Specialization in a Competitive Education Industry: Areas and Impacts

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> Even in relatively backward societies, extensive division of labor and specialization of function is required to make effective use of resources.
>
> —Milton Friedman (1962: 12)

In most of the economy, competition forces producers to specialize. And it is well known that specialization within firms and by firms is a cornerstone of high productivity and innovation. But education economists give school differentiation little attention; there is little discussion of the degree to which various K-12 reform proposals might prompt the development of specialized schooling options. This article argues that increased specialization by schools either in what is taught or how it is taught has significant policy ramifications.

Parental choice debates and research suffer from the intellectual inertia that results from the minimal specialization present in the current K-12 system, especially in the attendance zone public schools that enroll the vast majority of school-age children. The academic literature, influential newsletters, and the popular media virtually ignore the contrast between an economy full of competing business firms that often differ almost as much as their customers, and schools that differ much less than children. The reform debate, especially the discussion of parental choice, is much the worse for its inattention to specialization.

The literature only barely recognizes that the relative uniformity of the K-12 system is sufficiently unusual to warrant some explanation. For example, none of the many esteemed members of the Koret Task Force on K-12 Education, whose aim was to "describe and assess the

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current state of American education," thought the system's relative uniformity was worthy of mention (Moe 2001: xxi). The lone, noteworthy exception is an article by Byron Brown (1992) that argues that the "comprehensive uniformity" of the current system is a result of popular will and political agreement.[1] Another explanation is that the existing relative uniformity is a default outcome that results from the public school system's public finance monopoly (Quade 1996) and the political strife over education policy (Arons 1983), not something that occurs independent of those factors (Merrifield 2001: 107–9).

This article aims to show how attention to the specialization issue would change the school reform debate, how it would help academic researchers greatly improve their models, and why it would make parental choice policies more attractive, especially proposals that would establish a competitive education industry (CEI). To set the stage, the next section reviews the essential elements of a CEI.

Keystones of a Competitive Education Industry

Because the issues described in economics principles textbooks do not penetrate the school reform debate very often, this section briefly reviews the essential elements of a competitive education industry (CEI). Careless use of the term "competition" in the context of K-12 reform discussions is a serious problem. Even some economists have alleged that modest additions to the competitive fringe of a "dominant firm" (the public school system) with a huge price advantage, or that slight reductions in that advantage among a few select families,[2] would establish competition. Noneconomists are even less likely to differentiate between policy options that introduce some limited rivalry and options that would foster genuine competition. In a nutshell, genuine competition results from low entry barriers, market-determined prices, and a minimum number of informed and mobile parent-consumers.

Low entry barriers are the most critical element of genuine competition. Low formal and informal barriers tie each school's market share to efficient provision of services that are superior in some valued attribute(s). Free entry does not exist if the government favors

[1]For a rebuttal of Brown's contention that parents prefer comprehensively uniform schools, see Merrifield (2001: chap. 8).

[2]Slight reductions for a few families occur through small vouchers or tax credits available to children enrolled in the lowest performing schools (Florida), or through vouchers or tax credits available to just a limited number of low-income families (Cleveland and Milwaukee).

some schools. In the United States, and many other countries, the key entry barrier is informal, the result of discrimination against parents who prefer private schools. Those parents must forgo their top school choice or pay tuition on top of the taxes that pay for "free" public schools. The resulting requirement that private schools compete with a "free" service severely limits school entrepreneurs' ability to open new schools. Very few unsubsidized schools can survive such a funding disadvantage. Biased regulations can also reduce entrepreneurs' ability to establish new schools, especially if the rules favor certain types of education providers, or significantly raise start-up costs.

Many buyers and sellers—a large number of schools and families with children—are a desirable attribute, but not critical to a competitive education industry. Economists have shown that if market share is contestable (lack of experience and reputation is all that handicaps well-capitalized new sellers), markets with only a few sellers can still be quite competitive. However, while market share contestability with few actual competitors can produce market outcomes associated with competitive behavior, the number of actual competitors will probably influence the degree of specialization,[3] especially since fewer competitors will most often arise in smaller market areas. As is already the case with a wide variety of goods and services, larger metro areas would support more diverse schooling options than would smaller areas. In some rural areas, all the children would go to the same small school, but the absence of entry barriers (contestability) would allow easier replacement of a low-performing school.

