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Developing a School Finance System for K–12 Reform in Qatar

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Summary

In 2002, reform-minded leaders of Qatar embarked on a sweeping reform of the nation's education system to prepare its people to participate successfully in the global economy. Termed "Education for a New Era," the reform established a new governing body, the Supreme Education Council (SEC), which was to operate independently of the existing Ministry of Education and carry out the various reform measures. The reform design called for some Ministry public schools to be converted to so-called "Independent schools" under the direction of the SEC to encourage key principles of autonomy, accountability, variety, and choice. In addition to the establishment of these new schools, national curriculum standards and assessments were developed to promote and monitor educational progress. After an initial planning phase, 12 Independent schools opened in the 2004–2005 academic year, and 21 more opened in 2005–2006. Growth in the number of Independent schools has continued, with 46 Independent schools serving 18 percent of Qatar's K–12 population in 2006–2007.

RAND worked with Qatar's leaders and the SEC to develop the reform plan and help implement it (Brewer et al., 2007). Following the initial implementation phase, the SEC asked RAND to analyze the progress made by the new school system, including an evaluation of the finance system developed to support the reform. This monograph documents RAND's evaluation of the finance system, and a forthcoming companion report will address other aspects of the reform.

Study Questions and Approach

This analysis aims to describe and evaluate the evolution of the finance system designed to support the reform in its early stages—specifically, from 2004 to 2006. We examine resource allocation patterns over this time period, develop a set of objectives and analytic tools for evaluating the system, evaluate the system in its early stages of development, and offer suggestions for improving the system. Thus, the monograph addresses the following research questions:

- How have financial resources in the reform been allocated over time?
  - in the reform as a whole
  - in Independent schools
- To what extent does the system of financial support for the reform meet the objectives of a strong school finance system?
- What analytic methods and tools will further the SEC's ability to monitor and modify financial flows to the reform?
- How can the finance system be improved?

We relied on several data sources to assess financial aspects of the reform, including financial data from each Independent school, school administrative data, student-level data and test scores, and information about each student's parents and family life. Our assessment reflects trends from the 2003–2004 planning phase, the first year of school operations in 2004–2005, and the second year of school operations in 2005–2006.

In evaluating the education finance system, we endeavored to understand how financial resources were allocated over time in the reform as a whole and in detail within the Independent school system. Likewise, we sought to ascertain the extent to which the new school finance system supported the growth of the reform and to highlight ways it could be improved.

We developed a framework for evaluating the school finance system, based on its ability to meet six main objectives: adequacy, efficiency, equity, accountability, transparency, and an appropriate balance between stability and responsiveness. We then assessed the system in light of these objectives, developing analytic methods where needed.

Findings

In assessing trends in resource allocation, we found that total spending on the reform rose from QR 144 million in the start-up phase to QR 523 million in the first year of school operations and to QR 841 million in the second year.[1] Over that time, total spending on operating Independent schools alone more than doubled, from just under QR 200 million to just over QR 400 million as the number of Independent schools rose from 12 to 33.

We found that Independent school operators were hesitant to spend in their first year of operations and carried sizable surpluses of about 15 percent of revenues, on average. In their second year of operation, they spent more but still carried surpluses of about 10 percent of revenues, on average. Some of this hesitancy in spending may have stemmed from general uncertainty regarding funding policies, leading school operators to maintain financial buffers. Some may also have been due to an initial lack of experience in the management of budgets or to a lack of familiarity with the full range of resources that could be purchased by schools.

To assess financial *adequacy*, we investigated whether the reform supplied enough funding to support educational excellence, using a "successful schools" approach. This approach identifies high-performing schools using statistical techniques and calculates average costs in these schools to determine adequate funding levels. Our application of the successful schools approach used 2006 standardized student test scores, regression adjusted for the prior performance, and demographic characteristics of students to rank schools by performance. Adjusted test scores are preferable to average test scores in determining the value a school provides to its pupils in a given year because they help distin-

[1] The Qatari riyal (QR) was approximately equivalent to 0.275 U.S. dollars during the 2004–2006 period, and the exchange rate has remained relatively stable.

guish the school's effect on learning from the performance that would be expected given the abilities of the students who attend the school.

