

SHEIKH SAUD BIN SAQR AL QASIMI
FOUNDATION FOR POLICY RESEARCH

The Other Gap: Examining Low-Income Emiratis' Educational Achievement

Elizabeth Buckner
Ontario Institute for Studies in Education, University of Toronto

Working Paper 15

September 2018

Elizabeth Buckner is an Assistant Professor in the Higher Education Program at the Ontario Institute for Studies in Education (OISE) at the University of Toronto. Her research examines policy-relevant issues in education, including privatization and internationalization. She has a regional expertise in the Middle East and North Africa.

Executive Summary

This working paper examines how low-income Emiratis are doing in secondary schools in the United Arab Emirates (UAE). Using PISA 2015 data on Emiratis' performance to assess academic performance in math, science, and reading, it disaggregates students' performance by key student and school characteristics, including: family wealth, gender, school sector, and emirate. It finds strong evidence that low-income Emiratis are performing much worse than their middle and upper-income peers, and the gap between the top and bottom wealth quintiles is as large or larger than the gap between girls and boys. It argues that despite the significant attention paid to the male-female gender gap, this "other gap" – the wealth gap – also deserves attention. The findings also indicate that other student characteristics also shape performance: low-income boys are performing worse than low-income girls and private schools in general are serving low-income students better. However, there are also important differences in performance across emirates, with the Northern Emirates serving low-income students in the public sector better than Dubai, where low-income students seem to benefit more from being in the private sector. The second half of the paper examines low-income Emiratis' home and school environments, and finds that low-income students are often uncomfortable in school and the recipients of negative attention from teachers and peers. The paper argues that low-income Emiratis are not being served well by the existing school system and policies must address the distinct needs of low-income Emiratis.

Table of Contents

Who are Low-Income Emiratis?	5
Distribution of Low-Income Emiratis, by Sector	6
How are Low-Income Emiratis Performing at the End of Secondary School?	7
The Wealth Gap in Relative Perspective	8
Part I: Low-Income Emirati Performance by Gender, Sector, and Emirate	9
Gender-Based Differences	9
School Sector	10
Differences Across Emirates	12
School Sector and Emirate	12
Comparing Public and Private Schools in Dubai and Ras Al Khaimah	13
Part II: Low-Income Students' Home and School Environments	13
Parental Engagement	13
Experience in School	14
Discussion	15
Recommendations	15
Support Public Sector Schools	15
Create Supportive In-Class Learning Environments	16
Focus on Low-Income Boys' Performance	16
Create Supportive Schooling Environments for Low-Income Students	16
Conclusion	16
References	17
Appendix A: Distribution of Emiratis and Non-Emiratis by Wealth	18
Appendix B: Additional Tables	19

Overview

Around the world, students from low-income families tend to do worse in school than students from economically advantaged families, and the United Arab Emirates (UAE) is no exception (Chudgar & Luschei, 2009; OECD, 2015a). That said, due to widespread stereotypes that Emiratis are wealthy and benefit from government policies and subsidies, low-income Emiratis tend to be overlooked in media and public policy. Researchers in the region have argued that there is a need to better understand risk factors affecting students in Gulf Cooperation Council (GCC) countries, and have argued that poverty and a lack of parental support must be considered important predictors of student outcomes (Al-Hendawi & Keller, 2014). This working paper examines student learning outcomes in the UAE by asking: how are low-income Emiratis doing in secondary school? It investigates the performance of 15-year-old Emiratis on the Programme for International Student Assessment (PISA), a standardized international assessment that is designed to measure students' skills in reading, math, and science. For the purpose of this analysis, I focus specifically on Emirati nationals. I compare Emiratis, both males and females, in public and private schools, across all seven emirates to examine low-income Emiratis' experiences in school and their academic achievement.

The key finding is that the wealth gap in performance between Emiratis in the poorest quintile (i.e., bottom 20%) and wealthiest quintile (top 20%) is significant. It is as large, or larger, than the gender gap in achievement in math and science, and approximately 80% of the gender gap in reading. Moreover, additional analyses show that low-income students are often uncomfortable in school and are much more likely to be the recipients of negative attention from teachers and peers. Yet, there is little policy attention addressed to low-income Emiratis and how to help them succeed in school. With the significant attention focused on the male-female gap in education, this article argues that another gap – the wealth gap – also deserves attention. Low-income Emiratis are not being well served by existing schools and policies must address the distinct needs of low-income Emiratis.

Who are Low-Income Emiratis?

There are roughly 9.2 million residents in the UAE, of whom only an estimated 10% are Emiratis (World Population Review, 2018). In general, Emiratis tend to have higher incomes than non-nationals (see Appendix A). National statistics from a 2008 labor market survey show that the average annual income of Emiratis is 216,000 Dhs, compared to many non-nationals, whose average income varies based on their education, country of origin, and profession (Tong, 2010). National labor market surveys have shown that on average, Westerners make more than Emiratis, while foreigners from other world regions, including the Middle East, Africa, and Asia make less (Tong, 2010).

However, not all Emiratis are wealthy, and Emiratis are found across the income spectrum. In fact, the assumption that all Emiratis are economically advantaged can result in the invisibility of low-income Emiratis in public policy. Low-income students may face particular challenges in education, including the need to enter the labor market early, or a lack of educational resources in the home. They may also face additional challenges that are related to being low-income, such as being from a single-parent home. In general, they likely need additional supports to succeed academically; therefore, it is important to understand both their academic performance and their experiences in school.

I use 2015 PISA student survey and assessment data to examine the link between family wealth and academic achievement. The survey does not ask students about their families' household income directly. Instead, it uses an index of household assets as a proxy for family wealth. Due to the nature of the data, therefore, the definition of low-income used in this analysis is relative. For the purposes of this analysis, I group all students surveyed in the UAE – including both nationals and non-nationals – into income quintiles. As Figure 1 shows, Emirati students are more likely to be found at the top end of the spectrum. While we would expect only 40% of Emiratis to be in the top two quintiles, in fact, 59% of Emiratis are found in the top 40% nationally, while only 22% of non-Emiratis are in the top two quintiles. Similarly, at the bottom end of the spectrum, if the distributions were equal, we would expect 40% of Emiratis to be in the bottom two quintiles. In fact, only 23% of Emiratis are found in the bottom two quintiles, while 56% of non-Emiratis are. This figure shows the relative wealth distribution, and points to the fact that of all 15-year olds in the UAE, Emiratis are significantly wealthier on average.

Nonetheless, 11% of Emirati students are in the bottom wealth income quintile (WIQ) (1st-20th percentile nationally), and another 12% are in the second quintile (21st-40th percentile nationally). Thus, Emiratis make up 23% of the poorest 40% of UAE secondary students. In this paper, I define low-income Emiratis as those students in families falling into the bottom 40% of the national income spectrum. The Emiratis in these bottom two quintiles likely have fewer family resources to draw on for their education, and it is worth investigating how well they are doing in schools when compared to their wealthier peers.