Without a minimum level of consumer mobility and informedness, families cannot reward superior performance or escape inferior performance. The minimum level of mobility and informedness for conscientious, competitive behavior depends on fixed costs as a share of total costs, which depends on several factors including capital intensity, and the salvage value of the firm's capital. The higher the fixed cost share, the more profitability varies with the number of customers. Since schools require a significant amount of capital with little salvage value—school buildings and equipment are not readily adapted to alternate uses—a relatively few quality-conscious parents will be enough to drive conscientious educator behavior.

Price movement is another critical element of competitive settings. We know from centuries of experience with price controls—for

[3]Only "probably" because few competitors means few independent school firms, but not necessarily few types of schools. A single firm could choose to operate several different types of schools.

individual goods or economy-wide—that price change is the source of critical information and incentives. The critical effects of price movement are virtually absent from K-12 education because the children who attend public schools pay a tuition-price of zero. And most existing voucher programs and prominent school choice proposals curb price-movement effects by prohibiting private schools from cashing vouchers unless they accept them as full payment, or a fixed percentage of the full cost. Price movement's long-time absence from the K-12 system may be why there is little discussion of the benefits of introducing it, even by economists. That blind spot exists even though we have centuries of evidence that serious inefficiencies arise whenever price change is absent (Shuettinger and Butler 1979). Consistent with that experience, the K-12 system's serious problems have survived and, at times, grown in the face of decades of intense reform efforts (Ravitch 2000).

Specialization Defined

Specialization exploits differences in producers to increase total production and address the significant differences in consumers. It complements other catalysts like leadership changes, additional resources, and higher academic standards.

Children are incredibly diverse, even within families.[4] They differ in the rates and ways they learn, the subjects that interest them, the subjects they struggle with and excel at, and the physical environments that support or distract their efforts.[5] The key environmental factors include school size, class sizes for some topics, structure, and discipline. Some children learn more on their own than directly from their teachers and books. For some children, direct instruction from a teacher is not as effective as high-tech instruction. Those children learn more through interaction with machines that have infinite

[4]I am not aware of diversity indexes or data that document the degree of interest, talent, and learning-style diversity. Nevertheless, though our current K-12 policies do not seriously address such diversity, it is widely cited by analysts and practitioners alike. It was a big part of my wife's education studies, and our discussions of the challenges she faced as a teacher. Alan Bonsteel's (Bonsteel and Bonilla 1997) argument for school choice included a lengthy discussion of the differences in the education preferences and skills within his large childhood family.

[5]According to Daniel Willingham's (2004: 18–24) review of what is known about the nature of human intelligence, "The vast majority [of psychometricians] regard intelligence not as a single unified entity, but as a multifaceted phenomenon with a hierarchical structure. Each individual has his or her own pattern of stronger and weaker intelligences. Intellectual abilities are correlated," but "distinguishable abilities do exist."

patience and move to the next item only when they are ready. Tangible examples are becoming increasingly evident even within the severe limitations of the current system; for example, cyber charter schools and former Secretary of Education William Bennett's Internet-based K12 program.[6]

What schools do and how they do it could vary in an infinite number of ways that change almost as fast as children and technology change. We certainly see that in higher education where there is choice, where prices vary, and where prices reflect market forces to a much greater degree than in K-12. Specialization would occur through emphasis on specific subject areas like business, health, social studies, or athletics. But specialization would mean much more than that. To address the diversity in how children learn, how schools deliver information would vary widely. Indeed, subject-emphasis specialization is likely to be relatively unimportant in the early grades when children acquire basic skills. Specialization based on learning-style differences would probably define the schooling choices of younger children.

