to one if the city of residence operated evening schools that year. The household head is considered literate if he/she can read and write, and immigrant status is based on his/her place of birth. School Term is number of days taught, divided by 50. Robust standard errors, clustered at the city level, are shown in parentheses; * significant at 5% level; ** significant at 1% level. Source: IPUMS and Annual Reports of the Commissioner of Education.

Appendix A: Description of New Jersey Child Workers Surveyed

	Mean/Proportion	Range
Age	15.5	12 - 19
Male==1	.52	-
Either Parent Foreign-Born==1	.50	-
Irish Parent(s)==1	.16	-
German Parent(s)==1	.12	-
Hungarian Parent(s)==1	.03	-
Italian Parent(s)==1	.07	-
English Parent(s)==1	.06	-
Polish Parent(s)==1	.06	-
Dutch Parent(s)==1	.03	-
Scottish Parent(s)==1	.01	-
Parent(s) of other ethnicity==1	.02	-
Father Deceased==1	.22	-
Mother Deceased==1	.06	-
Apprentice==1	.03	-
Usual Hours of Work per Day	9.76	6.5 – 13.7
Age Beginning Work	13	8 - 16
Weekly Earnings	\$4.62	\$1.50 - \$17.50
Percent Earnings Given to Parent	95.70	0 – 100
Earnings Necessary for Own Support==1	.48	-
Evening or Night Work==1	.03	-
Glasswork Industry==1	.19	-
Textile Industry==1	.13	-
Silk Industry==1	.11	-
Flax Industry==1	.08	-
Service Industry==1	.08	-
Tobacco Industry==1	.06	-
Retail Industry==1	.05	-
Pencil Industry==1	.04	-
Would Prefer School to Work==1	.06	-
Years of Schooling	5.62	0.25 - 8.00
Ever Attended Night School==1	.38	-
Months Attended Night School	2.51	0 - 21
Able to Read==1	.95	-
Able to Write==1	.85	-
Able to Do Math==1	.79	-
Literate and Numerate==1	.76	-

Notes: Domestic occupations include domestic service, laundry service, and other personal services. Professional occupations include all professional occupations (such as accountants, doctors, lawyers, clergymen, etc.) except teachers. Individuals were coded as literate if they could both read and write. The percent of children working is understated since this only captures children who described an occupation other than school/ helping at home/etc. as their principal activity (i.e., where they earned the majority of their money or spent the majority of their time) and thus misses students with part-time jobs or unpaid labor.

Source: Evening school data and information on sittings/enrollment are taken from the Annual Reports of the U.S. Commissioner of Education. All of the other variables are constructed from decennial population census data, (see Ruggles et al. 2004).

Appendix B: Summary Statistics for City-level Variables

	<u>1870</u>	<u>1880</u>	<u>1900</u>	<u>1910</u>
Evening School=1	0.48 (0.50)	0.52 (0.50)	0.45 (0.50)	0.77 (0.42)
Percent of adults working in mnfg	17.84 (11.10)	17.13 (9.08)	16.45 (9.14)	23.01 (11.70)
Percent of adults with professional occupations	1.83 (1.48)	2.22 (1.60)	2.61 (1.56)	2.90 (2.12)
Percent of adults (ages 18-45) who are foreign-born	40.66 (16.47)	33.31 (14.40)	25.12 (16.37)	26.81 (17.10)
Adult literacy rate	89.02 (9.86)	91.66 (8.64)	94.62 (5.45)	94.92 (4.20)
City Size	75,133 (182,986)	109,618 (255,600)	109,248 (310,563)	180,271 (469,481)
Percent of population that is 65 and over	2.41 (1.33)	2.90 (1.16)	3.66 (1.43)	3.87 (1.72)
Percent of children (ages 10-17) working	21.87 (11.71)	25.40 (9.13)	21.92 (7.69)	22.92 (8.82)
Percent of children (ages 10-17) working in mnfg	9.83 (12.46)	10.27 (9.83)	9.14 (7.94)	12.20 (9.19)
Percent of children (ages 10-17) working in retail	2.76 (3.02)	3.52 (3.01)	3.32 (2.60)	4.56 (3.76)
Percent of children (ages 10-17) working in domestics	6.21 (5.64)	6.16 (4.11)	3.56 (2.83)	2.30 (2.79)
Enrollment as a percentage of Available Sitings	- -	112.44 (17.33)	104.78 (13.64)	- -
Observations	81	69	174	135

Notes: Standard deviations are in parentheses. Domestic occupations include domestic service, laundry service, and other personal services. Professional occupations include all professional occupations (such as accountants, doctors, lawyers, clergymen, etc.) except teachers. Individuals were coded as literate if they could both read and write. The percent of children working is understated since this only captures children who described an occupation other than school/helping at home/etc. as their principal activity (i.e., where they earned the majority of their money or spent the majority of their time) and thus misses students with part-time jobs or unpaid labor. Source: Evening school data and information on sittings/enrollment are taken from the Annual Reports of the U.S. Commissioner of Education. All of the other variables are constructed from decennial population census data, (see Ruggles et al. 2004).

