

A SUSTAINABLE SOLUTION FOR THE LEBANESE EDUCATION SECTOR:
A PUBLIC POLICY APPROACH

A Thesis
presented to
the Faculty of Law and Political Science
at Notre Dame University-Louaize

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts
in Political Science

by
JOHNNY KARAM

2020

© COPYRIGHT

By

Johnny Karam

2020

All Rights Reserved

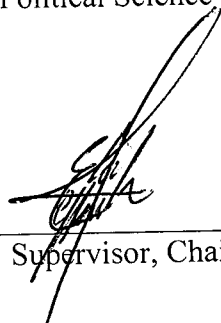
Notre Dame University - Louaize
Faculty of Law and Political Science
Department of Government and International Relations

We hereby approve the thesis of

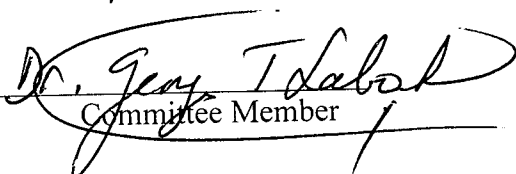
Johnny Karam

Candidate for the degree of Master of Arts in Political Science

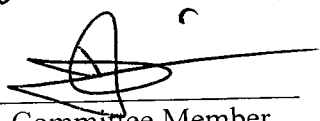
Dr. Elie Hindi


Supervisor, Chair

Dr. Georges Labaki


Committee Member

Dr. Dany Ghsoub


Committee Member

Abstract

Lebanon has swiftly turned from an inspiration to the region in terms of its educational policies and academic achievement since the 16th century, to a country lingering way behind. The analysis of a data set describing the Lebanese public education sector showed aggressively low student per teacher ratios in several public schools with the cost of a student in some public schools tripling that of the average cost of a student in the private sector. Those numbers could well describe the high levels of corruption and the severely harmed accountability system. Adding to that an almost obsolete curriculum, political clientelism, and the lack of 21st century teacher training has well led to dramatically low academic results in PISA and TIMSS assessments.

On the other hand, Lebanon is one of the few countries where only thirty percent of the total number of enrolled students are part of the public sector. The strong presence of religious schools and their social, economic, and political impact over history have placed them as an inevitable choice from their communities. Nevertheless, seventy percent of the student population does not get any return on tax in the education spectrum further increasing social desegregation.

After a thorough reading of international models and their related public policies, this research presents a strategic reform plan. This plan is comprised of public spending revision and administrative reform, transparency and reporting, teacher recruitment and training, parental school choice empowerment, and finally educational innovation and curriculum reform.

Table of Contents

LIST OF FIGURES	5
LIST OF TABLES	5
LIST OF GRAPHS.....	6
CHAPTER ONE: INTRODUCTION.....	9
LITERATURE REVIEW.....	10
THESIS PURPOSE.....	27
METHODOLOGY	29
SEQUENCE.....	31
CHAPTER TWO: A HISTORICAL REVIEW OF THE GENESIS OF THE LEBANESE AND AMERICAN EDUCATION SECTORS.....	32
THE LEBANESE EDUCATION SECTOR: FROM MISSIONARY EDUCATION IN MOUNT LEBANON TO THE LEBANESE PUBLIC SECTOR.....	32
<i>The “Lebanese” political system before 1943</i>	<i>32</i>
<i>Missionary and Confessional Private Education from the 16th to the 19th century.....</i>	<i>41</i>
<i>The Road towards the Lebanese Public Education Sector</i>	<i>45</i>
<i>Education During the French Mandate Period</i>	<i>47</i>
<i>The Major Transformations During the early days of the Lebanese Independence (1943-1968).....</i>	<i>49</i>
THE AMERICAN EDUCATION SECTOR: FROM COMMON SCHOOLING IN THE 19TH CENTURY TO PUBLICLY REGULATED PRIVATE SCHOOLS IN THE 20TH CENTURY.....	50
CONCLUSION.....	55
CHAPTER THREE: A THOROUGH ANALYSIS OF THE CURRENT SITUATION OF THE LEBANESE EDUCATION SECTOR: PUBLIC EXPENDITURE VERSUS ACADEMIC PERFORMANCE	56
INTRODUCTION	56
MINISTRY OF EDUCATION & HIGHER EDUCATION BUDGET ANALYSIS	57
<i>Comparing Lebanon’s Education Spending to that of International Countries</i>	<i>60</i>

PUBLIC SCHOOLS DENSITY AND STUDENT PER TEACHER RATIO	62
<i>The Total Number of Students in Lebanon</i>	63
<i>The Lebanese Public Sector: Students, Teachers and Staff</i>	65
<i>School Analysis Summary and Cost Per Student</i>	75
<i>Summary of the Quantitative Analysis</i>	76
LEBANESE STUDENTS' PERFORMANCE COMPARED TO THE INTERNATIONAL STANDARDS	77
<i>The Programme for International Student Assessment (PISA)</i>	78
<i>PISA Results Summary</i>	80
<i>Trends in International Mathematics and Science Study (TIMS)</i>	81
CONCLUSION	84
CHAPTER FOUR: A ROADMAP TOWARDS SUSTAINABLE DEVELOPMENT	85
INTRODUCTION	85
THE ECONOMIC CRISIS AND THE OPPORTUNITIES AFTER OCTOBER 17TH UNREST	85
THE LEBANESE PRIVATE SCHOOLS' SECTOR: THE PARENTS POINT OF VIEW	87
THE REFORM PLAN	92
<i>Public Spending Revision and Administrative Reform</i>	92
<i>Transparency and Reporting</i>	94
<i>Teacher Recruitment and Training</i>	95
<i>Parents' School Choice Empowerment</i>	96
<i>Innovation in Education and Curriculum Redesign</i>	100
CONCLUDING REMARKS	101
CHAPTER FIVE: CONCLUSION	102
BIBLIOGRAPHY	107
APPENDIX A: SOURCE CODE FOR THE DATA ANALYTICS IN CHAPTER 3	113
APPENDIX B: PARENTS' SURVEY QUESTIONS	120

List of Figures

Figure 1- Map of Greater Lebanon compared to the old borders of the Mutasarrifate..... 37

List of Tables

Table 1 – The Number of Students in the US for the year 2019-2020 13

Table 2 - School Choice Policies' Comparison..... 23

Table 3 – The Number of Public Schools in the US by Type (Magnet, Charter, or Traditional Public)..... 23

Table 4 –The Distribution of the Number of Students over the Various Types of Public Schools 24

Table 5 - 1932 Lebanese Census 38

Table 6 -Sectarian Distribution of Students in Lebanon during the year 1939 48

Table 9- Lebanese State Budget from 2017 till 2020 (Numbers are in thousand)s 58

Table 7 - Summary of Variables of the Test Categories..... 75

Table 8 - Cost Per Student Over Every Category 76

List of Graphs

<i>Graph 1 - Distribution of Homeschool Students in the US between 1999 and 2016.....</i>	12
<i>Graph 2 The Distribution of the Number of Students in Private Schools Divided between Religious and Nonsectarian Schools</i>	13
<i>Graph 3 - Source: National Center for Education Statistics</i>	14
<i>Graph 4 - % Distribution of Religious Communities Source: 1932 Census.....</i>	39
<i>Graph 5 - Top 7 Budget Increase between the Years 2017-2018.....</i>	59
<i>Graph 6 - Expenditure on secondary education (% of government expenditure on education) - Finland, Singapore, United States, Lebanon, France, Germany</i>	61
<i>Graph 7 - Government expenditure on education, total (% of GDP) - Finland, Singapore, United States, Lebanon, France, Germany</i>	61
<i>Graph 8 - Government expenditure per student, secondary (% of GDP per capita) - Finland, Singapore, United States, Lebanon, France, Germany</i>	61
<i>Graph 9 - Total Number of Students in Lebanon from 2011 till 2020</i>	63
<i>Graph 10 - Distribution of Students over Public, Private, & UNRWA funded schools.....</i>	64
<i>Graph 11 - Distribution of Students of Lebanon over Public Schools - By Cycle</i>	65
<i>Graph 12 - Frequency Distribution of Students in Small Primary Schools</i>	67
<i>Graph 13 - Frequency Distribution of Contractual Faculty and Staff in Small Primary Schools ..</i>	67
<i>Graph 14 - Frequency Distribution of Permanent Faculty and Staff in Small Primary Schools ..</i>	67
<i>Graph 15 - Student Per Teacher Ratio Distribution in Small Primary Schools</i>	67
<i>Graph 16 - Frequency Distribution of Students in Medium Primary Schools.....</i>	69
<i>Graph 17 - Frequency Distribution of Contractual Faculty and Staff in Medium Primary Schools</i>	69

Graph 18 - Frequency Distribution of Permanent Faculty and Staff in in Medium Primary Schools.....	69
Graph 19 - Student Per Teacher Ratio Distribution in Medium Primary Schools.....	69
Graph 20 - Frequency Distribution of Students in Large Primary Schools	71
Graph 21 - Frequency Distribution of Contractual Faculty and Staff in Large Primary Schools.	71
Graph 22 - Frequency Distribution of Permanent Faculty and Staff in in Large Primary Schools	71
Graph 23 - Student Per Teacher Ratio Distribution in Large Primary Schools	71
Graph 24 - Frequency Distribution of Students in Small Secondary Schools.....	72
Graph 25 - Frequency Distribution of Contractual Faculty and Staff in Small Secondary Schools	72
Graph 26 - Frequency Distribution of Permanent Faculty and Staff in in Small Secondary Schools.....	72
Graph 27 - Student Per Teacher Ratio Distribution in Small Secondary Schools	72
Graph 28 - Frequency Distribution of Students in Medium Secondary Schools.....	73
Graph 29 - Frequency Distribution of Contractual Faculty and Staff in Medium Secondary Schools.....	73
Graph 30 - Frequency Distribution of Permanent Faculty and Staff in in Medium Secondary Schools.....	73
Graph 31 - Student Per Teacher Ratio Distribution in Medium Secondary Schools.....	73
Graph 32 - Frequency Distribution of Students in Large Secondary Schools	74
Graph 33 - Frequency Distribution of Contractual Faculty and Staff in Large Secondary Schools	74

Graph 34 - Frequency Distribution of Permanent Faculty and Staff in in Large Secondary Schools.....	74
Graph 35 - Student Per Teacher Ratio Distribution in Large Secondary Schools	74
Graph 36- OECD PISA RESULTS 2018	78
Graph 37 - OECD Distribution of PISA results over Subjects	79
Graph 38 – PISA 2018 Results in Select MENA Countries	80
Graph 39 – TIMS 2015 Results for G8 Students	82
Graph 40 – TIMS Advanced Results for General Sciences Students	83
Graph 41 - Household Income of Surveyed Families.....	88
Graph 42 - Tuition Fees of Surveyed Families	88
Graph 43 - Overdue Payments, Salary Cut, Future Payments and Enrollment Distribution	88
Graph 44 - Surveyed parents' perception of public education	89
Graph 45 - Surveyed parents' perception of government's performance	89
Graph 46 - Surveyed parent's aspired public policy	90

CHAPTER ONE: Introduction

An obsolete education curriculum, an enormous economic crisis, unqualified teachers, and high levels of corruption could be the most realistic description of the current status of both the public and private education sector. It is unfortunate how Lebanon quickly transformed from an inspiration to the region in terms of its education policies and academic achievement since the 16th century to a country lingering way behind.

The aging public education system in Lebanon, could be reviewed based on several approaches. One can converse its birth, inheritance traits, and growth but that would not serve the purpose of solving and dissolving the current and future obstacles. Another approach that could provide us with a well-rounded definition of the problematic is identifying the major socio-economic impact of this system.

Four main areas could be deducted from the ripple effect of the Lebanese public educational system. First, is the excessive bureaucracy in the public sector that stands against innovative advancement of the teaching methods. Next, is the unequal distribution of tax returns and a highly corrupted public sector that has placed the average cost per pupil close to that of the private sector with a vast difference in the quality of the services. The third dimension is a lack of freedom of school choice that preserves the citizen's right of exercising his cultural and religious beliefs as mentioned in the constitution and allows the transfer of decision from the government to the parents. Last, is the centralized government-controlled spending and regulation on the public sector that has stalled any sort of competition and thus advancement between the public schools themselves.

Those dimensions cannot be tackled each on its own nor should we dive into a microscopic study but rather it is time for scholars and policy makers alike to research, develop, and introduce new policies that would directly approach the aforementioned obstacles.

Literature Review

The literature review presented for this thesis will examine the various public policy approaches carried out to tackle complexity of school choice and its effects. Precisely, the literature review will carefully examine the models presented in the United States of America for two main reasons: one is that the global debate was initiated by the American Nobel Prize winner Milton Friedman, and second several policies were introduced in the US and thus tested. The literature review will include the models and policies of home schooling, magnet schools, charter schools, school vouchers, and education saving accounts.

Moreover, the review will also take into account Chile's experience as one of the few universal school voucher programs. The review will discuss the lessons learned from those public policies and the reforms they witnessed throughout the years.

School Choice: A Public Policy Issue and the Various Models

From Home Schooling to Education Savings Account

Since the earliest days of America up to the colonial days, public education was not considered as an argumentative public policy issue. Students used to attend a so-called "school-house" which was generally a one-room space located in every town to provide education. The socio-economic impact of the industrial revolution in the late 18th century, has forced families to migrate into cities where new job opportunities started to grow. This social movement has forced

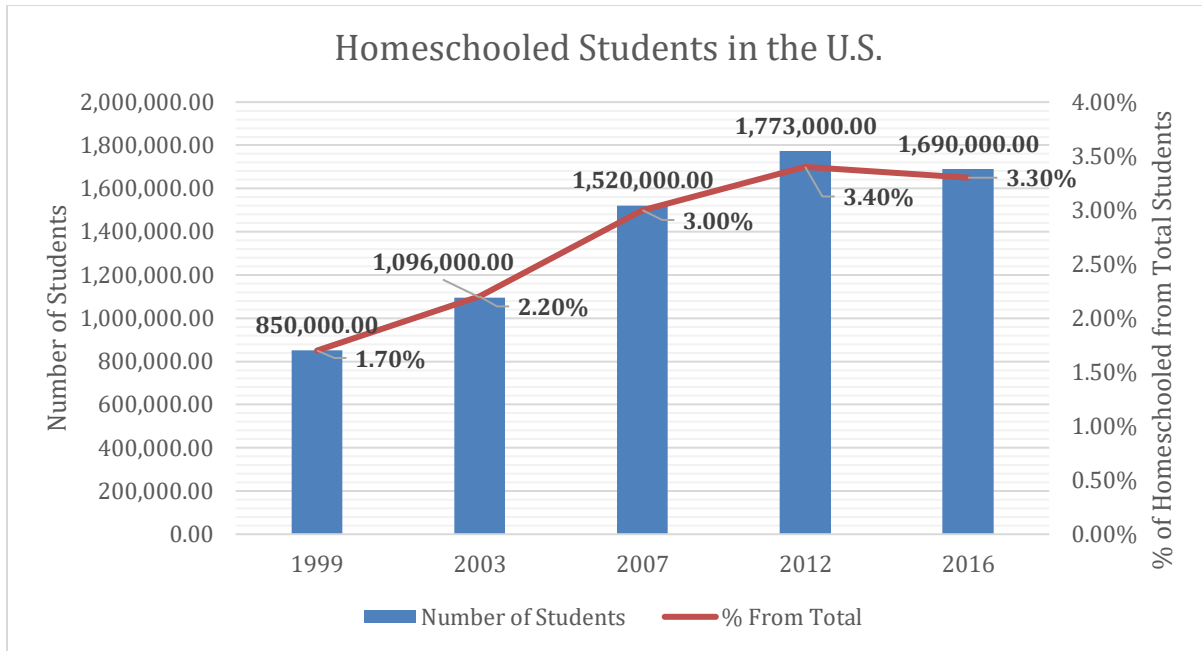
districts to rethink the model of education and build public schools to accommodate to the large number of students. The inception of public schooling has brought up, in its early days, home schooling and private schooling as its main contenders.

Home Schooling

For some families, home schooling was their preferred *choice* while for others it was their only option wherever public schools were absent. Families that deliberately chose home schooling did that to provide their children with a preferred teaching methodology, keep control of their socialization choices, and/or to provide them with their preferred religious education. The debate over a legal recognition and regulation of homeschooling came to birth with the compulsory public education laws that date back to the 17th century.¹ Today, some families still adhere a homeschooling approach and relieve the state from their educational obligations towards their communities. Some states allow homeschooling without any licensing or periodic assessment while other enforce strict regulations over this approach.² The number of students receiving homeschooling have recently increased knowing that this option became rather unpopular during the late 20th century.

¹ Katz, Michael S. A History of Compulsory Education Laws, (1976)

² Prothero, Ariana Homeschooling Requirements, research and who does it, (2018)



Graph 1 - Distribution of Homeschool Students in the US between 1999 and 2016³

Private Schooling

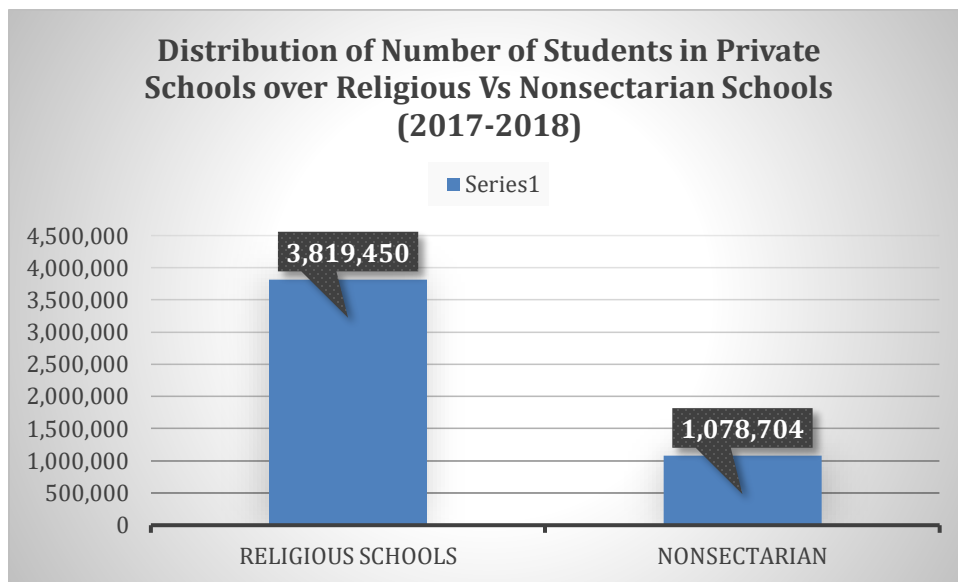
Since the inception of American education, private schools were present as one of the proposed offerings. Historically, two major types emerged: independent private schools and religious or parochial private schools. Those schools generally possess a two-sided autonomy: few state regulations are imposed versus a minimal to null funding by the government. They usually collect funds from direct school tuition/fees, endowments, and or charitable acts. During the early days of American education, private and home school options were not related to the current public policy debate on school choice. It was rather found as market need for social and religious purposes or to accommodate to the rather increasing number of students versus a limited number of public schools in certain areas. Public legislation, at first, gave homeschooling and private education a legitimate situation within the American education sector as long as parents are taking those decisions at their personal accords. On the other hands, parents of privately schooled students pay

³ (Nat18) National Center for Education Statistics, (2018)

the fees and tuition of their school of choice in addition to the taxation targeted towards funding public education. Recent studies have shown that the number of students attending private schools is around twelve percent of the total number of students in the US. Moreover, more than sixty five percent of private schools are affiliated with a religion and usually accommodate to a smaller number of students per campus. Other findings have shown white students constitute a majority in private schools where the average wage of families sending their children to private institutions is significantly higher than that of families whose children attend public schools.⁴

Number of Students in the US 2019-2020				
Total	Public	% Public	Private	% Private
56.6 million	50.8 million	89.75%	5.8 million	10.25%

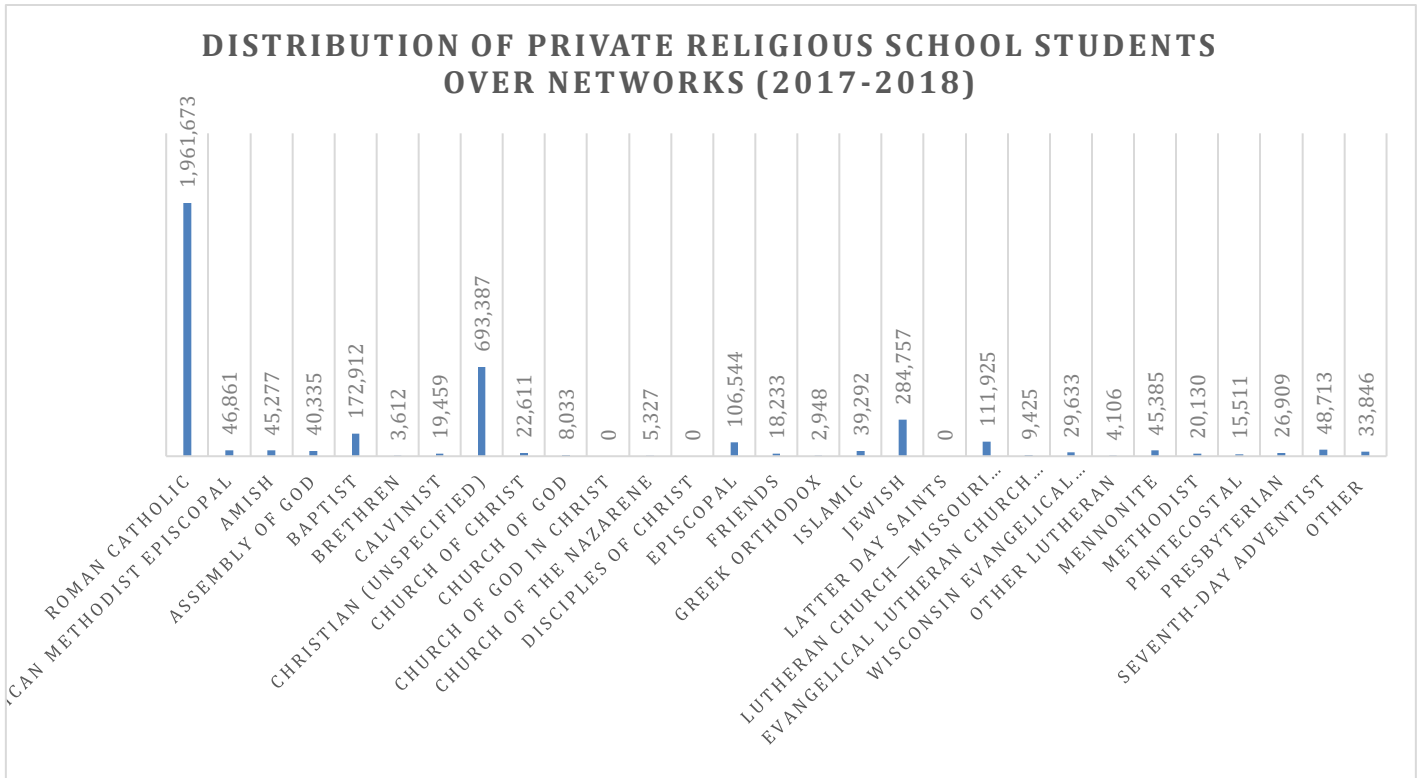
Table 1 – The Number of Students in the US for the year 2019-2020



Graph 2 The Distribution of the Number of Students in Private Schools Divided between Religious and Nonsectarian Schools

⁴ Readon, Sean F, Yun, John T. Private School Racial Enrollments and Segregation, (2002)

⁵ (Nat20) National Center for Education Statistics, (2020)



Graph 3 - Source: National Center for Education Statistics

History of School Choice as Public Policy Debate

In the year 1951, a black student, Oliver Brown, was denied admission a to public school in Topeka, Kansas and was asked to take the bus for a longer ride to a black segregated public elementary school. Her family, along with several other families, filed a lawsuit in the federal courts against the school district board. The state’s local court dismissed the case making use of a court decision taken in the year 1896 that does not consider racial segregation itself as a violation to the 14th amendment of Equal Protection clause as long as the alternative is equal in terms of services. This was then known as the doctrine of “separate but equal”. Nevertheless, the lawsuit was later accepted by the Supreme Court in the year 1954 and ruled in favor of the Browns and

decided that “separate is inherently unequal”.⁶ The court’s ruling further ordered the desegregation of public schools without giving any clear path on how to do so. In reaction to the court’s decision, several southern school districts abolished laws favoring racially segregated schools and set ground for “freedom-of-choice” plans that allowed students to select any school in their district regardless of race and schools no longer have the ability to deny admissions but in cases of saturation or other unusual conditions. Although this approach theoretically ended racial segregation but realistically its impact was quite limited. White students still chose not to attend public schools with a black majority and vice versa. Again, the courts intervened in the year 1968 and now prohibited the “freedom-of-choice” plans while directing school district boards to take definitive action to end segregation. In response to that, school districts started implementing compulsory attendance and transportation policies. Compulsory attendance mean that students were assigned, without discussion, to their schools by the district board in order to achieve race balance. Moreover, transportation policies stated that students must attend schools outside their neighborhood for the sake of more diversity. Those policies gave no freedom whatsoever for parents intervening in choosing their children’s schools. Those policies created a sense of public resentment and was the main spark of the school choice public policy debate.⁷

As a direct response to the public’ hostility a controlled choice plan was offered to families. Under this new plan, parents were asked to list, by order of priority, their public schools of choice. Then, and based on desegregation strategies, school boards would distribute students.⁸ Yet again, parents were not satisfied especially whenever their number one priority was not selected. This pushed the wealthier families, especially white and wealthy families, to leave cities and settle in

⁶ (Bro54) Brown v. Board of Education of Topeka, (1954)

⁷ Brown, Richard W. Freedom of Choice in the South: A constitutional perspective, (1968)

⁸ Fava, Eileen M. Desegregation and parental choice in public schooling: A legal analysis of controlled choice student assignment plans, (1991)

the less populated suburbs. This was known as the white flight. As a direct result to the public's reaction, segregation now occurred as a de facto situation based on geographic relocation.

Magnet Schools

In the 1970s, and after the numerous battles on school choice, new types of schools were presented to the public. Financially assisted by the federal government, those schools were so attractive to parents from diverse ethnicity and social classes. In general, magnet schools were specialized schools in mathematics and science, arts, or honor classes & and IB curriculum. On purpose, magnet schools were built in minority neighborhood in order to preserve a quality education for the most diverse community possible. Their only drawback was their budget, and thus they were an obvious target whenever budgets faced cutdowns.

From a school choice perspective, magnet schools were first presented as the best model for desegregation: high quality free education present in minority neighborhoods. As time passed, magnet schools developed a rather school choice approach. Those schools became another option within public schooling in order to increase student enrollment.⁹

School Vouchers

Milton Friedman, the Nobel Prize winner of Economic Sciences in the year 1976, was the first to introduce the school voucher concept in the year 1955 in his article "The Role of Government in Education". He then expanded on this theory in his televised series and published book *Free to Choose* precisely in episode/chapter 6 entitled "What's Wrong with Our Schools?".

