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“Will I see you in September?” An economic explanation for the standard school calendar

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Abstract

The September-to-June school year is not the product of a path-dependent, agrarian tradition. Nineteenth-century American farm children regularly attended school in summer. The standard calendar became a norm as urbanization of the population allowed for age-graded schooling, which works best when calendars are coordinated across districts. A summer vacation between school years provides households with a cost-minimizing season in which to relocate to distant districts. The equator provides a natural experiment supporting this explanation. Americans and Europeans on temporary assignment in the Southern Hemisphere use schools that maintain a Northern Hemisphere calendar to facilitate relocation to their home countries.

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1. It isn't about children working on the farm

Economists are apt to look at the summer vacation of their local public schools and see a seriously underutilized stock of public capital. Instead of building new schools in grow-

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ing districts, why not utilize the ones we have more efficiently by adopting year-round education? School years could remain 180 to 190 days—the merits of a longer academic year are not discussed in this article—but starting and ending dates for various groups would be staggered so that classrooms would not be empty for a long periods. Capital facilities could be reduced by about twenty-five percent, neglecting increased depreciation.¹

Year-round schooling is an idea that has been around a long time, but it has never gotten very far.² I have casually asked colleagues why American schools end in June and begin a new school year around September 1. The answer invariably is the farming tradition. Children in a rural society had to work on the farm in the summer, and American schools have simply kept doing it.

Tradition! Otherwise hard-headed economists all sound like Tevye on the subject of summer vacation. Even on its own terms, the agrarian-tradition explanation does not work. The nineteenth-century farm work for which extra hands were especially helpful was planting and harvesting. In most temperate regions of the United States, these occur in the spring and the autumn, when the now-standard school year is in session.

Rural American school districts once responded to the seasonal rhythms of agriculture. They held school in winter and summer. Andrew Gulliford [13, p. 47] describes the rural school year succinctly:

In the mid-19th century, the school year was divided into two terms. The typical summer term extended over five months, from May to August or September. The winter term varied from state to state, depending on local planting and harvesting times; it generally began after harvest in November and continued until just before spring plowing, usually around early April. After 1900 the school year was standardized into one nine-month term, beginning in September and ending in May.

In his history dissertation, Kenneth Gold [10] documented the widespread use of summer and winter terms in all rural areas of the New England states and New York, Michigan, and Virginia. He found that the summer term was as well attended as the winter term as recently as 1875. The length of the terms themselves varied among districts according to

¹ An alternative rationale for year-round schooling is that having more numerous but shorter vacations would improve students' retention of lessons over the long summer, but children seem to forget about as much over four, equally spaced vacations—the typical alternative—as over one summer (McMillen [25]).

² About three percent of US public school students attend a “year-round” school, according to the National Association for Year-Round Education, <http://www.nayre.org/related.html>, June 10, 2003. My examination of the calendars of about a quarter of the schools listed revealed that most “year-round” calendars simply have shorter-than-average summer vacations and longer breaks at other times of the year. True year-round schools, which have staggered calendars for two or more tracks and thus use the school plant more intensively, are a minority of those listed. They are situated disproportionately the Southwest and especially California, where rapid growth and fiscal constraints give some districts a stronger incentive to conserve on capital facilities.

local circumstances.³ A rural school that had “summer vacation” was usually one whose district lacked funds to staff a summer term.

The aforementioned sources mention that the summer term was attended disproportionately by younger children and older girls, in part because winter weather made walking to school difficult for them. Their older brothers would often work on the farm through the summer and attend school only in the winter. Thus summer *was* a time for agricultural work for some children. But today’s September-to-June school year cannot have emerged from this tradition, since the opportunity cost of school attendance by most youth was highest in autumn and spring.

The hypothesis advanced in this article is that the now-standard calendar was adopted and persists as a world-wide norm because it serves as a coordinating device, not because of path-dependent traditions.⁴ The critical elements of the “standard calendar”—sometimes referred to here as “summer-and-September”⁵—are beginning the academic year near the end of summer, completing the school year near the beginning of the next summer, and having a summer vacation that is longer than any other. The varying patterns of other vacation periods (e.g., ski weeks in New England) and the structuring of instructional terms (trimesters, quarters, and semesters) are not examined here.

The historical sources mentioned above make it clear that the supposed path-dependence of the summer-and-September calendar could not have originated from an agrarian tradition of the nineteenth century. This weakens but does not dispose of the path-dependence argument. It could still be argued that the standard calendar evolved for reasons that no longer apply. The tradition persists, goes this argument, not because summer-and-September is more efficient than alternatives such as year-round schools, but because there is no central authority that can direct the many independent districts to change to a more sensible calendar.

My method of refuting the path-dependence account is to show that the standard calendar serves the previously unsuspected function of creating network economies for mobile families with school children and for teachers and related professionals.⁶ I will use additional historical evidence and a truly natural experiment—the reversal of seasons between the Northern and Southern Hemispheres—in support of the coordination hypothesis. Thus

³ See also Perlmann and Margo [28], Kaestle [19, p. 15] and Tyack [36, p. 6], all of which establish that distinct summer and winter sessions were the norm in rural areas. Schools in most cities in the late nineteenth century were also open in the summer. Many cities held school almost continuously, with only a few weeks of summer recess (Gold [10]).

