Measuring Market Education: Suggestions for Ranking School Choice Reforms

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With each passing year, the number and variety of school choice proposals continue to grow. The purpose of these proposals, whether implicit or explicit, is to reintroduce market forces to the field of elementary and secondary education. Education markets, it has been argued, are more efficient, academically effective, and responsive to the demands of families than state-run school monopolies.

In the policy debates that arise over each new proposal, much emphasis is given to political viability, cost, and likely susceptibility to legal challenge. Less time is spent assessing a proposal's ability to create an effective education market. In fact, the specific requirements for the creation of effective education markets are seldom discussed.

One way of addressing this deficit is to provide a metric for rating school reform plans based on the size and quality of the education marketplace they are likely to create. The current article suggests one such metric, which I have dubbed the Market Reform Metric.

In the sections that follow, I discuss the purpose of the MRM, its design principles, its structure, and the raw input data that form the basis for its calculation. Because of the MRM's early stage of development, and because this article is intended as a nontechnical introduction, extensive discussion of the underlying calculations (and

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associated source citations) has been deferred to a more comprehensive publication to follow.

Goals and Design Principles

The purpose of the MRM is to predict the size and quality of the education market that is likely to be created by a given education policy proposal. It takes the details of the policy as its input data and uses them to produce a numeric score from 0 to 100. In addition to this overall rating, several subcomponent ratings are also calculated, allowing conclusions to be drawn about the strong and weak points of the proposal.

The MRM is intended to advance several related goals:

- To force a discussion of the necessary criteria for an effective and stable education market;
- To provide a tool capable of indicating the extent to which a policy proposal will produce a competitive education industry;
- And to sensitize school reformers and legislators to the reality that markets have more in common with ecosystems than with smorgasbords—that is, markets are synthetic wholes whose various components are often interdependent and indispensable.

The initial implementation of the MRM is as a Microsoft Excel spreadsheet file, though, as mentioned in the conclusion of this article, an Internet Web page interface is on the drawing board.

The design of the MRM was guided by four principles: reliability, objectivity, comprehensiveness (content validity), and accuracy (predictive validity).

In order for the MRM to be useful it must be reliable, that is, it must consistently produce the same ratings for a given policy proposal regardless of who enters the data for that proposal. In other words, the need for subjective judgments on the part of the person entering data into the MRM must be kept to an absolute minimum.

Objectivity in the calculations that comprise the MRM is equally important. The education policy details that the MRM measures, and the weights it ascribes to them, must be based as much as possible on empirical observations of actual school systems or on generally accepted axioms of economic theory. For example, there is considerable evidence that the responsiveness, efficiency, and effectiveness of schools is positively affected by the share of school funding that

comes directly from parents (Coulson 2004). One especially large-scale study, by James, King, and Suryadi (1996), found a quadratic relationship between the share of parental funding and school efficiency. Higher parental funding was always found to be better than lower funding, but the magnitude of the improvement decreased as the share of parental funding approached 100 percent. Based on this work, it is reasonable to include a quadratic term in our metric corresponding to the share of total education spending that comes (or is predicted to come) directly from parents. Similarly, the well-established role of prices in competitive markets suggests that the MRM should give lower scores to education policies that impose price controls.

Another essential characteristic of the MRM's design is comprehensiveness. Every education policy detail that is known to have a significant, measurable impact on the operation of education markets should be included.

Once the MRM proposed in this article has been subjected to wider scrutiny, and it is concluded that all the relevant, measurable policy details have been identified and included, a sensitivity analysis should be performed. It is conceivable that interactions of factors could render a component of little relevance to the metric's overall value. Sensitivity analysis would reveal any unnecessary details, and the unnecessary components could then be dropped. Otherwise, sensitivity analysis would reveal a need for recalibration to ensure that the factor in question is given the proper weight (i.e., the one dictated by economic theory and empirical observation of school systems). The other role of sensitivity analysis will be to reveal whether or not simplified versions of the metric can be found that produce values very similar to those generated by the more complex, full version of the metric.

Finally, the MRM's design was guided by a desire to accurately model known, well-established education systems. In other words, if the education policy details in place in a given nation 20 years ago are fed into the MRM, it should produce a rating consistent with actual market conditions on the ground in that nation at the present time.