Friedman argued that parents were not satisfied by the quality of education offered by the government especially in return of the growing taxation costs. The quality of education, at both elementary and secondary levels, varied tremendously between one public school to another. He

⁹ Magnet schools in America: A brief history, (2007)

considered that public education is suffering from the enduring malady of government-controlled sectors characterized by excessive bureaucracy and unlimited centralized authority.¹⁰ In his book, *Free to Choose*, Friedman demonstrated the varying numbers from the academic year 1971-1972 to that of 1976-1977. Based on his observation, the number of school faculty and staff increased by eight percent reflecting a cost increase per pupil of fifty eight percent. In parallel to this major increase in the input, from an economic point of view, the number of students and schools both decreased by four percent with a major decline of average grades on standardized test (a decline in output). Due to bureaucracy, Friedman noticed that between the year 1963 and 1974 the total number of students increased by only 1 percent versus an increase of 15 percent for faculty and staff and an increase of forty four percent in the number of supervisors. Friedman concluded from this observation that the main issue in public education is not the growing size. In most sectors, size has proven to be an added value in terms of decreasing production costs. As long as the consumer owns the freedom of choice, the growth in size in a particular sector reflects that the product provided is of good quality and matches the needs and taste of the consumer. Projecting this theory over government services, Friedman thinks that governments should provide the people, taxpayers, with an adequate service with respect to their spending. In the education sector, Friedman continues, only those that are wealthy own the freedom of choosing their preferred school. Those families are expectedly paying twice for the education of their children: once for the private institution and another in terms of taxation. Moreover, the cost per pupil in achieving public schools is equal to, and sometimes lower, than mediocre public schools located in rural areas.¹¹

Based on the above, Friedman thought that school choice should be transmitted from the central governing body to the parents of the children themselves. He thought that parents possess

¹⁰ Friedman, Milton *The role of government in education*. In *Economics and the Public Interest*, (1955)

¹¹ Friedman, Milton, Friedman, Rose *Free to Choose: A Personal Statement*, (1980)

a superior concern of educating their children than governments and have a better understanding of both their needs and capabilities. In the year 1978, the cost of schooling per pupil was estimated at \$ 2,000 by Friedman. Knowing that, if the parents decide to take their children to a private institution, they are not getting anything in return to the money they are offering. As such, he continues, parents should receive a voucher in return that can be used in both public and private institutions with no geographic limitation or any other regulation. Regardless of the amount of the voucher, whether it would be the whole cost per pupil or a percentage of the total, parents have the right to receive a service in return of their taxation. This approach, according to Friedman, does not dismiss the responsibility of paying taxes from anyone, but only offers parents the power of choosing what best suits their children. A major advantage of a school voucher is that it would motivate parents for a higher direct education financing. Parents would then have the urge to pay on top of the voucher to provide the best education for their children. This will not relieve the government from educating the poorest yet would gradually decrease the number of people relying on public education solely for the purpose of pertaining the most out of their taxation spending. Moreover, a growing competition will start to appear between public schools themselves. The size of a public school will no longer be uniquely proportional to the demographics of its location but to its quality of the provided services.¹²

As such, Friedman's proposal could be distributed over three main axes. The first is his call for approaching education as a private good. The second is imbuing education with internal competition and ending the government's monopoly over a service paid by the parents. The third is transforming the government's role from financing and providing education services, to financing and monitoring providers in the field.

¹² Ibid.

Friedman's theory was contended with much aggression. Three main counterarguments remain relevant to the US and world education sector. Critics have mainly addressed the fact that broad school voucher offerings would deepen segregation of race, ethnicity, and social class. Second, some believe that the primary beneficiary of the vouchers would be the wealthy and not the poor. Those that have the luxury to pay on top of the voucher and select their school are the main ones to benefit the most. For example, studies have shown that the average annual school fees for private schooling in the US for the academic year 2011-2012 was \$13,640 versus an average state funding of \$4,922 per pupil. As such, only those with a mid-to-high income could afford the difference. Third, some think that education cannot be approached similar to a normal private good. The complexity of education, as a product, in terms of assessing its quality is not straightforward as buying a car.¹³ The long-term purposes of education are debatable themselves. Accordingly, how could parents assess which school is better than the other: is it standardized testing, teaching methodology, or learning objectives covered? Moreover, how often should education institutions release their status reports?

Charter Schools

During the year 1988, the former president of a national teacher's union, Mr. Albert Shanker proposed a new model with the main objective of liberating teachers from the bureaucracy and predefined methodologies. This model was based on providing groups of teachers a charter to establish new public schools and allowing them to unleash their creativity by testing new teaching and learning strategies. In terms of organization, those charter schools will remain a subset within public schools and sustain the relationship with the teacher's union.¹⁴

¹³ Council for American Private Education, (2017)

¹⁴ Shanker, Albert National Press Club speech, (1988)

Several education reformers welcomed this new idea, however pushed from a broader approach that allows entities beyond the public sector, including for-profit organizations, to operate such schools. From their point of view, this would provide better internal competition within public schools. Accordingly, today, charter schools are publicly funded yet privately run. They are required to accept all applications regardless of race, ethnicity, or academic ability. Whenever the number of applicants exceeds the ability of the charter school, a lottery should take place to provide an equal chance of admission. Even if for-profit organizations were granted a charter, they are not allowed to charge any fees for the services they provide. State laws differ from one to another, however interested bodies should submit for a charter approval to the local governing body within district. Other regulations might differ, such as recruitment of unlicensed teachers, however state curriculum should be followed within a normalized set of academic quality indicators.¹⁵

This new model was embraced by both the Democrats and Republicans although coming from different viewpoints. Democrats saw this new proposition a way to enhance quality offering for students in public schools. On the other hand, Republicans so this as a real chance to promote school choice and introducing market-based competition to the public education sector. By the year 2017, the District of Columbia and forty-three states have already passed laws allowing the establishment of charter schools. In the same year, it was estimated that six thousand seven hundred charter schools were distributed among the states, providing free education for almost three million students constituting five percent of the total number of students in public schools.¹⁶

¹⁵ Kolderie, Ted Beyond Choice to New Public Schools: Withdrawing the Exclusive Franchise in Public Education, (1990)

¹⁶ Rofes, E., Sulberg, Lisa M. The Emancipatory Promise of Charter Schools: Towards a Progressive Politics of School Choice, (2004)

The rapid consent towards the new model by the political parties lead to the most significant universal education transformation within the US. Charter schools were soon being established all over the country with states adapting faster than others. The most suggestive state is Arizona that is home to almost 10 percent of the total number of charter schools in the US and 30 percent of the total number of public schools in the state itself while serving 26 % percent of the total student population in Arizona.

Education Savings Accounts

Most recently, education savings accounts (ESA) were introduced as the newest model in the school choice debate. Parents who choose to take their children out of public schools receive ninety percent the cost of public schooling. This amount is transferred to a private account where parents could spend this value over pre-approved education services of their choice. Parents are not required to spend all the money during the same academic year, on the contrary, parents have the ability to spare unused money for the future academic years and spending. In some states, parents are even allowed to spend the ESA funds over undergraduate studies.

In its essence, educational savings accounts operate similar to school vouchers. In both models, states predefine the educational cost per pupil and transfer it to the parents. The only difference is that in the case of school vouchers the money is directly transferred to the school of choice and parents do not have the ability to spare the money for university education. Simply, it is a two-step process where the state transfers the funds to the parents and then parents decide what to do with the money. Accordingly, whenever parents decide to spend this money over religious schools the debate over the constitutionality of public funds getting into the hands of religious communities has ended.¹⁷

¹⁷ Ladner, Mathew The Way of the Future: Education Savings Accounts for Every American Family, (2012)

The policy results of such a model are huge. Although research has been rather limited as ESAs have just emerge, yet one can clearly see the limitation of the state and/or government's role more than any other emerging school choice model. The government is expected to list and then categorize the accepted suppliers or providers that could range from schooling supplies, tuition and fees, educational therapies, and transportation. Advocates of this school choice program emphasize the advantage of customization that beneficiaries of ESAs hold. For example, parents could use part of the money for a private school and another for education therapy the student might need.¹⁸ The second major impact is the limited accountability the state could enforce on both the providers and consumers. In other words, after enlisting a specific institution or company as an accepted supplier within the ESA network, the government has no role anymore. Moreover, students benefiting from an ESA are not required to take specific standardized testing nor attain a precise academic level by the end of every year. Again, protagonists of this offering say that this is not a disadvantage as the only noteworthy accountability remains found. For them, as long as parents have the power of the choice, there is no need for governmental supervision and accountability. The third impact is the complexity of cost analysis. In general, whenever an ESA was introduced, it used to amount to ninety percent of the cost of schooling of one student in the public sector. States would then keep the ten percent to be spent on other services and priorities. This is the main argument that advocates of ESAs tend to use. Nevertheless, it is important to highlight the fact that state funding is first being distributed beyond the public schooling system and to a much broader value chain. Moreover, the decreasing number of students in public schools will increase the cost per pupil and thus decrease the value of any voucher or direct funding system

¹⁸ Mead, Julie Th (National Center for Education Statistics 2019) e right to an education or the right to shop for schooling: Examining voucher programs in relation to state constitutional guarantees, (2015)

adhered. Research shows that it is still too early to judge the impact of education saving accounts on public spending, student academic performance, and parents satisfaction.

Government					
School Choice Policy	Funding	Education Provider	Regulator	Can beneficiaries access Private Schools?	Does public funding stay public?
Home Schooling	No	No	No	Yes	N/A
Private Schooling	No	No	No	Yes	N/A
Traditional Public	Yes	Yes	Yes	No	Yes
Magnet Schools	Yes	Yes	Yes	No	Yes
Charter Schools	Yes	No	Yes	No	No
School Voucher	Yes	No	Yes	Yes	No
Educational Savings Accountns	Yes	No	No	Yes	No

Table 2 - School Choice Policies' Comparison

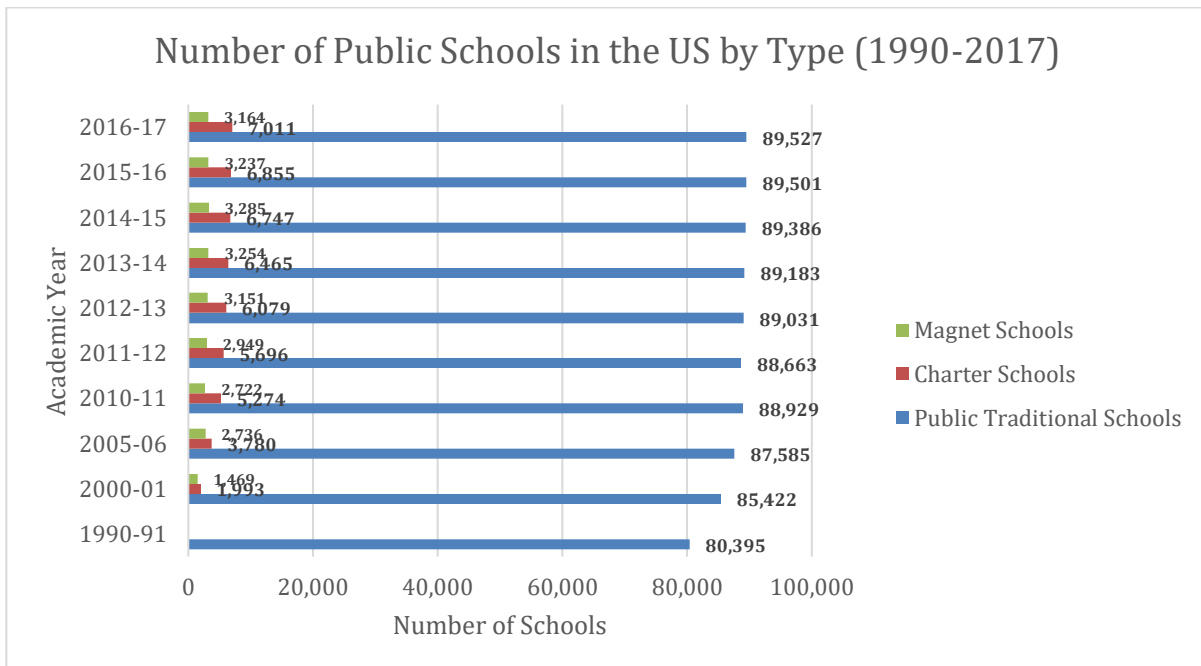


Table 3 – The Number of Public Schools in the US by Type (Magnet, Charter, or Traditional Pbulic)¹⁹

¹⁹ (Nat19) National Center for Education Statistics, (2019)

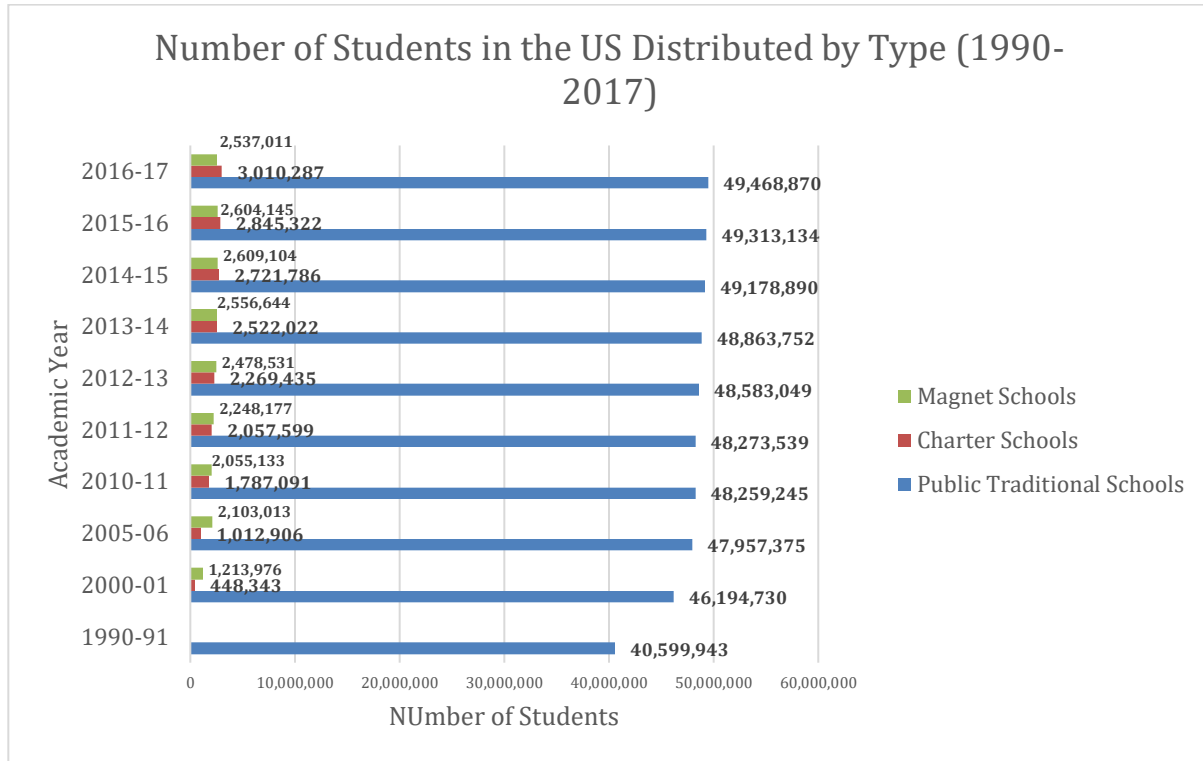


Table 4 –The Distribution of the Number of Students over the Various Types of Public Schools²⁰

A Universal School Choice Model: Chile and School Vouchers

In the year 1981, Chile acknowledged a nation-wide universal school voucher program for all students across the country in both elementary and secondary cycles. The proposed model was the closest to the one introduced by Milton Friedman in the year 1955. Through the school voucher, parents had the ability to enroll their children in any public school for no extra cost or choose a private school and pay the difference between the voucher’s value and the tuition fees. There were almost no constraints: the voucher’s value had no relation whatsoever with the family’s annual income and private schools participating in the voucher program had the freedom of deciding on

²⁰ Ibid.

their annual tuition fees with no control from the government.²¹ This model continued into effect until the year 2007 where a major reform occurred with new regulations and constraints.

Most school choice scholars and experts were extremely interested in Chile's program and thus several research papers were released analyzing the efficiency and effectiveness of the program. From the year 1980 till 2007 the number of students enrolled in public schools declined by fifty percent while academic achievement in Reading (Spanish) and Math remained almost unaffected. However, most importantly, the voucher program had a significant negative impact on the enlarging academic gap between the students of lower-income families and those of mid-to-high income families. Accordingly, the voucher program proposed ended up deepening a socio-economic segregation as very few low-income families were able to enroll their children in private schools.²²

Those results pushed the Chilean political leadership to propose several policies that would amend the school voucher program to address its negative results. The Preferential School Subsidy Law (SEP) was proposed in 2007 and passed by the national legislature on January 2008. Overtly legislatures renounced the fact that it costs more to educate children coming from a poor background than it does for those coming from the middle and upper class. The new regulations would then identify "Priority Students", in other words students coming from the lower 40 percent with respect to family income and provide them with a voucher fifty percent of higher value than that of students coming from a higher social class. Schools wishing to receive those vouchers with a higher value were bound to accept three conditions. The first one was not to charge those students with any additional fee regardless of the school's annual tuition. The second condition was to

²¹ Hsieh, Chang-Tai, Urquiola, Miguel the effects of generalized school choice on achievement and stratification: Evidence from Chile's voucher program (2006)

²² Murnane, Richard J; Waldman, Marcus R; Willet, John B, The Consequences of Educational Voucher Reform in Chile (2017)

accept those students disregarding their previous academic background. Last, schools would have to abide to an academic accountability system monitored by the government and make sure that the results of those students would improve year over year.²³

Lessons Learned from Chile's School Voucher Program and its Reform

The voucher program of the years 1980-2007 was mainly built to infuse the education market with competition based on the idea of providing parents with the financial ability to make their preferred school choice. However, most of the international studies agreed that this program did not have a positive impact neither over students' academic performance and nor on desegregating public and private schools. Eventually, private schools were happy to "select" students, get paid by the government, have little to no accountability, and manage their human resources based on the general labor code. Moreover, parents had minimal reach over annual reports on school performance. The early form of the program shows that a school voucher model is not sufficient, by itself, to desegregate schools and improve the national learning experience.²⁴

Interestingly enough, it was concluded that the cost of educating students coming from lower-income families is higher than educating those coming from middle- and upper-class families. The SEP reform was able to address that issue by allocating a voucher of fifty percent higher in value for underserved communities and lead to a substantial enhancement in their academic performant. Students tests scores improved in all schools with the highest percent increase noticed at the level of public schools and zero tuition private schools. Moreover, the gap between scores of students coming from lower income families and those from the other group

²³ Murnane, Richard; Vegas, Emiliana What Chile Teaches US About School Vouchers, (2018)

²⁴ Vegas, Emiliana 5 lessons from recent educational reforms in Chile, (2018)

also decreased by one-third the value before 2008. In addition to that, the newly proposed reform proved the need of an accountability system over private schools benefiting from the school voucher.

Thesis Purpose

This thesis aims to highlight the main issues and obstacles of the Lebanese education system in both its private and public branches and propose a sustainable solution through public policies.

The high levels of corruption in Lebanon, as indicated by international organizations, are clearly present in the public education sector thus skyrocketing its cost per pupil to unimaginable numbers. Adding to that, Lebanon is battling with a historic economic crisis that has rendered a major portion of its residents unable to afford educating their children in private institutions while still paying their share of taxation for public schooling.

The analysis will encompass the birth of the Lebanese education system and expose its foundational limitations and current complexities in order to present the most suitable resolution taking into consideration the nation's peculiar social and political nature.

The main question addressed will be:

“What are the most suitable public policies that would desegregate Lebanese students and provide them all with an adequate competent learning experience?”

This question will be addressed inductively from observation and analysis to the proposition of the public policy taking into account the interaction of all stakeholders involved. More precisely,

parents, private school owners, and the political leadership will be confronted with the situation and their reaction to the proposed policy.

The sub-questions involved are:

1. *What is so unique about the birth of the Lebanese education sector?*
2. *Are there any similarities with the foundation of the American education sector?*
3. *What are the historic challenges?*
4. *What has changed during the past 5 years in terms of the education cost in Lebanon?*
5. *Is the current model leading to satisfying academic results?*
6. *What is the stance of stakeholders involved?*
7. *What are the proposed steps in terms of reform and public policies that would assist in solving the problematic?*

Methodology

Research Methodology

Taking into consideration the nature of the research question and its respective sub questions, both qualitative and quantitative methodologies were adhered to collect, analyze, visualize and deduce.

The historic nature of the Lebanese education sector and what it would mean were qualitatively and comparatively analyzed with the birth and evolution of the American education sector. On the other hand, the data revolving around the current situation of the education sector in terms of academic quality and public funding were collected from official and non-conventional sources and subjected to simple but meaningful data analytics approach.

In terms of assessing the probability of success of the policy presented, surveys and interviews were developed extensively with the sector's major stakeholders. The aim of the survey is to collect the parents take on the current situation and their reaction to the proposed public policy. The results of the survey will not have a direct effect over the global results of the study but will serve as an indicator of the current satisfaction rate and their appetite towards a new educational model. In order to achieve an acceptable overview, a random sampling was conducted from parents of students in both the private and public sector distributed according to geographic location and private school status disregarding their children's academic standings.

On the other, and in order to assess the leadership's interaction, interviews were conducted with leaders of parents' unions, public officials, and private schools' owners. The purpose of the interview was to clearly dissect and categorize the issues currently present, collect their proposals

on possible solutions, and gather their feedback on proposed plan. The interviews resulted in long texts that were analyzed and used whenever needed throughout the thesis.

During the COVID-19 period, interviews were conducted through video conferencing tools, mainly Microsoft Teams, and the results of the surveys were collected using Google Forms. On the other hand, the large data of students, teachers, and schools were studied using R data analytics techniques and Microsoft Excel for simpler tasks.

Sequence

The thesis commences with a historical analysis of the foundation of Lebanon administratively specifically with the Ottoman empire up until independence. This reading is significantly important to accompany the foundation of education in the earliest days and the impact that the political structure had over its evolution. Chapter Two also sheds light over the succession of the education sector in the United States while highlighting possible resemblances in developmental factors and public debates.

In Chapter Three, the current state of the Lebanese education sector is deeply analyzed. The geographic distribution of schools, the demographic distribution of students, the magnitude of the labor, the public funding involved, and the concluded ratios are all taken into consideration for a quantitative understanding of the dynamics of the sector.

Based on the historic nature of the sector, the results of the comparative analysis with the U.S. education sector, and the insights concluded from the study of the current situation will be taken into consideration in the Fourth Chapter to propose a detailed plan to reduce public spending, relieve a bigger portion of the Lebanese community, and to enhance academic results based on reform strategies and accompanying public policies.

CHAPTER TWO: A Historical Review of the Genesis of the Lebanese and American Education Sectors

Chapter Two will shed the light over the birth of Lebanon administratively as one cannot discuss the birth of a nation's education sector without exploring its path towards independence and the effects that it had over education.

Then the chapter will discuss the historic advancement of education parallel to the different administrative forms that Lebanon has passed through. During this section the major events and turning points that have shaped today's educational paradigm will be taken into consideration thoroughly.

In addition to the above, the Chapter will move towards a peculiar reading of the transformation of the education sector in the United States before concluding the major similarities with the Lebanese sector.

The Lebanese Education Sector: From Missionary Education in Mount Lebanon to the Lebanese Public Sector

The "Lebanese" political system before 1943

Most historians agree that one cannot talk about Lebanon administratively before the Ottoman rule. The modern history of Lebanon from the Ottoman rule towards independence could be distributed over four main periods: the Maan's (1506-1697), the Shihabs (1697 – 1840), the Qaimaqamate (1842-1860), the Mutasarrifate (1861-1918), and the French Mandate (1920 – 1943).

The Maan Period

The Maan family first came to Lebanon in the 12th century under the direction of the governor of Damascus to defend the land against the crusaders. In the early years of the 16th century and with the triumph of the Ottomans over the Mamluks, where the Maan's had a vital role in the battle of Marj Dabek next to then-governor of Damascus Selim, Fakhr Din the First came to power in the year 1506. The most notable ruler of the Maan's was Fakhr Din II between the years 1570 and 1635. Fakhr Din II was known for his religious tolerance, some historians believe that he was secretly Christianized, and aimed for a complete independence of the lands he governed. Fakhr Din II was able to build very strong diplomatic relations both locally and internationally.²⁵ His western relations were a reason, antagonistically, for both exile and flourishing. At first, Fakhr Din II tried to develop an agreement with Tuscany's Duke to stand against the Ottoman rule. As a result of this agreement, the Ottoman ruler in Constantinople ordered the governor of Damascus to attack Fakhr Din II who knew that he had no chance in the fight and traveled to Tuscany from 1613 till 1618. In the year 1618, Fakhr Din's old friend Mohamad Basha was appointed governor of Damascus and thus had the chance to come back and rule till 1635. Upon his return from Tuscany, Fakhr Din this time had two main objectives: economic and military advancements. For those purposes, he was able to orient his financial resources first to build an exceptional army that was able to defeat in the year 1623 Mustapha Basha, the new governor of Damascus. As a result of this victory, Fakhr Din II was given the title "Sultan of the Mountains" by the ruler in Constantinople.²⁶ His relations with Tuscany and Florence allowed him to advance the Lebanese agriculture, irrigation systems, and architecture. Nevertheless, his dreams of territorial expansion,

²⁵ Abu-Husayn, Abdul-Rahim The view from Istanbul: Lebanon and the Druze Emirate in the Ottoman chancery documents, 1546-1711 (2004)

²⁶ Ibid. (Collelo 1987)

which he was able to partially achieve towards Palestine and Palmyria of Syria have made him a direct enemy of the ruler. As such, Fakh Din II was attacked then executed in Constantinople in the year 1635. The years 1635 till 1697 witnessed no prominent Maan figure.

The Shihab Period

In the year 1697 the Shihabs came to power succeeding the Maans. The most prominent figure of this era was Bashir Shihab II who reigned from the year 1789 till the year 1840. His leadership abilities were bluntly portrayed during the confrontation between Napoleon and Al Jazzar, the Governor of Acre (situated on the coasts of Palestine) in the year 1799. Both Napoleon and Al Jazzar requested assistance from Bashir II who refused to take sides. Accordingly, Napoleon had to retreat to Egypt and although Al Jazzar accused Bashir II of siding with the French and tried to diminish his presence in the Shuf area, Bashir II turned out victorious in the year 1804 with the death of Al Jazzar, his main contender. Similar to Fakhr Din II, Bashir Shihab II planned to get rid of the Ottoman rule. His first alliance as a result of his political objectives was with Mohamad Ali, the founder of modern Egypt. With the assistance of Bashir II, the Egyptian troops under the commandment of Ibrahim Pasha, the son of Mohamad Ali, sieged Acre in Palestine and Damascus in Syria.²⁷ The harsh rule and high taxation of Ibrahim and Bashir II led to several revolts against their rule. In addition to that, and in the year 1840, Bashir II was not able to stop an alliance between the Druze and Maronite against Egyptian rule. During the same period Britain, Russia, Austria, and Prussia pushed towards the London Treaty to end the Egyptian political preference of the French.²⁸ The London Treaty led to the retreat of Muhamad Ali upon the deployment of the

²⁷ Collelo, Thomas Lebanon: A Country Study (1987)

²⁸ ibid

British and Ottoman troops on the Lebanese Coasts and Bashir II was sent to exile on October 14, 1840.