⁴ The standard example of path-dependence is the QWERTY keyboard, said to persist only because it was widely adopted before better layouts were invented. It is not, however, evident that QWERTY is inferior, and the story of the Dvorak keyboard being greatly superior appears to be a fable (Liebowitz and Margolis [23]).

⁵ I realize that most American schools now begin in late August, but the 1966 song title still evokes the beginning of the school year and the end of a long summer vacation. The recent creeping of the starting date to early August is probably caused by districts seeking to have extra weeks of instruction for high-stakes tests in the following spring, and several states have adopted laws prohibiting these early starts (Kilborn [20]).

⁶ Huppert [17, pp. 50–54] is the only other source that suggests that school calendars function as a coordinating device. Schools in Paris had from 1558 begun on October 8, St. Remy’s day, and this uniform beginning facilitated, as Huppert specifically notes, mobility for both teachers and students within Paris and among other French schools.

even if there were an authority that could establish a world-wide school calendar, it would not differ much from the now-standard calendar.

I hasten to add that this account does not seek to explain why summer is a good time for a school vacation. That is self-evident. Even schools in Japan, which is the only high-income country that does not start the school year at the end of the summer (as described in Section 5) and which has the world's longest school year, nonetheless allows students a six-week summer vacation. What I seek to explain is why the United States and most other countries converged on the now-standard school calendar, and why this reason still makes sense today.

2. Age-graded schooling required coordinated calendars

Until about 1880, most Americans lived on farms. Farmers' incomes were modest, and most children worked at least part time in farm operations. Roads were poor and population density was low, which meant that nearly all children walked to school and that each school's enrollment would be modest. Most schools consisted of a single-room building and had one teacher for about thirty children (the size could vary from ten to fifty) whose ages ranged from 5 to 18.

Most rural townships had at least a dozen self-governing school districts, which usually had but one school, and most districts corresponded to a walkable neighborhood.⁷ The locally-elected school board made almost all of the fiscal decisions and determined when terms would be held. Male teachers were usually hired for the winter term, since older boys more often went to school then (though older girls could attend) and a somewhat more advanced level of instruction was expected. Female teachers were usually hired for the summer term, which younger children could attend.

The technology of rural education was geared to these conditions. The solitary teacher, who was usually a young adult en route to some other occupation, did not divide students into age-specific grades, since there were too few children to make this a useful division. Instead, the teacher would find out how much each student knew about particular subjects and then arrange recitation groups, in which they would be taught additional material, regardless of their age. A few children of various ages might be taught grammar together—usually by having them memorize rules and then recite aloud—while another group might be much advanced or much behind and would later in the day get a different lesson.

This skill-specific method of teaching had the advantage of adjusting easily to irregular attendance. A twelve-year-old who missed a few weeks or changed districts during the term was not in danger of having to repeat a grade, since there were none to repeat. Upon his return to school, his “studies were determined by the books he brought. His first lesson was apt to follow the last one that his former teacher had given him” (Shearer [33, p. 11]). This flexibility was important because family mobility and child labor made rural attendance spotty until compulsory attendance laws were passed later in the nineteenth century,

⁷ Sources describing nineteenth-century districts, schools, and pedagogy are Fuller [8, Chapter 3] and Reynolds [31, Chapter 2].

and even then it was irregular by today's standards.⁸ In this setting, the concepts of a school year and graduation were not especially meaningful (Kaestle [19, p. 132]). Students in ungraded schools just attended until they learned whatever the teacher could offer, assuming the value of the time spent in school exceeded that spent working on the farm or elsewhere.

The ungraded method of teaching could be effective when the teacher was working with a particular recitation group, but in the one-room school it also meant that most of the time the teacher paid no attention to other students, who had to be assigned a self-paced task or merely be kept quiet. The necessary inactivity of a large fraction of a diverse classroom of students helps explain the legendary discipline problems faced by rural, one-room school teachers. Assessments of the one-room school's pedagogy are often highly critical, but given the low population density, poor transportation, and modest wealth of the rural population in nineteenth-century America, the ungraded curriculum of the district school looks like the best that could be done under the circumstances, and it did produce a literate citizenry (Kaestle [19, pp. 13–29]; Reese [29, pp. 25–28]).

Beginning around 1840, urban schools gradually switched from single-room instruction of all ages to a graded system, in which age groups were separated in different rooms and given age-appropriate lessons (Cubberley [3, pp. 226–234]; Tyack [37, pp. 44–46]). This innovation was widespread by 1860 in the larger, northern cities, where a sufficiently large population was within walking distance of a single school. A high student-population density was a necessary condition to achieve the division of students and teachers into age-specific grades.