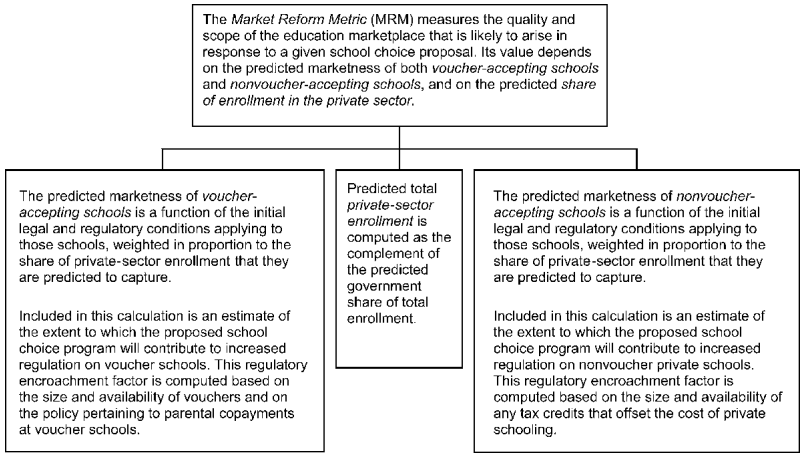
Conceptual Framework and Input Data

Using the guiding principles just described, the MRM was designed in top-down fashion, starting with the broadest definition of the conditions to be measured, and then progressively fleshing them out until easily quantified input data were reached. A conceptual

overview of the MRM is presented in Figures 1 through 4, the contents of which are described in the remainder of this section.[1]

FIGURE 1

COMPONENTS OF THE MARKET REFORM METRIC

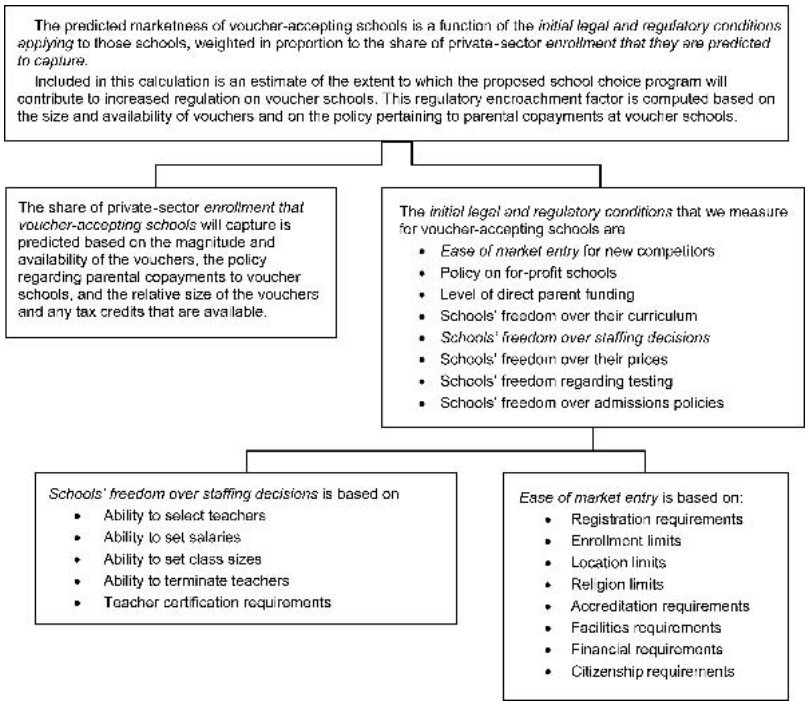


Since the goal is to estimate the size and quality of the market that would be created by a given policy, the top level of the MRM (Figure 1) measures three quantities: the predicted share of enrollment in the private sector, the predicted "marketness" (or market quality) of private schools that accept vouchers or subsidies from the state (if vouchers or subsidies are included in the proposal), and the predicted marketness of private schools that do not accept vouchers. It is necessary to deal separately with the latter two categories of schools because the laws and regulations applied to them generally differ. This difference is apparent both in U.S. states that have introduced voucher programs and in other nations such as Holland, Chile, and Canada that subsidize the consumption of private education (see, e.g., Kober 1999 and Coulson 2004). In subsequent discussions, the term voucher-accepting school is used to refer to any school that accepts

[1]A more detailed flowchart showing the mathematics behind the concepts can be found on the Internet at www.SchoolChoices.org/public/MRM-flow.doc (note: the address is case sensitive). That technical flowchart uses the syntax of Microsoft Excel formulas and Excel Visual Basic functions, and so a minimal familiarity with computer programming is helpful in reading it.