Our adequacy analysis using the successful schools approach showed that higher test scores were associated with higher per-pupil spending, lower per-pupil surpluses, and lower pupil-teacher ratios in the 20 Independent schools examined at the primary school level. Differences in spending, surpluses, and pupil-teacher ratios between the top-performing (based on adjusted student test scores) and bottom 50 percent of primary schools are statistically significant. Top-performing, as well as other schools, received funding adequate to cover their expenditures.

Still, it is too early to establish whether reform schools are receiving adequate funding. First, it is not possible to assert that top-performing schools are "successful schools," unless it is known that these schools are achieving desired levels of learning. Thus, this method ultimately relies on the existence of school performance standards, and these have not yet been established by the SEC. Although we can distinguish better from worse performing schools, the absence of a standard of excellence makes it unclear whether funding is adequate to promote excellence. Second, with so few schools in the sample, we are cautious in regarding our results as evidence of a causal link between resources and performance. The analysis did not reveal a statistically significant relationship between expenditures and student test scores for preparatory and secondary schools, but we do not know if this is due to a lack of association between test scores and financial resources for these schools or because the number of schools is too small to detect a relationship. As the reform grows and more Independent schools are established, additional data will become available for future analysis, improving inference that can be drawn.

In studying financial *efficiency*, we tried to establish whether the reform provides effective educational models at the most economical price. At this point in time, however, it is not yet feasible to determine efficiency because, as noted above, standards for excellence have not been defined. Once they are established, it should be possible to identify which schools are successful and to compare resource use and teaching practices among them to determine which ones are most efficient. By supplementing the quantitative analyses described above with a case study approach to examine the operations and teaching practices of successful schools, it will be possible to uncover factors that might yield high achievement at the lowest cost.

Our assessment of *equity* in the reform employs a comparison of resource use in boys' and girls' schools. We found that boys' and girls' schools had similar levels of resources and spending, but that this apparent similarity masked significant differences in cost structure. The most salient factor in decomposing these cost structures is the gender and nationality of teachers in Independent schools. Male teachers earn around QR 5,585 more than females per month, and Qataris earn approximately the same monthly premium over non-Qataris. Female Qatari teachers earn approximately the same monthly salary as male non-Qataris, and male Qatari teachers earn well over twice the monthly wage of female non-Qatari teachers. By cultural convention, preparatory and secondary school students as well as primary-school girls have teachers of the same gender, whereas primary school boys can be taught by either gender. As a result, boys' schools generally employ male teachers who cost more. However, because male Qataris generally do not enter the teaching profession, the boys' schools offset this higher cost by employing more than five times as many non-Qatari male teachers as Qatari male teachers. In contrast, girls' schools had a nearly equal number of Qatari and non-Qatari teachers. The gender and nationality factors roughly offset each other to produce a similar overall spending pattern. Despite the apparent gender equity in school funding, the underlying differences in the gender and nationality of the teacher populations imply that the balance is tenuous and depends on maintaining a particular labor force composition. For example, increasing the share of Qataris employed in Independent schools, as desired by the government and promoted through a set of governmental policies involving target quotas termed "Qatarization," could have a differential effect on boys' and girls' schools.

We developed a flexible forecasting tool to investigate the potential effect of various policy changes, such as Qatarization, on total reform expenditures. In one such scenario, we found that some schools stood to gain significantly but others had much to lose under enforcement of Qatarization target quotas and compensatory adjustments to funding would alter the gender balance. As a result, the enforcement of Qatarization policies could affect funding equity across boys' and girls' schools as well as conflict with the goal of improving student achievement.

Two primary mechanisms are used in the finance system to promote accountability to ensure that recipients of public funds produce high-quality education: fiscal oversight and school choice. The fiscal oversight mechanism involves regulating school spending and the labor market for school personnel. We found that the reform relied on this type of oversight as the primary mechanism to ensure accountability, as evidenced by several initial and added regulatory provisions. In the period covered by our analysis, the SEC reduced funding sources and froze surpluses to prevent the misuse of surplus funds. Although these restrictions appear to have achieved their desired fiscal effect, it is unclear whether they have provided incentives for schools to strive for improved performance. In addition, the second accountability mechanism, parental choice, is only partially effective in providing incentives for Independent schools to raise achievement, as capacity constraints make it difficult for them to accept new students. Without the incentive to attract students, the choice mechanism provides little incentive to raise performance.