What Stifles Specialization

Specialization and the innovation that constantly redefines it is hard work. In most of the economy, competition provides the necessary incentives. But the public schools' public funding monopoly and joint control of clusters of schools organized into districts greatly weakens the incentive to have nearby schools develop sharply different curricula or teaching styles.

The long-standing practice of assigning children to a neighborhood public school is another significant specialization deterrent. Attendance zones have diverse student populations, so assignment of children to specialized schools would produce some intolerable mismatches. But apparently you can assign children to relatively uniform schools. Indeed, we assign nearly every child to a neighborhood public school, and 80 percent of school-age children actually attend the assigned school. Assigning children to "comprehensively uniform" neighborhood public schools produces few good matches between program offerings and preferences, but most of the mismatches are moderate, and parents do not readily see many of the mismatches. Gradual discovery of mismatches is especially likely for younger children for whom the important differences are in how they learn.

[6]For information about the K-12 program, see www.k12.com.

Differences in subject preferences take awhile to emerge. Additional support results from the seemingly egalitarian, homogenizing, and impartial nature of the attendance zone assignment process.

Many families say they prefer "comprehensively uniform" schools (Brown 1992). But on what basis? The polling data may just reflect the realization that assigning children to specialized schools would create intolerable mismatches. Specialization is politically infeasible without mobility and choice. And they prefer comprehensively uniform schools to what? The current system offers few sharply differentiated options, and very few families have access to the entire current menu. Families can't know what the actual choices would be in a competitive education industry.

The need to politically determine what public funds and government employees should present to millions of public school users also promotes uniformity (Arons 1983). That high-stakes political process eliminates controversial subject and teaching method specialty areas that could attract enough interest to be a financially viable school choice. Chartered schools have filled some of those niches, but key charter law restrictions leave many worthwhile niches unfilled.[7]

Lack of genuine competition, attendance zone policies, and political struggle over education policies are more than sufficient to stifle specialization by public schools. However, there is another significant factor alluded to earlier. Some specializations cost more than others, especially when new. Since public schools can't charge tuition, public schools cannot afford some specializations. And charging a higher price at schools that offer new or inherently costly services is not an option. In the large and growing number of states that mandate equal per pupil funding, the introduction of a costly specialization in school would theoretically require increased spending on something at all the other schools as well. The impossibility of higher prices for some items sharply limits the existing schools' ability to develop and offer diversified schooling options, especially new ones.[8]

What about existing private schools? Private schools specialize more than public schools, but the precarious financial circumstances that our current system imposes on private schools severely limits what they can do. In order to persuade enough families to pay tuition for schooling that has a "free" substitute, most private schools have to

[7]Chartered schools cannot charge tuition (price control), so they cannot offer services that cost more than the per child allotment of tax dollars paid to charter operators. They cannot deny admission to children not compatible with a specialized mission and they must cater to customers and a sponsoring entity.

[8]Differences between schools, not differences within schools.

focus on inexpensive instructional practices and low-cost subject matter that public schools do not offer. That is why small, church-run schools dominate private K-12 schooling. Public schools no longer offer religion instruction, and a nonsecular curriculum is inexpensive and valuable enough for many families to pay tuition. Through access to some volunteer labor, and nontuition revenue, many churches can and do keep tuition below the level needed to fully fund schooling services.

Specialization Increases Productivity

Specialization means more than division of labor according to comparative advantage. Specialization would boost productivity by pushing educators to concentrate on their strongest skills and topics, and because parental choice will match educators doing what they do best with the children that would benefit the most from those skills and topics.

There are also several indirect improvement factors. Specialization accelerates innovation, and replacing forced association (assignment by attendance areas) with matching through choice would greatly reduce teacher-parent friction; a major source of productivity-sapping teacher burnout (Dworkin 1997) and turnover.[9] In addition, choice and specialization would pave the way for smaller schools, one of the few reforms that nearly everyone agrees with. Several small, specialized schools of choice can replace the existing comprehensive "shopping mall" schools that attempt to address all of the diverse education requirements and preferences of an attendance area (Powell, Farrar, and Cohen 1985).