(Salibi 1965) Bashir the third was a normal successor with an atypical reign. Sectarian conflicts between the Christians and the Druze erupted quickly flamed by Ibrahim Pasha's earlier rule. Bashir III stayed in power from the third of September 1840 till early January 1842 to be replaced by Umar Pasha. From the Ottoman Sultan's point of view, Umar Pasha was selected to restore order and peace. Following the European's advisory,²⁹ the sultan proposed partitioning Mount Lebanon into two administrative districts on sectarian ground: the northern part of Mount Lebanon having a Christian deputy governor, and the southern part having a Druze deputy governor. Both deputy governors were expected to report to Sidon's governor. It is important to note here that the Druze district was backed by the British government as a counterpart to the French support of the Christian district. The administrative segregation, known as the Qaimaqamate, soon created deeper conflicts by May 1845 which led again to another proposal by the Europeans of introducing a council whose members represent the existing religious sects to support the deputy governor. This new political structure had little room to regain stability, as a peasant uprising against the traditional feudalism led by Tanios Shahine took place in the year 1858. The complex social nature of Mount Lebanon along with the intervention of international powers sparked a historic religious conflict between the Christians and Druze in the year 1860 resulting in a massacre with more than 10 000 deaths of Maronite majority. ³⁰

The Mutasarrifate Period

²⁹ Salibi, Kamal The Modern History of Lebanon 53-79 (1965)

³⁰ ibid

The massacre of 1860 was the end of the Qaimaqamate. On the 5th of October 1860, Britain, France, Austria, Prussia and the Ottoman Empire initiated an international commission to investigate the roots of the 1860 massacre. The commission related the happening of the massacre to the Qaimaqamate administrative structure. As such, the commission decided in the year 1861 on detaching Mount Lebanon from Syria and appointing a Christian Ottoman governor (*moutasaref*) along with the help of twelve representatives of the religious communities. This new political structure was known as the *Mutasarrifate*. It is important to note here that this is considered one of the earliest humanitarian interventions by the international community.

The *Mutasarrifate* era lasted for almost 60 years during which Mount Lebanon witnessed several changes on the economic, education, and governance levels. First of all, the Ottoman Empire decided on providing the *Mutasarrifate* an exceptional autonomy under its reign, an autonomy that opened space for both prosperity and corruption. Due to the scarce number of opportunities caused by the geographic limitations of Mount Lebanon, the second half of the nineteenth century witnessed a mass immigration, most notably to North America, of Lebanese Christians.³¹ On the other hand, Mount Lebanon experience a so-called intellectual renaissance especially as international missionaries founded the American University of Beirut in the year 1866 and Saint Joseph University in the year 1875. In the year 1876, Abdul Hamid II was appointed as the new sultan of the Ottoman Empire. His brutal reign pushed all communities and fractions to organize themselves into political parties. It is important to note here that the majority of Maronites wanted a completed independence from the Ottoman Empire, the Greek Orthodox aimed for reuniting with Syria, the Sunnis hoped for sustaining the caliphate rule of the Ottomans,

³¹ Salibi, Kamal The Modern History of Lebanon 106-119 (1965)

while the Shiites and the Druze preferred a status-quo or complete independence to preserve their minority rights.³² Then, came World War I and its catastrophic impact on the residents of Mount Lebanon. The Ottomans allied with Germany as counterparts of the French and British. As such, the first measure to be taken by the Ottoman Empire was the cessation of the autonomy of Mount Lebanon and the appointment of a Turkish governor who turned out to be the harshest among his predecessors. He occupied Lebanon, initiated a blockade during the first quarter of 1915 thinking that would stop the supplies from reaching the allies. Alternatively, blockade led to an infamous famine in the Mediterranean causing the death of thousands of Lebanese. This nightmare came to an end in the year 1918 with the arrival of the British forces to the land of Palestine. During the San Remo conference on April 1920, the French were given a mandate over Greater Syria by the victorious allies of the World War I.

The French Mandate Period

Heading a huge delegation, the Maronite Patriarch Elias Howayek joined the Paris Peace Conference on October 27, 1919 to once again call for the annexation of Tyre, Sidon, Beirut, Tripoli, Baalbek, Beqaa, Rashaya, and Hasbaya to the earlier existing Mutasarrifate area. The

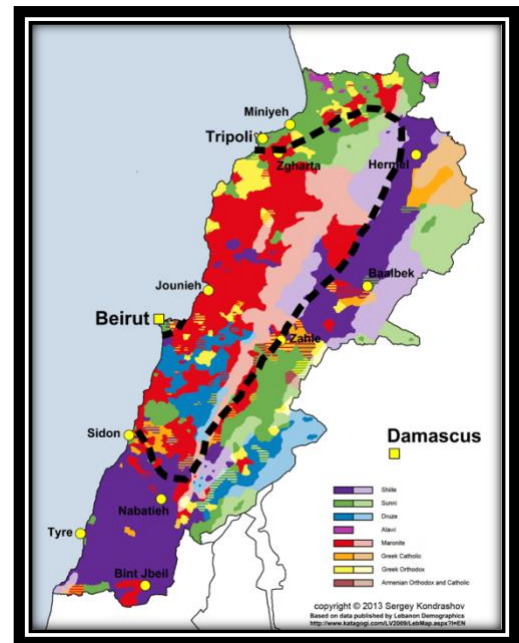


Figure 1- Map of Greater Lebanon compared to the old borders of the Mutasarrifate

³² ibid

Patriarch’s request was engrained in the need of economic self-satisfaction after the cruel famine experience. ³³

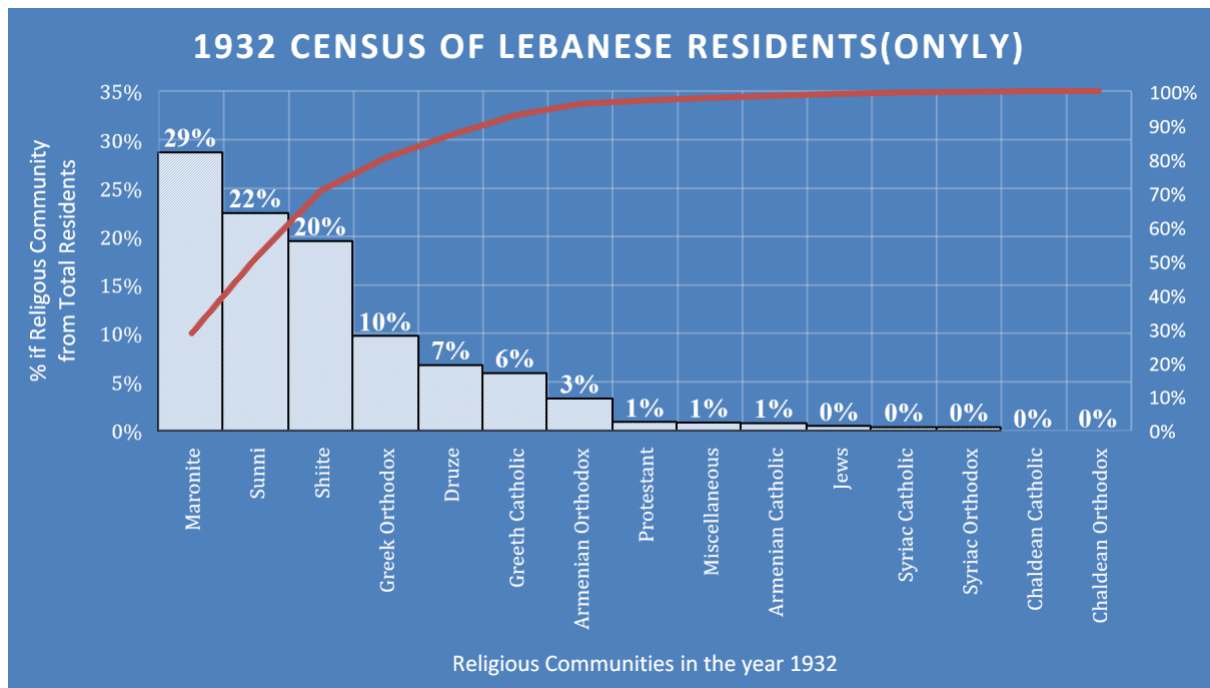
On September 1, 1920 the Sate of Greater Lebanon was declared by the French General Henri Gouraud. In the year 1926, the first Lebanese Constitution was announced based on the French Third Republic. The resulting political system would be constituted of a president, a Parliament or Chamber of Deputies, and the cabinet of ministers. In the year 1932, and as a result of a demographic census, the tradition of binding political positions to specific religious sects surfaced.

Table 5 - 1932 Lebanese Census

Religious Community	Residents	Emigrants	Total
Maronite	227800	123397	351197
Sunni	178100	17205	195305
Shiite	155035	11510	166545
Greek Orthodox	77312	57031	134343
Druze	53334	8750	62084
Greeth Catholic	46709	29627	76336
Armenian Orthodox	26102	1970	28072
Protestant	6869	2931	9800
Miscellaneous	6393	1263	7656
Armenian Catholic	5890	454	6344

³³ Ellis, Kail C. Greater Lebanon: The Problems of Integrating a Religiously and Ethnically Diverse Population, (2019)

Jews	3588	415	4003
Syriac Catholic	2803	312	3115
Syriac Orthodox	2723	97	2820
Chaldean Catholic	548	25	573
Chaldean Orthodox	190	0	190
	793396	254987	1048383



Graph 4 - % Distribution of Religious Communities | Source: 1932 Census³⁴

Since then, the Lebanese President would be a Maronite Christian, the Lebanese Prime Minister a Sunnite Muslim, and the parliament’s speaker a Shiite Muslim. The vast powers within

³⁴ Maktabi, Rania, The Lebanese census of 1932 revisited: Who are the Lebanese? (2007)

the hands of the President and the binding of the highest position in the government to the religious background have created a feel of dissent among other communities especially that the Maronite majority of Mount Lebanon is no longer the largest element of society in Greater Lebanon. In graph 1, the orange line is showing the cumulative increase of the total percentage of residents and thus we can observe that the sharpest increase occurred as we moved from the Maronites towards the Sunnites and Shiites. As such, and as new geographic areas were added to Mount Lebanon upon the announcement of Greater Lebanon, Christians no longer hold a demographic majority. This largely explains the internal conflicts between the religious communities during the period that the President of the republic had extensive authority over the different branches of the government.³⁵

During the French mandate, three areas witnessed advancement and expansion: education, communication and public services. This was a critical period for the development of the main foundation of the public sector that has engraved its marks in the nation's identity till today.³⁶ It is almost important to note that trade came back to life, with Beirut as its center, that gave room of growth to the middle social class. The longing for independence had different objectives. A big part of the Sunnite community called for a unity with Syria or within the greater Arab State. Maronites were clearly pushing for an independent Lebanon while trying to sustain the historic relations with the French. In the year 1940, and upon the fall of France, Lebanon was under direct control of the Vichy government. Nevertheless, the British and the troops of the Free French were able to regain military presence by 1941. During this period, the Lebanese people were already facing a lot of instability with the French rulers which was close to a military confrontation several

³⁵ Traboulsi, Fawwaz A History of Modern Lebanon (2012)

³⁶ Abu-Rish, Ziad Then and Now: Lebanese State Institutions During the Early Years of Independence

times. In the last quarter of 1943, the French oversaw the Lebanese presidential elections that led to the victory of the Nationalists and their leader President Bechara El Khoury. Coming from a strong nationalist background, President El Khoury, along with the cabinet, passed legislations and constitutional amendments that would end the French mandate in Lebanon. As a direct result of those decisions, President El Khoury, the prime minister Riad el Soloh, Camille Chamoun, and others were imprisoned by the French authorities. Naturally, this led to a national uprising that led the British to intervene in order to limit further escalation. The Lebanese officials were then released, the French passed all powers to this government, and the Lebanese independence was declared on the 22nd of November 1943.

Missionary and Confessional Private Education from the 16th to the 19th century

The Ottoman Empire's early expansion was a double-edged sword. Although the empire was huge in terms of geography and rule, the resources needed to reign and contain unrest gave little space to provide the adequate education for all peoples under its reign. As such, this left room for local communities to establish their own educational experiences linked to their religious background and heritage.

During the first century of the Ottoman Empire, local communities enjoyed little to no freedom. The Maronite majority of Mount Lebanon was still able to leave clear marks over both the intellectual and educational levels. In the year 1584, Pope Gregory announced the inauguration of the Maronite College in Rome which was considered to be the heart of the intellectual spread in Mount Lebanon. In Pope Gregory's own words, the main objectives of the college "*was to strengthen the faith of the Maronites teaching them good science, educating them with a right and just teaching the perfect virtues Christian apostles are for publicizing the smell of piety and*

teaching of the Holy Church on the cedar of Lebanon and on their communities and their countries."³⁷ There, Maronites priests and monks, were able to develop their skills in foreign languages, sciences, philosophy, theology, literature, math, history, arts, and law. In return, a lot of those clerics came back to their homeland and took the role of teachers for their community. The latter was a significant illustration of the effects of the strong cultural and political relation between the Maronites and the western world. Subsequently, and upon the introduction of a printing press at Qozhaya Monastery in the year 1610, Patriarch Youhanna Ben Makhoulouf established the first Maronite Clerical College in Saint Hawka's Monastery in the year 1624.³⁸

The biggest turning point in the history of the Lebanese education sector before independence, took place in the year 1736. On September 30 of that year, the Lebanese (Maronite) Council took place in Saint Louaize's Monastery under the guidance of Patriarch Dergham El Khazen. The council decided on expanding schools and asked all those in charge of parishes, villages, monasteries, and farms to cooperate on raising the needed awareness. They were also directed to nurture skillful teachers where there are none, carefully gather all the youngsters who are ready to learn and order their parents to get them to school even if it is against the will of their children. The cost of schooling was shared between the local parishes and parents but was not imposed on orphans and the poor. In addition to that, the Lebanese council was clear in recommending the education for both men and women alike.³⁹ This was one of the earliest forms of public compulsory education that happened almost fifty years before the French revolution. Under those new directives, the local society took the lead later in developing what was known as

³⁷ Pontifical Maonite College (2019)

³⁸ , Synodos El Kanissa El Marooniya, El Kanissa El Marooniya Wa Aalam El Yawm (The Maronite Church and Today's World) (2016)

³⁹ El Majma3 El Lobnani (The Lebanese Synod) (1736)

“a school under the oak tree”. The most prominent figure of that time was Patriarch Yousef Estephan that transformed in the year 1789 the Monastery of Ain Waraka into a public clerical school that had a leading religious, national, and cultural role in Mount Lebanon. Since then, the act of transforming monasteries to schools became a major objective of any Maronite Patriarch especially between the years 1812 and 1832 where new schools were formed in the villages of Kfarhay, Roomieh, Sarba, Rayfoon and others. One should also note that, the Maronite Church did not only establish schools in Mount Lebanon, as in the year 1734, the priest Andraos Iskandar El Kobrosi established a school in Cyprus.⁴⁰

Although, Christian orders were able to take advantage of their strong linkage to Europe and translate it into an educational and scholar renaissance, their impact was restrained over their Christian communities due to political measures imposed by the Ottoman rule.

Towards the end of the 18th century, the Ottoman Empire was already crumbling under extreme internal pressure of unrest and revolts. This internal instability pushed the Sultan Mahmud II to start a modernization period by slashing from the authorities of the Pasha's and other judicial and administrative reforms. This new environment gave space for the flourishing and expansion of missionary education across untouched areas in Mount Lebanon. Moreover, the special relations with the western world, especially France and Italy, and the European industrial revolution were able to fuel this educational growth. In the year 1875 Archbishop Youssef Debs established Sagesse School of Beirut followed by the inauguration of Saint Joseph School of Kornet Chehwan in the year 1884 by Archbishop Yousef el Zoghby⁴¹. All of what has been stated above was

⁴⁰ , Bishop Youssef El Debs, Men Tarikh Sourya El Dini Wal Donyawi (From Syria's Religious and Mundane History) (1893)

⁴¹ In the aftermath of the 1860 massacre, Archbishop Youssef Geagea decided on building Saint Joseph School of Kornet Chehwan however it was not complete until the year 1884.

accompanied by opening schools in monasteries that were dedicated by Maronite order to educate new clerical candidates in Qozhaya, Kfifan, Kottara, Saint Elijah, Mayfouk, Ghosta, and others.⁴²

In parallel to the movement of the Maronite Church, Latin missionaries reinitiated their activities in Lebanon in the 18th and 19th century with the clear footprints of the Franciscans, Capuchins, Jesuits, Carmelites, and the Lazarists. In the year 1728, Father Botrous Mobarak, a Jesuit monk, established Saint Joseph School of Aintoura that was then transferred to the Lazarists order in the year 1834. Several other schools were established on the hand of the international missionaries. Some of those were: Sisters of Saint Joseph from Marseille in the year 1864, then the Sisters of the Holy Family, the Sisters of the Good Shepherd. Then, in the year 1853, Father Youssef Gemayyel, established a local order that was later known as the Sisters of the Holy Hearts that were able to form more than thirty schools all over the Lebanese territories. Alongside the impact of Latin missionaries in increasing the number of schools in Mount Lebanon, those orders gave local schools a well-rounded managerial model. Lebanese orders soon followed lead through the same organizational structure where the Abbot of the monastery would lead the financial and administrative roles of appointing teachers, course planning, and overseeing periodic assessments.⁴³

The Catholic strong presence at the educational level pushed for other confessional schools especially that the Greek Orthodox and the Sunnite Community refused to incorporate their children in Catholic schools. Such communities developed a sense of fear from the widespread of the Western culture and habits and considered it to be an extension of the political intervention in the Lebanese scenery. As such, in the year 1833, the Greek Orthodox Church established the

⁴² , Father Pierre Rouphael, *Le rôle du Collège Maronite romain dans l'orientalisme au XVII et XVIII* (1950)

⁴³ *ibid*

Balamand School near Tripoli and then the Three Moons school in the year 1835. The Protestant missionaries also had a strong presence that was highlighted by the birth of the American University of Beirut in the year 1863, and the evangelicals also built the Beirut Evangelical school of west Beirut in the year 1835. In the same manner, the Sunnites formed Al Makassed school in 1877 and Al Madrassah Al Uthmania in 1897. The Druze also had a role in the education and were able to establish the Dawodia School in the year 1862.⁴⁴ Other non-religious communities also took part of the development of the Lebanese education paradigm, most notably the French lay mission that established “Grand Lycée Franco-Libanais” in the year 1909.

The Road towards the Lebanese Public Education Sector

The earliest attempts towards establishing public education within Mount Lebanon took place in the year 1838, as the Ottomans aimed to train a selected group of people to take care of the administrative reform throughout the whole Ottoman Empire. Practically, the Ottomans took their first step by forming the Council for Education and decided on dividing schooling into three main cycles: primary, secondary a higher education. They also announced a free compulsory public schooling while adding reading, writing, and math to the already found subjects of religion and the Turkish language. In order to enrich their schooling system, they allowed all religious communities within their territories to officially establish their own private schools under the supervision of the Council for Education. Those decisions, however, had little to no impact. In reality, public schooling fell short to few primary schools scattered over the Ottoman Empire, made up of one room accommodating to more than fifty students and providing mediocre education unlike their private counterparts.⁴⁵

⁴⁴ Tannous, Afif I., *Missionary Education in Lebanon: A Study in Acculturation*, (1943)

⁴⁵ Ghoseini, Raouf *The Government and Education in Lebanon*, (1964)

Education During the Mutasarrifate Period

During the reign of the first governor of the Mutasarrifate Daoud Basha, the Druze were given the approval to establish a school in the village of Abbay taking into consideration its strategic location among the Druze villages and its adequate climate. Basha recommended the selection of experienced teachers in Arabic, foreign languages, and arithmetic and to enroll students up to the capacity of the school. Parents were expected to provide their children with sleeping mattresses and bed sheets while no fees were applied on regular schooling activities. Regarding the school system, Basha advised the following: students should learn seven successive hours per day (non-continuous) for six days a week and should undergo one examination per year in the presence of their three teachers, the principal, parents, and religious leaders. As noticed, during the Mutassarifate period schools started to develop an organizational nature somewhat similar to those of today.⁴⁶

On the other hand, traditional schools of Beirut did not witness a major organizational and human resource evolution. Neither did the Ottoman rule give enough attention to this field, nor were those in charge of those schools capable of investing for a better change. As such, a large portion of students did not receive a good academic formation during those periods. In this manner schooling during the 19th century experienced the founding of prominent schools from the Maronites, international missionaries and other confessional groups versus shy attempts of providing a substantial public model.⁴⁷

⁴⁶ Gedeon, Andre Tarikh El Taaleem fi Lobnan (The History of Education in Lebanon)

⁴⁷ *ibid*

Education During the French Mandate Period

During World War I the Ottoman Empire closed a lot of schools in Lebanon and others were obliged to shut down due to the military conditions. With the announcement of the French Mandate, France rushed to fund and motivate private schools, especially those of the missionaries with a French program, to reopen their doors and recruit students. The French also shared their school management experience that allowed for a second transformation in the organizational structure and management. Then, schools started to develop a managerial system that looks quite similar of our current days with a clear hierarchy of school principal, administrative board, and an academic one.⁴⁸

Those were evident in two main national announcements. The first was the mandate's text itself of the year 1922, that has clearly announced the right of missionaries and all sects to own and operate private schools. The second as the Lebanese Constitution of the year 1926 where the 10th article declared a free teaching and the protection of the right of all religious communities to have their own schools. Note that the 10th article of the 1926 Lebanese constitution remains into effect till today.

Since the earliest days of the mandate, the French authorities rushed to develop a curriculum based on the same one present in France while giving importance to the French language. The earliest curricula were announced in the year 1924 for both elementary and secondary cycles then adjusted in the year 1928 to introduce and organize official examination. Then in the year 1933, another amendment occurred to ensure a balance between the scientific and humanities programs and to ensure a close resemblance among the French, Lebanese, and Syrian

⁴⁸ Longrigg, Stephen Syria and Lebanon under French Mandate (1958)

curricula to simplify the operation of public high schools that were entitled to prepare students for the baccalaureate of all aforementioned programs. The latest updates on the curriculum stayed into effect with little to no adjustments until the independence.⁴⁹

In order to better understand the dynamics of the education sector during the French mandate and the rivalry between the public and private sector, one should carefully assess the number of students and their distribution.

		Students Distribution						
Type of School		Schools	Christian	Mulsim	Druze	Jews	Other	Total
PRIVATE SCHOOLS	Public Schools	182	5982	12624	1245	8	20	19879
	Muslim	126	327	16266	171	3	11	16778
	Druze	28	133	87	1932	4	2	2158
	Jews	1	0	0	0	239	0	239
	Maronite	421	25878	377	398	10	6	26669
	Roman Catholic	157	7080	427	191	1	28	7727
	Roman Orthodox	193	15327	295	314	2	0	15938
	French Schools	267	32029	1549	583	1367	88	35616
	American Schools	35	2931	1395	127	240	34	4727
	British Schools	11	768	189	362	15	3	1337
	Italian Schools	9	1402	234	22	20	7	1685

Table 6 -Sectarian Distribution of Students in Lebanon during the year 1939 ⁵⁰

The number presented indicate the following:

- For every seven students only one was attending a public school, versus two in an international school, and four in a private school.

⁴⁹ Gedeon, Andre Tarikh El Taaleem fi Lobnan (The History of Education in Lebanon)

⁵⁰ Bashour, Mounir Bonyat El Nizam El Tarbawi fi Lobnan (The Structure of the Lebanese Education Sector), (1978)

- In public schools, only thirty percent of the students were Christian.
- Private schools were mostly religious schools providing their community with the adequate education.
- The vast majority of students attending international schools were Christian.

Those numbers reflect the historic birth of Lebanese education along with the policies enforced by the French.

The Major Transformations During the early days of the Lebanese Independence (1943-1968)

With the declaration of Independence, the Lebanese political leadership saw the need to adjust the education sector in terms of policies and curriculum to the new administrative standing. As such, in the year 1946, several bills were introduced targeting the language of instruction and official exams. The main objective of the ministry of education was to infuse the curriculum with national values and increase the dependency of the Arabic language. For example, Arabic became the only language of instruction for History and Geography after it was an optional approach. Nevertheless, all bills preserved the diverse nature of the communities and thus the curriculum. The French cultural impact remained into effect despite all amendments.⁵¹

The Lebanese government also tried to impose a direct supervision over private schools starting the year 1946 through consolidating all privileges of establishing new private schools and their requirements within the hands of the government. Moreover, a more centralized approach took

⁵¹ Ibid

place with its increasing bureaucracy in terms of teaching methods, books, learning objectives, and administrative management.

The American Education Sector: From Common Schooling in the 19th Century to Publicly Regulated Private Schools in the 20th Century

During the 18th century and the early days of the 19th century, privately funded educational institutions dominated the education sector in northern America. Nevertheless, the American education sector in this period could not be easily split between public and private. Several private schools in the urban areas of Northern America received public funding whilst numerous schools with locally elected boards received parental funding.

The first remarkable decline in the number of students in the private sector occurred between the years 1830 and 1850, as several urban northern areas witnessed a 50 % migration from private to public schools. At those times, Americans were hoping to clone the municipal services' model into the educational realm with a clear target of abolishing private institutions. During the same period, clear differences began to appear between public and private schools. However, it is important to note that public schools at those times were quite different than the current reality: a non-compulsory and inconsistent attendance reigned along with a denunciation of secular instruction.

On April 1865, members of the Federal Army were on their way back to their home state, New York, when they crossed upon the popular public schools in their union states. This experience pushed Israel Wilkinson, a member of the office of the School Commissioner in Cayuga County, to address the issue by stating “ *During the past year, God has signally blessed us as a nation, not only by giving us success to our arms in quelling the Slaveholders' Rebellion*

... but also in inspiring in the minds of our people that the main pillar of Republic Institutions is our Common School System.” Soldiers of the Federal Army at those times have also described them having public schools in their states as a major advantage over the lack in schooling whatsoever in the South.⁵²

The decades surrounding American civil war have witnessed another exponential increase and a geographical spread of public schools starting from the Northern states, then the East, and finally towards the Southern states as a direct result of the victory of the Federal Army. At those times, public schools were deeply related to the American Protestants in terms of advocacy and funding with a mission of educating all Americans without any social, religious, or origin discrimination. American Protestants were influenced by the schooling system developed in Puritan New England that strongly advocated both the separation of religion from educational institutions in the purpose of diminishing sectarianism and the buildup of publicly funded schools to diminish socio-economic segregation.⁵³

Starting late 1870s onward Americans were shocked to acknowledge the fact that the number of private students and schools started to increase yet again. In the year 1888, Nathaniel Dawson, the Commissioner of Education declared that a “matter of highest gravity” is happening in the educational realm represented by the migration of students from public to private institutions. Headlines of American newspapers along with interested scholars and politicians from America and Britain gave a lot of attention to this transformation describing it as a social revolution and framing it, since then, under the title of “The School Question”.

⁵² “Reports of School Commissioners and City Superintendents,” in *Twelfth Annual Report of the State Superintendent of Public Instruction, of the State of New York* (Albany: C. Wendell, 1866), 111–17.

⁵³ Rees, William J. *America's Public Schools: From the Common School to "No Child Left Behind"*, (2005)

The spark of the aggression towards this phenomenon was largely due to the fact that the majority of the increase in private institutions' attendance was from the American Catholics who are known to be a non-native fraction of society. The early Catholic immigrants came from Ireland and Germany in the nineteenth century followed by those coming from Eastern and Southern Europe. Upon their arrival, Catholics started building their churches and schools in the urban areas of Boston, Pittsburgh, Buffalo, Cincinnati, Cleveland and Milwaukee. Unlike the older model of 18th century private schools, the Catholic schools were parochial with low or none-existing school fees. Priests and nuns were the majority servants of not only the churches, but also the schools in order to keep the cost at its lowest. Wealthy Catholic immigrants constituted the vast majority of donations to complete those projects.⁵⁴ All of those efforts were accompanied by a whopping 600 percent increase of the Catholic community between the years 1850 and 1890 (*the Catholic population grew from 1 to 7 million*), to become the largest Christian denomination in the United States by the late 1800s. This exponential increase of the population was reflected by the number of schools as studies show that by the year 1885 the total number of Catholic schools has reached 2500 from a previous total of 1400 in the year 1875. Those schools were able to offer their services to more than 900 000 students and thus presenting themselves as a main contender of the "protestant" backed public school system.⁵⁵

In the late 19th century, specifically the year 1889, witnessed the earliest political debate roaming around the public funding received by private institutions. On February 1889, a U.S. senate committee heard testimony, from mostly protestant school leaders, on a draft that proscribes

⁵⁴ Finke, Roger; Stark, Rodney, *The Churching of America, 1776-2005: Winners and Losers in Our Religious Economy*, (2005)

⁵⁵ Walch, Timothy, *Parish School: American Catholic Parochial Education From Colonial Times to the Present*, (1996)

public funding from reaching private schools, especially Catholic.⁵⁶ All attempts of diminishing the presence and impact of Catholic private schools were to continue throughout the 20th century yet could not stall their rapid spread throughout American cities notably from the 1880s through the 1960s. The beginning of the 20th century was a clear departure from the common or public schooling as the sole American educational offering to a dual private-public system.