The principle of *transparency* was meant to be manifest in the reform's data systems. These systems were designed to produce needed information for monitoring and analysis, as evidenced by a comprehensive set of financial reporting forms that schools are required to fill out and submit. However, we discovered areas of concern within the system during the time period covered by our evaluation, including nonelectronic data storage, inconsistent time periods for school statements reducing comparability across schools, nonstandard categorizations of expenses, and a lack of unique staff identifiers. The lack of these standards made analytical work difficult in some areas. A new electronic management information system has been partially implemented since our analysis was conducted. It is hoped that the new system will eventually alleviate many of these problems.

A final objective of a sound education finance system is striking a balance between *stability* and *responsiveness*. Stability refers to a predictable operating environment that allows school operators to establish both long- and short-term strategies for improving their schools; responsiveness indicates an ability of the governing body to intervene and fine-tune the reform to improve its functioning. Our findings indicate that the SEC emphasized responsiveness over stability in the years covered by this analysis. The SEC responded to information on school surpluses with numerous changes in financial policies. For instance, schools were changed from for-profit to nonprofit entities, surpluses were placed in holding accounts, operator salaries were capped, grant funding was discontinued, and start-up funds were capped. Still other changes in regulations stemmed from national goals, particularly goals meant to promote the employment of Qataris and increase Qatari base salaries by 40 percent. As a result of the many swift and strong policy changes over the first two years of operation of Independent schools, the system has lacked stability. This uncertainty likely made it difficult for school operators to plan for the long term and make the kinds of investments in quality that would eventually use the full per-pupil allotment. Furthermore, some of the policy changes implemented ran counter to the reform principals of autonomy, accountability, variety, and choice. It is understandable, however, that a new system might undergo widespread change in its initial stages. Perhaps, moving forward, the system will achieve a greater degree of stability.

Conclusions and Recommendations

Qatar's K–12 education reform has made notable progress in a few short years. It has founded a growing set of new schools and established a comprehensive infrastructure for financial support and monitoring. With a rich array of financial reports and consecutive years of similar test-score data, it is now possible to develop new measures of financial and educational performance, analyze trends and differences across institutions and time periods, and forecast spending projections under various policy scenarios. In this monograph, we have explored the wealth of data available and pointed the way to analyses that can inform the SEC in future decisionmaking. We also developed a flexible forecasting tool that serves both in evaluating current flows of revenues and expenditures and in assessing the effect of proposed policy changes.

Our assessment revealed areas for improvement in the finance system to enrich its capacity to support the reform and its overall mission. We offer the following recommendations:

- To determine levels of funding adequate to support educational excellence, we recommend continued analysis using a successful schools approach along the lines of the one we describe and implement in our study. As the reform expands and performance targets that represent excellence in achievement are established, this methodology will yield increasingly useful information.
- To obtain information that would lead to greater efficiency in school operations, we recommend supplementing the quantitative analyses described above with a case study approach to examine the operations and teaching practices of successful schools and uncover factors that might yield high achievement at the lowest cost.
- To address potential equity issues, we recommend that policies with different effects on different types of schools be investigated before implementation, using a forecasting model such as the one we have developed.
- To improve transparency, we recommend that the new information system include improved longitudinal tracking mechanisms as well as introduce more uniform categorization of personnel and expenditures. The current reporting system is in the process of being replaced by a management information system; its design provides an opportunity to address the data issues identified in this study.
- To strengthen accountability for school quality, we recommend an expansion of the choice mechanism through increases in capacity where possible to strengthen the system's ability to hold schools accountable for providing high-quality instruction.

- To improve stability, we recommend that, going forward, the pace of policy change be slowed to allow school operators to assess long-term prospects and plan for multiyear investments in resources that may improve educational quality.

In summary, we have evaluated the school finance system developed to implement Qatar's K–12 education reform in its early years. In so doing, we have devised a set of analytic methods and tools and suggested a number of potential improvements. It is hoped that these analyses, tools, and suggestions will be useful to the SEC as the reform expands and that they will also provide helpful information to other nations embarking on education reforms, particularly those in regions that face contextual issues similar to those in Qatar.