Specialization Reduces Special Needs Problems

The relative uniformity of the current system exaggerates the appearance of special needs problems. When we assign the diverse children of an area to the same school, we maximize the variability of students' topic and method preferences and abilities within each school. When children are noticeably far from any of the various

[9]According to Sarason (1990: 25-26), teachers dread speaking to parents so much that they would forgo substantial raises if it meant they would never have to speak to a parent again. According to Hanushek and Rivkin (2003:27), "differences in school average [academic] gains rise significantly as teacher turnover increases."

behavioral and academic norms, they stand out, and they may be labeled "special ed." Incredibly, we sometimes medicate children because they cannot cope with the official pedagogy, or because they can't constructively tolerate boredom with an unchallenging curriculum, or one that lacks the specific topics that interest them.

Letting families match their children to the topics and methods best for them would eliminate many of the stark contrasts that exist in the schools of the current system. Students would cluster more tightly around the mainstream of their school. To a much greater extent, they would be with children who have similar interests and learning styles. Specialization would spare many families the difficulty, expense, and humiliation of the formal labeling process required under Federal Law (94–142) for eligible children to receive an Individualized Education Plan.

The current system scatters the formally labeled special needs children across the neighborhood school campuses, which raises the cost of serving them, and lowers the quality of the services they receive. The inefficiencies are so great that public schools—even though they lack the private sector's strong incentives to cut costs—concentrate some special education services on a few campuses, and even subcontract some to specialized private schools.

Specialization Advances Integration Goals

Right now, for most parents, "school choice" means making a public school choice by choosing a home address. Since neighborhoods often have relatively uniform housing costs, assignment by attendance area yields student bodies homogenous in terms of family income. Since income and "minority" are often correlated, race and/or ethnic homogeneity are usually part of the picture. Attendance area sorting by income and race/ethnicity maximize schools' student body composition differences.[10] The absence of many children from higher income families that can afford to pay private school tuition in

[10]A *Newsweek* cover story (Klein 1994: 27) made that case, largely through the example of a particular, supposedly typical, example. It included this statement: "Recent studies show that most school systems remain as profoundly segregated as those in Summerton, and those in the inner cities seem far more desperate." According to Carter (1994), an NAACP lawyer who helped argue *Brown v. Board of Education*, "More black children are in all or virtually all black schools today than in 1954." Also see Coleman (1987).

addition to school taxes reinforces the relative homogeneity that results from designating school attendance areas.

Because of neighborhood sorting by income, homogenous student bodies are common even in ethnically and racially diverse cities. And since the political process decides textbooks, curriculum, and many practices for entire regions, student body composition may be the only noteworthy difference between the attendance area choices. Student body composition can easily become the only major difference between nearby schools. According to a 1997 study that directly addressed the issue of what school choice parents look for, concern about student body composition was typically number four behind interest in "curriculum and method of instruction," teachers, and class size (Meissner, Brown, and Van Dunk 1997). But uniformity in the first three often makes the number four concern decisive. Even though student body composition is not a high priority decisionmaking criterion, under the current system it is often still the decisive factor.

The relative uniformity of the current system exaggerates the importance of student body composition to parents' attendance area decisions. Specialization would introduce major competing, typically higher priority choicemaking factors like curriculum, discipline, and pedagogy differences. Unless the higher priority factors are strongly correlated with racial or ethnic group membership, specialization and choice would help diversify student bodies.