Age-grading permitted educators to develop a systematic curriculum with standard textbooks appropriate to the capacities of each age group. This was cost effective because the same lessons could be taught to many students simultaneously. Teachers could also specialize by age group and subject matter. Discipline in multi-grade schools was more manageable because students had less idle time and because one male teacher in a multi-room building could handle unruly boys in female-teachers' classes. This facilitated the hiring of women to teach advanced subjects to older children, which also reduced the cost to taxpayers (Perlmann and Margo [28, pp. 94–101]).

Sorting by age established the idea of a progression from primary school to grammar school and then, for a few, on to high school (Reisner [30, pp. 423–424]). This new sense of progression required regular attendance by all students, because long or frequent absences would require costly remedial attention to keep former truants abreast of their age group. Thus compulsory attendance laws and a standard school year were complementary with the concept of age-graded schooling.

The gradual transition from rural, one-room schools and their winter and summer terms to the age-graded schools began around 1880. Township-wide school consolidation had been urged long before that, but transportation was too costly to allow it until roads were improved. Tracts promoting consolidation of rural school districts in the early part of the twentieth century emphasized that improved roads were necessary to allow "school wagons" (horse-drawn school buses) to bring children from remote farms to consolidated

⁸ Family mobility was at least as great in the nineteenth century as it was in the twentieth (Fischer [7]). Betts [1, p. 41] reported that average daily attendance in rural schools was only about 60 percent of those enrolled.

and age-graded village schools (Carney [2, Chapters 6 and 8]). Historians concur that improved rural roads formed an “inseparable connection” with the turn-of-the-century school consolidation movement (Ellsworth [4, p. 122]).

Increasing urbanization of the population and consolidation of the remaining rural schools allowed country teachers to abandon the ungraded teaching methods. By the second decade of the twentieth century, age-graded schooling became the norm.⁹ Improved roads allowed school wagons and, by 1920, motorized vehicles to collect students from a sufficiently wide area to create a larger school. Age-grading in rural schools became locally desirable (and hence actually done) in order to assure that graduates could continue in high schools, which by 1910 had begun their spectacular attendance growth (Goldin [11]). Even the remaining one-room schools began to use an age-graded curriculum after the turn of the century, though that hardly mitigated the burden of a teacher who had as many as eight grades in a single room (Fuller [8, p. 55]).

In order for age-graded instruction to work over a period of years, school calendars had to be regularized. It would not do for third grade to start in June and end in February if fourth grade started in December and ended in August. Increasing attendance at high schools also required that elementary schools adopt a school year that was synchronized with high schools and thus with each other. The efficiencies of age-graded schooling required that children in all grades start and finish at the same time of year.¹⁰

3. Interurban job mobility and network effects

Age-graded schools and increased attendance at high schools clearly warranted a common beginning date for all grades in the same school district. But why should that same time of year be early September, and why should it be preceded by the longest vacation of the school year? I propose that mobility of urban workers, who were becoming the dominant political group early in the twentieth century, made summer vacation with a September beginning the inevitable choice all over the nation.

Economic historians have found that interurban wage differentials among workers were persistent up to about 1880 (Rosenbloom [32]). By the end of the nineteenth century, however, wages for labor with similar skills were fairly similar in most regions, which implies considerable mobility by workers among cities. Furthermore, between 1880 and 1920, the fraction of the labor force employed in agriculture fell from fifty percent to twenty-seven percent (US Bureau of the Census [38, p. 138]). During the period that the September-to-June school year was gradually becoming the norm (1880–1920), urban workers were becoming a majority of the population, and they were able to move to new opportunities

⁹ Perlmann and Margo [28, p. 97] report that in Michigan, 81 percent of all teachers were in ungraded (one-room) schools in 1880, but this fraction shrank to 47 percent in 1910, mostly through the growth of graded schools.

¹⁰ Colleges and universities typically had summer vacations and autumn beginnings in the latter half of the nineteenth century (Gold [10, p. 42]), and it is possible that their school year filtered downward to high schools and thence to elementary schools. But this influence seems slight. The transition from summer and winter schools to a autumn through spring schedule began well before college attendance became widespread.

anywhere in the country. Being able to enroll their children in schools would have been an important consideration in such moves.

In age-graded schools, children learn best if they all begin at the same time. When new students and their families were coming from outside, urban school districts needed to allow sufficient time for newcomers to arrive and get settled. Even if local school authorities had no special regard for newcomers' welfare, they would want to get as many students enrolled at the beginning of the term as possible. This is because integrating several new students into the age-graded curriculum in, say, November detracts from the time teachers can spend with students who had been there since September (Hanushek et al. [15, p. 21]). So both parties (new and existing families) have an incentive to want to begin with everyone in the class at the same time. A long vacation between the end of the school year and the beginning of the next serves as a catchment for new students. By the beginning of the twentieth century, interurban job changers must have found that it paid to leave in summer so that they could move to another area and start their children in an age-graded school in September. Summer remains the prime season for households to move, especially if they have children.¹¹

This coincidence of interests—that of the schools for uniform grade beginnings and of families for their children to start in new schools at the beginning of the school year—is an example of a network benefit. The typical example of such a benefit is having a large number of telecommunication subscribers who use compatible technologies (Liebowitz and Margolis [24]). In the present instance, the benefit is a scale economy in teaching—age-graded classes that progress annually—that is best realized by having all students begin at the same time. The network works best in a mobile society if a common date is chosen to begin schools at all locations. In this respect, the simultaneous start of the school year is no different from the simultaneous start of the work day. Everyday economic activity involves communicating with others and coordinating activities with them, which is why we put up with rush hour commuting.