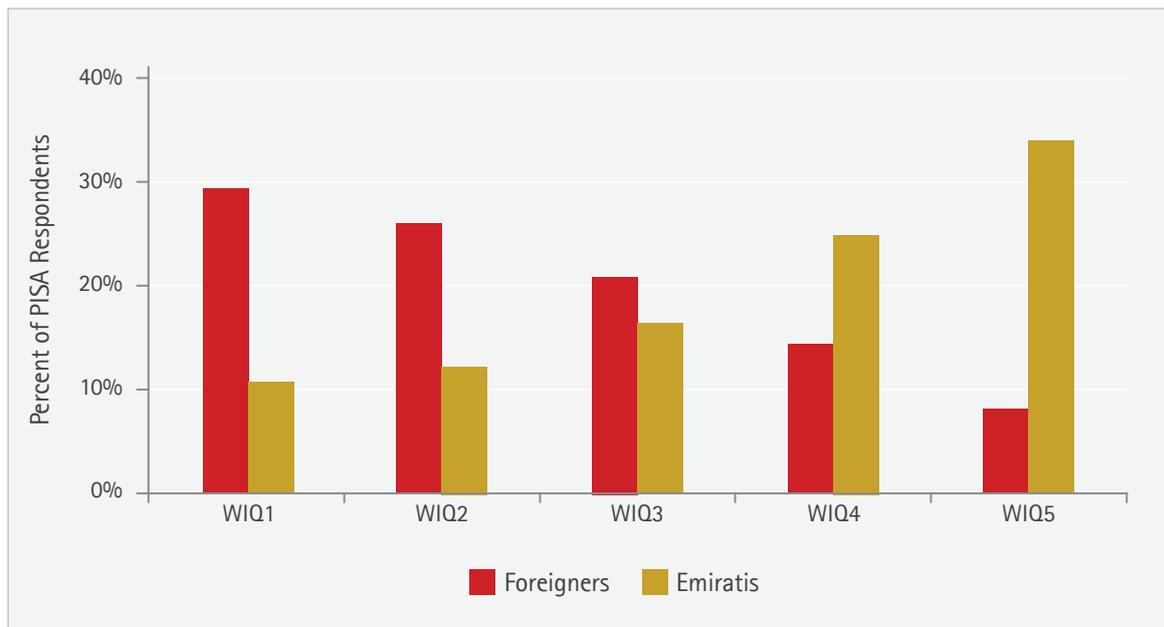


Figure 1. Distribution of Emiratis and Foreigners, by Wealth Quintile (WIQ)

Additionally, despite the significant differences across the emirates, with perceptions that Abu Dhabi and Dubai are wealthier than the Northern Emirates, I find that low-income Emiratis are found throughout the UAE. Although the proportion of low-income Emiratis is slightly higher in Ajman, Sharjah and Umm al-Quwain, these emirates are smaller in terms of population. In fact, roughly 40% of all low-income Emirati students are in Abu Dhabi and 15% are from Dubai, suggesting there are low-income Emirati students found throughout the country (see Table 1).

Table 1. Distribution of Low-Income Emiratis in the UAE, by Emirate

	Low-Income Emiratis (% All Emiratis)	Percent of Nationwide Total (% All Low-Income Emiratis)
Abu Dhabi	22%	40%
Dubai	21%	15%
Sharjah	29%	20%
Ajman	29%	8%
Umm al-Quwain	27%	2%
Ras Al Khaimah	21%	9%
Fujairah	22%	6%

Distribution of Low-Income Emiratis by Sector

In addition, I find that low-income Emiratis are found in both public and private schools. Table 2 shows the proportion of low-income Emiratis enrolled in the private sector. According to the data, 73% of all low-income Emiratis are enrolled in public schools, compared to 74% of middle and upper income Emiratis. This suggests that both public and private schools need strategies to meet low-income Emiratis' educational needs. One implication of this analysis is that it may not be immediately obvious who low-income Emiratis are – they are not necessarily more likely to be in public or private schools, for example. However, I also look at distribution of low-income students into the private sectors across each of the emirates.

However, it is also worth noting that the concentrations of Emirati students in private schools varies substantially across the seven emirates. In Abu Dhabi, Dubai, and Sharjah, private schools educate roughly the same proportion of low-income students as middle- and upper income students. In Dubai, private schools are actually more likely to serve middle and upper-income families. This reflects a cross-national trend,

Table 2. Distribution of Emiratis into Public and Private Sectors, by Emirate

	% of Low-Income Emiratis in Private	% of Middle and Upper-Income Emiratis in Private
Abu Dhabi	28%	26%
Dubai	44%	49%
Sharjah	30%	37%
Ajman	43%	17%
Umm al-Quwain	3%	5%
Ras Al Khaimah	22%	8%
Fujairah	14%	5%

which shows that because private schools charge tuition, they also tend to enroll children from economically advantaged families who can afford to pay higher tuition, which is one factor associated with higher overall achievement levels in private schools (Dronkers & Robert, 2008; Dronkers & Avram, 2010). In contrast, in Ajman, Ras Al Khaimah, and Fujairah, low-income students are actually more likely to be in private schools than public schools. This is an interesting trend, given the fact that most private schools charge tuition, and it raises important policy questions over the nature and quality of these private schools: what types of private schools are these? What curriculum are they teaching? How qualified are their teachers? Who attends these schools and for what reasons? And how much do they pay in tuition? Future research should investigate these questions in the Northern Emirates, to help ensure that private schools there are serving low-income students.

How are Low-Income Emiratis Performing at the End of Secondary School?

This section explores how low-income Emiratis are performing on standardized international assessments at the end of secondary school in three core subjects: math, reading, and science. I draw on data from the 2015 PISA to explore how low-income Emiratis' academic performance compares to their peers. In general, students in the UAE perform slightly below the cross-national mean, and within the UAE, non-national students' average scores are higher than those of Emirati students. The cross-national mean is standardized to 500; in the UAE, the national averages are: Math (427); Science (437) and Reading (434), while national averages for Emiratis are: Math (387); Science (394) and Reading (393). However, among Emiratis, there are important differences in student achievement, and low-income Emiratis are performing well below the national average of other Emirati students.

Table 3 shows the average performance of Emirati students on each subject of PISA, disaggregated by wealth income quintile. The first wealth income quintile (WIQ1) refers to students falling into the poorest 20% of Emiratis, while the top wealth income quintile (WIQ5) encompasses the wealthiest 20% of students of the UAE. As expected, the table shows that average performance on PISA rises with family wealth. The average math score among low-income Emiratis is 356, compared to an average of 400 for Emiratis in the top income quintile, a difference of roughly one half of the standard deviation. The gaps are as large in both reading and science.

Box 1. Technical Note on PISA Data

Technical Note on PISA

PISA is an internationally standardized exam that tests the skills and knowledge of 15-year olds in over 72 countries and economies in three subjects: math, reading and science. In the United Arab Emirates, a total of 13,431 students took the exam, of whom 5,980 (45%) were Emirati and 7,451 (55%) were non-Emiratis. The exam was designed to be representative of all seven emirates, which means results can be disaggregated at the emirate level, and in both the public and private sectors. The assessment is standardized with a cross-national mean of 500 and a standard deviation of roughly 100 points.

Table 3. Mean Emirati PISA Score, by Wealth Quintile (WIQ)

	WIQ1	WIQ2	WIQ3	WIQ4	WIQ5
Math	356	371	385	394	400
Reading	350	374	390	403	408
Science	362	381	393	402	405

Importantly, the gap in performance on PISA is driven by particularly low scores among students in the lowest-quintile. This need not be the case; for example, it is possible that gains in family wealth have a direct and linear relationship with student performance; if that were the case, we might expect the gap between the poorest quintile of students and those in the middle quintile to be roughly similar to the gap between the middle quintile and the top quintile. In fact, the data shows that the gap is much larger at the bottom end of the spectrum. For example, Figure 2 plots Emirati students' average math and reading scores by wealth income quintile. The figure clearly shows that students in the lowest wealth income quintile are doing substantially worse than other Emiratis.