FIGURE 2

MARKETNESS OF VOUCHER-ACCEPTING SCHOOLS



per-pupil vouchers or direct government education subsidies of any kind.

Algebraically, the calculation looks like this:

(1) MV = (VAC + VNAC) x (a function of the private sector's predicted share of enrollment)

where,

MV = Metric Value,

VAC = Voucher Accepting Component, and

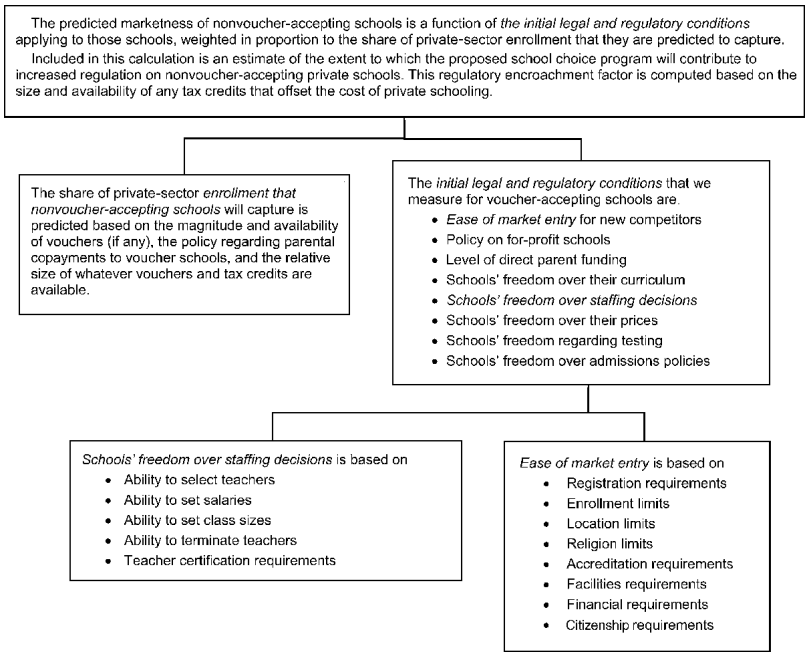
VNAC = Voucher Nonaccepting Component.

Further,

(2) VAC = (Voucher-Accepting School Predicted Conditions) x (Voucher-Accepting Predicted Share of Private Enrollment), and

FIGURE 3

MARKETNESS OF NONVOUCHER-ACCEPTING SCHOOLS

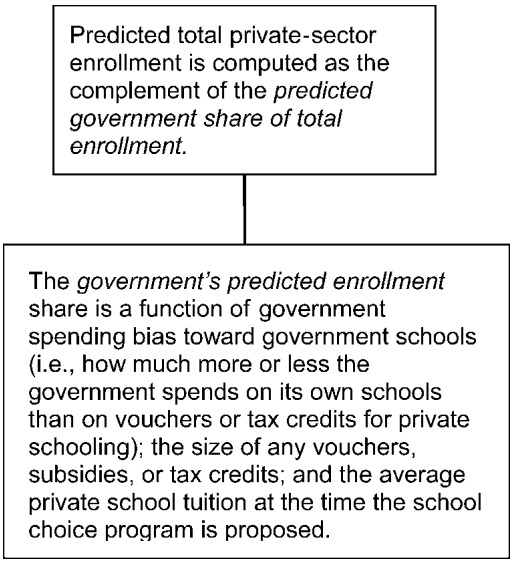


(3) VNAC = (Voucher Nonaccepting School Predicted Conditions) x (Voucher Nonaccepting Predicted Share of Private Enrollment).