Those are very important points. Long-standing public school uniformity has greatly influenced the effects of parental choice through residential choice, and also the effects of the recently enacted parental choice programs. Because school uniformity and the very narrow scope of the parental choice programs exaggerated the choicemaking relevance of student body composition, choice opponents' assertions that parental choice will lead to more racially or ethnically homogenous student bodies have more credibility than they deserve. The exaggerated choicemaking relevance of student body composition is why, despite long-standing, costly desegregation efforts, it would be very difficult for any policy reform to create more homogenous student bodies than we have now. Because of the current high degree of income and ethnic homogeneity within most attendance areas, even choice programs too small to prompt much school change (the U.S. norm), and thus foster just some additional mobility among the relatively uniform schooling options already available, have any noteworthy potential to increase segregation. Still, the perceptions created by misleading past experience foster resistance to school choice expansion, create insistence that choice be limited to disadvantaged

groups,[11] or be subject to a public authority veto so it won't foster increased homogeneity.[12]

What about those perceptions that choice would increase racial and ethnic isolation? Many people associate the well-known "white flight" phenomenon with racism, and somewhat less strongly with school choice. No doubt homogeneity preferences of varying intensity contributed to "white flight," but Andrew Coulson (1999) found out that a migrant's white collar was a better determinant of who fled the inner city than the color of his skin. Higher income families purchased more expensive homes in suburban attendance areas with better schools than the urban schools left behind. The minimal method and topic differences between schools greatly influenced the perception that expanded school choice would aggravate de facto segregation.

Better understanding of how the relative uniformity of public schools influenced our perceptions of past school choice behavior is important. But no less important is an understanding of how different versions of parental choice would harness specialization (or fail to), and thus likely reduce the importance of student body composition as a choicemaking criterion in the future. That the CEI version seems likely to harness specialization is a key difference between small-scale, narrowly targeted choice programs, and large-scale, Friedmanesque school choice policies. That needs to become a major part of the reform debate. The escape hatch versions of parental choice that dominate parental choice debates do not establish the key elements of the competitive environment needed to generate significant specialization. Because such programs allow some families additional options but don't change the relative importance of student body composition in school choice decisions, escape hatch programs could slightly increase the student body homogeneity of some schools.

Specialization would not appear overnight. Parental choice would begin from the current menu. It would take awhile before differences other than student body composition appeared and became well known. That lag, and higher prices (tuition) at the best existing schools might temporarily appear to confirm the claims of opponents that parental choice will increase de facto segregation. But eventually, market entry and product differentiation—specialization by schools—would create several different kinds of high-quality education programs. As I argue in the next section, specialization will make school

[11]The well-known voucher programs; for example in Milwaukee, Cleveland, and Florida.
[12]For example, the Cambridge, Massachusetts, controlled choice program.

rankings based on a single number like a test score increasingly meaningless. As it already does for the choices provided by every competitive sector of the economy, specialization would create a system in which the majority shuns each family's favorite school.

At first, proximity of familiar schools will slow the process of specialization. The majority that say they are happy with their assigned neighborhood school—its attributes were often the decisive residential choice factor—will not transfer their children until a new school proves (with someone else's children) to be a better choice than the public school they are used to. But, however slowly the product differentiation process gets rolling, it is inevitable, and the quality-conscious, footloose, marginal consumer will drive it. For example, the relatively few car buyers that actively research safety features motivate the safety improvements that all car buyers get, and most appreciate. I assert inevitability because recorded history's few CEIs had very diverse schooling options (Coulson 1999), because specialization is so prevalent throughout the economy, and because top school leaders emphasize the importance of focusing their efforts on the strengths of the staff (Carter 2000: 9).

Shunned by many, but preferred by others, is quite a departure from mainstream thought about the effect of school choice programs. Since specialization would make schools especially good at some things and not so good at others, each school would rank highly in some attribute(s), and be weak in others. Under the current system, each school seeks relative uniformity and quality is one-dimensional. There are a few good schools, a great many average schools, and some really terrible schools. Because they overlook the effects of specialization, many K-12 analysts assume that public school choice, vouchers, and tax credits would just fill classrooms and create long waiting lists at the better schools, make private schools more selective, and thus create additional excess capacity at the worst schools, further concentrating academic underachievement into a few schools. But with a CEI, such effects would be short-lived. Once schools specialized and became well known, they could only survive by becoming the best choice for a financially significant number of families. And since diverse families have different definitions of "quality," parents would disagree on which school is best for their children.