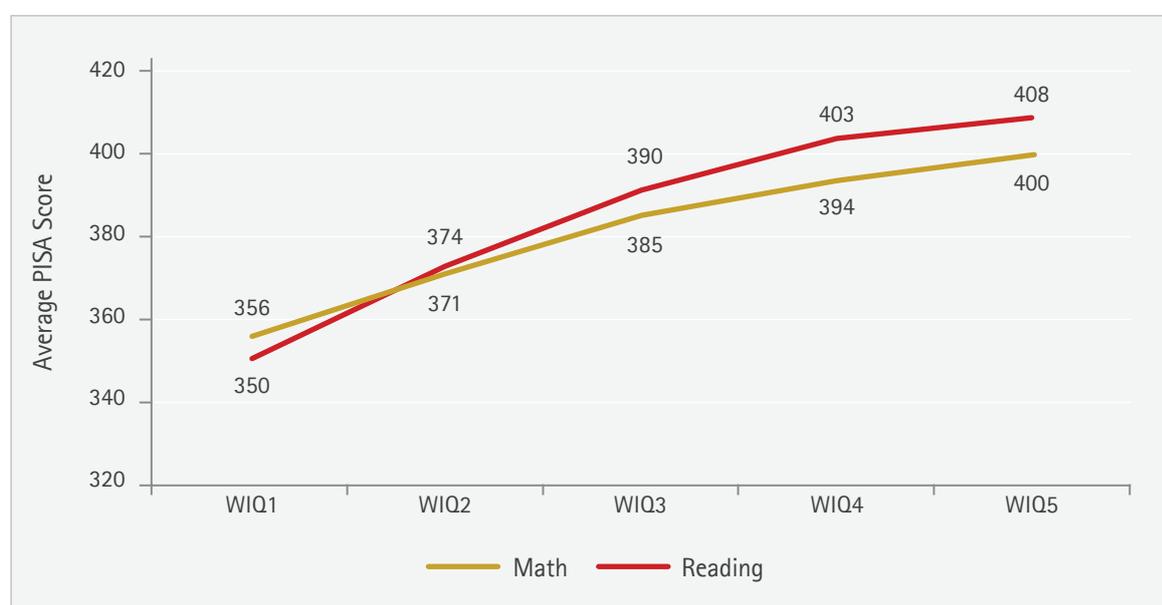
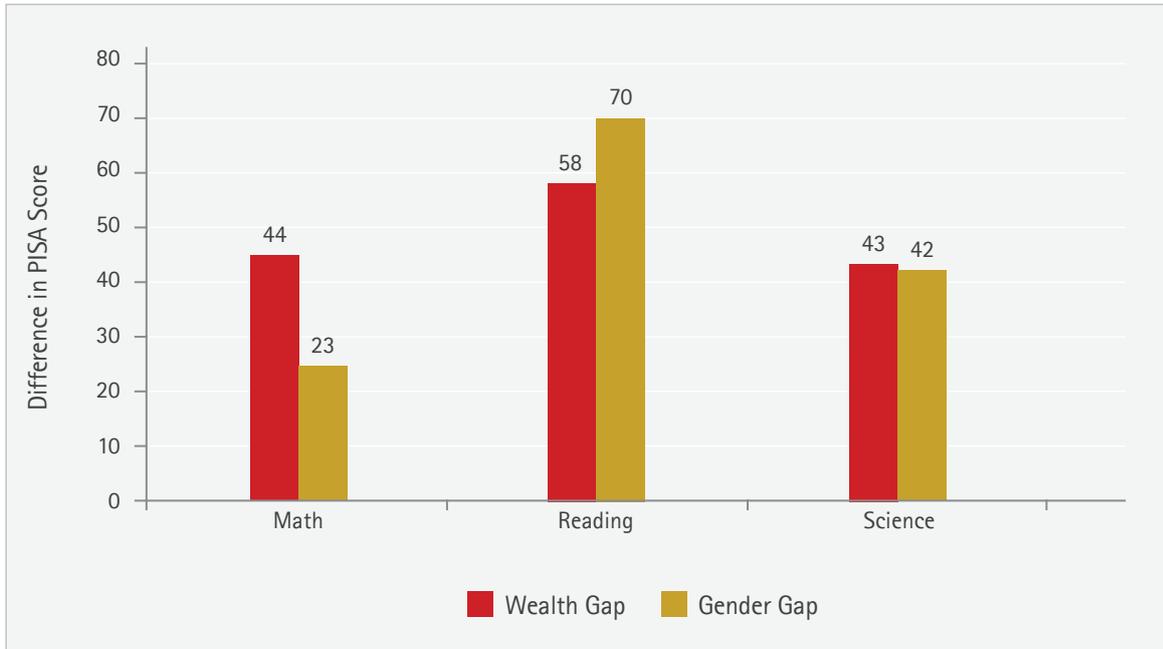


Figure 2. Emiratis' Average PISA Score, by Wealth Quintile (WIQ)

In addition, the figure shows that the difference between the fourth and fifth quintiles in reading is only five points, which is negligible. However, the gap between the bottom quintile and second quintile is 24 points – nearly five times as high. The findings suggest that additional family income is not associated with significantly better performance for the wealthiest Emiratis; however, at the bottom end of the wealth spectrum, family income has a much larger impact on students' performance.

The Wealth Gap in Relative Perspective

How big is the wealth gap between Emiratis of different wealth quintiles compared to other types of disparities in academic achievement? Figure 3 shows the wealth-based gap in student performance as compared to the gender gap in all three subjects. The wealth gap is calculated as the difference between students in the top wealth quintile and those in the bottom quintile, and the gender gap is calculated as the difference between female and male scores. The numbers are positive because females consistently outperform males in the UAE on all three subjects; similarly, wealthier students are outperforming low-income Emiratis. The figure shows that the wealth-based disparity is almost twice as larger in math than the gender disparity (44 points to 23 points). In reading, the wealth gap is 58 points, compared to the gender-based gap of 70 points, and in science the gaps are very similar (43 points wealth gap to 42 points gender gap). Despite the fact that this gap is large, accounting for roughly one half-standard deviation in performance, little policy attention focuses on the poor performance of low-income Emiratis or their distinct needs in the education system.



Note: Wealth gap is defined as the difference between the top wealth quintile and the bottom wealth quintile.

Figure 3. Wealth and Gender Gaps on PISA, by Subject

Part I: Low-Income Emirati Performance by Gender, Sector, and Emirate

Many aspects of students' identities, including their immigration status, home language, gender, and socio-economic status can affect students' performance in school. While much of the research on risk factors for low academic achievement is conducted in North America and Europe, scholars have argued that it is applicable to the GCC context as well (Al-Hendawi & Keller, 2014). In particular, Al-Hendawi and Keller (2014) argue that in the GCC context, low parental education levels, a lack of parental support for education, and gender (i.e., being male) should be considered possible at-risk factors for low achievement (p. 3). In this section, I examine achievement of low-income Emiratis in various demographic groups: gender, school sector, and emirate to determine which additional demographic factors are associated with low performance. I find that even among low-income Emiratis, some students are doing particularly poorly, namely low-income males. Meanwhile, low-income Emiratis in private schools tend to be performing better than those in public schools.