The predicted marketness of public-sector schools is not included in this calculation. That was a judgment call. It could be argued that the predicted degree of marketness enjoyed by government-run schools should be weighed. However, it was omitted from the MRM proposed here because it was not anticipated to have a major impact on a proposal's overall score.[2]

[2]Based on the precedents of Chile and Holland, strong market education reforms lead to a gradual drop in the consumption of government schooling. After 87 years, government school enrollment has fallen to roughly 25 percent in Holland (where it has stabilized), and after 22 years it has fallen to 50 percent (and is still declining) in Chile. Conversely, a weak school choice reform that creates very little private supply should arguably receive a very low score even if government-run schools are fairly autonomous and parents have "public school choice." Such a system, after all, would not much resemble a free market.

FIGURE 4
PRIVATE-SECTOR ENROLLMENT



The predicted marketness of voucher-accepting schools is computed as a function of the initial legal and regulatory conditions applying to those schools, weighted in proportion to the share of private-sector enrollment that they are predicted to capture (Figure 2, and the equations above). Rather than assuming that the initial legal and regulatory conditions contained in a given proposal will persist unchanged over time, the MRM includes a "regulatory encroachment" term that forecasts how much additional regulation is likely to follow a voucher/subsidy of a given size. This forecast is based on the mounting regulatory burden that can be seen in nations that have adopted vouchers or subsidies for private schools. Of particular interest are observations on the differential level of regulatory encroachment between voucher/subsidy-accepting schools and voucher/subsidy-nonaccepting schools within the same country. Such observations can be made in nations such as Holland, Chile, and Canada, where both subsidized and nonsubsidized private schools exist side-by-side. The regulatory encroachment function in the draft MRM is a rough heuristic based on the experiences of a handful of nations, and subsequent refinement and calibration using more nations is intended.

The predicted marketness of nonvoucher schools (Figure 3, and

the equations above) is computed as a function of the initial legal and regulatory conditions applying to those schools, weighted in proportion to the share of *private-sector* enrollment that they are predicted to capture. This calculation also includes a regulatory encroachment term, but it is based on the size of any nonrefundable[3] education tax credits that may exist.

Finally, the predicted private-sector share of total enrollment is computed as the complement of the predicted government share of total enrollment. As shown in Figure 4, the government's predicted enrollment share is calculated as a function of three factors: (1) government spending bias toward government schools (i.e., how much more or less the government spends on its own schools than on vouchers or tax credits for private schooling); (2) the size of any vouchers, subsidies, or tax credits; and (3) the average private school tuition at the time the school choice program is proposed.

Now let us turn to the measurement of the initial legal and regulatory conditions for voucher and nonvoucher schools that are used in the above calculations. These conditions are computed separately for the two private subsectors (voucher-accepting and voucher-nonaccepting), with each being a weighted average of the following set of variables: (1) ease of market entry for new competitors, (2) policy on for-profit schools, (3) level of direct parent funding, (4) schools' freedom over their curriculum, (5) schools' freedom over staffing decisions, (6) schools' freedom over their prices, (7) schools' freedom regarding testing, and (8) and schools' freedom over admissions policies.

The reasoning behind the selection of these input terms is discussed briefly below (in the section titled "Legal and Regulatory Conditions Explained"). Two of the items in the preceding list ("ease of entry" and "freedom over staffing decisions") are not raw user-input data, but instead are calculated as functions of additional input data. Ease of entry is measured in terms of registration requirements, enrollment limits, location limits, religion limits, accreditation requirements, facilities requirements, financial requirements, and whether founders must be citizens.

Schools' freedom over their staffing decisions is calculated based on the following component terms: freedom to select their own teachers, freedom to set teachers' salaries, freedom to set class sizes,

[3]Nonrefundable credits are those that cannot result in a positive outlay of government funds to taxpayers. They may only reduce the balance of taxes that a taxpayer owes. Refundable tax credits, which can result in a positive outlay of government funds, are treated in the MRM as school vouchers.

freedom to terminate teachers at their sole discretion, and severity of government certification requirements.

In keeping with the reliability principle, it is crucial that all of the above input variables be explicitly divided into discrete increments so as to minimize subjectivity in the data entry process. Each of an input variable's discrete value increments corresponds to a specific set of legal/regulatory conditions. The user is thus not left to decide based on his or her own judgment what value to assign to a given input variable—different users will (so long as the increment categories are sufficiently explicit) choose the same number to denote the same conditions. The particular increment categories used in the MRM are shown in Tables 1 and 2, along with a description of the criteria associated with each incremental value.