This transition has posed several questions to scholars and policy makers alike, most notably was how competitiveness, in its broader economic understanding, could emerge in a market that was under a public monopoly with a strong support from the people. The literature clearly shows that the true source of the modern debate on school choice has emerged as early as the 19th century when education witnessed the emergence of new markets and competition that are considered at the heart of any school choice theory.

As much as private education presented itself as a threat to public schooling in the 19th century, as much as it was able to positively decrease the gap between the divergent nature of public versus private education. The satisfying percentages of attendance that Catholic private schools achieved were able to bring on board policy makers that wanted to benefit from those rates in the broader sense of American education. This phenomenon first emerged in the year 1870 in Rhode Island where Catholic private schools sacrificed full autonomy in terms of regulations for the sake of tax exemption.⁵⁷ Those measures pushed private schools towards fulfilling state and federal educational objectives while enjoying a now sustainable financial model.

⁵⁶ United States Congress Committee on Education and Labor, Religion and Schools: Notes on Hearings Before the Committee on Education and Labor, United States Senate, Feb. 15 and 22, 1889, on the Joint (1889)

⁵⁷ Buetow, Harold A., *Of Singular Benefit : The Story of Catholic Education in the United States* (1970)

This trend succeeded in growing the number of private institutions in the decades to come. New policies in the 1880s addressed the issue of compulsory attendance. This dilemma required policy makers to well-define their goals approaching the matter. It was clear that they had two main targets: limiting expenditure over schooling and attracting Catholic voters. The obvious plan to tackle the aforementioned issue was using private means for the sake of accomplishing public ends. In other words, public policies continued to support private schools that were recruiting the increasing number of students that were already overcrowding public schools while simultaneously limiting direct public expenditure.⁵⁸

By the second decade of the twentieth century, local school boards have already succeeded in both dictating and applying the needed regulations and procedures for the safe transfer of students from public to private institutions or vice versa. Regulations were needed for tracking school records of all students along with reassuring parents that their children are completing the adequate learning objectives.

The public policy experience in the American education sector proved to be a solid steppingstone for future cooperation in other sectors. In the late 19th century and early 20th century, government capacity was expanded through funding private companies. Experiences varied from railroads to canals, bridges and even charity organizations. Similar to private schools that were supervised by the government and used to their full abilities in order to share the burden of the vast number of students, much of the other public services followed suit. As such, the strategic partnership between the public and private education sector was projected on the American public policy.

⁵⁸ Balleisen, Edward J. *Government and Markets: Toward a New Theory of Regulation* (2012)

This partnership has led both citizens, as receivers of the education services, and policy makers to argue whether schools should be completely managed uncompetitively by the state or to compete and interact according to the laws of the free market. Should the government regulate education as a service while financially supporting it or should it directly support parents and offer them the absolute freedom of choice. Those questions were even sometimes brought to court similar to *College v. Kentucky* in the year 1908 and *Pierce v. Society of Sisters* in the year 1925.⁵⁹

Following the Second World War, private schools continued to outgrow public ones to an extent that several scholars and policy makers alike dared to propose dissolving this public service altogether. This period was the main trigger of the birth of several propositions varying from educational voucher programs at that time to rather newly born concepts as the educational saving accounts aka ESA.

Conclusion

Although the birth of the United States of America as a nation, its cultural and ethnic diversity, along with the nature of its education sector are quite different than the historic evolution of Lebanon several points remain similar and worthy to build upon.

The value of the private sector has been clearly obvious in both scenarios. Both countries and their public sector cannot accommodate to the continuous rising number of students and thus need private schools as an ongoing partner to serve the need of educating the people. Moreover, the Catholic immigration towards the United States and the establishment of their schools has had a major impact over the public policies that continue to shape American education till today. This is also bluntly evident in the Lebanese case, as earliest schooling was mainly entitled to Catholic

⁵⁹ Freeman, Jody, Martha, Minow *Government by Contract: Outsourcing and American Democracy* (2009)

missionaries and the Maronite church and they still hold, till today, the largest number of students. The interaction and dynamics that grew between parochial school in the US and the government should be taken into consideration while proposing a roadmap towards major reforms and new public policies.

On the other hand, the offerings of the public sector in both countries are subject to severe public debates. They both present services with floating academic performance and are restricted with robust regulations that give little room to creativity, advancement, and adaptation.

CHAPTER THREE: A Thorough Analysis of the Current Situation of the Lebanese Education Sector: Public Expenditure Versus Academic Performance

Introduction

In the preceding chapter we have discussed the foundation of the Lebanese education sector since the 16th century. In a quick overview, and before diving deeper in the current situation, the following points must be always taken into consideration.

First and foremost, education, as a whole, before the mid of the 20th century, was almost completely restricted to private institutions with a vast majority of Catholic schools. In addition to that, it is important to note that the Lebanese public education sector is rather a “toddler” and has not yet taken a well-defined structure before the 1930’s. Even after ninety years since its inception, the number of students in the public sector remains very shy compared to international numbers, That could well be due to the nature of the Lebanese republic since its inception, that is built over sectarian grounds that was reflected over all institutions including education. Last but not least,

and before diving further, one should also keep in mind that the inheritance traits of the curriculum and methodology could be traced back to the French mandate era.

In Chapter 3, an in-depth analytical analysis will be carried out on the Ministry of Education & Higher Education's budget, distribution of the number of students, faculty, and staff over public schools, and an estimation of the cost of public education per student. This will be studied versus the output of the whole system which is definitely the student performance compared to international standards.

Ministry of Education & Higher Education Budget Analysis

The main objective in this section is to read MEHE's budget from a macro level. It is of utmost important to analyze spending with respect to the global state spending, gross domestic product, and student share.

% of 2020 State Budget	Entry	% Diff 2020 vs 2019	2020	2019	2018	2017
37.65%	Common expenses	-32.01%	7,677,936,722	11,293,000,000	11,022,643,966	11,450,000,000
22.27%	Ministry of Interior and Municipalities	-0.03%	4,542,030,562	4,543,260,677	4,869,048,912	4,331,268,501
10.01%	Telecommunications	-10.32%	2,040,795,895	2,275,628,125	2,700,327,353	2,615,996,101
9.58%	Ministry of Education and Higher Education	-6.34%	1,953,112,473	2,085,297,684	2,091,635,945	1,708,697,516
3.65%	Presidency of the Council of Ministers	-27.60%	743,444,595	1,026,910,230	1,523,518,803	1,544,076,755
3.39%	Ministry of Public Health	-6.81%	692,232,649	742,784,380	728,849,074	708,549,525
2.77%	Budget Reserve	-9.50%	565,084,909	624,434,909	844,739,004	1,388,042,437
2.16%	Ministry of Finance	-31.25%	440,576,358	640,819,906	727,333,884	630,263,214
1.84%	Ministry of Labor	2.91%	375,452,434	364,837,998	389,260,755	416,224,450
1.66%	Ministry of Social Affairs	1.01%	338,753,208	335,356,098	228,008,880	226,679,000
1.01%	Ministry of Public Works and Transport	-47.33%	205,188,886	389,558,159	441,943,951	465,307,888

0.86%	Ministry of Foreign Affairs and Emigrants	-0.98%	175,835,081	177,581,665	179,157,627	175,119,563
0.55%	Ministry of Justice	-1.44%	112,800,040	114,447,951	116,640,028	107,372,387
0.45%	Directorate of National Lottery	0%	92,000,000	92,000,000	96,800,000	115,800,000
0.39%	Lebanese Parliament	-4.48%	78,568,000	82,252,000	84,792,000	71,682,500
0.38%	Ministry of Energy and Water	-80.15%	78,487,343	395,422,223	327,821,277	387,095,750
0.35%	Ministry of Agriculture	-11.37%	72,222,629	81,485,925	96,546,780	74,457,090
0.22%	Ministry of Culture	-11.41%	44,365,166	50,077,166	48,649,626	46,495,800
0.21%	Ministry of Information	-3.56%	43,376,506	44,976,120	47,630,032	45,330,650
0.14%	Directorate General of Grains and Sugar Beets	-11.41%	27,730,272	31,301,901	30,497,690	45,264,000
0.11%	Ministry of Economy and Trade	-17.73%	21,813,348	26,514,979	26,142,614	29,592,300
0.07%	Ministry of Tourism	-30.59%	15,123,865	21,788,572	23,722,912	25,711,275
0.06%	Presidency of the Lebanese Republic	-11.93%	12,731,043	14,456,138	18,105,188	20,385,200
0.06%	Ministry of Youth and Sports	-5%	12,546,916	13,206,600	14,534,940	15,512,550
0.04%	Ministry of Environment	-27.36%	8,914,393	12,272,185	14,021,359	14,020,650
0.04%	Ministry of Industry	-11.90%	8,126,122	9,224,245	9,781,784	8,169,000
0.03%	Ministry of Displaced	-17.86%	6,163,295	7,503,157	8,156,925	7,041,158
0.03%	Ministry of Telecommunications	-13.64%	5,430,107	6,287,854	6,691,100	7,080,700
0.01%	Constitutional Council	-18.77%	1,476,776	1,817,909	1,847,217	1,873,065
	Total	-20.04%	20,392,319,593	25,504,504,756	26,718,849,626	26,683,109,025

Table 7- Lebanese State Budget from 2017 till 2020 (Numbers are in thousand)\$⁶⁰

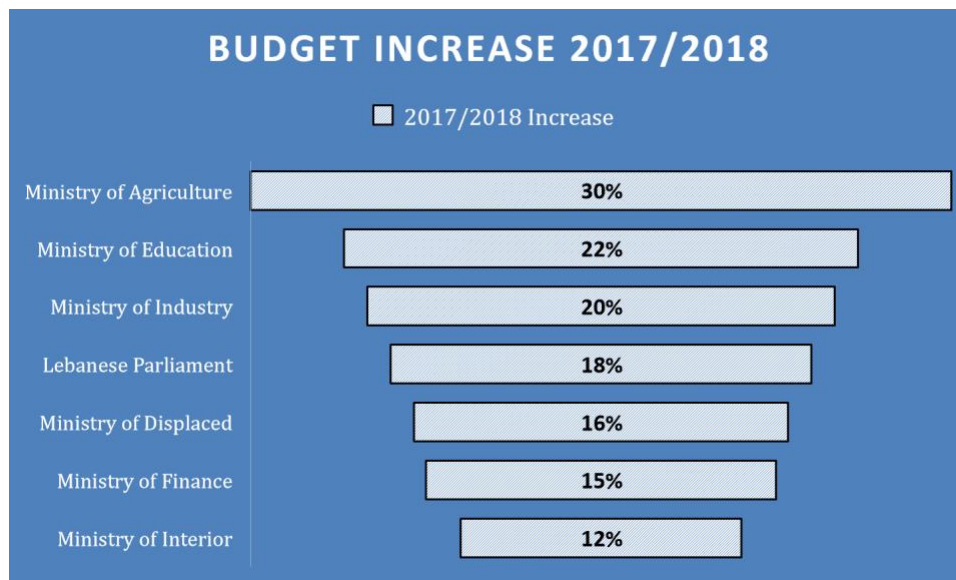
The dissection of the state's budget into the main spending entities sheds light of several important factors. The first entry entitled "Common Expenses" reflects the budget of subsidizing electricity

⁶⁰ Lebanese Parliament, Lebanese State Budget, (2017-2020)

and the public debt. Accordingly, one can directly conclude the large deficit in the budget and the ineffective spending that constitutes the biggest portion of the in both financing and percentage.

On the other hand, what stands out bluntly, is the major increase in the budget of several ministries between the years 2017 and 2018.

This is mainly related to the salary scale adjustment of all public sector employees, that was legislated around 8 months before the parliamentary elections. This salary adjustment has had dramatic effects of the Lebanese economy and financial situation that we shall discuss later on.



Graph 5 - Top 7 Budget Increase between the Years 2017-2018

Although teachers, do not constitute the highest number of public labor force, whenever compared to the armed forces, the significant increase is due to the six additional grades teachers received due to this legislation. Some, for the first glance, would think that this salary increase is due to the government's vision in reforming the education sector and thus it is justifiable for such a critical service. However, politicians prepared the aforementioned public policy without reforming the government's recruitment policy and adjusting its performance appraisal system. In addition to

that, and although economic experts warned, the Lebanese political leadership gave little importance to the dramatic effects of this salary scale adjustment on the country's medium-to-long term financial stability.

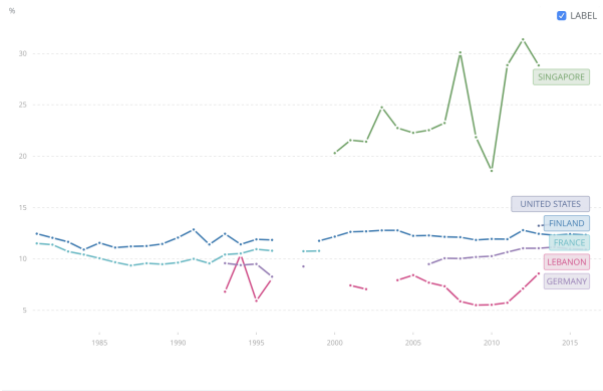
Some experts estimate the per teacher's salary adjustment, taking into consideration his/her future pension, was close to whopping increase of 100-120 % in certain cases. As indicated earlier, the high budget deficit, that relates to ruthless management and corruption among others, along with the 2017 increase has had its effects on the economy. Those public servants, that once praised the steep salary increase are now suffering a devaluation that is close to 300 % the value of the lira in 2017.

On the other hand, and although the Ministry of Education and Higher Education shares the fourth biggest portion of the state's budget, it only consists two percent of the gross domestic product.

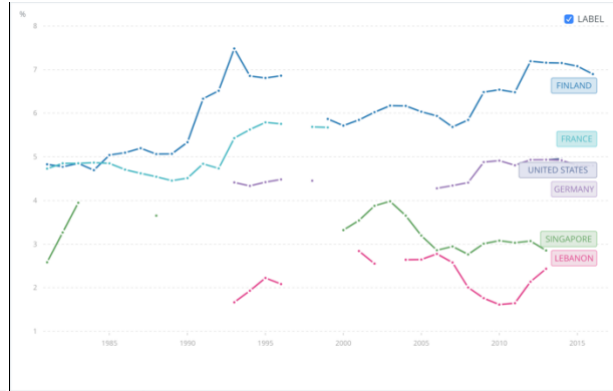
Looking closer at the number, it is noticed that fifty six percent of 2020's budget is expected to be spent on salaries, wages, and social benefits in compared to only 1 percent expenditure over the Education Center for Research and Development. Whereas, advanced countries spend between 6 and 10 percent of the Ministry's budget over research and development. Some officials relate that to the amount of international donations spend to assist in research and development.

Comparing Lebanon's Education Spending to that of International Countries

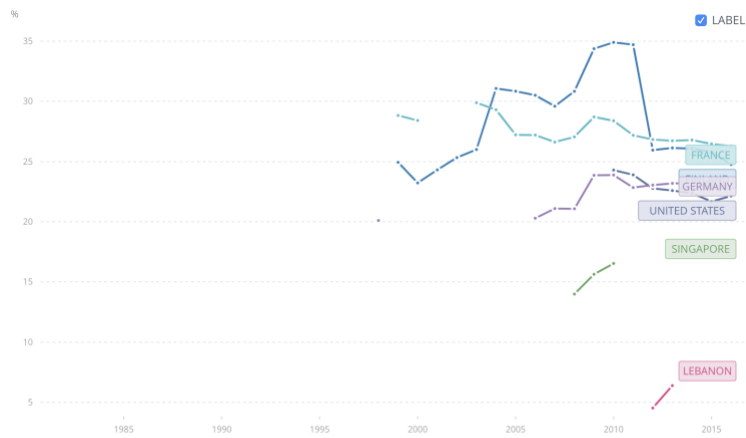
Below, Lebanon's spending on education will be compared to that of better performing countries. Singapore and Finland were selected according to their students' high performance globally. France was selected due to the impact that it had over the birth of the Lebanese education sector. While the United States of America and Germany were selected as the leaders of their continents and one of the best performing economies in the world.



Graph 6 - Expenditure on secondary education (% of government expenditure on education) - Finland, Singapore, United States, Lebanon, France, Germany ⁶¹



Graph 7 - Government expenditure on education, total (% of GDP) - Finland, Singapore, United States, Lebanon, France, Germany⁶²



Graph 8 - Government expenditure per student, secondary (% of GDP per capita) - Finland, Singapore, United States, Lebanon, France, Germany⁶³

⁶¹ UNESCO Institute for Statistics, The World Bank | Data (2020)

⁶² *ibid*

⁶³ *ibid*

As noticed from the above graphs, Lebanon lags behind in terms of spending whether with respect to the state's budget, GDP, or per secondary student (% of GDP per capita).

In the first graph representing the percent expenditure with respect to the whole state, Lebanon has been floating for some time between 8 and 9.7 percent. However, world records show us that most developed countries spend an estimate of 10 to 14 percent out of the total budget on education with an exception of Singapore that has surpassed a spending of 30 % the total budget during the reform years.

On the other hand, between 2012 and 2015 Lebanon was witnessing an increase in terms of spending with respect to the gross domestic product. Nevertheless, in the year 2018, Lebanon's spending per GDP dropped to two percent only. Western countries are distributed somewhere between 4 and 6 percent which is two to three times that of Lebanon with Finland as an exception showing a strong 7 percent.

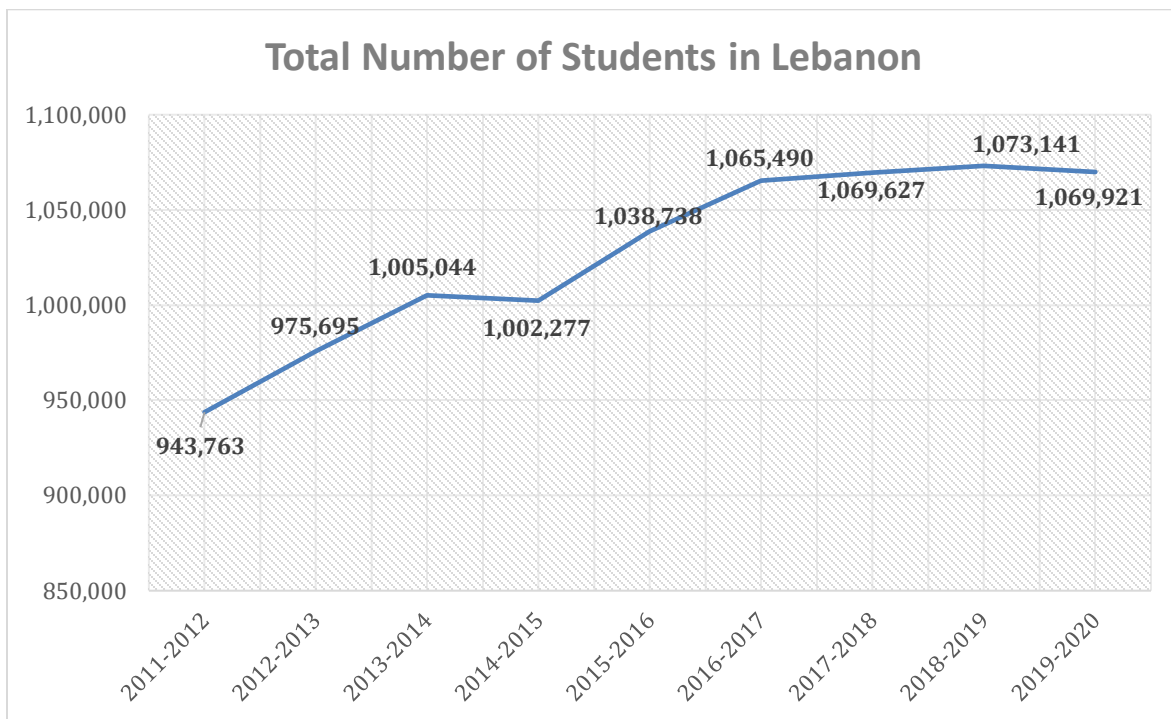
The most shocking numbers are reflected in the Graph 8, showing the government expenditure per secondary student as a percentage from the GDP per capita. Although not reflected in the above graph, even Jordan is way ahead Lebanon with a 17 % versus 6.8 % respectively. Most western countries are located between 20 and 28 % for secondary student from the GDP per capita.

Public Schools Density and Student Per Teacher Ratio

In this section, we will analyze the total number of students in Lebanon, then take the public sector and dissect it in terms of the number of students per school, teachers and staff, and ratios. This in-depth analysis will allow us to scientifically measure corruption and bad management practices in this sector.

The Total Number of Students in Lebanon

The total number of students in Lebanon has been increasing steadily since 2011 by an average of three percent per year. Those years have witnessed in a steep increase in the number of non-Lebanese especially from the Syrian nationality. The total number of students has been increasing by an average of 2 percent for the past nine years.



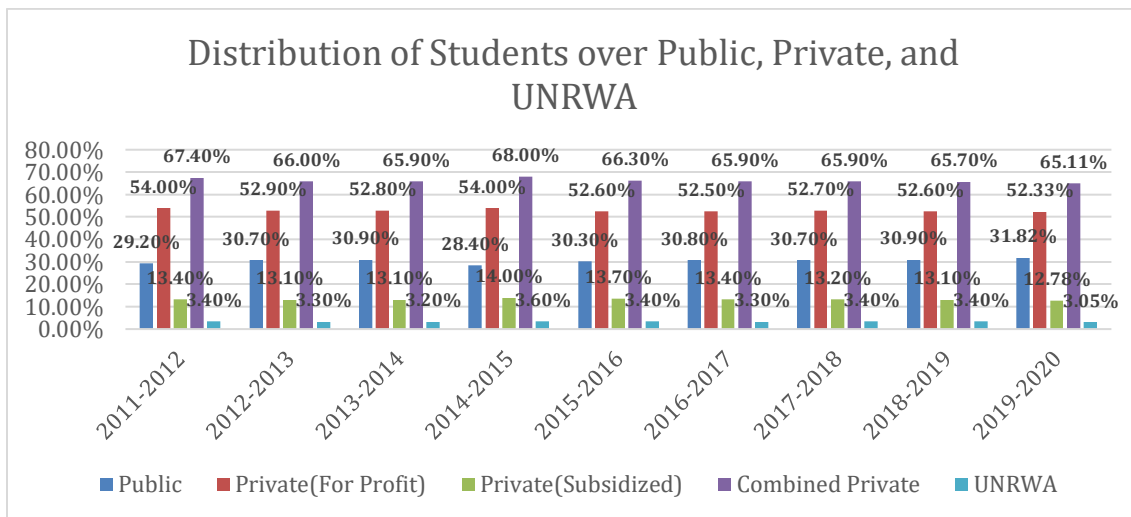
Graph 9 - Total Number of Students in Lebanon from 2011 till 2020⁶⁴

Most of students, Lebanese and foreign, in Lebanon (almost 65 %) attend private schools. This number is a bit higher whenever considering Lebanese residents only and it comes close to seventy percent.

⁶⁴ Lebanese Center for Research and Development, An Nashra El Ihsaiiya (The Statistical Report) (2019)

The sectarian nature of the Lebanese society, the education sector’s inherited traits, and the lack of trust in the governmental services has stood in the way of parents choosing to send their students to public schools.

For the purpose of identifying the main reason(s) behind the high enrollment rate of students in private schools, one should look closely at unemployment rates. According to Mr. Oussama Safa, Head of the Lebanese Center for Policy Studies, there are no specific number in Lebanon that one could rely on. In the best-case scenario Safa describes numbers as guesstimates especially when the World Bank assumed a 6.2 % unemployment rate in Lebanon compared to a 25 % announced by the Minister of Labor. What is sure and specific though, is that the number of unemployed Lebanese residents has been increasing for three consecutive years. Some estimate, the current unemployment rate in at around forty percent.



*Graph 10 - Distribution of Students over Public, Private, & UNRWA funded schools.
The 2019-2020 official numbers will be released by September 2020 however the numbers present are based on the initial data set we got from the Ministries*

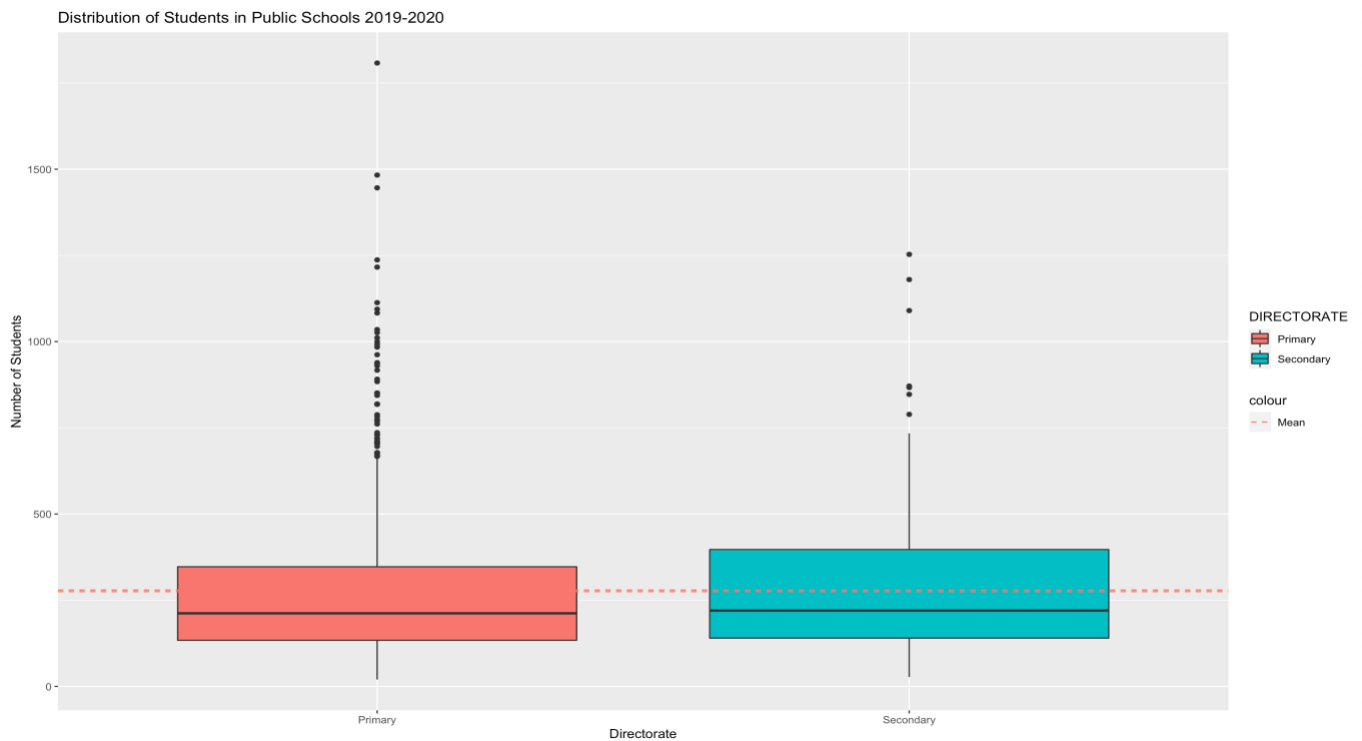
⁶⁵ Ibid

Knowing that private schools require parents to pay the full amount of the tuition, it is of great significance the cultural attachment between the Lebanese and their religious schools. This indicator shall be a major factor in the proposed roadmap in the last chapter.