Gender-Based Differences

In the UAE, girls have tended to perform better on average than boys on standardized assessment for at least two decades (AlKhateeb, 2001; Egbert, 2012; Ridge, 2012; Ridge, 2014). They also graduate high school and attend higher education at higher rates (Abdulla & Ridge, 2011). Perhaps unsurprisingly, PISA 2015 data shows that in the UAE, girls are out performing boys in all three tested subjects.

Table 4. Mean Emirati PISA Score, by Wealth Quintile (WIQ) and Gender

	WIQ1		WIQ2		WIQ3		WIQ4		WIQ5	
	M	F	M	F	M	F	M	F	M	F
Math	347	367	360	382	374	394	383	401	388	409
Reading	319	386	338	409	356	419	363	432	370	437
Science	344	385	360	402	373	409	379	418	382	422

Table 4 shows that boys are doing worse than girls across the board, which is in line with previous research. The table also shows how gender and income intersect: low-income Emirati boys are performing particularly poorly, and their low levels of achievement are driven by both the fact that boys tend to perform worse than girls and the fact that low-income Emiratis score worse than those in the middle and top quintiles. In particular, we see that low-income Emirati boys have particularly poor reading skills, compared to other Emiratis. Despite the fact that boys are performing

worse than girls on PISA, the size of the gender gap is roughly the same comparable across all wealth income quintiles. Female students score roughly 20 points higher than male students across all wealth income quintiles in math, and roughly 60-70 points better in reading across all income quintiles.

School Sector

An important policy question concerns how public schools are serving low-income Emiratis, as many low-income families may not be able to afford private schools. To investigate the link between family income, sector and performance, Table 5 reports student performance on PISA by wealth income quintile and school sector.

Table 5. Mean Emirati PISA Score, by Wealth Quintile (WIQ) and School Sector

	WIQ1		WIQ2		WIQ3		WIQ4		WIQ5	
	Public	Private								
Math	346	380	361	404	379	404	388	411	392	418
Reading	339	375	363	409	386	406	401	411	403	420
Science	353	384	371	414	389	407	399	412	401	414

It points to a clear, but concerning, trend: Emirati students in private schools are performing better than those at all income levels, but more concerning is the fact that the benefit of private schooling is even more marked among low-income Emiratis than those in the middle and upper income levels. For example, Figure 4 shows that students in the lowest two income quintiles who are enrolled in private schools score between 35-45 additional points on average on the PISA Math exam, while those in the upper 60% of the income distribution also get an advantage from being in private schools, but a much smaller one, of roughly 20 points. The benefits low-income Emirati students receive from being enrolled in private schools is as large in reading, and this is noteworthy because at the upper end of the income distribution, there seems to be little advantage to being in a private school (a difference of roughly 10-20 points). In contrast, among low-income Emiratis, being enrolled in a private school is associated with an average increase of roughly 35-45 additional points.

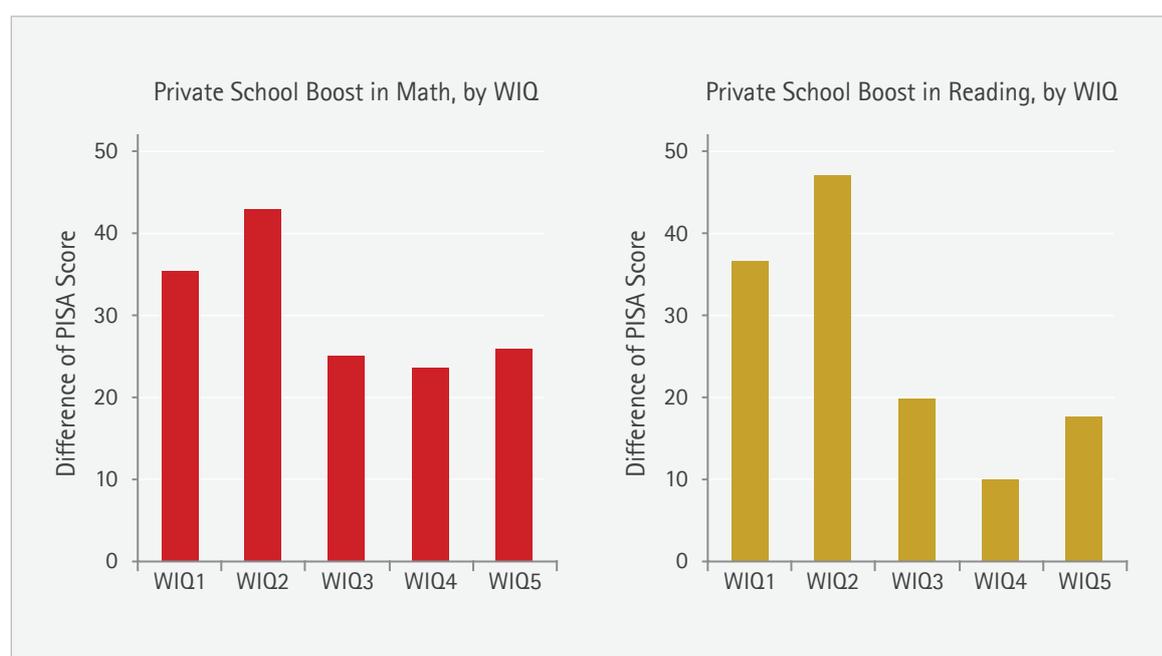


Figure 4. Average Boost on PISA for Private School Students, by Wealth Quintile (WIQ)

The descriptive analyses conducted do not necessarily shed light on why low-income students in private schools are doing better than those in public schools. It could be the result of selection effects – more motivated students and families happen to be those enrolled in the private sectors, but it could also reflect in-school differences, such as teacher quality, training, or regulation. A significant body of cross-national research, primarily in the United

States (US) and Europe, has investigated sector-based differences in student achievement (Coleman, Hoffer, and Kilgore 1982; Bryk, Lee and Holland 1993; Dronkers 2004). These studies tend to find that students in private religious schools in the US, and private government-funded schools in Europe, do better than students in public schools; however, the benefits of private schooling do not necessarily apply to non-religious and independent (i.e., not government funded) private schools. Moreover, the mechanisms by which private schools benefit students are not conclusive, and depend on context. Examining 22 countries in Europe, Dronkers and Robert (2008) find that the academic advantages of private schools are primarily due to the family backgrounds of students, but school climate is also an important explanatory factor associated with the better performance of students in private schools. These findings align to long-standing arguments about the importance of community involvement and supportive school climates in private religious schools in the United States (Coleman & Hoffer, 1987). In the UAE, research is more limited; however, research from Dubai shows that private school quality closely aligns to both tuition fees and curriculum type (Azzam, 2017).

Drawing on data from Dubai, Azzam (2017) argues that it is an "undeniable fact" that the higher ranked private schools in Dubai are those that charge higher tuition (p. 120). Using data from Azzam (2017), Table 6 presents data on average school fees in Dubai by school curriculum type and performance in 2013-2014. The table shows that private schools in Dubai that are ranked "Outstanding" charge roughly 50% higher tuition than those considered "Good," which in turn, charge roughly twice the amount of those ranked "Acceptable" (see: Azzam 2017, p. 121). In addition, school quality also seems to map onto curriculum type. Private schools that follow the US and United Kingdom (UK) curriculum are much more likely to be ranked as "Outstanding" or "Good" than those following the Emirati national curriculum, where only 15% of schools are ranked "Good" and none "Outstanding." However, it is unclear what explains these differences; they are likely explained by differences in tuition and related factors, such as teacher quality and curricular rigor, as well as differences in student body composition.