A related network effect augmented the graded-school benefit of summer-and-September. A teacher's effectiveness in an age-graded school is much greater if he or she begins at the same time of year as the students. Hence the teacher job market is almost invariably set to clear so that all new hires can start in September. The rise of a professional teacher corps produced by normal schools corresponded to the growth of age-graded schooling (Herbst [16]).

Other institutions benefit in a similar way from simultaneous beginnings of employment years. Hospitals, for example, find it worthwhile to devote a week or two in July to orienting new doctors rather than continually training newcomers throughout the year. In other words, it could be that some of the network economies of age-graded schooling also apply to on-the-job training. The unwritten rule that fiscal years and employment contracts begin on July 1 may be a manifestation of the latter network benefit. (Japan's school year, dis-

¹¹ The incidence of all moves is twice as high during the summer months, and households with children move disproportionately in the summer months (Goodman [12], Hansen [14]). Although families with children move less often than others, the majority of children change school districts at least once during their childhood, and many children change four or five times (Skandera and Sousa [34]).

cussed in Section 5, begins in April, and so does the fiscal year for most of its corporations and government agencies.)

But why should the starting date be September and not January or (as in Japan) April? It actually does not matter much which range of dates is chosen for the break between school-years. Summer has two advantages, though. One appeals to the vast majority of households who are not moving in any given year. Summer is a better time for most families to take an extended vacation. After 1880, the workforce shifted away from agriculture and family income rose, both of which made summer vacations appealing. The summer-long vacation for children allowed the parents of urban workers the option of using their more limited vacation time at various times in the summer.

The second advantage of summer appeals to people who are moving. Transportation of people and household goods is least likely to be disrupted by inclement weather in June, July, and August. Snowdrifts and windstorms and washouts were common problems for both rail and over-the-road carriers in the early twentieth century. The elements are less of a problem for twenty-first century movers, but they are still a consideration. It is likely, however, that as the importance of moving hazards declined over the twentieth century, the importance of summer vacations to families increased as workers got more vacation time.

Summer vacation following the end of a school year in June thus appealed to both movers and stayers. This joint advantage was enough to shape an otherwise arbitrary choice of which season to take the long break between academic years. In this respect the school calendar is like other agglomeration economies. The clustering of American automobile manufacturers around a single city offered substantial economic advantages to each firm and the entire industry, but that city could almost as easily have been Milwaukee or Cleveland instead of Detroit. Urban agglomeration theory is full of examples in which a small local advantage becomes the foundation for much larger economic gains.

4. Property markets promote calendar coordination

Interurban migration and age-graded schooling make it *rational* for school districts throughout the nation to adopt a September starting date and give new teachers, students and their families sufficient time to arrive. But as far as I can tell, no American politician or school official noticed this fact and urged a uniform law to enforce it. By all accounts, it just happened.¹² I propose that a decentralized mechanism, the property market, provided the necessary information and incentive to adopt what has become a national norm.

American household mobility has always been high, with about one in five changing residence every year (Fischer [7]). Numerous studies show that housing prices are influenced by families with children, who pay a premium for homes in better school districts. This fact does not go unnoticed by local school officials, who are in most communities

¹² Weiss and Brown [39] describe how the administrators of Ontario's more centralized school system commanded that summer vacation become the province's norm, starting in 1877. As in the United States, rural Ontario schools had winter and summer terms, while Toronto had almost year-round schooling. Rural interests, however, resisted the central directive to have a minimum-length summer vacation, and a standard school year was not achieved until 1913, no earlier than it was in the United States.

sensitive to demands of existing homeowners. In order to maintain or improve the value of their largest financial asset, homeowners, even those without children, insist that local school boards keep their school systems attractive to potential homebuyers. Most of the scholarship concerning this link has focused on school spending, taxes, and test scores (Fischel [6]), but it is reasonable to suppose that features like the friendliness of the school calendar enter into it.