The Lebanese Public Sector: Students, Teachers and Staff

For the purpose of this study, an initial data set was provided by the Ministry of Education and Higher Education, including the number of students, teachers, and staff per school with every school's educational region and district. The original dataset was shared by the Ministry of Education and Higher Education for the purpose of the below analysis.

The collected data was first cleaned by omitting schools that had zero number of students or teachers. Only two out of one thousand two hundred thirty-six schools were disregarded.



Graph 11 - Distribution of Students of Lebanon over Public Schools - By Cycle

In the above boxplot, the distribution of the number of students in public schools were represented grouped by directorate (primary versus secondary). Those groups were selected due to the administrative difference within the Ministry and the difference in salary ranges between the two cycles.

As shown in the above boxplot, most schools have between 125 and 400 students with a very small number of schools exceeding one thousand students. The average number of students in the Lebanese public schools is 275.94 students, 274 students in only primary schools, and 279 schools in only secondary schools.

Then the data was processed and dissected into subgroups with the following assumptions:

- Small schools are those having less than or equal to 100 students.
- Medium-sized schools are those having anything between 101 and 300 students.
- Large-sized schools are those having anything greater than or equal to 301 students.⁶⁶
- Same subgroups will be adhered to in both primary and secondary schools.

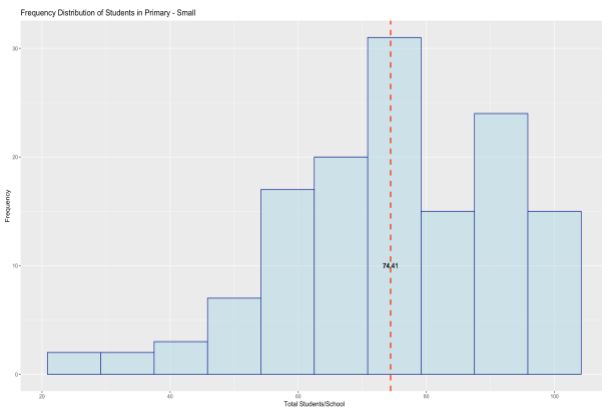
Accordingly, after splitting the main data set into three different data frames, the interquartile range (IQR) was calculated to remove major outliers from every data frame in small and large primary/secondary schools. Those outliers will be addressed later by themselves without them affecting the mean of the subgroup. The mean of every distribution will be used later on for an estimation of the student cost.

⁶⁶ This is the categorization of schools followed by the Center of Research and Development and The World Bank

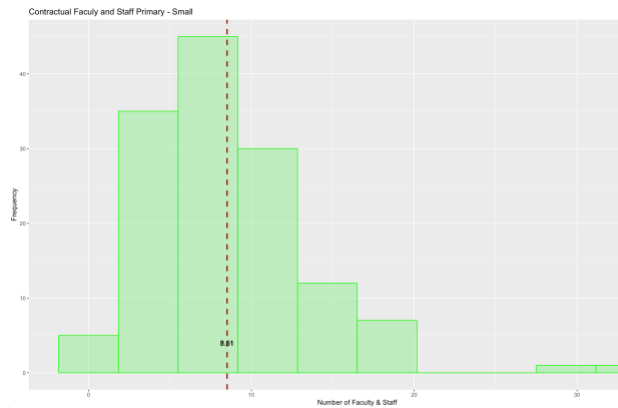
In what follows, an analysis will be conducted over the distribution of the number of students, teachers and staff, and student per teacher ratio for every subgroup (size) for both primary and secondary schools.

Please note, that the number of contractual employees/teachers was split from that of permanent ones due to their differences in wage analysis and their educational impact.

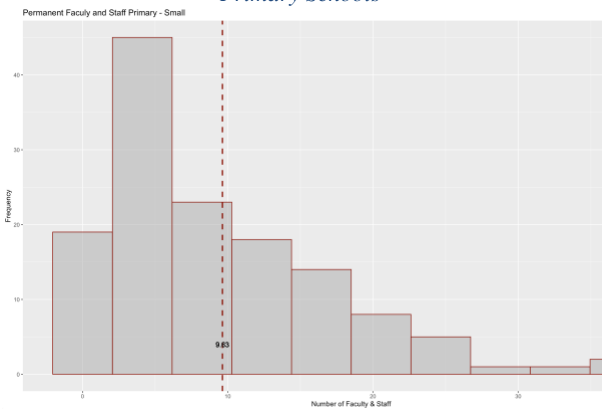
Small Primary Public Schools



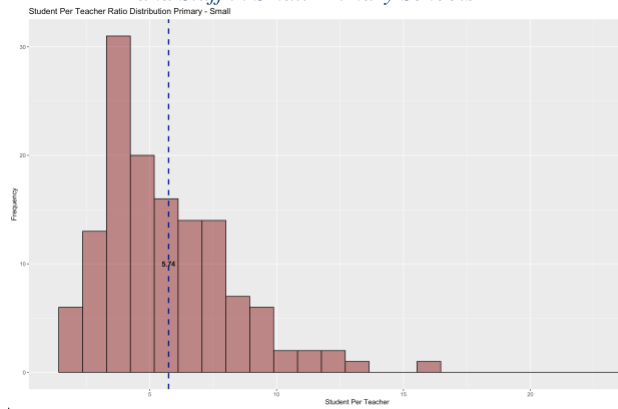
Graph 12 - Frequency Distribution of Students in Small Primary Schools



Graph 13 - Frequency Distribution of Contractual Faculty and Staff in Small Primary Schools



Graph 14 - Frequency Distribution of Permanent Faculty and Staff in Small Primary Schools



Graph 15 - Student Per Teacher Ratio Distribution in Small Primary Schools

Using R, we were able to instantly produce four graphs that will give us the needed insight of school density, employees distribution split by contract type, and student per teacher ratio.

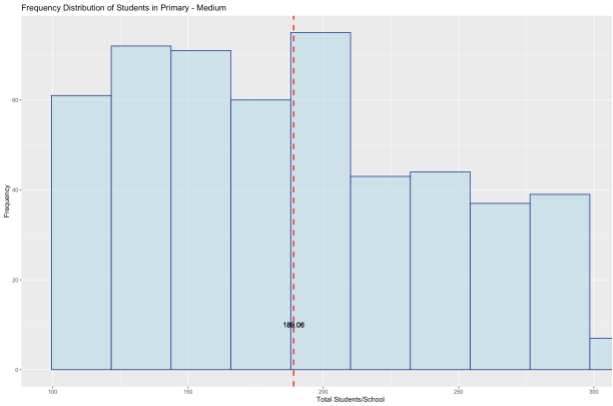
There are 136 small primary schools in total. The first graph entitled “Frequency Distribution of Students in Primary – Small” the graph is skewed towards the right. In other words, most small primary schools have at least sixty students with the average being 74.41.

Next, in the second graph, it is obvious that the number of contractual faculty and staff is mostly concentrated between 4 and 10 with a mean of 8.51. In the third graph, we notice that most schools have between 4 and 12 permanent employees with an average of 9.83.

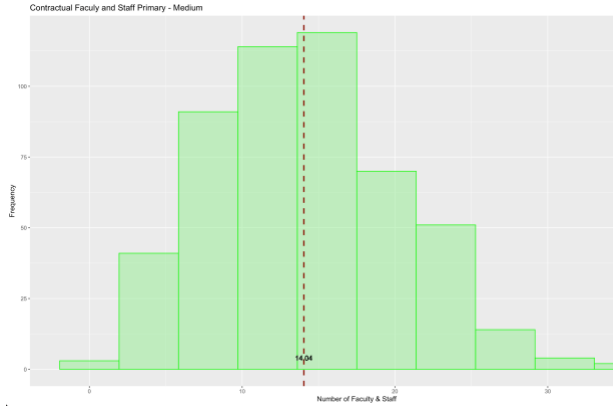
The number of permanent teachers and employees, although higher than that of contractual ones, must be revisited on all levels. The latest research conducted by the center of research and development shows that the majority of contractual teachers are above the age of 55. Moreover, permanent employees constitute an average of 53 percent of a school’s total faculty and staff which means that 47 % of a school’s faculty and/or staff have not been evaluated by the council of public service. Accordingly, and as the percentage of permanent staff is expected to decrease due to the government’s decision of halting recruitment, several policies must be addressed to tackle the issue.

Finally, the last graph shows us a left skewed graph of the distribution of the student per teacher (SPT) ratio in small primary schools. The number of schools having an SPT between 11 and 14, which is considered an acceptable ratio internationally, is pretty low. The average SPT among primary public schools is 5.74. This is related to two factors. The first factor is that most of the low student per teacher ratio are those of schools who possess a very small number of students providing education of underserved communities. On the other hand, it is also a main indicator of non-efficiency in human resource management in those schools.

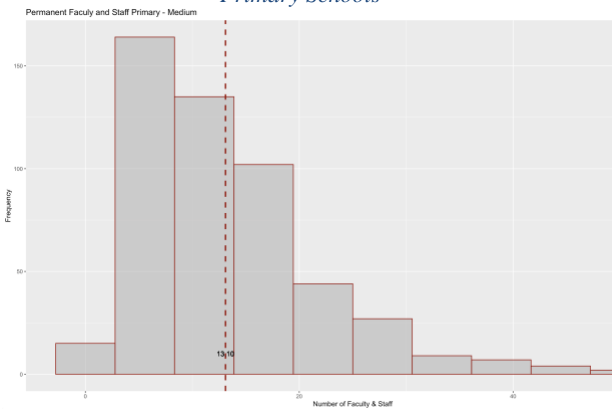
Medium Primary Schools



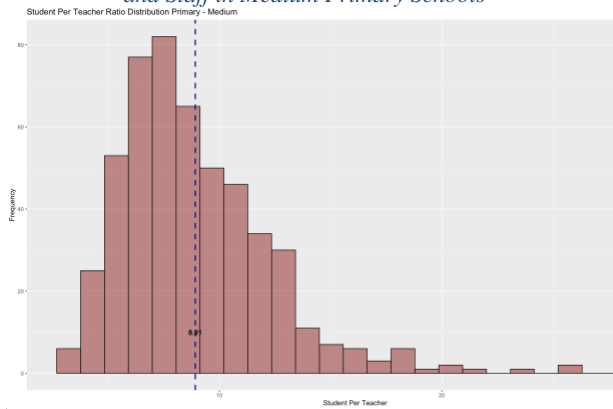
Graph 16 - Frequency Distribution of Students in Medium Primary Schools



Graph 17 - Frequency Distribution of Contractual Faculty and Staff in Medium Primary Schools



Graph 18 - Frequency Distribution of Permanent Faculty and Staff in in Medium Primary Schools



Graph 19 - Student Per Teacher Ratio Distribution in Medium Primary Schools

The largest group is that of medium sized schools encompassing between 100 and 300 students. There constitute alone 54 % of the total number of public primary schools in Lebanon. Obviously, the highest number of schools have between 100 and 200 students with a general mean of 189.06 among all medium sized public primary schools. On average, there are 14.04 contractual faculty and staff versus 13.10 permanent ones.

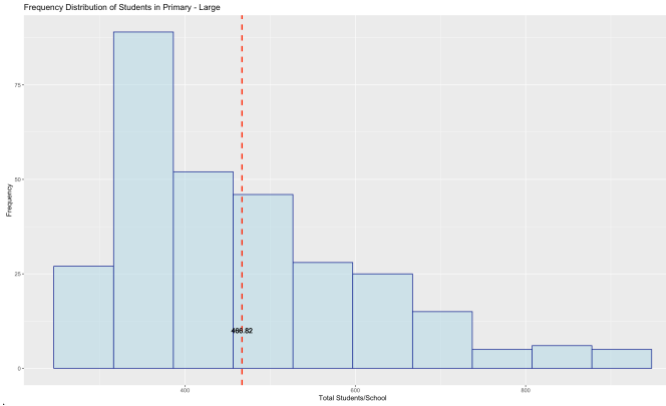
Please note that the numbers associated with the faculty and staff include teachers, school principals, administrative employees, supervisors, school IT admins, and others. What is

significant here, is that the average number of contractual faculty and staff is higher than that of permanent ones. This has a major effect over the quality of the service and the efficiency of the system.

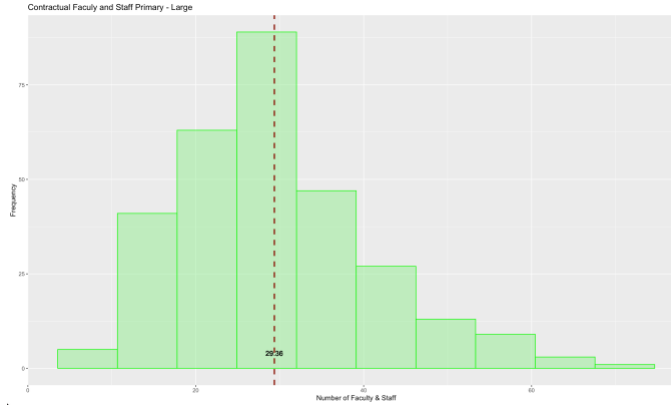
In the last graph the student per teacher ratio is visualized showing better numbers than small primary schools. Although the graph is still skewed towards the left, a higher number of schools have a student per teacher ratio between 11 and 14. The average is still at around 8.91 students per teacher however significantly better than that of small primary schools. It is important to highlight the fact that in medium primary schools there are some schools with a student per teacher ratio above 20.

Large Primary Schools

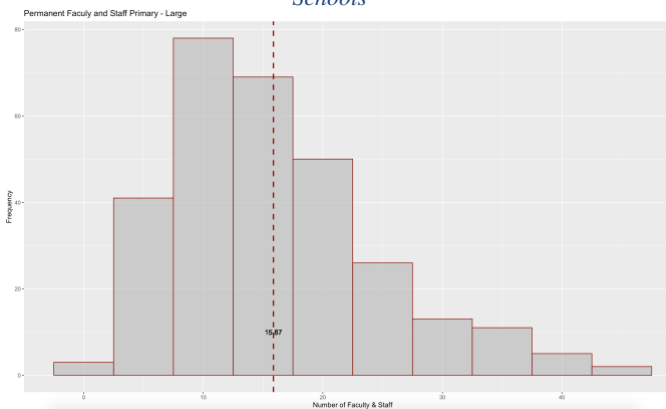
There are 298 large primary schools which is more than twice that of small primary schools yet still way below than medium sized schools.



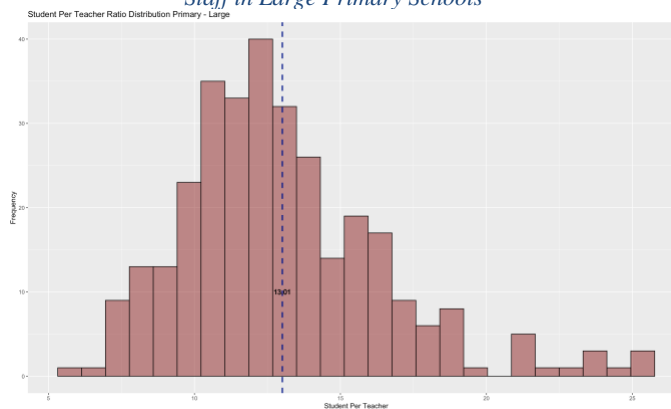
Graph 20 - Frequency Distribution of Students in Large Primary Schools



Graph 21 - Frequency Distribution of Contractual Faculty and Staff in Large Primary Schools



Graph 22 - Frequency Distribution of Permanent Faculty and Staff in Large Primary Schools



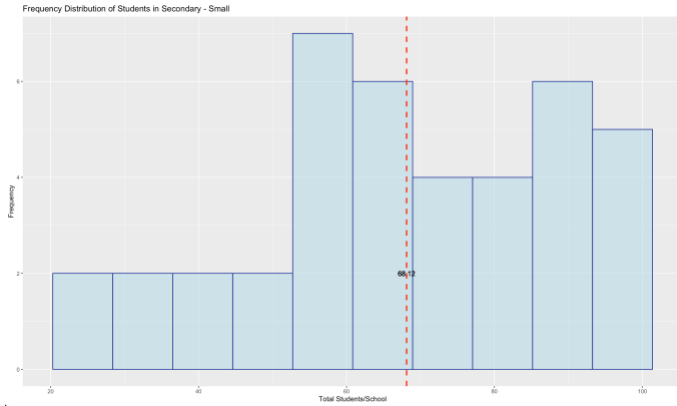
Graph 23 - Student Per Teacher Ratio Distribution in Large Primary Schools

On average, there are 466.82 students in every large primary school. The number of contractual faculty and staff is almost 29.36 versus a mean of 15.87 permanent teachers. The huge difference in the number of contractual versus permanent employees is alarming for the same reasons that have stated before.

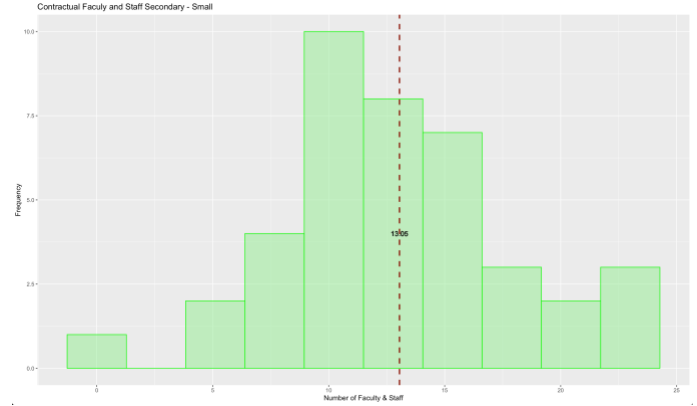
On the other hand, the student per teacher ratio is 13.01 which is the most balanced within primary schools between adequate learning environment and budget efficiency.

Small Secondary Schools

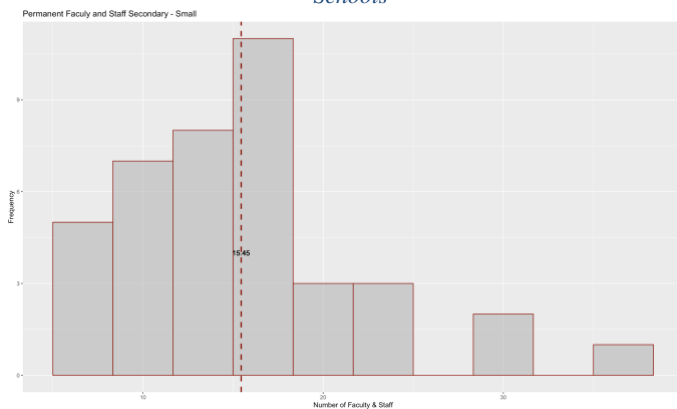
There are only 40 small secondary schools constituting 15 percent of the total number of secondary schools in Lebanon.



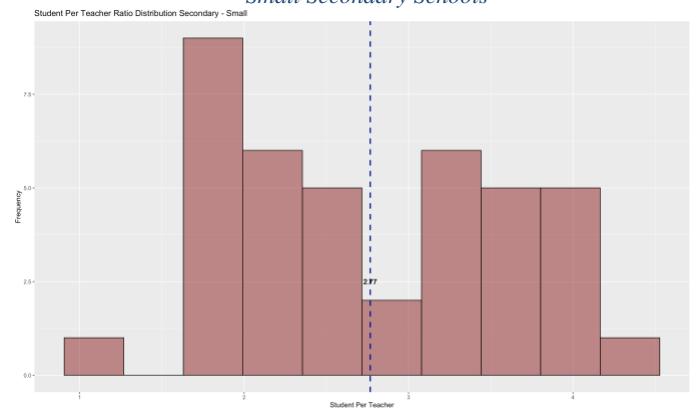
Graph 24 - Frequency Distribution of Students in Small Secondary Schools



Graph 25 - Frequency Distribution of Contractual Faculty and Staff in Small Secondary Schools



Graph 26 - Frequency Distribution of Permanent Faculty and Staff in Small Secondary Schools

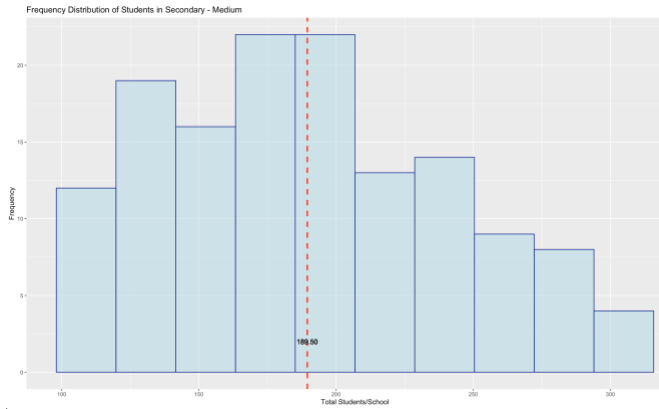


Graph 27 - Student Per Teacher Ratio Distribution in Small Secondary Schools

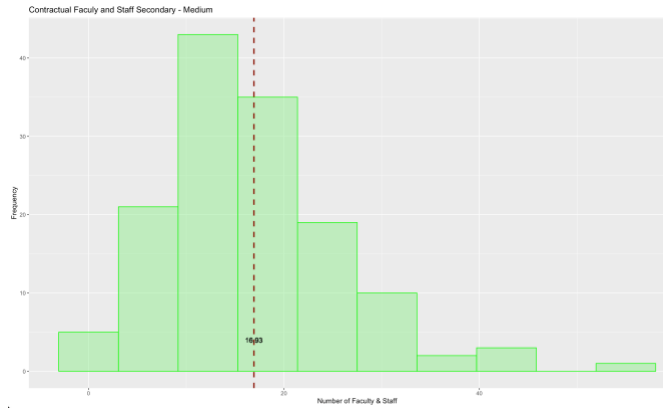
As demonstrated in the first generated graph, the average number of students in small secondary schools is 68.12 which is around 9 percent lower than the average of students in small primary schools. The number of both contractual and permanent faculty and staff is much steeper than that of small primary schools of respective means 13.05 and 15.45.

The high number of faculty and staff in such small schools is reflected in the student per teacher ratio of 2.77 which proves a major administrative issue. This will surely be reflected in the cost per student enrolled in small secondary schools.

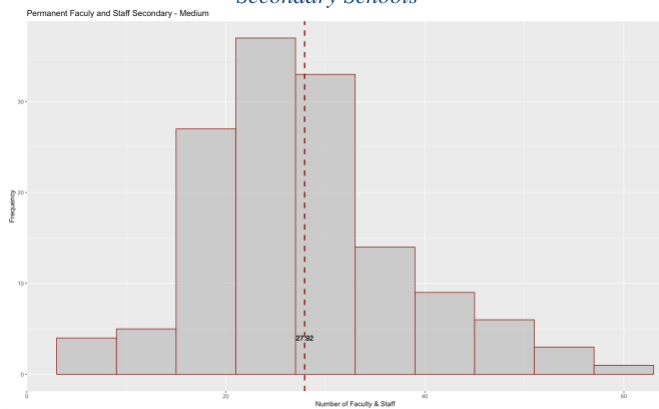
Medium Secondary Schools



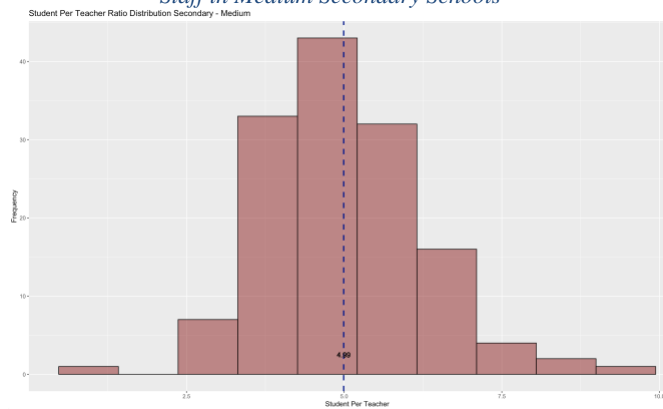
Graph 28 - Frequency Distribution of Students in Medium Secondary Schools



Graph 29 - Frequency Distribution of Contractual Faculty and Staff in Medium Secondary Schools



Graph 30 - Frequency Distribution of Permanent Faculty and Staff in Medium Secondary Schools

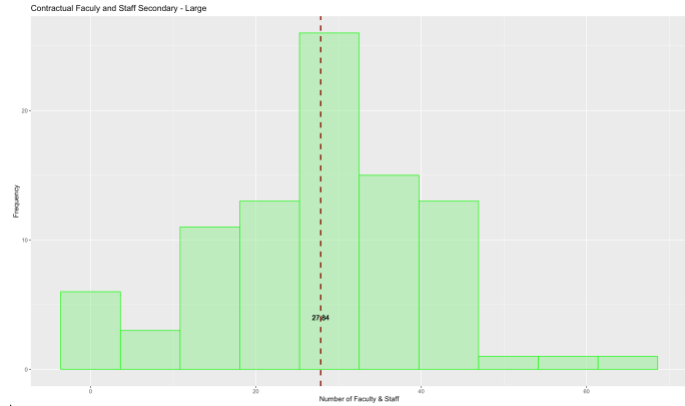
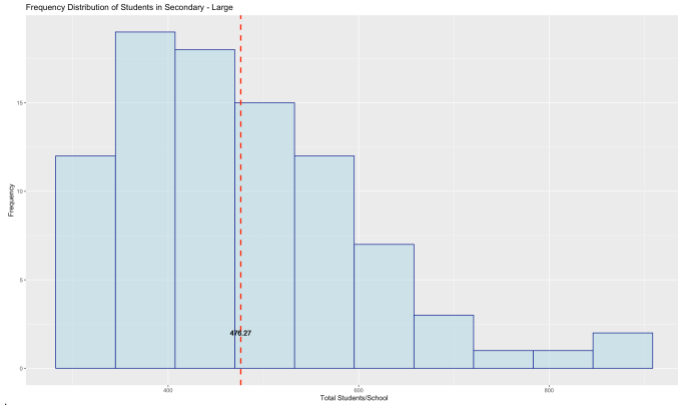


Graph 31 - Student Per Teacher Ratio Distribution in Medium Secondary Schools

Similar to medium-sized primary public schools, medium secondary schools constitute the biggest number of schools in the secondary directorate. 139 secondary schools are distributed enrolling between 100 and 300 students. Both primary and secondary medium schools share a mean student size of 189 per school. There are, on average, 16.93 contractual vs 27.92 permanent faculty and staff per school. Although the number of contractual is not significantly bigger, the main difference lies in the average number of permanent faculty and staff which is more than twice than that of medium primary schools.