Table 6. Fees and Performance of Private Schools in Dubai (2013-2014)

	Fees (AED)	Outstanding (%)	Good (%)	Acceptable (%)	Unsatisfactory (%)
US (Tier 1)	58139	17	50	33	0
Intl Bac.	55190	0	100	0	0
UK (Tier 1)	48149	32	68	0	0
US (Tier 2)	20006	0	15	80	5
UK (Tier 2)	15433	0	44	52	4
Indian	11190	9	36	45	9
UAE	8905	0	15	62	23

Note: Adapted from "Dubai's Private School Fees Framework: A Critical Discussion," by Azzam, 2017, *Journal of Research in International Education*, 16(2), p. 115-130.

It is clear that in parts of the UAE, namely Dubai, families are able to purchase higher quality education by enrolling their children in particular private schools. However, this research, conducted in Dubai, is not necessarily representative of all emirates, particularly the Northern Emirates where middle and upper-middle class Emiratis are actually more likely to enroll in public sector schools. Therefore, in Table 7 I examine low-income Emiratis' average score on PISA based on their curriculum type. It is noteworthy that there is very little difference between private schools using the American curriculum vs. those using the Emirati curriculum, while low-income Emiratis enrolled in private schools using the British curriculum are doing 40-60 points better on PISA, which is significant. It is also worth noting that when compared to public schools, private schools using the Emirati curriculum, are doing roughly 30 points better on average – suggesting that for low-income students, there are benefits to being in a private school unrelated to the rigor of the curriculum.

In the next section, I also examine student achievement across the seven emirates to understand emirate-level differences and determine if the private school advantage is found throughout the country or is being driven by the more privatized emirates, such as Dubai.

Table 7. Mean PISA Scores of Low-Income (WIQ1 & WIQ2) Emiratis in Private Schools, by Curriculum Type

	Curriculum	Math	Reading
Public Schools	MoE Curriculum	354	352
Private Schools	MoE Curriculum	381	379
	American (US)	380	373
	British (UK)	422	431
	Indian/Other	408	410

Differences Across Emirates

As a federal system, there are significant differences in size, economic structure, and demographics across the seven emirates. Therefore, it is worth investigating how low-income Emiratis are performing across the various emirates. In this section, I compare students' performance on PISA in the seven emirates, disaggregated by their wealth income quintile. Table 8 shows average math and reading scores for low-income Emiratis. The table shows that there are some differences between emirates; with low-income students in Dubai and Sharjah doing the best and those in Ajman and Fujairah performing particularly poorly.

Table 8. Mean PISA Scores of Low-Income (WIQ1 & WIQ2) Emiratis, by Emirate

	Math	Reading
Abu Dhabi	359	357
Dubai	379	377
Sharjah	371	379
Ajman	343	349
Umm al-Quwain	356	348
Ras Al Khaimah	373	352
Fujairah	348	342

School Sector and Emirate

Table 8 above shows differences in average PISA achievement across the seven emirates. In particular, it shows that Dubai and Sharjah have higher scores on average than the other emirates. However, as previously indicated (see Table 2), these two emirates also have the highest rates of private school attendance among Emiratis, and in particular, among middle and high-income Emiratis. It is important to know whether the difference across emirates is driven entirely by differential rates in private school performance, and in turn, how public sector schools are serving low-income Emiratis. Table 9 shows low-income Emiratis' scores on PISA Math and Reading, by emirate and school sector.

Table 9 indicates that across all emirates – with the notable exception of Ras Al Khaimah, low-income students in private schools are generally doing better than low-income students in public schools. As with the findings above, the direction of causality is not clear: low-income families that send their students to private schools have made the choice to send students to private schools, despite the fact that they have limited incomes; this could indicate a home environment that is generally more supportive of academic achievement. Alternatively, it is also possible that private schools are serving low-income students better for various reasons, such as the rigor of curriculum, teacher quality, or peer networks.

The gap between public and private schools in Dubai and Sharjah is significant – almost 80 points in the case of Dubai. Although scores in the public schools in Dubai are slightly lower than those in other emirates, it appears as though the large sector-based gap in performance is driven primarily by the relatively high scores among low-income Emiratis in the private sector in Dubai and Sharjah. This finding requires additional analysis; it is important to understand if this result is driven by selection bias, meaning that the low-income students in private schools are somehow different than those in the public sector, or if school-based factors also play a role.

Table 9. Mean PISA Score among Low-Income (WIQ1 & WIQ2) Emiratis, by Emirate and Sector

	Math		Reading	
	Public	Private	Public	Private
Abu Dhabi	353	379	350	379
Dubai	346	426	352	413
Sharjah	355	421	359	440
Ajman	344	341	347	353
Umm al-Quwain	356	356	347	360
Ras Al Khaimah	378	353	358	330
Fujairah	347	360	342	336

Relatedly, it is also worth investigating how public schools in Ras Al Khaimah are performing so well, particularly in math. Low-income students in public schools in Ras Al Khaimah are doing as well, on average, on the PISA Math exam as students in private schools in Abu Dhabi, which suggests that there may be important policy models to learn from Ras Al Khaimah public schools.

Comparing Public and Private Schools in Dubai and Ras Al Khaimah

The findings suggest that differences in school composition will explain a large part of the difference in PISA performance between students in different emirates and sectors and specifically why low-income Emiratis in Dubai public schools do worse than those in Ras Al Khaimah public schools, while those in private schools do better. The findings suggest that there is a large degree of self-selection into different sectors – in Dubai, more educated and wealthier families self-select into private schools, whereas that is not the case in Ras Al Khaimah, where wealthier and well-educated Emiratis are actually more likely to be enrolled in public schools. An important implication of these findings is that when the public school becomes viewed as an education of last resort, as it is in Dubai, low-income students will suffer. For example, in Dubai, those who cannot afford to enroll in the private sector are actually doing worse than Emiratis in public schools in other emirates, which suggests a lack of public investment and faith in the public sector that is likely due in part to the emirate's high rate of privatization.

To understand if the public sector is serving low-income students better, in models not shown here, I compared performance of low-income Emiratis and students in the private sector to middle and upper-income Emiratis in the public sector, focusing on Abu Dhabi, Dubai, and Ras Al Khaimah. The finding show that in all three emirates, being a low-income student is associated with lower performance – of roughly 20–25 points worse in math and roughly 30 points worse in reading. That said, there is a very clear division between Abu Dhabi and Dubai when compared to Ras Al Khaimah– being in a private sector school is significantly better for low-income students in Abu Dhabi and Dubai but seems to have little impact on students in Ras Al Khaimah. The findings point to differences in quality between the public and private sectors in the three Emirates: in Abu Dhabi and Dubai, private schools seem to be of better quality than public schools, which is not true in Ras Al Khaimah. Low-income students in Ras Al Khaimah are actually doing better in the public sector.

Part II: Low-Income Students' Home and School Environments

The findings above point to the need to better understand the home and school environments of low-income Emiratis, and how these might differ from the home and school environments of upper and middle-income Emiratis. There are long-standing debates in the field of education concerning how much the in-school environment explains variations in students' academic performance, and how this compares to home and family-based differences. In this section, I analyze both home and school-level factors.