There is already widespread agreement that specialization and parental choice is a useful integration tool. San Francisco's and Cambridge, Massachusetts, controlled choice program (Hoff 2003, Fiske 1991), and many magnet schools (Armor 1995) exist to pursue integration goals through the minimal specialization possible now. But the current system doesn't allow enough choice and the resulting

genuine competition to fully exploit specialization as an integration catalyst. And the San Francisco and Cambridge authorities' veto power over parental preferences illustrates how choice within the current system influenced beliefs about the consequences of school choice. Past behavior within the current system created fear that prejudice may dominate interest in unique academic programs. The veto power also means that integration goals trump parental judgments about which academic programs would best serve their children.

Specialization and choice would defuse some devisive issues. It would allow families to get what they want without imposing their preferences on others. Some instruction methods (e.g. technology, discipline enforcement, bilingual instruction) are controversial. In addition, parents often disagree (e.g., religion, sex education, corporal punishment) on whether families or schools should have to deal with them, and how. The recent court ruling on the Pledge of Allegiance is a good example. The polls indicate that about 15 percent of the public agrees with the plaintiff in that case. In the CEI of a large town, that would be enough families to support schools that will not offend them by asking their children to recite the Pledge of Allegiance. Going that route would save on legal fees and avoid antagonizing the roughly 85 percent that want the Pledge of Allegiance recited where their children attend school.

Standardized Testing in a CEI

Improved accountability through increased standardized testing—all the rage in Washington, D.C., and many state capitals—implicitly assumes that a high degree of uniformity will persist regardless of the direction of reform; that there is a single best measure of quality. But unless test results trigger drastic sanctions or lucrative rewards, the development of a CEI would significantly erode the relevance of standardized testing, or drastically change it, perhaps both. That follows from the diversification of schools that would result from specialization.

When schools differ significantly in their subject concentrations, teaching methods, and learning environments, no single test can accurately signal their relative effectiveness. In a CEI, widely administered, standardized tests could remain useful as a partial measure of school quality by focusing on basic curriculum items that most schools promise to cover, but no single test could serve as a sole guide to quality. Specialization could diminish the government's testing role to that of truth detector and data collector.

Specialization could expand the private sector's role in testing. Businesses could develop tests for major specialization areas to decide which schools qualify for prized endorsements; something analogous to a *Consumer Reports* blessing or the *Good Housekeeping* seal.

CEI vs. Restriction-Laden Choice

Mainstream K-12 reform discussions largely ignore the pervasiveness of specialization in competitive settings. Mostly it is because scholars give most of their attention to the existing, very limited programs. But disregard for the issue of specialization persists even in the few efforts to evaluate the effects of genuine competition. For example, there are assertions that research based on data from the current system and a few limited choice programs can produce significant insights about choice programs that would foster genuine competition. But data from a system with little product differentiation cannot tell us much about competitive systems that would contain a lot of something as important as specialization.

An important recent conference provided some significant examples. Many of academia's heavy hitters on the school choice issue attended the National Bureau of Economic Research's February 2001 conference on "The Economics of School Choice." Their papers were later published in a book edited by Caroline Hoxby (2003). Notably absent from the conference papers was any specific mention of specialization or how it would impact the issues that I have raised. Hanushek and Rivkin (2003: 9) mentioned schools "adding value in multiple dimensions" such as "arts, sports, and religious content," but the editing process that converted the paper into a chapter removed what would have been the book's most specific reference to specialization as an important factor. Only Hoxby's productivity chapter and Thomas Nechyba's chapter hinted at specialization areas or impacts. Nechyba (2003: 175) noted that a school with less variance in peer quality might be able to "more effectively target its resources to the student population's needs."