School districts that deviated substantially from the summer-and-September norm would have found themselves at a disadvantage. It would be more difficult to hire teachers, since an opening in a district that began its school year in April might appear while the best candidate's current school was still in session. Interscholastic activities such as athletics, debate teams, and professional conferences would be more complicated to arrange. A nonstandard school calendar not only makes it harder for a family to move into the district, it also makes it more complicated to leave it for a destination with a standard school year. Both prospects would be unattractive to potential homebuyers. By trial and error, districts would learn that substantial deviations from the September-to-June norm were costly, and political feedback from employers and property owners would induce local officials to conform to the national standard.¹³

An historical example of this trial and error process was the development of public high schools in New Hampshire, which first began around 1870. These independent districts did not immediately converge on the September-to-June calendar, and no statewide authority told them when to begin. In 1890, nine of the state's 47 public high schools started their 36-week school years in April or March, and Manchester, the state's largest, started its school year in January (New Hampshire [26, pp. 230–231]). However, no diversity in starting dates was reported after 1900. By 1920, even the remaining one-room primary schools kept a September-to-June calendar. I found no documentary evidence that convergence on the standard calendar was driven by property values, but there was clear evidence that voters connected schools with home values. One of the most frequent complaints about rural school consolidation in 1900 was that the loss of a neighborhood school would erode nearby property values (New Hampshire [27, p. 272]).

School calendars in every state were established by local officials, who were elected by voters already in residence in the district. The parents of prospective students outside the district had no voice, prior to their arrival, in local debates about school calendars. But they did have the option of selecting school districts when they were planning to move. By voting with their feet not to buy or rent homes in nonstandard districts, nonresidents may have enforced the summer-and-September norm as effectively as any established resident.

¹³ One anti-year-round web site displayed letters from a Texas realtor claiming that a particular district with a year-round calendar was less attractive to homebuyers, <http://www.geocities.com/weswalker99/lockwood1.htm>, March 7, 2005. The problem with an empirical inquiry along this line is that nonstandard school years do not last long. Glines [9] describes pre-World War II experiments in year-round schools, all of which quickly reverted to the standard calendar once enrollment pressure ceased or new buildings could be built.

5. International calendars (except Japan's) also coordinate mobility

So far I have shown that American history contradicts the idea that the present school calendar is the product of agrarian path-dependence. I have also argued that the logic of age-grading supports the coordination hypothesis, and that local decisions guided by the property market could converge on a standard calendar. Further evidence can be gleaned from the calendars of schools in other countries.

While there is considerable variety in the length of the school year around the world, a summer vacation whose length exceeds that of any other break followed by the beginning of the school year in August or September (or, in the Southern Hemisphere, around February) is the norm for high-income countries and at least the urbanized parts of most others. The deviations from the standard calendar by Japan, trans-equatorial international schools, and Southern Hemisphere islands reveal a pattern that is supportive of the worker-and-family mobility function of summer vacation.

European nations have greater variety in their school calendars than the North American nations, but almost all start a new school year within three weeks of September 1, and most complete the school year in June or early July.¹⁴ This promotes mobility for teachers and students and their families within and among the nations of Europe. They can leave old jobs or schools as late as the end of July and start school in another location if they arrive by mid-August.¹⁵

Japan, however, would give international job-changers with children a major problem. It starts school in April, takes a six-week vacation in July and August, and finishes in March. If you arrive in August or September, the school year is one-third over. The calendar appears to have little local variation which, along with the centrally determined curriculum, would make it easy for Japanese families to change schools within their country.¹⁶

It is not clear why Japanese schools and universities begin in April. A Japan scholar of my acquaintance thought it was borrowed from European practice when national education was established in the late nineteenth century. More interesting is that one official source admits that it is a barrier to international mobility:

¹⁴ Eurydice [5]. The length of summer vacation ranges from 6 weeks in Germany, Britain, and Liechtenstein to 12 or 13 weeks in Italy, Portugal, and the three Baltic nations. In all countries, though, summer is the single longest school vacation of the year. Summer vacation in Europe also appears to be a twentieth century invention. Rural Germans started the school year in spring and went though the summer for most of the eighteenth and nineteenth centuries (Lamberti [22, pp. 23–25]).

¹⁵ The influence of increased international mobility also affects another choice of standards: which side of the road to drive on. Numerous left-driving nations switched to the right to conform with their region's norm between 1920 and 1970 (Kincaid [21, pp. 196–197]). Examples are Argentina, China, Nigeria, and Sweden. No nation switched from right to left, and most remaining left-drivers are on islands (e.g., Britain, Japan, and Australia) or continental areas such as the Indian subcontinent, where international automobile traffic remains geographically isolated from right-drive nations.

¹⁶ Professor Kitahara tells me that mobility of teachers among prefectures and of school-age children within Japan is very low. Business executives who are assigned to a company's branch in a different city would usually leave their families with school age children behind and expect to return to their original homes within a year or two.

There are some, though, who want to change the school year so that it starts in September. They say that this will make it easier for students in other countries to come and study here and for Japanese students to attend schools abroad. But because spring is so closely associated with new beginnings, the school year will probably continue to start in April. The fiscal year, which the government and businesses use in planning their annual activities, also starts in April.¹⁷

Japan's April-to-March school year is not an Asian tradition. Only Korea, which was ruled by Japan for the early part of the twentieth century, has a similar calendar. Schools in China and most other Asian nations have calendars similar to those of Europe and North America.¹⁸ Japan's unusual calendar, therefore, requires some explanation.