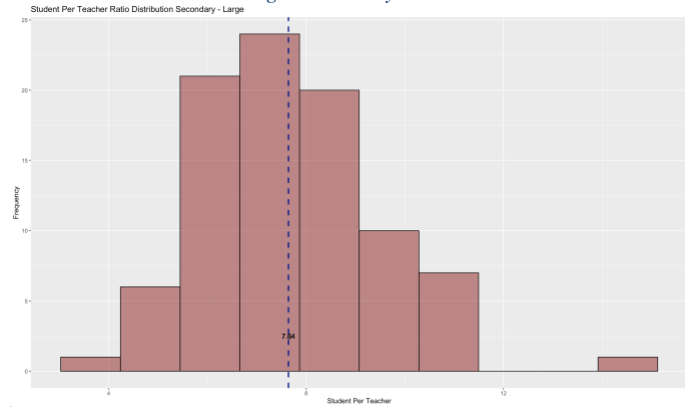
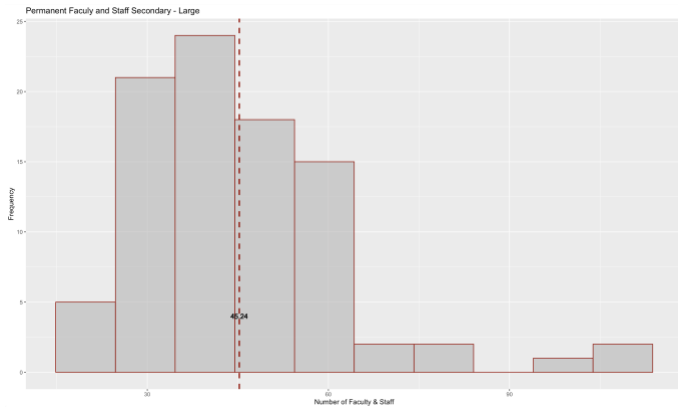
Although improved, the average student per teacher ratio is still distorted at 4.99 and thus will also be reflected in a steep cost per student in similar schools.

Large Secondary Schools



Graph 32 - Frequency Distribution of Students in Large Secondary Schools

Graph 33 - Frequency Distribution of Contractual Faculty and Staff in Large Secondary Schools



Graph 34 - Frequency Distribution of Permanent Faculty and Staff in Large Secondary Schools

Graph 35 - Student Per Teacher Ratio Distribution in Large Secondary Schools

There are 90 large secondary schools in Lebanon with most of them enrolling between 300 and 650 students. On average, there are 476 student per school.

The mean number of contractual faculty and staff is 27.84 vs 45.24 permanent employees.

It is significant how the number of permanent employees in secondary schools is much higher than that of primary schools of the same size and category. This Again, the student per teacher ratio has also been improved but is still well below the 11 to 14 range.

School Analysis Summary and Cost Per Student

Type	# of Schools	Mean of Students	Mean SPT	Mean of Contractual Faculty & Staff	Mean of Permanent Faculty & Staff
Primary Small	136	74.41	5.74	8.51	9.63
Primary Medium	509	189.96	8.91	14.04	13.1
Primary Large	298	466.82	13.01	29.36	15.87
Secondary Small	40	68.12	2.77	13.05	15.45
Secondary Medium	139	189.5	4.99	16.93	27.92
Secondary Large	90	476.27	8.51	27.84	45.24
	1212				

Table 8 - Summary of Variables of the Test Categories

There is a high possibility that the dataset contains certain errors where school principals tend to sometimes hide the data in from the Ministry of Education not to be subjected to questions over the need of opening new sections even whenever there are only 15 students in a certain grade level.

Before we step onto the public policies needed to address the problems at hand, this section will conclude the data analytics conducted over primary and secondary education and try to estimate a certain cost per student.

For this sake, and since the dataset does not include the salary of every worker in the public sector, this study will take the following assumptions based on studies conducted by “International Information “:

- The weighted average salary of a permanent secondary teacher is 2 million eight hundred thousand Lebanese pounds monthly

- The weighted average salary of a permanent primary teacher is 2 million three hundred thousand Lebanese pounds monthly
- A contractual teacher has an average salary of 1 million Lebanese lira monthly.
- A permanent teacher receives scholarships 2.8 million Lebanese liras per child.
- On average, permanent teachers have 2.5 children.
- The yearly cost of rent is 15 million Lebanese liras.

Type	Cost Per Student (in million)
Primary Small	LBP6.05
Primary Medium	LBP3.35
Primary Large	LBP1.96
Secondary Small	LBP11.73
Secondary Medium	LBP7.13
Secondary Large	LBP4.59

Table 9 - Cost Per Student Over Every Category

This cost estimation did not take into consideration the medical benefits of permanent employees, office supplies and furniture which are usually funded by international donors, and other schooling material. However, one can clearly notice a huge difference in the cost of student from one category to another. This variation is due to the volatile student per teacher ratio from one school to another.

Summary of the Quantitative Analysis

The results of the above detailed analysis of the distribution of students, contractual teachers and staff, and permanent teachers and staff lead us to several leading conclusions.

The average student per teacher ration varies greatly from one school to another and from one category (small to large) to another. This significant variation signals a lack of effective managerial efforts by the Ministry of Education and Higher Education for the past thirty years. Knowing that outliers based on quartiles were removed from the pool of small and large schools, the end results prove a critical distortion.

On the other hand, the average number of contractual teachers is huge with respect to the educational realm and thus strict measures must be taken swiftly with the policies that will be discussed in the last chapter. It was also significant how several schools suffer from soaring student per teacher ratio and thus need a special treatment in terms of management and funding. A high student per teacher ratio could sometimes lead to ineffective learning and damaging academic achievement. Further details and insights on the public expenditure are needed in order to decide on an exact cost per student. It is expected that once this data becomes available that the cost will increase between five to fifteen percent per student.

Despite the lack of detailed budgets, the results of the analysis above shows that the cost of student in some schools soar well above the fees and tuition of major private schools. On the other hand, several other schools have a very minimal funding and thus more attention should be diverted towards them.

Lebanese Students' Performance Compared to the International Standards

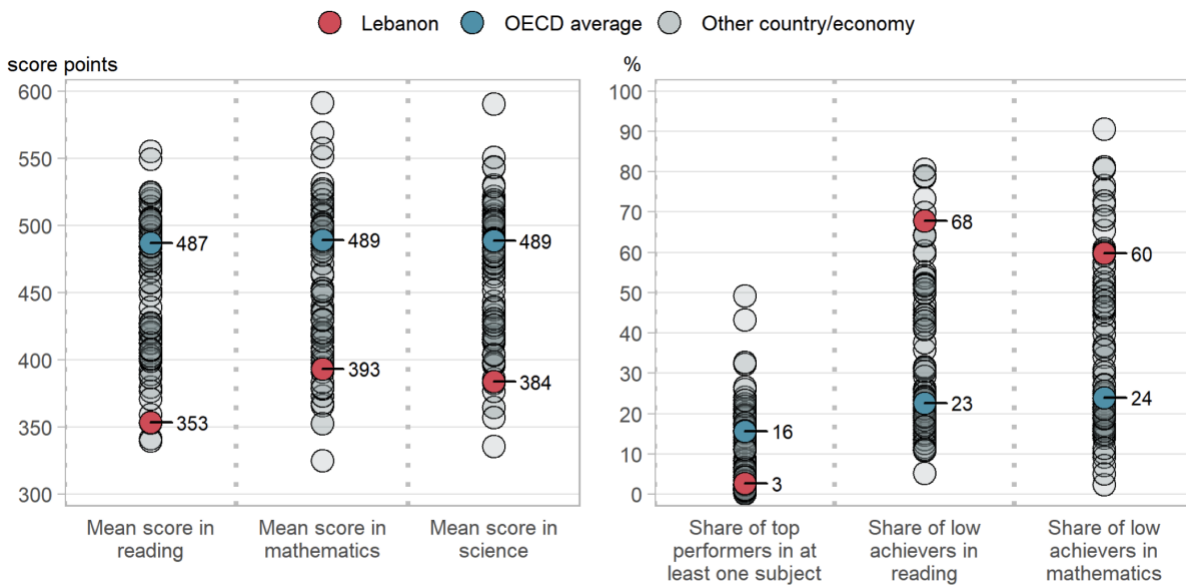
In this section, the performance of students in Lebanon is compared to regional and international standards. Lebanese students have been participating in both the Programme for International

Student Assessment (PISA) and the Trends in International Mathematics and Science Study (TIMSS).

The Programme for International Student Assessment (PISA)

The Organization of Economic Co-operation and Development has developed PISA for both member and non-member countries to measure the academic performance and reach of 15-year-old students on cognitive and problem-solving skills. The objective of this test is to present countries with measurable results to assess and improve their education policies and practices.

Subjects covered in the PISA test are mathematics, science, and reading over a scale stretching from 0 to 1000 with 500 being the mean and 100 the standard deviation. The OECD initiated this test in the year 2000 and periodically occurs every 3 years.⁶⁷

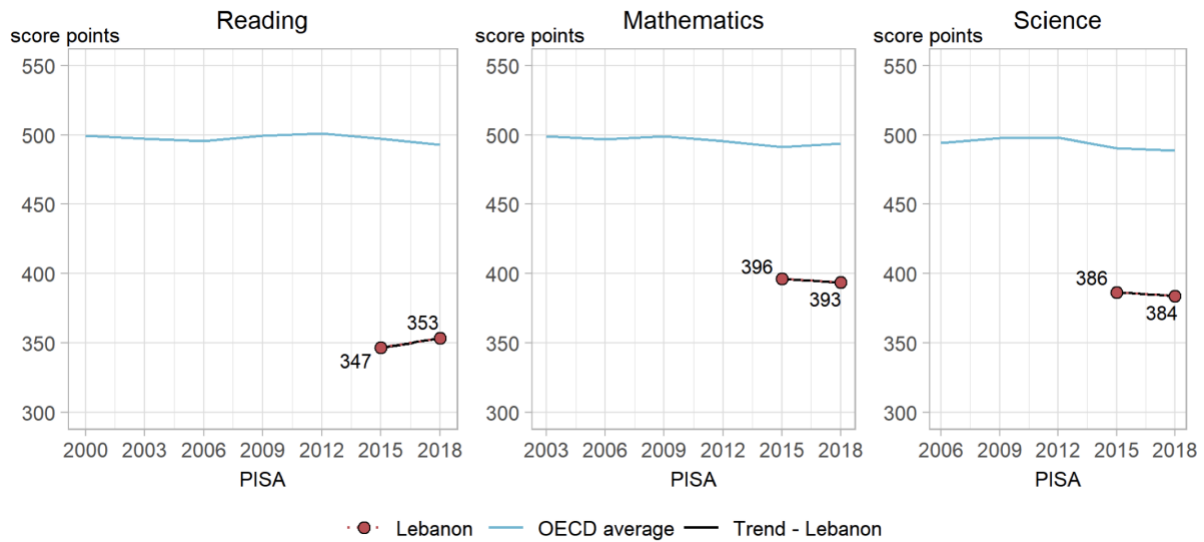


Graph 36- OECD PISA RESULTS 2018⁶⁸

⁶⁷ Schleicher, Andreas PISA 2018 Insights and Interpretations (2018)

⁶⁸ OECD, Country Note, Lebanon (2019)

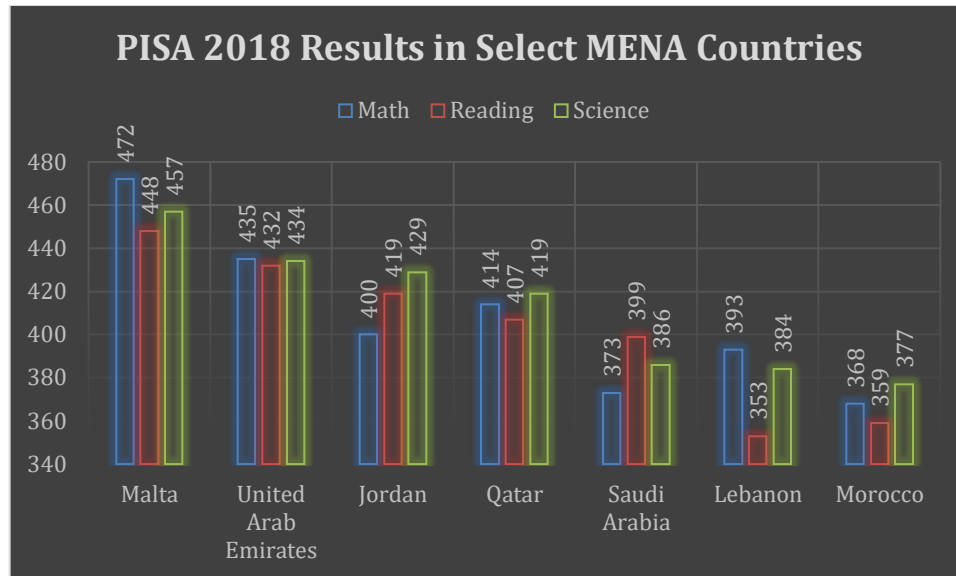
The plot on the left clearly shows the underperformance of Lebanon whenever compared with the OECD average in reading, mathematics, and science. The one on the right shows that very few Lebanese students were able to distinctly achieve in one of the subjects while a big portion of the students were considered as significant low achievers.



Graph 37 - OECD Distribution of PISA results over Subjects⁶⁹

Lebanon started participating in the year 2015 and thus has participated only twice in the PISA test since the year 2000. Few changes occurred on the mean of scores of Lebanese students between the year 2015 and 2018.

⁶⁹ ibid



Graph 38 – PISA 2018 Results in Select MENA Countries

When compared with countries in the Middle East, Lebanon lags well behind in the PISA results while competing with the poorly performing countries of Morocco and Saudi Arabia.

PISA Results Summary

After participating for the second time in the PISA assessment, the following matters need to be addressed: Lebanon ranks as the 73rd out of the 76 participating countries in the reading assessment. According to the world bank Lebanese students' performance varies between three to four years of schooling below the international average. On the other hand, the score difference between the top 10 % performing students in Math and the lower 10 % is the biggest among other OECD countries. In terms of science, Lebanon ranks as the 71st out of the 77 participating countries in the assessment.

What is mostly worrying is that in all three areas, two thirds of the participating Lebanese students do not meet the basic requirements and are thus at risk of marginalization.⁷⁰

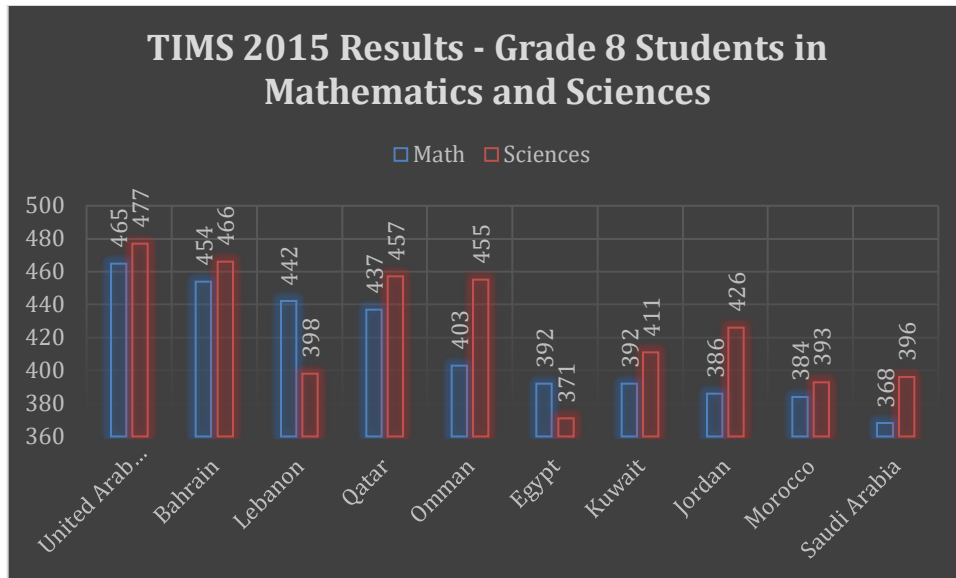
Trends in International Mathematics and Science Study (TIMS)

The TIMS assessment has been designed by the International Association for the Evaluation of Education Achievement (IEA) allowing countries to quantify, standardize, and compare their students' performance in mathematics and sciences. There are two main TIMS tests. The first addresses 4th and 8th grades students while TIMS Advanced targets senior graduations students in advanced topic in mathematics and physics.

In the year 2003, Lebanon participated for the first time in the TIMS exam for the 8th grades. Since then Lebanon has been continuously participating in the periodic exams of the year 2007, 2011, and 2015. TIMS is designed to evaluate three major skills of knowing, applying, and reasoning in the fields of mathematics, physics, chemistry, and life sciences.

The results of 2015 will be displayed using two graphs: one showing the mean average in mathematics and the other showing the mean average in sciences while comparing Lebanon's results to those of regional countries.

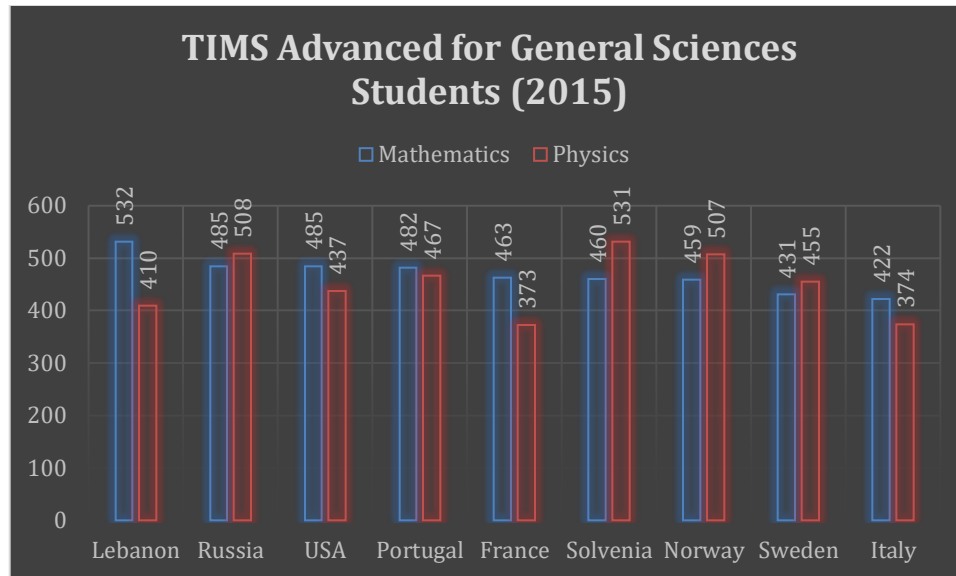
⁷⁰ World Bank Group, LEBANON PISA 2018 (2019)



Graph 39 – TIMS 2015 Results for G8 Students⁷¹

In mathematics, Lebanese students achieved an average score of 442, 58 points away from the TIMS mean (500). Lebanon took the third place among Arab countries yet is still lagging behind internationally. However, in Sciences, Lebanon score a score of 398 which is 102 points away from the mean and took the seventh place among the participating Arab countries.

⁷¹ CRDP, TIMSS 2015 – Grade 8 National Report (2018)



Graph 40 – TIMS Advanced Results for General Sciences Students⁷²

In the TIMS advanced, Lebanon selected students from the General Sciences section of grade 12. In the mathematics test Lebanese students had an average score of 532 well above the TIMS mean score of 500 surpassing several advanced countries. It is important to note here that the students selected were from a pool of 3.9 % of the total grade 12 students compared to a pool of around 25 % in the other countries. General sciences students in Lebanon are selected based on their scientific achievement in the 11th grade scientific class only. This selective process explains the high achievement in the designated test.

On the other hand, students of the same class had an average score of 410 which is 90 points away from the test’s average. Lebanese students showed a high score difference between mathematics and sciences in the TIMS advanced evaluation.

⁷² CRDP, National TIMSS Report 2015 (2019)

Conclusion

This chapter has shed light over two major factors of a public service: budget and student performance. Although Lebanon devotes a major share of the state's budget for the Ministry of Education and Higher Education, whenever compared to other ministries, the budget's deficit and spending over the public debt and subsidizing the energy sector stand in the way of further effective spending.

On the other hand, signs of corruption are clearly evident whenever reading the distribution of teachers and students over Lebanese schools with huge differences in student per teacher ratio from one school to another. The lack of good governance and accountability remain a major obstacle in efficient and effective management.

Moreover, it is quite evident that the spending, curriculum, and management are not yielding positive results. Lebanese students are not performing well whenever compared to regional and international countries.

Based on all the above, the Lebanese education sector needs serious reform on all levels of recruitment, training, curriculum revision, restructuring, and accountability.

Chapter Four: A Roadmap towards Sustainable Development

Introduction

The previous chapters have allowed us to discover the major education public policies in the world, the historic evolution of Lebanon and its education sector, the evolution of the American education sector and the lessons learned, along with an in-depth analysis of the current situation of the Lebanese education sector.

This chapter will propose a public strategy including a series of policies that need to be developed and executed taking into consideration the inherited traits of the education sector, the lessons learned from international experiences, the current economic crisis, and the pain points of Lebanon's education field. The results of the survey conducted targeting Lebanese families will be discussed and analyzed thoroughly in the first part of the chapter.

Then, a roadmap will be proposed of combined administrative, political, and financial decisions aiming to reform a sector responsible of educating the country's future generations.

The Economic Crisis and the Opportunities after October 17th Unrest

On October 5 2017, Carnegie Middle East Center published a paper entitled "Is Lebanon Heading Towards Economic Bankruptcy?". The author, Michael Young, tried to assess the Lebanese economy with the help of Zafiris Tzannatos⁷³, David Butter⁷⁴, Sami Nader⁷⁵, and Sami Atallah⁷⁶.

All the experts were able to agree on the following crisis factors: slow GDP growth, high debt-to-GDP ratio, and a large fiscal deficit. Even though the international reserves of the Central Bank

⁷³ Former professor in and chair of the Economics Department at the American University of Beirut, served as a senior advisor to many international organizations and governments, including that of Lebanon

⁷⁴ Associate fellow in the Middle East and North Africa program at Chatham House, the Royal Institute of International Affairs

⁷⁵ Director of the Levant Institute for Strategic Affairs, economist, and a lecturer at Université Saint Joseph in Beirut

⁷⁶ Economist and director of the Lebanese Center for Policy Studies in Beirut

were estimated at \$ 42 billion at those times, it was evident that Lebanon will not be able to regain its economic stability unless serious reform takes place.⁷⁷

Unfortunately, the Lebanese political leadership failed to adjust even with the motivation of international donors in CEDRE conference of 2018. This conference promised Lebanon with a cumulative amount of \$ 11 billion in return of structural governmental reform. Expectedly, the Lebanese government failed to deliver on its promises of reform and therefore no financial aid was given to Lebanon.

The complicated economic issues, the rising pressure from the United States of America on Hezbollah's financial activities, and the laissez faire governance have accumulated in the form of the worst socio-economic crisis Lebanon has faced since the early days of the republic.

Struggling under harsh living standards, the Lebanese people came down on the streets on the night of October 17 calling for a change in the political leadership along with serious public reforms. The people on the streets were not aligned on all national and economic aspirations, however they shared a common longing towards change. More importantly, and for the first time in the Lebanese political scenery, Hezbollah and their illegal activities, ceased to be a taboo.⁷⁸

All of the above, from a political point of view, indicate towards a big opportunity for public reform and change in the near future. Thus, public policies and academic papers should embrace and orient the popular movement towards better governance.

⁷⁷ Young, Michael Is Lebanon Heading Towards Economic Bankruptcy? (2017)

⁷⁸ Chehayeb Kareem, Sewell, Abby Why Protesters in Lebanon Are Taking to the Streets (2019)

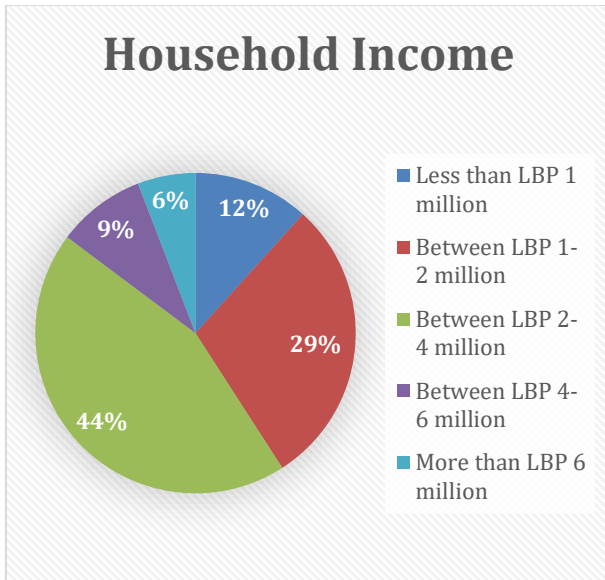
The Lebanese Private Schools' Sector: The Parents Point of View

The devastating economic crisis has had a major impact on the sustainability of the private schools, the same institutions that were at the frontline of educating Lebanese people during the absence of a ruling community.

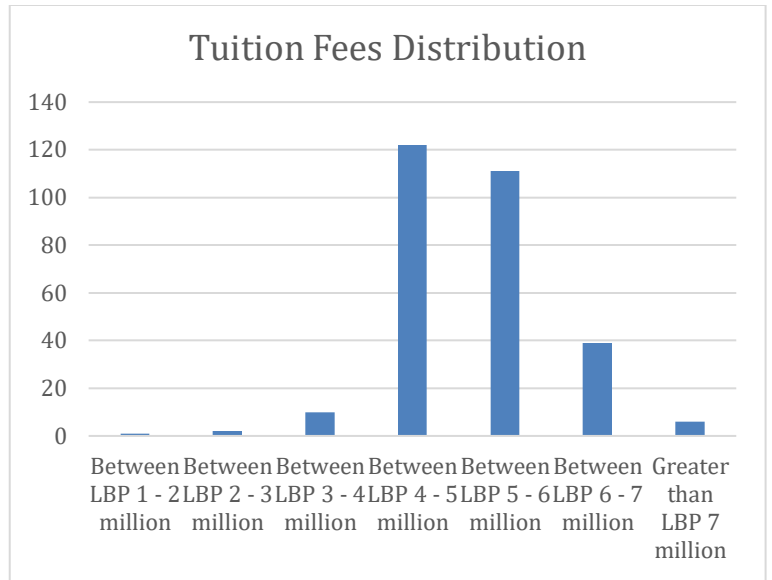
The current situation could be reduced into the following: parents have lost their purchasing power and can no longer pay the school's tuition fees, teachers are not earning their full salaries periodically, and school owners are planning for a major downsize in terms of the number of total schools and the density of the labor force. For the past three years the above factors were being clearly demonstrated in the continuous struggle between parents' committees and school administrators from one side, and the teachers' union and school administrators from another. The main foundation of the private education sector is under a well exhibited crisis that needs an imminent and profound plan.

It is important to highlight the fact that the only source of funding for the biggest part of the Lebanese private schools is the tuition fees. In other words, the declining value of the parent's purchasing power is a blocking barrier towards educating seventy percent of the Lebanese students.