Specialization is a well-known cornerstone of productivity, but Hoxby makes only rare, general mentions of specialization. She mentions students "going to a school that was a better match" without explaining the school transformation needed to produce better matches, and she notes that deregulation led to "faster, more specialized service" in the trucking industry, but did not use that experience to describe a K-12 analogy (Hoxby 2003: 288, 294). She also notes that "many of the long-term, general equilibrium effects of choice are

not yet in operation" (p. 337), but fails to elaborate. Her promise to "comprehensively review how school choice might affect productivity," including "presenting much of the available evidence on school choice and productivity" (p. 287), is never fulfilled. The section entitled "Why Should Choice Affect Productivity" does not even imply a role for specialization.

The remaining chapters of Hoxby's book also ignore specialization, or implicitly assume its absence. Julie Cullen and Steve Rivkin's chapter on special education—an area in which specialization is already noteworthy, especially in the private sector, and where I have argued that specialization will make a big difference—assumes that schools would stay relatively uniform. They also assume that schools would serve special needs children through pupil weighting and through price discrimination to offset the additional costs of providing special services. In other words, Cullen and Rivkin (2003) assumed that even with expanded choice parents would not enroll their children in matching specialized schools. Instead, they would still enroll special needs children in schools that cater mostly to mainstream children, but provide special services to a few students. They made that assumption even though there we already have some special needs schools. Many of the students enrolled in existing private schools that target special needs children were placed there by the public school authorities at public expense.

Nechyba's ambitious empirical model also implicitly assumed that all forms of parental choice would occur in a system of relatively uniform schools. Certainly for quite limited departures from the status quo, the assumption is reasonable, but the applications of the model were not confined to those. As one approaches the conditions of a competitive education industry, that critical assumption becomes increasingly dubious. The preferences of parents and students are diverse, and unleashing the competitive pressures to address them would drastically change the way educators deliver schooling. But Nechyba (2003: 149) assumes "that the underlying structural parameters remain unchanged" from their values in the current system reflected in his data. Hoxby (2003: 309) also appears to agree that the current system—despite its high barriers to choice and relative school uniformity—reveals significant, broadly generalizable effects of choice: "Evidence from the traditional forms of choice [decide to pay tuition or not, and pick a school by picking a home] can reveal the long-term, general equilibrium effects of choice."

In the chapters where the issue of student ability differences arose, the Hoxby book's contributors assumed that ability was one-dimensional, and thus found that school choice produces school-level

ability stratification.[13] Indeed, ability "stratification"[14] is an intuitive result of a system with little specialization and one-dimensional student ability. Under those circumstances, every open enrollment school would pursue the same set of "exceptional" students, and the better schools would certainly skim the "cream" from other schools as much as transportation costs would allow. Many theoretical models, and empirical models developed from data generated by the status quo (no market forces, minimal specialization), yield that result.[15] But even limited parental choice programs do not yield that result. After all, why would the parents of the highest-achieving public school students generally favor a more costly (taxes plus tuition), but typically resource poor private school? For the same reason (though voucher applicants are, by definition, more active parents), the children in the existing, limited choice programs are not the "cream." It stands to reason that parents of struggling students should have the most interest in an escape hatch, and that seems to be the case.

Specialization would make significant general ability stratification even less likely, and it makes productivity enhancing ability grouping for specific subjects more likely. Some schools would specialize in general subject matter for generally gifted and talented children, but that's a small share of the market, and probably a high-cost specialty area. Brilliant children are cheaper to educate only within a system of uniform standards and low expectations like those that characterize the status quo. In the current system, the challenge of educating the exceptionally talented is viewed as a "vexing administrative problem" (Rickover 1959).[16] In a competitive education industry, the parents of gifted and talented children would demand as much from schools as they expect from their children. Their assertiveness in voicing concerns about their child's progress will challenge and tax school operators. The parents in denial of data that suggest that their child is not as gifted and talented as they imagined may turn out to be an even bigger headache for school operators.

Below that thin layer of uniformly gifted and talented children, the

[13]See especially Epple and Romano (2003), and Figlio and Page (2003).

[14]There is much discussion of the possibility that ability grouping could be harmful to slower students, but much less discussion of how failure to group children by their abilities in particular subjects retards the progress of the high-ability students. It is important to recognize that many children would be in the high-ability group for some subjects and the low ability group for other subjects.