Note that the term "reliability" in the preceding paragraph refers to reliability in the formal sense used in test design: that the MRM *consistently* measures the things it is intended to measure. Reliability in this sense does not imply accuracy. A test that is reliable can give a consistently correct assessment of performance or a consistently incorrect assessment. To ensure that the MRM is both reliable and accurate, it is necessary (among other things) for the increments listed below to not only be explicit, but to accurately capture the variation in the various input variables.

Legal and Regulatory Conditions Explained

As is apparent from Table 1, all of the legal and regulatory conditions variables that are input to the MRM are normalized to values between 0 and 1. Higher numbers represent more market-like conditions and lower numbers represent less market-like conditions. This simplifies the calculations and makes weighting the variables based on their importance (see below) more transparent. Each of the variables in Table 1 is explained in more detail in the following paragraphs.

Admissions Requirements. Since Adam Smith, it has been well understood that markets rely on specialization and the division of labor. By restricting the ability of schools to target particular clienteles, government-imposed admissions restrictions impede both of these factors.

Certification Policy. Government-required teacher certification creates a barrier to entry into the education labor market, interfering with the market's teacher selection process. In practice the consensus of evidence indicates that traditional U.S. teacher certification programs do not lead to higher student achievement. A fact consistent

TABLE 1

Legal and Regulatory Conditions

Condition		Possible Values
Admissions requirements	=	1 Schools free to set their own admission policies .50 Admissions rules laid down by the state 0 Students assigned to schools by the state
Certification policy	=	Percentage of teachers that must be government certified
Citizenship requirement	=	1 Founders need not be citizens 0 Founders must be citizens
Class size policy	=	1 Schools set their own class sizes 0 Class sizes constrained by regulation or mandatory bargaining
Curriculum regulations	=	1 No curriculum guidelines imposed by the state .75 Limited, general curriculum guidelines .50 Extensive, detailed curriculum guidelines .25 Moderately elaborated state curriculum 0 Fully elaborated curriculum
Enrollment limits	=	1 No enrollment limits 0 Projected enrollment must be above and/or below certain sizes

Facilities requirements	=	1	No facilities requirements beyond basic health and safety codes
		.50	Moderate: e.g., restrictions on sizes of playgrounds, classrooms, lots, or buildings
		0	Heavy requirements: e.g., large playgrounds, classrooms, lots, or buildings required
Financial requirements	=	1	No financial requirements
		0	Must post bond or maintain substantial minimum bank balance
Location limits	=	1	Schools can be opened anywhere
		0	Proposed school locations must be approved
Policy on school prices	=	1	Schools free to set their own prices
		.50	Schools penalized for exceeding a control price
		0	Prices set by the state
Registration requirements	=	1	No registration required
		.66	Perfunctory registration: a few hours of paperwork, a quick turnaround from the state, and virtually all schools accepted
		.33	Moderate registration: a day of paperwork, a week or so of delay by the state, more than 85% of applicants accepted
		0	Elaborate registration: more than a day of paperwork, more than a week of lag time, 85% or fewer of applicants accepted

continued

TABLE 1 (*continued*)

Legal and Regulatory Conditions

Condition		Possible Values	
Religion limits	=	1	No constraints on school philosophy or religion
		0	Certain philosophies/religions must be (or cannot be) professed
Salary policy	=	1	Schools set teachers' salaries
		0	Salaries set by the state
School accreditation requirements	=	1	No accrediting body membership required
		.50	Membership required but there are many accrediting bodies available and most have trivial membership requirements
		0	Membership required, there are few accrediting bodies, and their requirements are nontrivial
Status of profit-making schools	=	1	Nonprofit status does not exist or confers no substantial benefits
		.50	Both for-profit and nonprofit status exist, but nonprofit status confers substantial financial (e.g., tax) benefits
		0	For-profit status is prohibited for schools
Tax credit program has a sunset clause	=	1	True (A sunset clause is a scheduled termination/phaseout)
		0	False