The Japanese may feel less need to adjust their traditional school calendar because their standard curriculum is so exceptional that it alone retards international families from using the public schools. The curriculum is geared to learning material that will appear on national tests, which largely determine students' place in universities and occupations. That the system discourages Japanese from temporary use of other nations' schools is suggested by the existence of several private schools that specialize in remedial education for Japanese children returning from non-Japanese educational experiences in other countries (White [40, pp. 57–59]). A web site for a North-American-style school in Osaka warns prospective applicants, "Parents must be reminded that, if a child with Japanese nationality enters the School, it means that the child would be abandoning the 'ordinary' Japanese Education set by the Japanese Government" and thus find it "almost impossible" to attend a Japanese university.¹⁹

6. Expatriate and trans-equatorial schools probe the hypothesis

Japan's unique calendar offers a test the coordination hypothesis. A number of primary and secondary schools in other nations serve the children of Japanese citizens who are posted abroad for long periods (White [40, pp. 53–57]). These private, Japanese-language schools never adopt the calendar of their host country. They sedulously conform to the homeland's April-to-March calendar. Native teachers who come from Japan to in-

¹⁷ <http://www.jin-japan.org/kidsweb/calendar/april/schoolyear.html>, June 15, 2003. A September-to-June school year has been contemplated by the Japanese government, but national opinion polls conducted by the Japan Cabinet Office [18] in 1988 and 2001 found that only about one-third of respondents had any interest in an "entrance in autumn" system. Those who did support a September beginning most often selected "internationalization of education" from a list of five reasons for their support, and supporters were most often from managerial and engineering occupations, who would most frequently deal with international job mobility.

¹⁸ The Asian exceptions to the standard calendar include India, Indonesia, Thailand, and the Philippines, where the onset of the monsoon rains seems to govern the start of the school year. The pre-monsoon dry season (usually spring) is a good time for travel and vacations. The school calendar in rural areas of developing countries is often irregular and responsive to agricultural cycles, as it was in nineteenth-century America (Taylor and Mulhall [35, Chapter 6]).

¹⁹ Osaka YMCA International School, <http://oyis.org/>, July 15, 2003. The Osaka school runs on a September to June calendar, like most other international schools in Japan.

struct children in Atlanta, Brussels, Chicago, and Kuala Lumpur suffer no gaps in their employment, and children returning to Japan can continue their education seamlessly. Especially telling examples are the two Japanese-run international schools in Hong Kong. Their calendars are geared to the anticipated migration of their families and students. The English-language school is specifically for those who expect to stay in Hong Kong or move to countries other than Japan. Its school year is August-to-June, like that of indigenous Hong Kong schools and unlike that of the Japanese-language school, which maintains the homeland's April-to-March academic calendar.²⁰

The conformity of the expatriate Japanese school calendar to that of the mother country supports the hypothesis that school calendars facilitate employment and educational mobility. But one might question whether the example is too specific to Japan. Additional evidence comes from south of the equator.

Most Southern Hemisphere schools also have summer vacations during at least December and January, and a new school year typically begins by February. The February-to-November calendar is sufficiently widespread, give or take a few weeks, that those involved in international relocations refer to a "Southern Hemisphere calendar" for schools. The term does not always denote location below the equator. Malaysia and Singapore, which are slightly north of the equator, follow the Southern Hemisphere calendar, as do most of the nations of Central America.

The use of the Southern Hemisphere calendar in Australia and New Zealand, most of South America (Venezuela is the largest exception), and sub-Saharan Africa facilitates worker and student mobility within their respective regions. But a Southern Hemisphere calendar retards mobility with respect to high-income countries of the Northern Hemisphere. A Melbourne family arriving in London after school ended in Australia in December would have an eight-month educational hiatus to fill before British schools started their year in September. A Chicago family moving to Capetown would have a similar gap between the Illinois school's end in June and the South African school's beginning in February.

Entrepreneurial schools have stepped in to deal with the hemispheric coordination problem. Most private schools that cater primarily to the children of American and European personnel (both corporate and governmental) in the Southern Hemisphere have Northern Hemisphere calendars.²¹ For example, American international schools (a generic appellation) in Sydney, Australia; Sao Paulo, Brazil; Harare, Zimbabwe; and Johannesburg, South Africa, all operate on the *Northern* Hemisphere calendar of mid-August to June, while the nearby local public schools operate on a Southern Hemisphere calendar.²² A desire to facilitate family movement to and from North America and Europe—some schools are

²⁰ <http://www2.jis.edu.hk/>, June 15, 2003.

²¹ The US State Department lists private international schools and their calendars at <http://www.state.gov/m/a/os/c1684.htm>, August 3, 2003. A similar list for European government and business employees is at <http://www.cois.org/directory/SchoolCal.htm> (August 3, 2003), which divides schools by Southern and Northern Hemisphere calendars.