Appendix C: Evening School Provision, by Census Year

City	1870	1880	1900	1910	City	1870	1880	1900	1910
Akron			X	X	Hoboken	X	...	X	X
Albany			X	X	Holyoke	...	X	X	X
Allegheny	X	...	X		Houston	...			X
Allentown			X	X	Indianapolis	X	...	X	X
Altoona				X	Jackson		...		
Atlanta	...		X	X	Jacksonville	...			...
Atlantic City		...		X	Jersey City	X	X	X	X
Auburn	X	X		X	Johnstown	...	...
Augusta	...				Joliet				X
Baltimore	X	...	X	X	Joplin	...	...
Bay City	X			X	Kansas City				X
Bayonne	...	...	X	X	Knoxville	...			
Binghamton				X	La Crosse	...			
Boston	X	X	X	X	LaFayette		...		
Bridgeport	...		X	X	Lancaster	X	...	X	X
Brockton	...		X	X	Lawrence, KS	...	X		
Buffalo	X	...	X	X	Lawrence, MA	X	...	X	X
Burlington	X	...	X		Lexington	...			
Cambridge	X	...	X	X	Lincoln	...	...	X	...
Camden				X	Little Rock	X		X	
Canton		X			Los Angeles	...			X
Charleston, MA	X	...	...	...	Louisville			X	X
Charleston, SC					Lowell	X	X	X	X
Chattanooga	...				Lynn	X	X	X	X
Chelsea		...	X	X	Madison	X		...	...
Chester	X	...		...	Malden	...	X	X	X
Chicago	X	X	X	X	Manchester	X	X	X	X
Cincinnati	X	X	X	X	McKeesport	...	...	X	
Cleveland		X	X	X	Memphis			X	X
Columbus	X	...	X	X	Meriden	...		X	X
Council Bluffs	...			...	Milwaukee	...			X
Covington		X		X	Minneapolis				X
Dallas	...	...		X	Mobile				...
Davenport	X	X			Montgomery	...	...		X
Dayton		X	X	X	Nashua	X	X		
Denver	...		X	X	Nashville			X	X
Des Moines				X	New Bedford	X	...	X	X
Detroit			X	X	New Britain	...		X	X
Dubuque					New Haven	X	X	X	X
Duluth	...	...			New Orleans				X
Easton	...	...			New York	X	X	X	X
Elizabeth	...			X	Newark	X	...	X	X
Elmira		X		X	Newburgh	X	X		
Erie	X	...	X	X	Newburyport	X	...	X	X
Evansville		...			Newcastle	...			X
Fall River	X	...	X	X	Newport, KY			X	
Fitchburg	...	X	X	X	Newport, RI	X	X	X	X
Fort Wayne				X	Newton	...		X	X
Fort Worth	...	...			Norfolk				...
Galveston	...	...			Norwich	X	X		
Gloucester	...			X	Oakland		X	X	X
Grand Rapids		X		X	Omaha	...		X	X
Hannibal	X				Omaha			X	X
Harrisburg	X	...		X	Oshkosh			X	X
Hartford	X		X	X	Oswego	X	X		X
Haverhill		X	...	X	Passaic	...	...	X	X
					Paterson	X	X	X	X

Appendix C (cont'd)

	1870	1880	1900	1910
Pawtucket	...	...	X	X
Peoria		X	X	X
Philadelphia		X	X	X
Pittsburg	X	X		X
Portland, ME		X	...	X
Portland, OR			X	X
Providence	X	...	X	X
Quincy			X	
Racine	...			X
Reading			X	X
Richmond				X
Rochester			X	X
Rockford			X	X
Sacramento		X	X	X
Saginaw	...			X
Salem	X	X	X	X
Salt Lake City	...	...
San Antonio	...			X
San Francisco	X	X	X	X
Savannah		...		X
Schenectady				X
Scranton	...	X	...	X
Seattle	...	...		X
Somerville	...		X	X
South Bend	X		...	X
South Omaha	...	...	X	...
Spokane	...	...		X
Springfield, IL		...		X
Springfield, MA	X	X	X	X
Springfield, OH				
St. Joseph			X	
St. Louis	X	X	X	X
St. Paul				
Superior	...	...		X
Syracuse		X	X	X
Tacoma	...	...
Taunton	X	X	X	X
Terre Haute				
Toledo	X	...	X	X
Topeka	...			
Trenton	X	X		X
Troy				X
Utica	X	X	X	X
Washington		...		X
Waterbury	...	...	X	X
Wheeling		...		
Wilkesbarre	...	...	X	X
Williamsport				X
Wilmington	X	X		X
Woonsocket	...		X	X
Worcester	X	X	X	X
Yonkers	...	...	X	X
York				
Youngstown	...	...

Notes: Xs indicate the city maintained evening schools during the year, Blanks indicate the city did not have evening schools; Ellipses indicate missing observations. Source: Annual Reports of the U.S. Commissioner of Education