Teacher selection policy	=	1	Schools are responsible for hiring their teachers
		.50	Limited hiring autonomy (i.e., seniority "bumping" allowed
		0	Teachers assigned to schools by the state
Termination policy	=	1	Schools free to terminate teachers at will
		0	Termination strictly regulated, and hence difficult
Testing requirements	=	1	No government-mandated testing
		.50	Some gov't testing, but not tied to diplomas or promotion
		0	Extensive gov't testing, or tests tied to promotion or diplomas
Voucher/subsidy copay policy	=	1	Unrestricted copayments allowed with no corresponding reduction in subsidy
		.75	Significant copayments allowed with modest or no subsidy reduction
		.50	Moderate copayments allowed with moderate or no subsidy reduction
		.25	Small copayments allowed with little or no subsidy reduction, or moderate to large copayments allowed with significant subsidy reduction
		0	No copayments allowed, or very small copayments allowed with large subsidy reductions
Voucher/subsidy has a sunset clause	=	1	True (A sunset clause is a scheduled termination/phaseout)
		0	False

TABLE 2

OTHER INPUT DATA

Average personal tax credit = Average size of any personal-use tax credit (0 if no personal use credit)
Average private scholarship size = Average size of scholarships awarded by Scholarship Granting Organizations
Average voucher/subsidy = Average size of school voucher or per-pupil subsidy (0 if there are no vouchers/subsidies)
Gov't spending per student = Average total per-pupil spending in government-run schools
Initial private school tuition = Average private school tuition at the time the school choice proposal is made
Personal tax credit scope = Percentage of families who are eligible for and/or will benefit from personal use credits
Private scholarship scope = Percentage of families eligible (or expected) to receive funding from Scholarship Granting Organizations
Voucher/subsidy scope = Percentage of schoolchildren eligible for vouchers/subsidies (0 if no vouchers/subsidies)

with international evidence. Government certification thus arbitrarily and dramatically reduces the pool of candidates for teaching jobs, thereby diminishing competition for those jobs and creating artificial pressure for higher salaries and lower quality.

Citizenship Requirements. In some nations, school founders must be citizens—an arbitrary barrier to entry that reduces the pool of entrepreneurs and educators who can open schools. Though this restriction does not exist at present in any of the U.S. states, it is included for reasons of comprehensiveness.

Class Size Policy. If schools are not free to vary the size of their classes, one avenue of specialization is closed off, and the development of techniques for improving learning in large and small classes will be stunted. The imposition of a particular range of acceptable class sizes would thus impede the operation of the marketplace.

Curriculum Regulations. One of the chief avenues for educational specialization is the selection of what children are taught. For the education marketplace to work efficiently, schools must be free to offer any curriculum they wish, and families must be free to choose schools whose curricula they value. To the extent that the government intervenes in the determination of curriculum, the operation of the market is impeded.

Enrollment Limits. Some nations with school choice programs, such as Holland, require that newly proposed private schools demonstrate a minimum guaranteed first-year enrollment before they are allowed to participate in the choice program. In Holland, this requirement is typically in the mid 200s for new elementary schools. This requirement is an artificial barrier to entry.

Facilities Requirements. In India, among other nations, private schools must have facilities of a certain size (such as a large playground) before they are permitted to be officially registered with the state. Unregistered schools are not permitted to offer officially recognized diplomas, so these facilities requirements are a substantial barrier to entry to the marketplace.

Financial Requirements. India also requires that registered private schools post a sizable bond with the state, which also poses a substantial barrier to the creation of new schools, particularly in low-income neighborhoods. Florida legislators, in their debates over the regulation of the state's school choice programs, have discussed the requirement that bonds be posted by participating schools. This barrier is arbitrary, offering no obvious benefit to education consumers while reducing the pool of available schools from which they can choose.

Location Limits. In Holland, newly proposed schools wishing to participate in the national voucher program are forbidden from opening for business in locations already provided with schools that share their same basic religion or pedagogical philosophy. This prevents the creation of new competitors to existing schools even when those existing schools are only marginally satisfactory or are unsatisfactory.

Policy on School Prices. Prices are an integral part of the market mechanism, providing an incentive for producers to produce more of what the public wants and less of what it does not. By fixing prices, as the Milwaukee voucher program does for participating private schools, it eliminates this means by which information about consumer demand is communicated. Price controls are thus penalized in the MRM.