²² The Association of International Schools in Africa publishes a selective list of English-language international schools in Africa at <http://www.aisa.or.ke/SSchools/>, October 3, 2003. Several adhere to a Southern Hemisphere calendar, in seeming contradiction to my hypothesis. However, such schools cater largely to a local population that is less likely to move to the Northern Hemisphere because of parental job changes or in pursuit of university

explicit about this²³—apparently dominates the inconveniences that come from not coordinating with the local public school systems. An especially strong contrast occurs in Singapore. The *Australian International School* in Singapore operates on the Australian February-to-December calendar, but the nearby *Singapore American International School* operates on the American September-to-June calendar. The Australians carry their calendar north of the equator, too. Their international school in Hong Kong operates on Australia's February-to-December schedule, while indigenous Hong Kong schools operate on the Northern Hemisphere calendar.

A final example of the school calendar's coordinating function arises among the islands of the Southern Hemisphere. American Samoa's schools operate on a Northern Hemisphere calendar, which facilitates movement back and forth to the United States, of which American Samoa is a Territory. The French territory of Tahiti follows the French (Northern Hemisphere) school calendar as well as its curriculum. The Falkland Islands, a British colony of 2800 souls located near Argentina, follows the main parameters of the school calendar of Britain, 8000 miles to the north. In contrast, the South Pacific island nations of Fiji and Vanuatu, which have no ties with Northern Hemisphere nations, operate on a Southern Hemisphere calendar.

7. Conclusion: Is summer-and-September efficient?

The international evidence strongly suggests that a long summer vacation prior to the beginning of school is a coordinating device that enables a mobile population to have the advantages of age-graded schooling. The exceptions that prove the rule are the trans-equatorial schools that keep the calendars of the hemisphere to which most of their students and teachers are likely to travel. The coordination of schedules by Japanese international schools with that of the homeland and the migration-friendly calendars of European and North American schools also support the hypothesis.

Path-dependence, the alternative explanation, seems less convincing in the face of the need to accommodate students and teachers arriving from outside the district in an age-graded system. A standard date for starting school must be established, and a vacation of longer-than-usual length between ending and starting school is useful to accumulate long-distance immigrants to the district. The only remaining path-dependence aspect is why the longer vacation should be summer, and that seems to be the product of two weak

education. In response to my e-mail query about calendars, the head of one such school, Sifundzani, located in Swaziland, wrote: "The majority of our learners are regionally originated and for this reason it is more sensible to follow the Southern Hemisphere timetables." A similar response was received from the head of the Westwood International School in Botswana, who went on to acknowledge that his school's use of the Southern Hemisphere calendar "does cause adjustment problems for students coming from and returning to the Northern Hemisphere school year."

²³ The Buenos Aires Christian Academy lists as one of its advantages: "US Calendar—We recognize that parents like to plan return travel to the United States around the traditional education calendar." <http://www.baica.com/>, March 7, 2005. Similarly, the American International School in Sydney, Australia, advertises "US/Northern Hemisphere calendar year, offering summer holidays in the Australian winter and 4 weeks over the Christmas break," <http://www.amschool.com.au/>, March 7, 2005.

but mutually reinforcing advantages over some other season: Summer is a nice time for a vacation and an easy time to move from one place to another.

The plausibility of the coordination explanation is enhanced by the possibility that within the United States and probably most other high-income nations, summer-and-September coordinates age-graded education in a way that keeps total social costs at a minimum. The social costs of a nonstandard starting date for schools include family relocation and job-changing costs (especially for teachers) and the educational disruptions from having new students entering age-graded schools after the term has begun. Being in school when everyone else is in school also facilitates interscholastic activities such as conferences and sports. And no one would deny that summer is in most areas a pleasant time not to be in school, although Japan demonstrates that a six-week summer vacation does not require that a new school year begin at its conclusion.

The coordination advantages of summer-and-September must be weighed against the capital costs of leaving school buildings idle for two months or more. School districts can obtain income from some facilities during vacations, but most of their capital is specialized for age-graded education. It is nonetheless interesting that districts that adopt year-round schedules to save on capital costs usually abandon the calendar once new facilities can be built. The underutilization of school buildings is comparable to the underutilization of other kinds of capital for which there are schedule-driven demands, such as electric power stations, urban transportation systems, theaters, and sports stadiums. Their idle capacity is caused by the same reason that schools are underused in summer: the need for civilized people to coordinate their activities with one another. Summer vacation may get a bit shorter over the years, but a mobile society will very likely find that a longer-than-usual summer vacation period following the end of the school year is a reasonable way to structure educational calendars.

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References

- [1] G.H. Betts, *New Ideals in Rural Schools*, Houghton Mifflin, Boston, 1913.
- [2] M. Carney, *Country Life and the Country School*, Row, Peterson, Chicago, 1912.
- [3] E.P. Cubberley, *Public Education in the United States: A Study and Interpretation of American Educational History*, Houghton Mifflin, Boston, 1919.
- [4] C.S. Ellsworth, *The Coming of Rural Consolidated Schools to the Ohio Valley, 1892–1912*, *Agricultural History* 30 (1956) 119–128.
- [5] Eurydice, *Organisation of School Time in Europe, School Year 2003/2004*, Eurydice European Unit, Brussels, 2003.