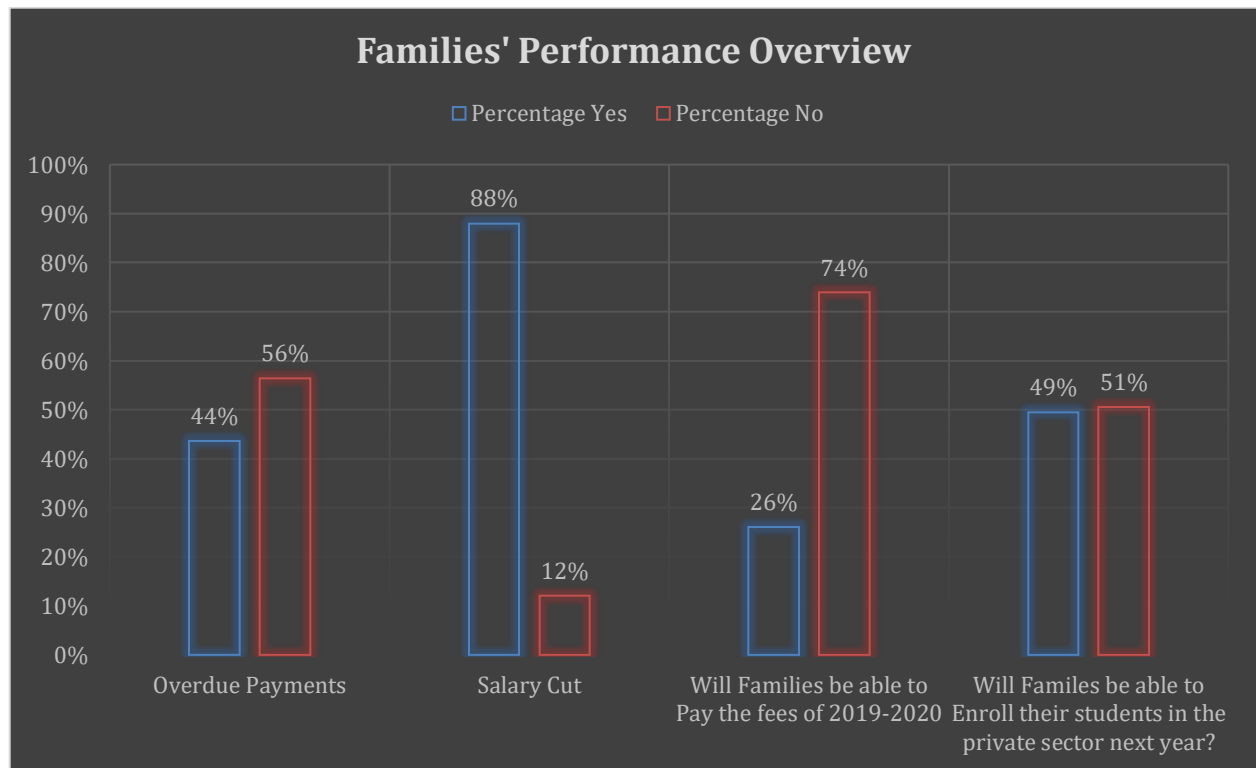
In order to better visualize the parents' point view, a survey was conducted assessing their current situation, their perception of the government's role, and their aspired solutions. A random sample of 290 legal guardians of students attending schools of varying tuition scale were surveyed and the following results were collected.



Graph 41 - Household Income of Surveyed Families



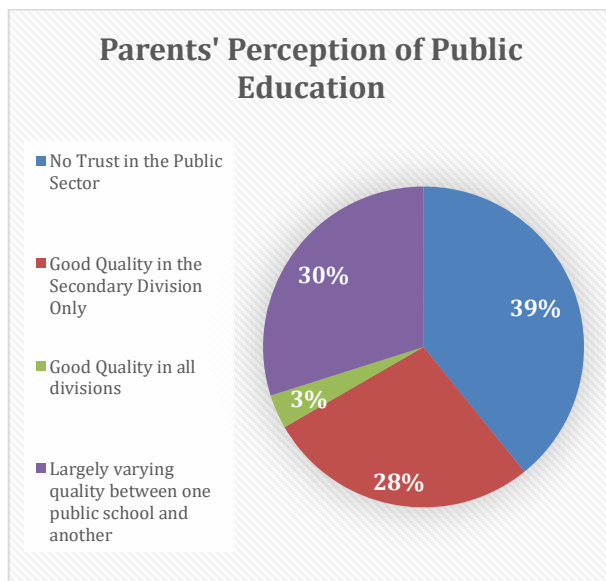
Graph 42 - Tuition Fees of Surveyed Families



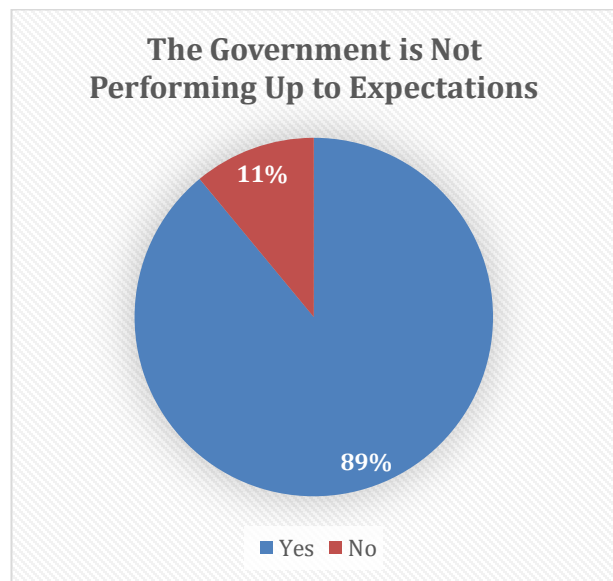
Graph 43 - Overdue Payments, Salary Cut, Future Payments and Enrollment Distribution

The above results represent the surveyed sample's socio-economic situation. The majority of the surveyed sample have a household income between two to four million Lebanese pounds monthly with a weighted average of 2.8 million monthly. Their average yearly scholastic tuitions fees stand at 5.15 million Lebanese pounds, while the average number of children between 3 to 18 years old is at 2 kids per family. Accordingly, the average family has an annual tuition of 10.3 million yearly with a monthly payment of 1.15 million over 9 months. The monthly payment accounts to 41 percent of their total monthly income which reflects the depth of the crisis.

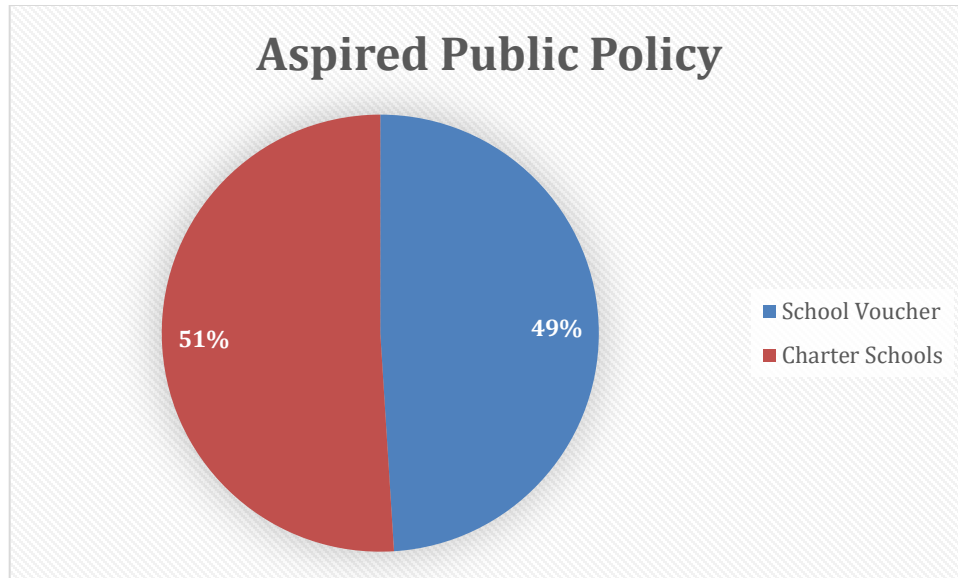
On the other hand, 56 % of the surveyed sample have previous overdue payments of former terms and/or academic years. Moreover, 88 % of the families are currently suffering from a salary cut complicating the issue even further. Naturally, 74 % of the surveyed group responded that they will not be able to pay the remaining tuition fees of the current academic year and half of the families expect that they will not be able to enroll their children in private schools next year.



Graph 44 - Surveyed parents' perception of public education



Graph 45 - Surveyed parents' perception of government's performance



Graph 46 - Surveyed parent's aspired public policy

In the second section of the survey, parents were surveyed on their views of public education and the government's role. Thirty nine percent of the surveyed families showed no trust in the public education, thirty percent thought that the academic quality largely varies from one school to another, and twenty eight percent think that public secondary schools offer a good academic service.

On the other hand, the majority, 89 %, of the surveyed sample thought that the government is not fulfilling its role in providing adequate education whether through its public schools or through supporting students attending private schools. Finally, parents selected one of two proposed policies for the purpose of this study. Based on the above results, the surveyed sample was split evenly between school voucher and charter schools' proponents.

Alongside the survey, an interview was conducted with Richard Merheb, the president of the union of parents' committees in the Keserwan District. According to Merheb, the union is the oldest among its siblings in other districts. The union was created to consolidate the efforts of all parents'

committees especially as tuition fees started to rapidly increase and the need of confronting school owners became inevitable. They are currently aiming to adjust law number 515 that presents a legal framework to manage the function of parents' committees across Lebanon. The objective of the amendment is to give parents more control over the school budget in terms of monitoring and accountability. Currently, parents' committees are only allowed to oversee part of the budget that is related to teachers' salaries and basic monthly expenses. They are advocating towards broader supervisory authority that would allow them to point out fraud whenever found. Moreover, they are hoping for an amendment that would also adjust the electoral law of parents committee in such a way that would not permit those having common interests with the school's administration to vote or take position.

According to the union's numbers, the average tuition fees in Lebanese private schools is around five million Lebanese pounds versus 8 million Lebanese pounds for every student in the public sector. Merheb thinks that parents can no longer pay tuition fees and thinks that the state is not fulfilling its job of educating all its citizens. Knowing that seventy percent of the total number of students are enrolled in private schools, the government is only catering for thirty percent of Lebanese students.

When asked about their proposal, Merheb emphasized two parallel initiatives: a school voucher program and providing better services within public schools. Merheb thinks that parents are currently suffering from the lack of freedom of choosing the best educational environment for their children unless they come from a middle to upper class families.

The Reform Plan

The study has clearly shown an imbalance of both efficiency and effectiveness. The global objectives of any reform plan should be based on the following pillars: public spending revision and administrative reform, transparency and reporting, teacher recruitment and training, parental school choice empowerment, and finally educational innovation and curriculum reform.

Public Spending Revision and Administrative Reform

The research has shown that the main problematic does not lie at the level of the value of spending by the government. Whether a bigger budget should be allocated for MEHE or not remains debatable until a restructuring occurs at all levels.

The first policy should address the tenure, authority, and performance appraisal of school principals. The varying efficiency and performance of schools is generally related to its principal's performance. School principals are usually appointed after they pass an exam developed and administered by the board of civil service. Upon their appointment principals are rarely evaluated and mostly retain their position until the age of retirement. Moreover, principals do not have a budget cap and are entitled to recruit teachers and staff on a contractual basis whenever they demonstrate the need. Contractual teachers and staff do not need to complete any examination by the board of civil service and very few are the times that the ministry's administration inspects the real need of the school. This behavior is continuously leading to waste of funds and poor performance.

In order to address the issues at hand the first policy should lead to the following measures:

- All public servants should be subjected to periodic evaluation and performance appraisal.

- Salary adjustments and grades should depend on the results of the aforementioned evaluation.
- A school principal has a budget cap limited to a fixed amount per enrolled student.
 - This clause will motivate school principals to provide the best service to their students in order to increase student enrollment and therefore the annual budget.
- All school needs, whether personnel or schooling material, should be presented through a yearly report signed by the school principal, parents committee, and the educational region's representative.
- School principals are required to publicly post job openings on the ministry's web portal to ensure an equal opportunity for all interested candidates.

Another major factor contributing to the irrational cost per student in certain schools is the student per teacher ratio. According to the world bank, the global pupil per teacher ratio was 16.998 for the year 2018. The best performing countries retain a ratio between 11 and 17 students for every teacher. Based on what has been stated, the extremely low ratios in a big part of the public schools is a direct corruption indicator while understanding that the numbers decreased further during the past few years due to the high number of contractual teachers versus permanent ones.

Adjusting the student per teacher ratio must follow the following three-year plan. During the first year all schools having a ratio less than or equal to 6 should be identified and the Lebanese government should address international donors to fund adequate transportation means. Schools should be merged, and all contractual teachers of merged schools should attend an exam administered by the board of civil service. Merging schools could also take the direction of transferring students from neighboring schools with a high student per teacher ratio to those with low ratios.

Teachers that pass the exam should be offered the chance of becoming permanent public servants subjected to periodic review, while those who fail will have to undergo an optional 1-year capacity building program at the Lebanese university with the chance to apply for the test during the next year. During the second year and third year the same measures should take place for school with a student per teacher ratio lower than 8 and 10 successively.

In the year 2019 Lebanon had 332126 students taught by 41792 teachers in the public sector. Assuming that Lebanon was able to attain a 10 as an acceptable average student per teacher ratio during the first phase, it is expected that the ministry's budget will be decreased, conservatively, by 15 billion Lebanon pounds.

Transparency and Reporting

The first steppingstone of reform and accountability is transparency and periodic reporting. A bill should be developed that requires all schools in the public and private sector to release an annual report demonstrating averages of student performance per subject matter and grade level. This report should highlight academic improvement or regression of the school's students. Another section of the report should be dedicated for students' performance in local and international official exams.

On the other hand, another bill should also be developed enforcing the Ministry of Education and Higher Education to release its detailed yearly spending, the cost per student for each school, and the ranking of schools in both the public and private sector.

The main objectives of those bills are:

- To provide parents with measurable indicators to better choose the most adequate school for their children.
- Provide all citizens with transparent information on public spending which is the return of their taxation.
- Provide the ministry with solid data of evaluating teachers and school principals.
- Provide politicians with a global view of the sector's status for continuous revision and enhancement.

Teacher Recruitment and Training

Countries witnessing a flourishing education sector are selecting their best graduates, providing them with strong incentives, along with continuous training and review.

The first step within this plan is reviewing the curriculum offered by the Department of Education at the Lebanese University and providing the university instructors with the relevant twenty first century teaching and learning capacity building. Next, the government should match its graduate studies' minimum GPA requirements to that of possible candidates.

Moreover, a thorough review should be considered for the recruitment exam in order to match the skills expected from the twenty first century teacher especially with what relates to managing education technologies. Future candidates would first have to enroll in a three months summer boot camp where professional experts will make sure that all candidates receive a standardized teaching framework. At the end of this program, candidates will complete a series of challenging theoretical and practical evaluation.

Upon completing this bootcamp, teachers would then be assigned to a school with an accompanying advisor or coach. Their advisor is responsible to accompany the first-year teacher, offer guidance, and evaluate him/her by the end of the first year.

Taking into consideration the ever-changing nature of education, teachers will have to renew their contract every three years. At the end of every three-year cycle, teachers attend a summer program where they explore the latest in the education field and are also challenged with a series of practical case studies. This will ensure that all teachers are continuously adapting to new methodologies and curriculum adjustments.

One would first argue the fact that selecting the best graduates and providing them with good career packages contradicts the purpose of decreasing the per student cost. However, whenever the administrative reform takes place enough financing will be present to move forward in the right direction.

Parents' School Choice Empowerment

The poor performance of the Lebanese education sector, the growing cost per student, and the current economic crisis have piled up to create a complicated scenario at hand.

From a public policy point of view, things need to be tackled in order of urgency. The most pressing issue remains providing the greatest possible number of Lebanese students with a free and adequate learning environment.

Currently, public schools in towns with a high population are almost completely saturated. With the current economic crisis, it is estimated that **at least** five percent of the total number of students

in private schools will migrate towards the public sector. This is equivalent to around 35,000 students or almost 12 percent the student size of the current public sector.

Charter Schools

This exceptional situation at hand needs exceptional countering measures. Making use of the international experiences, the most pragmatic feasible solution is launching charter schools as a subset of the Lebanese public sector. As mentioned earlier in the literature review, charter schools are publicly funded yet privately operated. This could serve as a solution for schools at the brink of the abyss, for parents that can no longer afford private schools' tuition, and for the already saturated public education sector.

A limited number of charters must be offered that are evenly distributed geographically while implementing strict conditions:

- Candidate schools should be part of a school network and have been offering educational services for at least the past ten years.
- Candidate schools should be subjected to a quality evaluation of their buildings, classes, offices, toilets, laboratories, exam halls, etc...
- Candidate schools should at least accommodate 600 students (a maximum of 60 charters would be offered across Lebanon)
- Schools should abide with a 12 students per teacher ratio.
- Sixty percent of the teachers should have a bachelor's degree in the subject to be taught.
- Schools will be allocated a budget based on the number of students and the average cost per student of a similar school in the public sector.

- Schools are expected to submit periodic reports of the students' academic performance to the ministry.
- The school should only offer the Lebanese curriculum for its students.

This model will save the government time and infrastructure development costs while ensuring a maintained quality.

A National School Voucher Program

Before diving into the details of the proposed public policy, the following factors should be taken into consideration:

- Lebanese parents lack the ability of choosing the adequate schooling environment and are required to take their decisions based on their financial background.
- Seventy percent of the Lebanese students' population is enrolled in the private sector.
- The Lebanese political system is built upon sectarian diversity
- Lebanon has signed the Universal Declaration of Human Rights where article 26 clearly states:⁷⁹
 - “(1) Everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages. Elementary education shall be compulsory. Technical and professional education shall be made generally available and higher education shall be equally accessible to all on the basis of merit.
 - (2) Education shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms. It shall promote understanding, tolerance and friendship among all nations, racial or

⁷⁹ Draft Committee, The Universal Declaration of Human Rights

religious groups, and shall further the activities of the United Nations for the maintenance of peace.

(3) Parents have a prior right to choose the kind of education that shall be given to their children.”

- The Lebanese constitution, in article 10, clearly gives the people the freedom of choosing their adequate educational environment.
- Religious schools were the earliest form of Lebanese education and its main evolving factor.
- The current number of public schools cannot cater for seventy percent of the students’ population size.
- The current economic crisis does not allow the government to increase its spending

Based on all the above factors, and as a primary phase, a school voucher should be provided for all students from kindergarten to grade 6. This means that the government will become responsible of financially supporting around 516,000 students instead of 330,000 today. The school voucher program must not be released before the rigorous budget and administrative reform detailed above as it will then have a catastrophic financial effect.

Learning from the international experience, the following constraints must be put in place:

- Participating school in the voucher program are required to offer the public with a comprehensive annual financial and academic report.
- Studies have shown that students coming from underserved communities need more attention. Therefore, students coming from the lower thirty percent of the income

distribution are entitled to a voucher that has a value 50 % more than that of other students.

Both public and private schools could benefit from this special voucher.

- Participating private schools are obliged to accept students disregarding academic, cultural, social, or religious background. If the number of applying students surpasses the school's capacity, it should adhere to a lottery admission approach.
- Participating schools can only offer the Lebanese curriculum.

Innovation in Education and Curriculum Redesign

The low performance of Lebanese students in the international exams, PISA and TIMSS, does not strictly mean that we have an unqualified teaching body nor a lack of institutional experience. A study conducted by the Center of Research and development has shown that one of the main factors of those results was the lack of alignment of the obsolete Lebanese curriculum and its learning objectives.

The redesigning process should be carefully tailored in a modular approach to allow continuous revision and adaptation without having to periodically recreate the program. Public policies should enforce a curriculum revision every three years to make sure that students will be able to take advantage of their developed skillset in the future. Moreover, the curriculum should align to the international standards and norms while giving ample emphasis on the future Lebanese market needs. Another major factor is a curriculum that builds 21st century skills and not only knowledge. First, the 21st century 4 C's of education emerged before evolving into the 6 C's:

- Critical thinking
- Collaboration
- Communication

- Creativity
- Citizenship/Culture
- Character Education/Connectivity

On the other hand, the Lebanese government is expected to give space for continuous innovation by the private sector. This could only be achieved through a clear strategy of providing enough funding for innovative startups that would invent and experiment ground-breaking education technologies. The Lebanese government should invest in developing international conferences, exhibitions, and competitions for all stakeholders of the education sector.

Concluding Remarks

This chapter has demonstrated the momentous lack of trust between the main stakeholders of the education sector and the government. This lack of trust, although not build on a solid scientific ground, is greatly aligned with the quantitative results of the analysis approached in chapter three.

As such, the administrative inefficiency, high corruption indicators, the sector's incompetence, and the parental discontent with the role of the government were the grounds for the proposed reform strategy.

The presented strategy encompassed all faces of the sector from administrative reform to recruitment, training, and curriculum restructuring while taking into account the lack of funds in the short-to-medium-term.

In other words, if serious administrative reform is tackled, huge amounts from the ministry's budget could be saved and then invested for the sake of the advancement of the almost obsolete Lebanese education sector.

Chapter Five: Conclusion

The thorough historical reading of Lebanon's development since the 16th century could provide us with a lot of insight on this country's unique role and ability in the Middle East. The cultural relation between the residents of Mount Lebanon and the west has had three major effects between the 16th century and early 20th century: a sustainable economic model for a challenging geography, a leading educational role among all of its neighboring states, and a unique political status even at the peak of the Ottoman Empire's reign.

The educational advancement provided by local and foreign missionaries coming from the west has been the major competitive edge of this small piece of land. Residents of Mount Lebanon at large, and Christians in particular, proposed themselves as the source of technological – the first printing press in the Near East in the 16th century -, architectural, agricultural, intellectual, and economic advancement for the whole region. In addition to that, there were several instances in these 400 years history where education policies were key for further prosperity. This was genuinely evident in the Lebanese Council that took place at the eminent Our Lady of Louaize monastery in the year 1736 where compulsory and equal education were enforced long before similar policies came to light in western countries.

This rich historical track was able to lead to the announcement of Greater Lebanon as the most adequate administrative model for Lebanon after years of fighting for a unique and independent political status. After succeeding in claiming independence, the Lebanese leadership tried to establish governmental structure and services. The earliest form had clear inheritance traits from the French republic, however internal conflicts among the eighteen religious sects gave little room for advancement and reform in the years to come.

The aggressive presence of religious schools before the birth of the Lebanese public education sector still has its blueprints on the current model. On the other hand, the Lebanese political leadership could not transliterate the national pact of 1943 but through the sharing of the public sector's resources as a main source of funding of every leader's followers. This primarily defines the huge spending on educating over only thirty percent of the total number of Lebanese students.

In addition to the above, the past twenty years have also shown a decline in prosperity and innovation in the private education sector even in the historically leading institutions. In other words, and although the Ministry of Education's fiscal budget compared to the GDP is satisfactory, the Lebanese government was clearly using this sector as a recruitment agency for the sake of every group's followers, gave little emphasis on curriculum development and advancement, could not provide every Lebanese student – especially those at need- with equal opportunities, and neglected the possible catastrophic effects where Lebanese students, according to international standards, are no longer showcasing the adequate knowledge and skills.

The above discussion came parallel to the exploration of America's education sector's birth and their proposed reforms and public policies. The United States of America was not selected for its K-12 students' performance, yet for the richness of discussion of education policies and the striking similarity of the development of both the public and private sector. In this area, one should not neglect the strong presence of Catholic schools, not in terms of count, yet in terms of their tremendous effect over shaping the policies of today. After long years of debate over the role of private schools in the United States, American political leadership came to a consent that the government cannot provide education services for all residing students. Accordingly, the inability of a government to provide for all students, has pushed legislations towards discussing the role of the government in private schools and the legality of funding private religious schools. This

experience was accompanied by challenging economic freedom theories mostly related to the works of Milton Friedman. Friedman's proposal came down to one point: who is the entitled entity to make school decisions? This major question, that is known as the school choice proposition, could lead to several implications and concerns. Mainly, how could school decisions affect the student performance? Moreover, if public spending was directed towards the main stakeholders, could that lead to higher financial and administrative efficiency?

Throughout the journey of analyzing the Lebanese public spending over education, major pain points came to light. This analysis started off by collecting detailed data sets from the Ministry of Education and Higher Education, performing data analysis methods using R as a programming language, surveying the parents' view on the education sector, and interviewing prominent figures in this sector. Those techniques allowed the formation of well-rounded scientific overview and substantial results. Most significantly, aggressively low student per teacher ratios were found in numerous public schools. Those numbers have a direct and strong correlation with high probability of corruption and low standards of accountability. The absence of performance related evaluation from the top management of the ministry down towards the principal of every public school has challenged any intention of adjustment. In addition to that, the high number of contractual faculty and staff prove the absence of a merit-based recruitment. Those findings along with an almost obsolete curriculum, were clearly translated in the form of dramatically low academic results in PISA and TIMSS assessments.

Taking into consideration the international experiences and the nature of the Lebanese community a strategic reform plan was developed. This plan is comprised of public spending revision and administrative reform, transparency and reporting, teacher recruitment and training, parental school choice empowerment, and finally educational innovation and curriculum reform.

The redistribution of public spending on education should carefully take into consideration the funding of research and development centers while administrative reform should take serious actions of addressing the tenure, authority, and performance appraisal of school principals. Additionally, schools suffering with significantly low student per teacher ratio should be merged with neighboring schools while making sure that contractual teachers undergo a thorough evaluation that would decide on their presence as teachers in the future.

On the other hand, a major breakthrough must occur at the level of transparency and reporting. Student performance and other major education indicators should no longer remain in the sole possession of school principals. All schools, whether public or private, should be enforced to release periodic data on the status of their school buildings, offerings, and student performance.

At the same time, one cannot neglect the major impact of teachers' abilities on students' performance. The whole process of recruitment and continuous training should be reconsidered. At the same time educational digital literacy should become a major deciding factor in the recruitment of our future teachers.

The above administrative reform is expected to save a major percentage of the total budget. This saving could well be directed towards supporting a short- and longer-term school choice policies that take into consideration the nature of the Lebanese community.

The current pressing economic situation and the expected migration of students from the private to the public sector in the upcoming academic year, the short-term school choice policy should revolve around the American model of charter schools. Those privately run yet publicly funded institutions, propose themselves as the most effective solution for those migrating students while preserving their right of preserving their cultural experience.

Nevertheless, the above proposition, remains a partial solution for this complex situation. Accordingly, a well-regulated school voucher program must be developed in order to transition the school choice decision from the government to the parents while making sure that underserved communities are funded adequately above their counterparts to ensure good academic performance. Participating schools in this program would possess the advantage of guaranteed financing while abiding to strict regulations related, parents would preserve their constitutional right of cultural freedom, and students will receive a free and competitive education service.

All what has been proposed cannot be sufficient without a strategic plan on how to develop and reshape the Lebanese curriculum. A modular curriculum that answers the 6C's of 21st century education is needed while making sure to invest in private sector initiatives that could keep up with the fast pace of evolution of technology and education.

After 100 years since the announcement of Greater Lebanon, this small country is facing its most threatening economic, social, and sovereignty-related crisis. Unfortunately, it changed, in a rather short period of time, from a leading country in the region to one with the lowest economic indicators and highest corruption levels. Knowing the huge impact of education on economy and future opportunities, reforming this sector is crucial for any successful recovery plan and thus for all of what has been stated above this thesis has been developed and presented.

Bibliography

—. 2019. "National TIMSS Report 2015." *CRDP*. Accessed May 2020.

<http://www.crdp.org/files/201907080110425.pdf>.

2007. *Magnet schools in America: A brief history*. Accessed May 2020.

<https://web.archive.org/web/20080319061536/http://www.magnet.edu/modules/content/index.php?id=1>.

2017-2020. *Lebanese State Budget*. Fiscal Budget, Beirut: Lebanese Parliament.

2017. *Council for American Private Education*. Accessed April 2020.

<http://www.capenet.org/facts.html>.

2018. *National Center for Education Statistics*. February. Accessed May 2020.

https://nces.ed.gov/programs/digest/d18/tables/dt18_206.10.asp.

2019. *National Center for Education Statistics*. Accessed April 2020.

<https://nces.ed.gov/fastfacts/display.asp?id=84>.

2020. *National Center For Education Statistics*. Accessed May 2020.

https://nces.ed.gov/programs/digest/d19/tables/dt19_205.10.asp.

Abu-Husayn, Abdul-Rahim. 2004. *The view from Istanbul: Lebanon and the Druze Emirate in the Ottoman chancery documents, 1546-1711*. London: I.B. Tauris Publishers.

Abu-Rish, Ziad. 2015. "Then and Now: Lebanese State Institutions During the Early Years of Independence ." *The Lebanese Center for Policy Studies*. Accessed April 2020.

<https://www.lcps-lebanon.org/agendaArticle.php?id=49>.

Balleisen, Edward J. 2012. *Government and Markets: Toward a New Theory of Regulation*.

Bashour, Moonir. 1978. *Bonyat El Nizam El Tarbawi fi Lobnan (The Structure of the Lebanese Education Sector)*. CRDP.