[15]See, for example, most recently: Ladd (2002), Neal (2002), Hsieh and Urquiola (2003).

[16]According to Kantrowitz and Wingert (1993: 67), "Other countries push their best students to do even better, Americans push them aside. Gifted programs are also viewed as elitist. Gifted programs are often seen as luxuries."

specialization effects that a competitive education industry would foster might overwhelm the pro-stratification pressures that dominate restriction-laden choice settings, and that empirical models must inevitably reflect because historical data from the current system can't reflect the effects of specialization. Certainly this is a critical research issue. Before bemoaning stratification effects, researchers need to take account of the likely propensity to specialize and its likely effects. Maybe data from an analogous specialized setting (another country's education system, maybe one that no longer exists, or another industry like health care) can provide the basis for the parameters of reasonable education production and utility functions?

Until something like that happens, some discussion of theoretical effects would upgrade the public debate. For example, I hypothesize that with the specialization that would result from genuine competition, general stratification is unlikely because most children are not brilliant across the board, and some who have a passion for specific topics. The latter would prefer schools that specialize in their favorite topics to schools for the generally gifted and talented. They would join the many children that excel in only a few subjects. For some children, academic gains would depend on which teaching methods were used. Certainly this multidimensional view of student ability is consistent with Daniel Willingham's (2004) review of the literature on the nature of human intelligence. Human minds differ greatly, and specific abilities vary greatly even among children with similar general abilities.

Life is likely to be easier, and more profitable, for school operators who specialize in subjects or methods that appeal to the more numerous children with generally unremarkable talent, or talent developed through hard work born of a particular intense interest. For example, the 1999 winner of the national geography bee reported that his geographic talent was entirely the result of self-motivated hard work (Jefferson 1999). He said he had not had a geography course since the third grade. Surely such children and their parents would prefer schools that devote a large share of the instructional time to specific subjects. They would probably be more interested in a school's effectiveness in an advertised specialty area (something like geography, health careers, business, or computers) than in a top ranking in basics like math and reading.

The preoccupation with traditional school choice as part of the residential location decision, and limited, escape hatch versions of parental choice, largely forsakes the benefits of specialization. That preoccupation with traditional and new avenues of public school choice and restriction-laden private school choice reflects an

intellectual inertia that distorts the research agenda. And it fosters misleading extrapolations from data sets that cannot possibly reflect the potentially critical effects of specialization.

Conclusion

Specialization is one aspect of a competitive education industry that has been neglected in prior discussions of school choice. Whether that neglect represents an oversight or the arrival at a new frontier does not matter. Continuing to neglect specialization as an important topic in the parental choice debates and broader K-12 reform disputes may have increasingly severe consequences. With the June 2002 Supreme Court decision upholding the Cleveland Voucher Program, there could be much more interest in voucher programs, large and small. "Competition will produce specialization" is the right way to start the answer to many typical concerns about parental choice, and that includes the concerns of people who might oppose school choice if it increases specialization. We have to deal with the fact that the "common school" mythology still commands much allegiance. Some people passionately voice political and social reasons why nearly every child should be taught the same things in the same way. But to pursue common results through forced assignment to uniform school settings is actually socially divisive as well as academically debilitating. Supporters and opponents of a competitive education industry alike should understand that the CEI version of parental choice would maximize specialization through price (tuition) flexibility and few barriers to school entrepreneurs.

Specialization would raise productivity by exploiting educators' comparative advantages, by paving the way for smaller schools, and by creating better matches between students and educators. A better match between students and educators is especially important to older children who are developing specific interests and to children with special needs.

Small doses of choice and specialization already play a modest role in current efforts to integrate schools and classrooms. A competitive education industry would gradually strengthen and accelerate the diversity-enhancing effects of specialization.

Specialization to the extent that would occur in a competitive education industry would drastically change the practice and use of standardized tests. The diversification of schools could greatly reduce the usefulness of such testing. Likewise, high-stakes testing could substantially stifle such diversification.

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