- [6] W.A. Fischel, *The Homevoter Hypothesis*, Harvard Univ. Press, Cambridge, 2001.
- [7] C.S. Fischer, Ever-more rooted Americans, *City and Community* 1 (2002) 177–199.
- [8] W.E. Fuller, *The Old Country School: The Story of Rural Education in the Middle West*, Univ. of Chicago Press, Chicago, 1982.
- [9] D.E. Glines, *Year-round education: History, philosophy, future*, National Association for Year-Round Education, San Diego, 1995.
- [10] K.M. Gold, *Mitigating mental and moral stagnation: Summer education and American public schools, 1840–1990*, PhD dissertation (History), University of Michigan, 1997.
- [11] C. Goldin, America's graduation from high school: The evolution and spread of secondary schooling in the twentieth century, *Journal of Economic History* 58 (1998) 345–374.
- [12] J.L. Goodman Jr., A housing market matching model of seasonality in geographic mobility, *Journal of Real Estate Research* 8 (1993) 117–137.
- [13] A. Gulliford, *America's Country Schools*, Preservation Press, Washington, DC, 1991.
- [14] K.A. Hansen, *Seasonality of moves and duration of residence*, Current Population Reports P70-66, 1998.
- [15] E.A. Hanushek, J.F. Kain, S.G. Rivkin, *Disruption versus Tiebout improvement: The costs and benefits of switching schools*, Working paper No. 8479, NBER, February 2003.
- [16] J. Herbst, *And Sadly Teach: Teacher Education and Professionalization in American Culture*, Univ. of Wisconsin Press, Madison, 1989.
- [17] G. Huppert, *Public Schools in Renaissance France*, Univ. of Illinois Press, Urbana, 1984.
- [18] Japan Cabinet Office, *Public opinion poll on what university education should be like in the future*, Government of Japan Public Relations, Tokyo, 2001.
- [19] C.F. Kaestle, *Pillars of the Republic: Common Schools and American Society, 1780–1860*, Hill and Wang, New York, 1983.
- [20] P.T. Kilborn, In heat of midsummer, it's schooltime for many, *New York Times* (August 6) (2004) A14.
- [21] P. Kincaid, *The Rule Of The Road: An International Guide to History and Practice*, Greenwood Press, New York, 1986.
- [22] M. Lamberti, *State, Society, and the Elementary School in Imperial Germany*, Oxford Univ. Press, New York, 1989.
- [23] S.J. Liebowitz, S.E. Margolis, The fable of the keys, *Journal of Law and Economics* 33 (1990) 1–25.
- [24] S.J. Liebowitz, S.E. Margolis, Network externality: An uncommon tragedy, *Journal of Economic Perspectives* 8 (1994) 133–150.
- [25] B.J. McMillen, A statewide evaluation of academic achievement in year-round schools, *Journal of Educational Research* 95 (2001) 67–74.
- [26] New Hampshire, *Forty-fourth annual report of superintendent of public instruction*, 1890.
- [27] New Hampshire, *Fifty-first annual report of superintendent of public instruction*, 1900.
- [28] J. Perlmann, R.A. Margo, *Women's Work? American Schoolteachers, 1650–1920*, Univ. of Chicago Press, Chicago, 2001.
- [29] W.J. Reese, *Origins of the American High School*, Yale Univ. Press, New Haven, 1995.
- [30] E.H. Reiser, *The Evolution of the Common School*, Macmillan, New York, 1930.
- [31] D.R. Reynolds, *There Goes the Neighborhood: Rural School Consolidation at the Grass Roots in Early Twentieth-Century Iowa*, Univ. of Iowa Press, Iowa City, 1999.
- [32] J.L. Rosenbloom, Was there a national labor market at the end of the nineteenth century? New evidence on earnings in manufacturing, *Journal of Economic History* 56 (1996) 626–656.
- [33] W.J. Shearer, *The Grading of Schools*, H.P. Smith, New York, 1899.
- [34] H. Skandera, R. Sousa, *Mobility and the achievement gap*, Hoover Digest (2002).
- [35] P. Taylor, A. Mulhall, *Contextualising teaching and learning in rural primary schools: Using agricultural experience*, Education research paper No. 20, UK Department for International Development, London, 1997.
- [36] D.B. Tyack, The tribe and the common school: Community control in rural education, *American Quarterly* 24 (1972) 3–19.
- [37] D.B. Tyack, *The One Best System: A History of American Urban Education*, Harvard Univ. Press, Cambridge, 1974.
- [38] *Historical Statistics of US, Colonial Times to 1970, Bicentennial ed., part 2*, US Bureau of the Census, Washington, DC, 1975.

- [39] J. Weiss, R.S. Brown, Telling tales over time: Constructing and deconstructing the school calendar, *Teachers College Record* 105 (2003) 1720–1757.
- [40] M. White, *The Japanese Overseas: Can They Go Home Again?* Free Press, New York, 1988.