Registration Requirements. The amount of bureaucracy and paperwork that new schools must deal with in order to register with the state poses a barrier to entry proportional to the time and difficulty required to comply with registration requirements.

Religion Limits. In Vermont, religious private schools are forbidden to participate in the state's tuitioning (voucher) program.

Florida's own A+ voucher program was recently ruled in violation of that state's constitution for including religious schools. To the extent that certain religions or philosophies are forbidden, the free choice of consumers is impeded.

Salary Policy. Under some school choice programs, such as the voucher program in the Netherlands, teachers' salaries are set by the state rather than by individual schools. School managers must be free to set the salaries of their employees on a case-by-case basis in order for the market to behave efficiently.

School Accreditation Requirements. In some states, such as Ohio, all private schools must be members of a government-sanctioned accrediting body. The accrediting bodies set their own standards that can exclude schools that might in fact be of interest to families. Such requirements therefore impede the operation of the marketplace.

Status of Profit-Making Schools. In the Netherlands, India, and British Columbia, Canada, among other jurisdictions, private schools participating in government voucher or subsidy programs cannot be operated for profit. Profits are a crucial ingredient in the market mechanism, however, encouraging efficiency and driving innovation. Popular nonprofit schools tend not to expand their operations substantially over time, whereas for-profit schools do so just as much as other for-profit businesses (e.g., the Brazilian school chain known as Objetivo enrolls 600,000 students nationwide). Restrictions on for-profit schooling are thus deleterious to the market's operation.

Tax Credit Program Has Sunset Clause. Entrepreneurs considering entering a market are concerned not only with current conditions but also with conditions in the foreseeable future. If a school choice program has a sunset clause (i.e., is scheduled to expire after a certain number of years or is only funded for a limited period), this will reduce the likelihood that new schools will be created. The recent small-scale voucher program for Washington, D.C., for example, is only budgeted for five years, after which it will have to be appropriated new funding or will expire.

Teacher Selection Policy. Education markets depend on the freedom of individual school operators to select their own teachers. Restrictions on that freedom, or the outright provision of teachers to private schools by the government (as happens with government-subsidized private schools in some Indian states) interfere with the operation of the market.

Termination Policy. If schools cannot readily terminate the employment of teachers who are failing to satisfy their customers, it becomes more difficult for schools to do a good job of serving families.

Testing Requirements. Testing is a valuable service in education markets, one that schools and independent testing services readily provide, but the imposition of mandatory government testing programs interferes with school autonomy. Mandatory testing exerts a homogenizing effect on curricula, impeding specialization, and focusing the attention of schools on the subjects tested at the expense of subjects not tested. The idea that a single test or battery of tests can adequately capture all the varied demands of education consumers is tantamount to Hayek's "fatal conceit," running precisely contrary to market principles.

Voucher/Subsidy Copay Policy. When voucher-accepting schools are either forbidden from charging copayments or are penalized for doing so by a reduction in the voucher amount, this has an effect on the likelihood that private schools will choose to participate in a nonmandatory voucher program. This variable is thus used to help predict the share of private schools that will choose to accept vouchers. (There is some overlap between this variable and the price controls variable, though the latter applies to all schools whereas this variable applies only to voucher/subsidy-accepting schools. If possible, the two variables may be coalesced in future.)

Voucher/Subsidy Has Sunset Clause. See the earlier discussion under *Tax Credit Program Has Sunset Clause*.

In addition to the regulatory conditions variables listed above, there are also a number of other input variables required to compute the MRM. Those are listed in Table 2.

Other Input Data Explained

Average Personal Tax Credit. If the policy being evaluated does not include a tax credit that parents can claim against their own children's education costs, then this value is set to zero. If it does include such a credit then the average value (or expected value) of that credit should be entered for this variable. So, for example, if a nonrefundable credit worth up to $4,500 against a taxpayer's income and property taxes is included in a proposal, and the average size of the credit that is expected to be claimed by taxpayers is $2,750, the user should enter $2,750 for this variable.

Average Private Scholarship Size. If private scholarship-granting organizations (a.k.a., privately funded voucher programs) exist in the given jurisdiction, or if they are expected to be created in response to the passage of the proposal under consideration, then the user should enter the average size of the scholarships they award (or are expected to award) in this variable.