Parental Engagement

Table 10 shows Emirati students' perceptions of their parents' support, including their level of interest in school activities, academic achievement and when they face difficulties. The table indicates that in general, Emirati students state that their parents are quite supportive – with between 80% and 95% of Emirati students affirming their parents'

support. At the same time, the OECD (2015) shows that the percentage of students in the UAE who agreed or strongly agreed that their parents were interested in their school activities was one of the lowest in the world (49th of 55 participating countries). Moreover, low-income Emiratis are much less likely – about 10% less likely, to agree that their parents are interested in, and supportive of, their academic achievement. Prior research has found that parental interest and support in their children's overall academic success has a positive effect on their achievement, suggesting that differences in parental engagement in academics may be one factor associated with low-income students' lower performance on PISA (Fan & Chen, 2001).

Table 10. Levels of Parental Support (% Agree or Strongly Agree), by Income Level

	Low-Income	Middle & Upper
My parents are interested in my school activities	77%	84%
My parents support my academic efforts and achievements	86%	94%

Experience in School

In addition to home and family characteristics, low-income Emiratis may face challenges related to their teachers and school environments. In this section, I examine differences in school composition and how low-income Emiratis perceptions of their teachers' and classroom environments compare to those of middle and upper-income Emiratis.

Table 11 shows the percent of Emirati students that agree or strongly agree to a series of statements concerning their level of comfort in school. The table shows clearly that students in the lowest wealth income quintile (WIQ1) are much more likely to state that they feel like outsiders, awkward or lonely in school. Similarly, there is a roughly 10% difference in the extent to which the poorest Emirati students state that other students like them, as compared to Emiratis in other wealth quintiles. These questions all raise concerns over low-income Emiratis integration into school. It is possible that schools are less friendly and welcoming places for low-income Emiratis, which is worth further investigation.

Table 11. Levels of Comfort in School (% Agree or Strongly Agree), by Wealth Quintille (WIQ)

	WIQ1	WIQ2	WIQ3	WIQ4	WIQ5
I feel like an outsider in school	31%	22%	20%	18%	20%
Other students like me	65%	75%	73%	75%	75%
I feel lonely at school	32%	19%	20%	14%	15%

Table 12 shows Emirati students' perceptions of negative attention in schools, by their income level. The table indicates that a high proportion of students – between roughly 40–60% of students claim to receive forms of negative attention from teachers either most or every class session. For example, between 48–56% of Emirati students state that their teachers have given them the impression they are less smart than they really are, and between 32–39% of students state that their teachers have ridiculed them in front of others. Moreover, we note that low-income students are somewhat more likely to experience these forms of negative attention than middle and upper-income students are. However, the differences in percentage are not particularly large; for example, while 48% of students from the wealthiest income quintile say their teachers give them the impression they are not as smart as they really are, 56% of those from the lowest income quintile do so, a difference of 7% – which, while significant, does not suggest that teachers are treating all poorer students fundamentally different than their wealthier peers.

Table 12. Negative Attention from Teachers (% Saying Most or Every Session), by Wealth Quintille (WIQ)

	WIQ1	WIQ2	WIQ3	WIQ4	WIQ5
Teachers gave me the impression that they think I am less smart than I really am	56%	48%	48%	47%	48%
Teachers said something insulting to me in front of others	41%	42%	35%	37%	38%

Table 13 shows differences in attention from teachers disaggregated by gender and family income. The table shows clearly that the differences in treatment are much larger across gender – male students are much more likely than female students to state that their teachers ridicule them in front of other students, discipline them more harshly and insult them in front of others than are female teachers. There are very few differences across income quintiles; instead, student gender seems to be a much larger determinant of negative attention from teachers. At the same time, this finding has important implications for why boys from across the income spectrum are performing worse on PISA; school is clearly a less inviting environment for them than for girls. Moreover, this could affect low-income boys more negatively, as they are less likely to state that their parents are engaged in their academic success.

Table 13. Negative Attention from Teachers, by Gender (% Stating Most or Every Class), by Wealth Quintile (WIQ)

	WIQ1–WIQ2		WIQ3–WIQ5	
	Male	Female	Male	Female
Teachers gave me the impression that they think I am less smart than I really am.	55%	48%	55%	42%
Teachers disciplined me more harshly than other students.	55%	36%	52%	35%
Teachers ridiculed me in front of others.	47%	28%	43%	29%
Teachers said something insulting to me in front of others.	48%	34%	42%	33%

Discussion

The findings indicate that low-income Emiratis are performing significantly worse than middle and upper-income Emiratis on all PISA subjects on average. In addition, because males are also performing significantly worse than females across all wealth income quintiles, low-income males are doing particularly poorly on PISA, a finding in line with prior research that shows male students struggling academically around the world (Mullis, Martin, Foy, & Hooper, 2016; Ridge, Kippels, & Chung, 2017).

Additionally, the findings also point to significant sector-based differences in student achievement on PISA. Students in private schools tend to perform better than those in public schools in most emirates, and at all income quintiles. The difference is large and significant in Math (38 points), though smaller and not significant in Reading (18 points). However, quality differences between sectors is emirate-specific – the observed sector-based differences are driven in part by significantly better performance among low-income Emiratis in private schools in Dubai and Ajman. In fact, low-income Emiratis in Ras Al Khaimah are actually doing better in the public sector, indicating the importance of considering emirate-specific factors: low-income Emiratis in Dubai are better off in the private sector, while those in Ras Al Khaimah are doing better in the public sector. This point is important – it suggests that there is nothing inherently better about private schooling. Rather, the UAE should continue to invest in high quality public schools to ensure that the public schools are not viewed as an education of last resort.

The second part of the paper found that there are important differences between low-income Emiratis and those from middle- and upper-income backgrounds that may partially explain differences in academic achievement. In particular, when compared to middle- and upper-income Emiratis, low-income Emiratis are: less likely to report feeling comfortable in school and more likely to report feeling out of place or lonely; and more likely to state that there is noise and disruption in their classroom environment. However, they are not more likely than other students to report being the target of negative attention, such as insults, from teachers. Instead, these characteristics are more common among male students of all wealth quintiles.

Recommendations

The findings above offer a number of policy-relevant recommendations for improving low-income Emiratis' academic achievement, namely better supporting public schools, ensuring supportive in-class learning environments, developing targeted programming for low-income boys, and finally, ensuring that schools are welcoming spaces for low-income students.

Support Public Sector Schools

Public schools in the UAE, even in emirates where a significant proportion of student study in the private sector – such as Dubai and Abu Dhabi, still serve a large number of Emiratis. Therefore, it is critical that the public school system

not come to be viewed as an education of last resort. It is worth noting that private schools do not serve low-income Emiratis better in either Abu Dhabi or Ras Al Khaimah. However, they do in Dubai, by significant margins. This finding suggests that Dubai, in particular, must focus on narrowing the gap between students in the private and public sectors – this can only be done by bringing up performance in public schools.

Create Supportive In-Class Learning Environments

The findings from this research show that the classroom environments matter in the UAE. There is a large and statistically significant association between a student's comfort in school and overall achievement. This finding reflects prior cross-national research that shows the disciplinary climate in school is related to student achievement (OECD, 2014). Improving negative classroom environments must be a priority area for school leadership. Prior research from various national contexts has shown that low-income students come to school with different ways of engaging with authority, and teachers are often more responsive to students that adopt middle-class norms (Calarco, 2014a; Calarco, 2014b; Jack, 2017). Unfortunately, the data from the UAE shows that there is reason to believe the classroom environment is characterized by mistrust or lack of respect between teachers and students. In male schools, this lack of trust may be exacerbated by the high rates of expatriate teachers (Ridge, 2014). In short, improving this dynamic may help low-income students feel more comfortable and motivated academically. Hatherley-Greene (2014) argues that rapport-building and "warm demandingness" are associated with Emirati student success.