Bishop Youssef El Debs. n.d. "Men Tarikh Sourya El Dini Wal Donyawi (From Syria's Religious and Mundane History)." 1893.

Brown v. Board of Education of Topeka. 1954. 347 U.S. 483

Brown, Richard W. 1968. "Freedom of Choice in the South: A constitutional perspective." *Lousiana Law Review* 28 455-468.

Buetow, Harold A. 1970. *Of Singular Benefit : The Story of Catholic Education in the United States*.

Chehayeb, Kareem, and Abby Sewell. 2019. *Why Protesters in Lebanon Are Taking to the Streets* . Report, Foreign Policy.

College, Pontifical Maronite. 2019. *Pontifical Maronite College*. Accessed April 2020.
<http://collegiopcm.org/en/about-us/>.

Collelo, Thomas. 1987. *Lebanon: A Country Study*. Washington: GPO for the Library of Congress.

Committee, Draft. 1948. *The Universal Declaration of Human Rights*. United Nation.

CRDP. 2018. "TIMSS Grade 8 Summary 2015." *CRDP*. Accessed May 2020.
<http://www.crdp.org/files/201811210625183.pdf>.

CRDP. 2020. "CRDP." Accessed May 2020. <http://www.crdp.org/statistics?la=ar>.

Ellis, Kail C. 2019. "Greater Lebanon: The Problems of Integrating a Religiously and Ethnically Diverse Population." *JSTOR* 1-16.

Father Pierre Rouphael. 1950. "Le rôle du Collège Maronite romain dans l'orientalisme au XVII et XVIII." *USJ* 178.

Fava, Eileen M. 1991. "Desegregation and parental choice in public schooling: A legal analysis of controlled choice student assignment plans." *Boston College Third World Law Journal* (11) 1 83 - 104.

Finke, Roger, and Rodney Stark. 2005. *The Churching of America, 1776-2005: Winners and Losers in Our Religious Economy*. Rutgers University Press.

Freeman, Jody, and Martha Minow. 2009. *Government by Contract: Outsourcing and American Democracy*. Harvard University Press.

Friedman, Milton, and Rose Friedman. 1980. *Free to Choose: A Personal Statement*. Houghton Mifflin Harcourt Publishing Company.

Friedman, Milton. 1955. "The role of government in education. In Economics and the Public Interest." *New Brunswick, NJ* 123-144.

Gedeon, Andre. n.d. *Tarikh El Taaleem fi Lobnan (The History of Education in Lebanon)*. Research Paper, Ora Union.

Ghoseini, Raouf. 1964. *The Government and Education in Lebanon*. Thesis, Beirut: American University of Beirut.

Group, World Bank. 2019. "Powerpoint Presentation." *World Bank*. Accessed May 2020.

<http://pubdocs.worldbank.org/en/435071580399593024/LEBANON-PISA-Brief-2018.pdf>.

Hsieh, Chang-Tai, and Miguel Urquiola. 2006. "The effects of generalized school choice on achievement and stratification: Evidence from Chile's voucher program." *Journal of Public Economics* 90 8-9.

Katz, Michael S. 1976. *A History of Compulsory Education Laws*. Bloomington, IN: Phi Delta Kappan.

Kolderie, Ted. 1990. *Beyond Choice to New Public Schools: Withdrawing the Exclusive Franchise in Public Education*. Policy Report, Washington, DC: Progressive Policy Institute.

Labor, United States Congress Senate. 1889. *Religion and Schools: Notes on Hearings Before the Committee on Education and Labor, United States Senate, Feb. 15 and 22, 1889, on the Joint*.

Ladner, Mathew. 2012. "The Way of the Future: Education Savings Accounts for Every American Family." *EdChoice*. Accessed April 2020.
<http://www.edchoice.org/research/the-way-of-the-future/>.

Lobnani, El Majma3 El. 1736. "El Majma3 El Lobnani." Louaize.

Longrigg, Stephen. 1958. *Syria and Lebanon under French Mandate*. Oxford Press.

Maktabi, Rania. 2007. "The Lebanese census of 1932 revisited: Who are the Lebanese?" *Taylor & Francis Online* 219-241.

- Mead, Julie. 2015. "The right to an education or the right to shop for schooling: Examining voucher programs in relation to state constitutional guarantees." *Fordham Urban Law Journal* 42 703-743.
- Murnane, Richard J, Marcus R Waldman, and John B Willet. 2017. *The Consequences of Educational Voucher Reform in Chile*. Working Paper No. 23550, NBER.
- Murnane, Richard, and Emiliana Vegas. 2018. *What Chile Teaches US About School Vouchers*. Accessed April 2020. <https://www.future-ed.org/work/what-chile-teaches-us-about-school-vouchers/>.
- New York (State) Dept. of Public Instruction. 1866. *Annual Report of the Superintendent of Public Instruction, of the State of New-York*. New York: Dept. of Public Instruction.
- PISA. 2019. "OECD." *PISA*. Accessed May 2020. https://www.oecd.org/pisa/publications/PISA2018_CN_LBN.pdf.
- Prothero, Ariana. 2018. "Homeschooling Requirements, research and who does it." *Education Week*.
- Readon, Sean F, and John T. Yun. 2002. *Private School Racial Enrollments and Segregation*. Civil Rights Project, Harvard University, Cambridge, MA.
- Reese, William J. 2005. *America's Public Schools: From the Common School to "No Child Left Behind"*. JHU Press.
- Rofes, E., and Lisa M. Stulberg. SUNY Press. *The Emancipatory Promise of Charter Schools: Towards a Progressive Politics of School Choice*. Albany: 2004.

Salibi, Kamal. 1965. *The Modern History of Lebanon*. New York: Caravan Books, Delmar.

Schleicher, Andreas. 2018. "Pisa." *OECD*. Accessed May 2020.

<https://www.oecd.org/pisa/PISA%202018%20Insights%20and%20Interpretations%20FINAL%20PDF.pdf>.

Shanker, Albert. 1988. "National Press Club speech." Accessed April 2020.

<http://reuther.wayne.edu/files/64.43.pdf>.

Synodos El Kanissa El Marooniya. 2016. *El Kanissa El Marooniya Wa Aalam El Yawm (The Maronite Church and Today's World)*. Bkerke: The Maronite Church.

Tannous, Afif I. 1943. "Missionary Education in Lebanon: A Study in Acculturation ." *Social Forces* 338-343.

Traboulsi, Fawwaz. 2012. *A History of Modern Lebanon*. Pluto Press.

UNESCO Institute for Statistics. 2020. *World Bank*. Accessed May 2020.

<https://data.worldbank.org/indicator/SE.XPD.SECO.PC.ZS?end=2017&locations=FI-SG-US-LB-FR-DE-AE-JO&start=1998&view=chart>.

Vegas, Emiliana. 2018. *5 lessons from recent educational reforms in Chile*. Report, Brookings: Brookings Institute.

Walch, Timoth. 1996. *Parish School: American Catholic Parochial Education From Colonial Times to the Present* . Crossroad Publishing Company.

Young, Michael. 2017. *Is Lebanon Heading Towards Economic Bankruptcy?* Report, Beirut: Carnegie Middle East Center.

Appendix A: Source Code for the Data Analytics in Chapter 3

```
#####  
# Author: Johnny K. Karam           Data Source: Distribution of Students from MEHE  
# Date: April 26, 2020             Objective: Research  
#####  
  
#Read the original file of data  
df <- read.csv('publicsch.csv')  
  
#Split the data frame into two: Primary VS Secondary  
prim <- df[df$DIRECTORATE=="Primary",]  
sec <- df[df$DIRECTORATE=="Secondary",]  
  
#Split the data into small, medium, and large institutions for each directorate  
prim_s <- prim[prim$Total.Std<=100,]  
sec_s <- sec[sec$Total.Std<=100,]  
prim_m <- prim[prim$Total.Std>100 & prim$Total.Std<=300,]  
sec_m <- sec[sec$Total.Std>100 & sec$Total.Std<=300,]  
prim_l <- prim[prim$Total.Std>300,]  
sec_l <- sec[sec$Total.Std>300,]  
  
#Calculate the upper outliers beyond Q3+1.5*IQR: to clean institutions having more than 300  
std  
u_outlierp = IQR(prim_l$Total.Std)*1.5 + quantile(prim_l$Total.Std)[4]  
prim_lclean <- prim_l[prim_l$Total.Std<u_outlierp,]  
  
u_outliers = IQR(sec_l$Total.Std)*1.5 + quantile(sec_l$Total.Std)[4]  
sec_lclean <- sec_l[sec_l$Total.Std<u_outliers,]  
  
#Calculate the lower outliers beyond Q1-1.5*IQR: to clean institutions having less than 100 std  
l_outlierp = quantile(prim_s$Total.Std)[2]-IQR(prim_s$Total.Std)*1.5  
prim_sclean <- prim_s[prim_s$Total.Std>l_outlierp,]  
  
l_outliers = quantile(sec_s$Total.Std)[2]-IQR(sec_s$Total.Std)*1.5  
sec_sclean <- sec_s[sec_s$Total.Std>l_outliers,]  
  
#Prepare for data visualization using ggplot2  
library(ggplot2)  
library(plyr)  
  
#Get weighted mean of Total Number of Students Grouped by Directorate  
mu <- ddply(df, "DIRECTORATE", summarise, grp.mean=mean(Total.Std))  
  
#Graph the distribution of the size of schools splits into bins of 100 for all Lebanon without filter
```

```
#Include the mean of every data set to be used later on
histpub <- ggplot(df, aes(x=Total.Std, color=DIRECTORATE))+ geom_histogram(binwidth =
100, fill="white", alpha=0.5, position="identity") + facet_grid(DIRECTORATE ~ .)
histpub <- histpub + geom_vline(data=mu, aes(xintercept=grp.mean, color="Mean"),
linetype="dashed")
histpub <- histpub + labs(title="Frequency Distribution of Students", x ="Total Students/School",
y = "Frequency")
boxpub <- ggplot(df, aes(x=DIRECTORATE, y=Total.Std, fill=DIRECTORATE)) +
geom_boxplot() + labs(title="Distribution of Students in Public Schools 2019-
2020", x="Directorate", y = "Number of Students")
boxpub <- boxpub + geom_hline(data=mu , aes(yintercept=grp.mean, color="Mean"),
linetype="dashed")
```

```
#Graph the distribution of the size of schools for every directorate and category (EG: Secondary
- Medium Inst Analysis)
```

```
histprim_s <- ggplot(prim_sclean, aes(x=Total.Std))+ geom_histogram(bins = 10,
color="darkblue", fill="lightblue", alpha=0.5, position="identity") +
geom_vline(aes(xintercept=mean(Total.Std)), color="red", linetype="dashed", size=1)+
labs(title="Frequency Distribution of Students in Primary - Small", x ="Total Students/School", y
= "Frequency")
mean_prim_s = format(round(mean(prim_sclean$Total.Std), 2), nsmall = 2)
histprim_s <- histprim_s + geom_text(x=mean(prim_sclean$Total.Std), y=10, label= mean_prim_s)
```

```
histprim_m <- ggplot(prim_m, aes(x=Total.Std))+ geom_histogram(bins = 10, color="darkblue",
fill="lightblue", alpha=0.5, position="identity") + geom_vline(aes(xintercept=mean(Total.Std)),
color="red", linetype="dashed", size=1)+ labs(title="Frequency Distribution of Students in
Primary - Medium", x ="Total Students/School", y = "Frequency")
mean_prim_m = format(round(mean(prim_m$Total.Std), 2), nsmall = 2)
histprim_m <- histprim_m + geom_text(x=mean(prim_m$Total.Std), y=10, label=
mean_prim_m)
```

```
histprim_l <- ggplot(prim_lclean, aes(x=Total.Std))+ geom_histogram(bins = 10,
color="darkblue", fill="lightblue", alpha=0.5, position="identity") +
geom_vline(aes(xintercept=mean(Total.Std)), color="red", linetype="dashed", size=1)+
labs(title="Frequency Distribution of Students in Primary - Large", x ="Total Students/School", y
= "Frequency")
mean_prim_l = format(round(mean(prim_lclean$Total.Std), 2), nsmall = 2)
histprim_l <- histprim_l + geom_text(x=mean(prim_lclean$Total.Std), y=10, label=
mean_prim_l)
```

```
histsecs <- ggplot(sec_sclean, aes(x=Total.Std))+ geom_histogram(bins = 10, color="darkblue",
fill="lightblue", alpha=0.5, position="identity") + geom_vline(aes(xintercept=mean(Total.Std)),
color="red", linetype="dashed", size=1)+ labs(title="Frequency Distribution of Students in
Secondary - Small", x ="Total Students/School", y = "Frequency")
```

```
mean_secs = format(round(mean(sec_sclean$Total.Std), 2), nsmall = 2)
histsecs <- histsecs + geom_text(x=mean(sec_sclean$Total.Std), y=2, label= mean_secs)
```

```
histsecm <- ggplot(sec_m, aes(x=Total.Std))+ geom_histogram(bins = 10, color="darkblue",
fill="lightblue", alpha=0.5, position="identity") + geom_vline(aes(xintercept=mean(Total.Std)),
color="red", linetype="dashed", size=1)+ labs(title="Frequency Distribution of Students in
Secondary - Medium",x ="Total Students/School", y = "Frequency")
mean_sec = format(round(mean(sec_m$Total.Std), 2), nsmall = 2)
histsecm <- histsecm + geom_text(x=mean(sec_m$Total.Std), y=2, label= mean_sec)
```

```
histsecl <- ggplot(sec_lclean, aes(x=Total.Std))+ geom_histogram(bins = 10, color="darkblue",
fill="lightblue", alpha=0.5, position="identity") + geom_vline(aes(xintercept=mean(Total.Std)),
color="red", linetype="dashed", size=1)+ labs(title="Frequency Distribution of Students in
Secondary - Large",x ="Total Students/School", y = "Frequency")
mean_secl = format(round(mean(sec_lclean$Total.Std), 2), nsmall = 2)
histsecl <- histsecl + geom_text(x=mean(sec_lclean$Total.Std), y=2, label= mean_secl)
```

#Graph the Distribution of the Student per Teacher (SPT) Ratio in every directory/category + Mean of SPT

```
histprims_spt <- ggplot(prim_sclean, aes(x=SPT))+ geom_histogram(bins = 25, color="black",
fill="darkred", alpha=0.5, position="identity") + geom_vline(aes(xintercept=mean(SPT)),
color="darkblue", linetype="dashed", size=1)+ labs(title="Student Per Teacher Ratio
Distribution Primary - Small",x ="Student Per Teacher", y = "Frequency")
mean_prims_spt = format(round(mean(prim_sclean$SPT), 2), nsmall = 2)
histprims_spt <- histprims_spt + geom_text(x=mean(prim_sclean$SPT), y=10, label=
mean_prims_spt)
```

```
histprim_m_spt <- ggplot(prim_m, aes(x=SPT))+ geom_histogram(bins = 25, color="black",
fill="darkred", alpha=0.5, position="identity") + geom_vline(aes(xintercept=mean(SPT)),
color="darkblue", linetype="dashed", size=1)+ labs(title="Student Per Teacher Ratio
Distribution Primary - Medium",x ="Student Per Teacher", y = "Frequency")
mean_prim_m_spt = format(round(mean(prim_m$SPT), 2), nsmall = 2)
histprim_m_spt <- histprim_m_spt + geom_text(x=mean(prim_m$SPT), y=10, label=
mean_prim_m_spt)
```

```
histprim_l_spt <- ggplot(prim_l, aes(x=SPT))+ geom_histogram(bins = 25, color="black",
fill="darkred", alpha=0.5, position="identity") + geom_vline(aes(xintercept=mean(SPT)),
color="darkblue", linetype="dashed", size=1)+ labs(title="Student Per Teacher Ratio
Distribution Primary - Large",x ="Student Per Teacher", y = "Frequency")
mean_prim_l_spt = format(round(mean(prim_l$SPT), 2), nsmall = 2)
histprim_l_spt <- histprim_l_spt + geom_text(x=mean(prim_l$SPT), y=10, label=
mean_prim_l_spt)
```

```
histsecs_spt <- ggplot(sec_sclean, aes(x=SPT))+ geom_histogram(bins = 10, color="black",
fill="darkred", alpha=0.5, position="identity") + geom_vline(aes(xintercept=mean(SPT)),
```

```
color="darkblue", linetype="dashed", size=1)+ labs(title="Student Per Teacher Ratio
Distribution Secondary - Small",x ="Student Per Teacher", y = "Frequency")
mean_secs_spt = format(round(mean(sec_sclean$SPT), 2), nsmall = 2)
histsecs_spt <- histsecs_spt + geom_text(x=mean(sec_sclean$SPT), y=2.5, label=
mean_secs_spt)

histsecm_spt <- ggplot(sec_m, aes(x=SPT))+ geom_histogram(bins = 10, color="black",
fill="darkred", alpha=0.5, position="identity") + geom_vline(aes(xintercept=mean(SPT)),
color="darkblue", linetype="dashed", size=1)+ labs(title="Student Per Teacher Ratio
Distribution Secondary - Medium",x ="Student Per Teacher", y = "Frequency")
mean_sec_m_spt = format(round(mean(sec_m$SPT), 2), nsmall = 2)
histsecm_spt <- histsecm_spt + geom_text(x=mean(sec_m$SPT), y=2.5, label= mean_sec_m_spt)

histsecl_spt <- ggplot(sec_lclean, aes(x=SPT))+ geom_histogram(bins = 10, color="black",
fill="darkred", alpha=0.5, position="identity") + geom_vline(aes(xintercept=mean(SPT)),
color="darkblue", linetype="dashed", size=1)+ labs(title="Student Per Teacher Ratio
Distribution Secondary - Large",x ="Student Per Teacher", y = "Frequency")
mean_secl_spt = format(round(mean(sec_lclean$SPT), 2), nsmall = 2)
histsecl_spt <- histsecl_spt + geom_text(x=mean(sec_lclean$SPT), y=2.5, label= mean_secl_spt)

#Graph the distribution of the number of Contractual Faculty and Staff directory/category

histprims_cstaff <- ggplot(prim_sclean, aes(x=C_TS))+ geom_histogram(bins = 10,
color="green", fill="lightgreen", alpha=0.5, position="identity") +
geom_vline(aes(xintercept=mean(C_TS)), color="darkred", linetype="dashed", size=1)+
labs(title="Contractual Faculty and Staff Primary - Small",x ="Number of Faculty & Staff", y =
"Frequency")
mean_prims_cstaff = format(round(mean(prim_sclean$C_TS), 2), nsmall = 2)
histprims_cstaff <- histprims_cstaff + geom_text(x=mean(prim_sclean$C_TS), y=4, label=
mean_prims_cstaff)

histprim_m_cstaff <- ggplot(prim_m, aes(x=C_TS))+ geom_histogram(bins = 10, color="green",
fill="lightgreen", alpha=0.5, position="identity") + geom_vline(aes(xintercept=mean(C_TS)),
color="darkred", linetype="dashed", size=1)+ labs(title="Contractual Faculty and Staff Primary -
Medium",x ="Number of Faculty & Staff", y = "Frequency")
mean_prim_m_cstaff = format(round(mean(prim_m$C_TS), 2), nsmall = 2)
histprim_m_cstaff <- histprim_m_cstaff + geom_text(x=mean(prim_m$C_TS), y=4, label=
mean_prim_m_cstaff)

histprim_l_cstaff <- ggplot(prim_lclean, aes(x=C_TS))+ geom_histogram(bins = 10,
color="green", fill="lightgreen", alpha=0.5, position="identity") +
geom_vline(aes(xintercept=mean(C_TS)), color="darkred", linetype="dashed", size=1)+
```

```
labs(title="Contractual Faculty and Staff Primary - Large",x="Number of Faculty & Staff", y =  
"Frequency")  
mean_prim_l_cstaff = format(round(mean(prim_lclean$C_TS), 2), nsmall = 2)  
histprim_l_cstaff <- histprim_l_cstaff + geom_text(x=mean(prim_lclean$C_TS), y=4, label=  
mean_prim_l_cstaff)
```

```
histsecs_cstaff <- ggplot(sec_sclean, aes(x=C_TS))+ geom_histogram(bins = 10, color="green",  
fill="lightgreen", alpha=0.5, position="identity") + geom_vline(aes(xintercept=mean(C_TS)),  
color="darkred", linetype="dashed", size=1)+ labs(title="Contractual Faculty and Staff  
Secondary - Small",x="Number of Faculty & Staff", y = "Frequency")  
mean_secs_cstaff = format(round(mean(sec_sclean$C_TS), 2), nsmall = 2)  
histsecs_cstaff <- histsecs_cstaff + geom_text(x=mean(sec_sclean$C_TS), y=4, label=  
mean_secs_cstaff)
```

```
histsecm_cstaff <- ggplot(sec_m, aes(x=C_TS))+ geom_histogram(bins = 10, color="green",  
fill="lightgreen", alpha=0.5, position="identity") + geom_vline(aes(xintercept=mean(C_TS)),  
color="darkred", linetype="dashed", size=1)+ labs(title="Contractual Faculty and Staff  
Secondary - Medium",x="Number of Faculty & Staff", y = "Frequency")  
mean_sec_m_cstaff = format(round(mean(sec_m$C_TS), 2), nsmall = 2)  
histsecm_cstaff <- histsecm_cstaff + geom_text(x=mean(sec_m$C_TS), y=4, label=  
mean_sec_m_cstaff)
```

```
histsecl_cstaff <- ggplot(sec_lclean, aes(x=C_TS))+ geom_histogram(bins = 10, color="green",  
fill="lightgreen", alpha=0.5, position="identity") + geom_vline(aes(xintercept=mean(C_TS)),  
color="darkred", linetype="dashed", size=1)+ labs(title="Contractual Faculty and Staff  
Secondary - Large",x="Number of Faculty & Staff", y = "Frequency")  
mean_secl_cstaff = format(round(mean(sec_lclean$C_TS), 2), nsmall = 2)  
histsecl_cstaff <- histsecl_cstaff + geom_text(x=mean(sec_lclean$C_TS), y=4, label=  
mean_secl_cstaff)
```

#Graph the distribution of the number of Permanent Faculty and Staff directory/category

```
histprim_s_pstaff <- ggplot(prim_sclean, aes(x=P_TS))+ geom_histogram(bins = 10,  
color="darkred", fill="darkgrey", alpha=0.5, position="identity") +  
geom_vline(aes(xintercept=mean(P_TS)), color="darkred", linetype="dashed", size=1)+  
labs(title="Permanent Faculty and Staff Primary - Small",x="Number of Faculty & Staff", y =  
"Frequency")  
mean_prim_s_pstaff = format(round(mean(prim_sclean$P_TS), 2), nsmall = 2)  
histprim_s_pstaff <- histprim_s_pstaff + geom_text(x=mean(prim_sclean$P_TS), y=4, label=  
mean_prim_s_pstaff)
```

```
histprim_m_pstaff <- ggplot(prim_m, aes(x=P_TS))+ geom_histogram(bins = 10,
color="darkred", fill="darkgrey", alpha=0.5, position="identity") +
geom_vline(aes(xintercept=mean(P_TS)), color="darkred", linetype="dashed", size=1)+
labs(title="Permanent Faculty and Staff Primary - Medium",x="Number of Faculty & Staff", y =
"Frequency")
mean_prim_m_pstaff = format(round(mean(prim_m$P_TS), 2), nsmall = 2)
histprim_m_pstaff <- histprim_m_pstaff + geom_text(x=mean(prim_m$P_TS), y=10, label=
mean_prim_m_pstaff)
```

```
histprim_l_pstaff <- ggplot(prim_lclean, aes(x=P_TS))+ geom_histogram(bins = 10,
color="darkred", fill="darkgrey", alpha=0.5, position="identity") +
geom_vline(aes(xintercept=mean(P_TS)), color="darkred", linetype="dashed", size=1)+
labs(title="Permanent Faculty and Staff Primary - Large",x="Number of Faculty & Staff", y =
"Frequency")
mean_prim_l_pstaff = format(round(mean(prim_lclean$P_TS), 2), nsmall = 2)
histprim_l_pstaff <- histprim_l_pstaff + geom_text(x=mean(prim_lclean$P_TS), y=10, label=
mean_prim_l_pstaff)
```

```
histsecs_pstaff <- ggplot(sec_sclean, aes(x=P_TS))+ geom_histogram(bins = 10,
color="darkred", fill="darkgrey", alpha=0.5, position="identity") +
geom_vline(aes(xintercept=mean(P_TS)), color="darkred", linetype="dashed", size=1)+
labs(title="Permanent Faculty and Staff Secondary - Small",x="Number of Faculty & Staff", y =
"Frequency")
mean_secs_pstaff = format(round(mean(sec_sclean$P_TS), 2), nsmall = 2)
histsecs_pstaff <- histsecs_pstaff + geom_text(x=mean(sec_sclean$P_TS), y=4, label=
mean_secs_pstaff)
```

```
histsecm_pstaff <- ggplot(sec_m, aes(x=P_TS))+ geom_histogram(bins = 10, color="darkred",
fill="darkgrey", alpha=0.5, position="identity") + geom_vline(aes(xintercept=mean(P_TS)),
color="darkred", linetype="dashed", size=1)+ labs(title="Permanent Faculty and Staff Secondary
- Medium",x="Number of Faculty & Staff", y = "Frequency")
mean_sec_m_pstaff = format(round(mean(sec_m$P_TS), 2), nsmall = 2)
histsecm_pstaff <- histsecm_pstaff + geom_text(x=mean(sec_m$P_TS), y=4, label=
mean_sec_m_pstaff)
```

```
histsecl_pstaff <- ggplot(sec_lclean, aes(x=P_TS))+ geom_histogram(bins = 10,
color="darkred", fill="darkgrey", alpha=0.5, position="identity") +
geom_vline(aes(xintercept=mean(P_TS)), color="darkred", linetype="dashed", size=1)+
labs(title="Permanent Faculty and Staff Secondary - Large",x="Number of Faculty & Staff", y =
"Frequency")
mean_secl_pstaff = format(round(mean(sec_lclean$P_TS), 2), nsmall = 2)
histsecl_pstaff <- histsecl_pstaff + geom_text(x=mean(sec_lclean$P_TS), y=4, label=
mean_secl_pstaff)
```



```
#Graph distribution of SPT over all Lebanon without filter + Show Mean
hist_spt <- ggplot(df, aes(x=SPT))+ geom_histogram(bins = 25, color="white", fill="darkred",
alpha=0.5, position="identity") + geom_vline(aes(xintercept=mean(SPT)), color="black",
linetype="dashed", size=1)+ labs(title="Student Per Teacher Ratio Distribution All",x ="Student
Per Teacher", y = "Frequency")
mean_spt = format(round(mean(df$SPT), 2), nsmall = 2)
hist_spt <- hist_spt + geom_text(x=mean(df$SPT), y=10, label= mean_spt, color="white")
```

Appendix B: Parents' Survey Questions

1. How many children, aged between 3 and 18 years old, do you have? (Close Ended)
2. What is the cumulative monthly income of both parents?
3. Please enter the private school's name of your children.
4. Please indicate the city where the school is located.
5. Please indicate the district where the school is located.
6. What is the average school tuition per student at your respective school?
7. Do you have any overdue fees at your respective school?
8. Are you currently facing any decline in your household income?
9. Will you be able to pay the remaining fees for the academic year 2019-2020?
10. Will you be able to enroll your children in a private school next year?
11. How do you perceive the academic performance of public schools?
12. How do you think is the cost per student in the public school compared to that in the private school?
13. Do you think that the government is performing up to expectations?
14. If not, please indicate the areas where you think the government has failed the parents and students alike.
15. Do you think you have the complete freedom in choosing the most adequate education institution for your children?
16. What are your future expectations from the government?
17. What do you think is more suitable as a long-term solution: the establishment of charter schools or a universal school voucher system?