Average Voucher/Subsidy. If the proposal includes government-funded vouchers or subsidies, then the average per-pupil size of those vouchers/subsidies should be entered here.

Government Spending per Pupil. The user should enter the average total per-pupil spending on state-run schools in the given jurisdiction for this variable (currently this stands at around $10,000 in the United States).

Initial Private School Tuition. This is the average tuition charged by private schools at the time the proposal is to be implemented. Since nonprofit schools also receive varying levels of income from nontuition sources, it would be preferable to use private school cost instead of private school tuition for this variable. Cost figures are more difficult to come by. A possible work-around would be to estimate the difference between tuition and cost for a sample of schools, and then modify the MRM to internally apply a cost-adjustment factor to the tuition price as input by the user. In other words, if private schools are estimated to spend 110 percent of their tuition rates per student, the tuition variable could be multiplied by 1.1 internally, and then this adjusted figure is used in the MRM's computation.

Personal Tax Credit Scope. This is the percentage (expressed as a decimal) of all parents (if any) who will be eligible for personal-use tax credits under the given school choice proposal. The user should set it to zero if there are no personal-use tax credits included in the given proposal.

Private Scholarship Scope. This is the percentage (expressed as a decimal) of all families who are expected to be eligible for and/or are likely to use scholarships from private scholarship-granting organizations. It should be set to zero if no private scholarships are expected to exist under the proposal in question.

Voucher/Subsidy Scope. If the proposal under consideration includes vouchers, this should be set to the percentage (expressed as a decimal) of families who will be eligible to use those vouchers. Otherwise it should be set to zero.

Variable Weightings

As alluded to in the previous section, the input variables to the MRM are not all accorded the same weight. Though uniformly weighted component variables are the norm in indexes like the Economic Freedom of the World index (Gwartney and Lawson 2004), they do not accurately reflect the differential impact of the variables measured by the MRM. Consider, for example, the input variables that measure curriculum freedom and testing freedom. Given that state-mandated tests only act to shape the things that schools teach, whereas state-imposed curricula determine precisely what is taught—possibly in great detail—stringent curriculum regulations are a more severe impediment to specialization than are stringent testing regulations. Hence, curriculum regulations must be weighted more heavily.

The system adopted in the draft MRM presented here was to place input variables into separate classes depending on their level of market impact. The three categories were "minor," "major," and "crucial," each of which corresponded to a different numerical coefficient that could be applied to a given variable. The Curriculum variable could thus be placed in the "major" category, and the Testing variable into the "minor" category. In practice, however, this classification system has proven to be insufficiently flexible, and a subsequent revision of the MRM will adopt separate weights for each variable.

Future Testing and Refinement

Though the components of the MRM were calibrated individually using data from existing pseudo-market education systems, the overall predictive validity of the MRM remains to be established. To accomplish that task, the MRM will be applied to a range of existing education systems, feeding it data on the historical policy details for those systems and verifying whether or not its predictions are consistent with the actual market conditions that exist in those systems today. The various weights and functions making up the MRM will then be recalibrated as needed to minimize the sum of the errors between predicted and observed conditions.

As noted earlier, the MRM will also be expanded to include an estimate of the predicted marketness of public-sector schools.

Finally, it is also contemplated that the MRM will be modified so that it is capable of producing a rating for existing education systems, in addition to its current function of estimating the future conditions that would arise from a given proposal.

Conclusion

The Market Reform Metric as described in this article is preliminary. Improvements that will add to both its comprehensiveness and its predictive validity are anticipated and welcomed. Though its calculation is more elaborate than the simple summation formulas used by some existing metrics (such as the Economic Freedom of the World index) this appears to be unavoidable. Without interactions between terms and varying weights being placed on the input data, it would be impossible to achieve the predictive validity that is necessary to make the MRM a valuable policy tool.

Fortunately, from a usability standpoint, the complexity of the underlying calculations can be hidden from the end user (e.g., education policy analysts and legislative aids) by using a familiar computer interface. An easy-to-use online interface for the MRM is already under consideration, which would allow anyone to rate the effectiveness of a school choice proposal privately and anonymously.

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