Focus on Low-Income Boys' Performance

By virtue of being both low-income and male, low-income boys in the UAE seem to be "doubly disadvantaged" as both sub-groups are under-achieving at all levels of education. Prior cross-national research has also noted the low performance of low-income males in a variety of national contexts (Autor & Wasserman, 2013; OECD, 2015b; Ridge, Kippels, & Chung, 2017). The UAE must explore gender-specific interventions that can better serve male students, and as stated above, ensure supportive classroom environments that seem to affect male students regardless of family background. In their cross-national review of the widening gap in male performance internationally, Ridge, Kippels, and Chung (2017) suggest teacher training for boy-friendly pedagogies, as well as a range of supplementary intervention programs designed specifically for low-income boys (p. viii).

Create Supportive Schooling Environments for Low-Income Students

Cross-national research shows that home environment determines much of students' academic achievement, and there is only so much that schools can do to improve broader societal inequalities. However, scholars also argue that schools can – and should – do more to ensure that schools support community and societal-level programs to address the effects of inequality (Morsy & Rothstein, 2015). What this looks like in any given context may vary. In some countries, this means providing parenting classes or health centers in schools. In the UAE, schools may be able to promote positive wellbeing or help promote a positive school-identity through initiatives such as parental programming, including father-son or father-daughter reading programs, health and well-being programming, community reading initiatives, or other extracurricular clubs. Based on survey research in Dubai, Alshareef et al. (2014) find that male students and those in governmental schools are more likely to be exposed to violence and bullying in schools, which likely negatively impacts school climate and student achievement. The authors recommend comprehensive anti-violence programs in schools.

Conclusion

The United Arab Emirates has integrated PISA performance into its definition of educational quality, and has set ambitious goals for improving student performance over the coming decade. Specifically, the UAE has set a goal of ensuring that UAE students 'rank among the best in the world in reading, mathematics and science exams' with a specific target of ranking among the top 20 countries on PISA (Morgan, 2017a, p. 9). Concerns with such narrow visions of educational success aside, this working paper shows evidence that the nationwide averages on PISA are brought down by the poor performance of low-income Emiratis and male Emiratis. Both findings suggest that meeting the nation's ambitious educational goals requires targeted investments in low-income and male students.

The normative arguments for better serving low-income students are even stronger. Scholars have argued that the UAE's current approach of defining educational quality in terms of scores on cross-national assessments is limiting. Instead, they argue for a more comprehensive vision for educational quality, namely one that includes dimensions of social justice and equity (Morgan, 2017b). The educational reforms and economic plans the UAE has undertaken over the past decade as part of their official development strategies are actively trying to restructure the economy towards knowledge-intensive industries. This means that the opportunity structures available to young Emiratis will increasingly depend on their educational success and credentials. It is increasingly important for low-income Emiratis to have access to channels to personal and professional employment and economic mobility.

References

- Abdulla, F., & Ridge, N. (2011). Where are all the men? Gender, participation and higher education in the United Arab Emirates. In *Towards an Arab Higher Educational Space: International Challenges and Societal Responsibilities: Proceedings of the Arab Regional Conference on Higher Education*, edited by Bechir Lamine (pp. 125-136).
- Al-Hendawi, & Keller. (2014). Beyond the walls of the school: Risk factors and children and youth in the Gulf. *Near and Middle Eastern Journal of Research in Education*, 1, 1-7.
- Alkhateeb, H. M. (2001). Gender differences in mathematics achievement among high school students in the United Arab Emirates, 1991-2000. *School Science and Mathematics*, 101(1), 5-9.
- Alshareef, N., Hussein, H., Al Faisal, W., El Sawaf, E., Wasfy, A., AlBehandy, N. S., & Altheeb, A. A. S. (2015). Prevalence and Risk Factors of Violence among Preparatory and Secondary School Students in Dubai. *Middle East Journal of Psychiatry & Alzheimers*, 6(1).
- Autor, D., & Wasserman, M. (2013). Wayward sons: The emerging gender gap in labor markets and education. [Washington, DC]: *Third Way Report*. Retrieved from <http://www.thirdway.org/report/wayward-sons-the-emerging-gender-gap-in-labor-markets-and-education>
- Azzam, Z. (2017). Dubai's Private School Fees Framework: A Critical Discussion. *Journal of Research in International Education*, 16(2), 115-130.
- Bryk, A. S., Lee, V. E., & Holland, P. B. (1993). *Catholic schools and the common good*. Cambridge, MA: Harvard University Press.
- Calarco, J. M. (2014a). Coached for the Classroom: Parents' Cultural Transmission and Children's Reproduction of Educational Inequalities. *American Sociological Review*, 79(5), 1015-37.
- Calarco, J. M. (2014b). The Inconsistent Curriculum: Cultural Tool Kits and Student Interpretations of Ambiguous Expectations. *Social Psychology Quarterly*, 77(2), 185-209.
- Coleman, J. S., & Hoffer, T. (1987). *Public and private high schools: The impact of communities* (Vol. 41). New York: Basic Books.
- Coleman, J. S., Hoffer, T. B., & Kilgore, S. (1982). *High school achievement: Public, Catholic, and other private schools compared*. New York: Basic Books.
- Chudgar, A., & Luschei, T. F. (2009). National income, income inequality, and the importance of schools: A hierarchical crossnational comparison. *American Educational Research*, 46, 626-658
- Chzhen, Y., de Neubourg, C., Plavgo, I., & de Milliano, M. (2016). Child poverty in the European Union: The multiple overlapping deprivation analysis approach (EU-MODA). *Child Indicators Research*, 9(2), 335-356.
- Daleure, G., & Al Shareef, Z. (2015). *Exploring under-representation of young Emirati adults in the UAE private sector by examining Emirati job Satisfaction* (Vol. 9). Al Qasimi Foundation Working Paper No. 9. Retrieved from <http://www.alqasimifoundation.com/admin/Content/File-3012016213933.pdf>
- Dronkers, J. (2004). Do public and religious schools really differ? Assessing the European evidence. In P. J. Wolf & S. Macedo (Eds.), *Educating citizens: International perspectives on civic values and school choice* (pp. 287-312). Washington, DC: Brookings Institution.
- Dronkers, J., & Avram, S. (2010). A Cross-national analysis of the relations between school choice and effectiveness differences between private-independent and public schools. *Sociological Theory and Methods*, 25(2), 183-205.
- Dronkers, J., & Robert, P. (2008). Differences in scholastic achievement of public, private government-dependent, and private independent schools: A cross-national analysis. *Educational Policy*, 22(4), 541-577.
- Egbert, A. (2012). A clearer picture: national and international testing in the UAE. *International Developments*, 2(2), 2-7.
- Fan, X., & Chen, M. (2001). Parental involvement and students' academic achievement: A meta-analysis. *Educational Psychology Review*, 13(1), 1-22.
- Fryer, R. G., & Levitt, S. D. (2010). An empirical analysis of the gender gap in mathematics. *American Economic Journal: Applied Economics*, 2(2), 210-240.
- Hatherley-Greene, P. (2012). *Cultural border crossings in the UAE: Improving transitions from high school to higher education*. (Doctoral dissertation, Curtin University).
- Jack, A. A. (2016). (No) harm in asking: Class, acquired cultural capital, and academic engagement at an elite university. *Sociology of Education*, 89(1), 1-19.
- Morgan, C. (2017a). The spectacle of global tests in the Arabian Gulf: a comparison of Qatar and the United Arab Emirates. *Comparative Education*, 1-24.
- Morgan, C. (2017b). Constructing educational quality in the Arab region: a bottom-up critique of regional educational governance. *Globalisation, Societies and Education*, 15(4), 499-517.

- Morsy, L., & Rothstein, R. (2015). Five Social Disadvantages That Depress Student Performance: Why Schools Alone Can't Close Achievement Gaps. Report. *Economic Policy Institute*.
- Mullis, I. V. S., Martin, M. O., Foy, P., & Hooper, M. (2016). TIMSS 2015 international results in mathematics. Retrieved from <http://timssandpirls.bc.edu/timss2015/international-results/>
- OECD. (2013). *PISA 2012 results: Excellence through equity: Giving every student the chance to succeed* (Volume II). Paris, France: PISA, OECD Publishing.
- OECD. (2014). *PISA 2012 results: What students know and can do: Student performance in mathematics, reading and science* (Volume I, Revised edition, February 2014). Paris, France: PISA, OECD Publishing.
- OECD. (2015a). Education GPS. United Arab Emirates. Country Profile. Retrieved from <http://gpseducation.oecd.org/CountryProfile?primaryCountry=ARE&treshold=10&topic=PI>
- OECD. (2015b). The ABC of gender equality in education. PISA. Paris: OECD Publishing. Retrieved from <https://www.oecd.org/pisa/keyfindings/pisa-2012-results-gender-eng.pdf>
- Ridge N. (2012). In the Shadow of Global Discourses. In, Gita Steiner-Khamsi G & Florian Waldow, (Eds.) *Gender, Education and Modernity in the Arabian Peninsula*. New York, NY: Routledge.
- Ridge, N. (2014). *Education and the reverse gender divide in the Gulf States: Embracing the global, Ignoring the local*. New York, NY: Teachers College Press.
- Ridge, N., Kippels, S., & Chung, B. (2017). The Challenges and Implications of a Global Decline in the Educational Attainment and Retention of Boys. Retrieved from https://www.wise-qatar.org/sites/default/files/r.2.2017_qasimi.pdf
- Santibañez, L., & Fagioli, L. (2016). Nothing succeeds like success? Equity, student outcomes, and opportunity to learn in high-and middle-income countries. *International Journal of Behavioral Development*, 40(6), 517-525.
- Tong, Q. (2010). Wages structure in the United Arab Emirates. *Institute for Social and Economic Research (Zayed University) Working Paper*.
- Tong, Q., & Al Awad, M. (2014). Diversity and wage inequality in the UAE labor market. *Journal of Economics and International Business Management*, 2(3), 59-72.
- World Population Review. (2018). United Arab Emirates. Retrieved from: <http://worldpopulationreview.com/countries/united-arab-emirates-population/>

Appendix A: Distribution of Emiratis and Non-Emiratis by Wealth

The figure below shows a kernel density graph of the distribution of respondents, disaggregated by nationality, with the distributions showing that Emirati students are wealthier on average than non-national students.

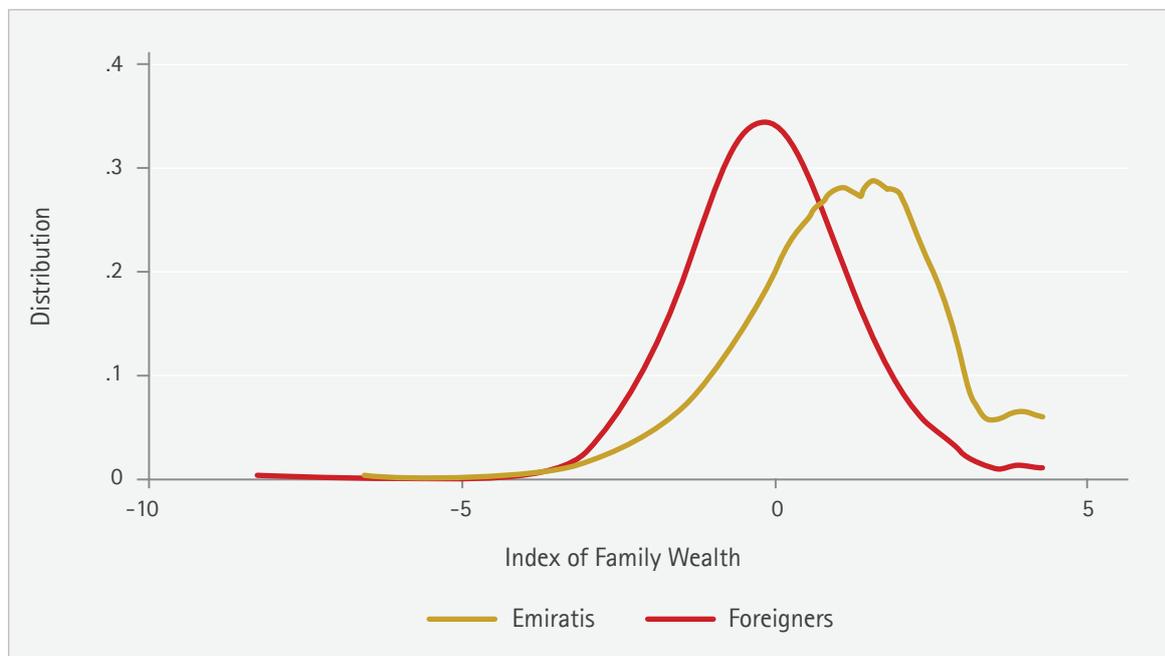


Figure A1. Distribution of Emiratis and Non-Emiratis, by Wealth

Appendix B: Additional Tables

Table B1. Mean Scores on PISA, by Nationality

	Emiratis	Foreigners	National Mean
Math	387	463	427
Reading	393	471	434
Science	394	474	437

Table B2. Wealth and Gender Gaps, by Subject

	Wealth Gap (WIQ5 – WIQ1)	Gender Gap (Female Advantage)
Math	44	23
Reading	58	70
Science	43	42

Table B3. Mean Emirati PISA Score, by Wealth Quintile (WIQ) and Gender – Public Schools

	WIQ1		WIQ2		WIQ3		WIQ4		WIQ5	
	M	F	M	F	M	F	M	F	M	F
Math	336	357	351	372	364	391	373	398	375	405
Reading	309	374	329	398	347	416	355	431	359	435
Science	335	375	352	389	365	407	371	417	372	422

Table B4. Mean Emirati PISA Score, by Wealth Quintile (WIQ) and Gender – Private Schools

	WIQ1		WIQ2		WIQ3		WIQ4		WIQ5	
	M	F	M	F	M	F	M	F	M	F
Math	372	390	394	413	402	406	411	412	415	421
Reading	343	412	370	443	382	432	386	433	395	442
Science	363	408	387	437	396	418	400	422	403	423



SHEIKH SAUD BIN SAQR AL QASIMI
FOUNDATION FOR POLICY RESEARCH

Tel: +9717 233 8060, Fax: +9717 233 8070

P.O. Box 12050

Ras Al Khaimah, United Arab Emirates

E-mail: info@alqasimifoundation.rak.ae

www.alqasimifoundation.com